VICTOR NÓBREGA LUCCAS

ARGUMENTATION MAPS OF JUDICIAL DECISIONS: BUILDING A MODEL

Tese de Doutorado

Orientador: Prof. Dr. Juliano Souza de Albuquerque Maranhão

UNIVERSIDADE DE SÃO PAULO

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Nihil tam absurdum, quod non dictum sit ab aliquo philosophorum.
(There is nothing so absurd that some philosopher has not already said it.)
(Nada se pode dizer de tão absurdo que já não tenha sido dito por algum filósofo)

Marcos Tullius Cicero

To my parents and grandparents, in life or in memoriam.
Aos meus pais e avós, em vida ou em sua memória.

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In spite of being a law-abiding citizen, what I find most interesting in the Law is how it changes, not due to defiance, but to reason. I do believe that our conception of acknowledgements may also be molded by the way of argument. The fact is that Acknowledgements are not enough. Every PhD thesis should have a section entitled Apologies. For one cannot finish it without forfeiting life in society and venturing into the realm of social oblivion. My friends and family are witnesses. The following acknowledgements should be construed as having this additional apologetic flavor:

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ABSTRACT

This dissertation contributes to answering the question of how to decide which legal argument is stronger by advancing an in-depth study of proportionality analysis, grounded in an argument scheme approach to investigate rules of legal argumentation. Such an approach is based on the combination of tools of argumentation theory (not only argument schemes, in spite of the name) with accounts of legal theory, and their application to real, preferably hard, cases. Such a methodology leads to the creation of argumentation maps that represent the reasoning of judicial decisions as an argumentative dialogue. This work starts by presenting the basic elements of a model of argumentation: a knowledge base, inference structures, preferred extensions (related to attacks and burdens of proof), and a dialogue protocol containing rules of argumentation, including procedural rules and those related to all other elements. Then, it provides a detailed analysis of the concepts of rules of inference, attacks and burdens of proof, in order to define argument schemes. A methodology to the investigation of argument schemes is detailed and conventions on argument maps are established. Arguments related to the application of legal norms and use of precedents are briefly discussed. Proportionality analysis is presented based on Robert Alexy's theoretical account, and explained in contrast to a wider background of teleological reasoning and judicial review. Argument schemes for proportionality analysis are developed. An argument map is built by applying the aforementioned argument schemes to the case of S.A.S. x France (Application 43835/2011, decision 1st July 2014), adjudicated by the European Court of Human Rights. Based on the case discussion, the argument schemes are reviewed and a refined model of proportionality analysis is presented.

Keywords: Legal argumentation, argument scheme, proportionality analysis, teleological reasoning, judicial review, artificial intelligence and law.

RESUMO

Esta tese contribui para responder à questão de como decidir qual argumento jurídico é mais forte, por intermédio de um estudo aprofundado da análise de proporcionalidade, fundamentado em uma abordagem de esquemas de argumentos, usada para investigar as regras de argumentação jurídica. Essa abordagem baseia-se na combinação de ferramentas da teoria da argumentação (não apenas esquemas de argumentos, apesar da denominação) com modelos oriundos da teoria jurídica, e sua aplicação a casos reais, preferencialmente casos controversos. Essa metodologia leva à criação de mapas argumentativos, que representam o raciocínio das decisões judiciais como um diálogo argumentativo. Este trabalho apresenta os elementos básicos de um modelo de argumentação: uma base de conhecimento, estruturas de inferência, extensões preferidas (relacionadas a ataques e a ônus da prova) e um protocolo de diálogo contendo regras de argumentação, incluindo regras procedimentais e aquelas relacionadas a todos os outros elementos. Em seguida, fornece uma análise detalhada dos conceitos de regras de inferência, ataques e ônus de prova, para então definir esquemas de argumento. Uma metodologia para a pesquisa esquemas de argumentos é delineada, e as convenções sobre mapas argumentativos são estabelecidas. Argumentos relacionados à aplicação de normas jurídicas e ao uso de precedentes são brevemente discutidos. A análise de proporcionalidade é apresentada com base no modelo teórico de Robert Alexy, e explicada em contraste com o contexto mais amplo do raciocínio teleológico e da revisão judicial. São desenvolvidos esquemas de argumentos para análise de proporcionalidade. Um mapa argumentativo é construído aplicando os esquemas de argumento acima mencionados ao caso de S.A.S. x França (Pedido 43835/2011, decisão de 1º de julho de 2014), julgado pelo Tribunal Europeu dos Direitos do Homem. Com base na discussão de caso, os esquemas de argumentos são revisados, e um modelo refinado de análise de proporcionalidade é apresentado.

Palavras-chave: argumentação jurídica, esquema de argumento, análise de proporcionalidade, raciocínio teleológico, revisão judicial, inteligência artificial e direito.

RÉSUMÉ

NÓBREGA LUCCAS, Victor. **Cartes d'arguments des décisions judiciaires: construction d'un modèle. 2016**. 379p. Doctorat – Faculdade de Direito, Universidade de São Paulo, São Paulo, 2017.

Cette thèse contribue pour répondre la question de savoir comment décider quel argument juridique est plus forte, grâce à une étude minutieux de l'analyse de la proportionnalité, basée sur une approche de schémas d'arguments, pour investiguer les règles de l'argumentation juridique. Cette approche est basée sur la combinaison d' outils de la théorie d'argumentation (pas seulement des schémas d'arguments, malgré la dénomination) avec des rapports de la théorie juridique et son application aux cas réels, préférablement des cas controversés. Cette méthodologie conduit à la création de cartes d'arguments, qui représentes le raisonnement des décisions judiciaires comme un dialogue argumentatif. La thèse présente les éléments basic d'un modèle d'argumentation: une base de connaissance, des structures d'inférence, extensions préférées (liées aux attaques et à la charge de la preuve) et un protocole de dialogue contenant des règles d'arguments, inclus les règles procédurales et celles liéés à tous les autres éléments. En suite, l'étude propose une analyse détaillée des concepts de règles d'inférence, d'attaques et de charge de la preuve, pour définir des schémas d'arguments. Une méthodologie pour la recherche des schémas d'arguments est décrite, et les conventions à propôs des cartes d'arguments sont établis. Arguments liés à l'application des lois et à l'utilization des précédents sont succinctement discutées. L'analyse de la proportionnalité est présenté sur la base du cadre théorique de Robert Alexy, et est expliqué en contraste avec le contexte plus ample du raisonnement téléologique et de contrôle judiciaire. Quelques plans d'arguments sont développés pour l'analyse de la proportionnalité. Une carte d'argument est construit en appliquant les schémas d'arguments mentionnés dans le cas de S.A.S. x France (Application 43835/2011, décision du 1er Juillet 2014), jugée par la Cour Européenne des Droits de L'homme. Basé sur la discussion de cas, les schémas d'arguments sont examinés, et un modèle raffiné de l'analyse de la proportionnalité est présenté.

Mots-clés: argumentation juridique, schéma d'argument, analyse de proportionnalité, raisonnement téléologique, contrôle judiciaire, intelligence artificielle et droit.

SUMMARY

INTRODUCTION
THE QUEST FOR THE RIGHT ANSWER

1. Object of Investigation

It is said that the Law is the enterprise of ruling human activity, and one of its objectives, perhaps the most prominent and commented upon, is to achieve *legal certainty*. Although it is very difficult to define precisely what legal certainty is[1], everyone has an intuitive knowledge of where uncertainty lies. Rules that constantly change, or which are not followed, are some examples. Particular concern is given to the judicial cases involving widespread controversy, known as *hard cases*[2]. In these situations, there are arguments upholding opposite solutions, and the problem boils down to a *quest for the right answer*.

My general aim is to contribute to pursue this quest by helping to answer: *how to decide which legal argument is stronger?*[3]. I will do so by presenting a technical-contextual approach to building a model of legal argumentation, illustrated by the study of proportionality analysis. The model should enable the representation of a judicial decision's justification in an *argument map*, a diagram that helps the visualization of arguments and their relations of support and attack, offering a clear picture of how the case solution is defended. The main tool I will use to perform this task is the *argument scheme*, which will be first presented in Chapter I.

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[1] The difficulty may be found in discussions of legal certainty in the philosophy of Law. Lon Fuller's Chapter II ("*The Morality that makes Law possible*") of his book *The Morality of Law* (1964) describes eight *desiderata* of the legal enterprise, which may all be considered aspects of legal certainty. The examples provided by Fuller reveal the complexity of the matter, which may be explained by the fact that the realization of the aspects of legal certainty may be evaluated as a matter of degree (what Fuller calls a "morality of aspiration"). In Brazil, an extended analytical study about legal certainty has been published by Humberto Ávila, called *Teoria da Segurança Jurídica* (2011, originally published with the title *Segurança Jurídica: Entre permanência, mudança e realização no Direito Tributário*). Although it is focused on Brazilian Tax Law, it presents a more general theoretical that reveal the complexity of legal certainty. The book has been recently translated to English as *Certainty in Law*. FULLER, 1969; ÁVILA, 2016.

[2] The concept of hard cases as controversy seems equivalent to Juliano Maranhão's concept of *underdetermined cases* (in Portuguese, "*casos subdeterminados*"). MARANHÃO, 2013, p. 100-113. Although the criteria of existence of controversy is somewhat imprecise, I believe it is sufficient for the purposes of this Introduction.

[3] In a way, my question echoes the opening line of Ronald Dworkin's *Law's Empire* (1986): "*It matters how judges decide cases*". My concerns are similar to his, but my approach to legal argumentation will be very different, due to the technical conceptual framework I intend to use. DWORKIN, 1986.

The technical conceptual framework and tools will be drawn from the fields of Argumentation Theory, Informal Logic[4] and Artificial Intelligence and Law (which I may collectively refer as just "argumentation theory", without capital letters). The contextualization will be introduced with the help of theoretical accounts about legal issues. The combination of both shall provide a set of adapted tools that will help in the description and evaluation of legal argumentation. The benefits of such an approach should become clear during the investigation of proportionality analysis.

The problem of determining the stronger legal argument is paramount not only to philosophers of law, but to lawyers and citizens alike[5]. If the Law depends on argumentation for its judicial application, and it is not possible to decide which argument should prevail, then the Law fails in guiding human conduct. Given such an event is rare, the legal system's shortcomings may be tolerable. Nonetheless, if it becomes ordinary, the enterprise urges to be reviewed.

In hard cases, the difficulties of determining the stronger legal argument stand out. Despite the controversy, it might yet be possible to obtain the right answer. But, assuming judges cannot justify their preferences in certain situations, why should we let them decide? Wouldn't it be better to let the decisions be taken by the parliament, referendum, a jury or any other way?[6] Thus, the *institutional design* of a legal judicial system depends, at least partially, on its performance with respect to achieving legal certainty and obtaining the right answer.

The importance of finding the right answer in a judicial case is clear in relation to the wider quest for legal certainty and to institutional design. As a consequence, its investigation becomes justified. However, preliminary objections to such a project naturally arise. The commonplace would be to ask whether it is really possible to obtain the legal right answer[7].

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[4] The differences between the fields of Argumentation Theory and Informal Logic are not very clear, but I will use both names to characterize the literature I am referring to in a more comprehensive way.

[5] MACCORMICK, 2008 (a), p. 361, whom, by his turn, mentions ALEXY, 1989.

[6] I am not discussing judicial review of the legislation yet, but a more general problem of legal justification in any situation. However, judicial review is certainly a good place to find hard cases.

[7] A classical theoretical discussion about the possibility of finding the right answer in legal cases is found in the text *No Right Answer?* by Ronald Dworkin (DWORKIN, 1977 (a), later revised and republished as *Is there really no right answer in hard cases?* in DWORKIN, 1985, Chapter 5).

Unless someone is truly skeptical, the issue needs to be circumscribed to hard cases or to even more detailed situations. So, let us suspend such line of inquiry for a moment and pursue another one, whose utility to shape the object of study will become clear: *how does one know an answer is the right one?*

I argue that the right answer is obtained by following *rules of argumentation*. If one wants to know whether an action is legal or illegal, he should look for the relevant legal norms. It is no different when it comes to arguments. An argument will be sound or not, depending if it has followed a rule of inference. But the scope of my rules of argumentation is not limited to evaluating a single argument, composed of one or more premises and a conclusion. As it will be discussed in due time, they comprise rules about knowledge bases from which premises may be taken, the relations of attack between arguments, burdens and standards of proof, and a wide range of procedural rules. Together, they enable the determination of what we intuitively denominate the stronger argument.

An investigation about how to obtain the right answer in a judicial context is a study of certain *rules of legal argumentation*. A proper discussion of such rules will depend on an argumentation conceptual framework, methodological tools, and on legal knowledge. If one were to enact a statute on banking regulation, he would need knowledge about the law, techniques for writing statutes, and an understanding of the banking system and its practices. Analogically, it is the same with legal argumentation. Hence, the technical-contextual approach I am advocating for.

If one can accurately describe the rules of legal argumentation, he might be able to discuss the possibility of finding the right answer with much more precision. He shall be able to identify the situations in which it is possible, and explain how to obtain it. And, if it is not possible to determine the right answer, the source of difficulties may be duly recognized.

I have chosen to illustrate this approach to legal argumentation with the study of proportionality analysis, which takes place when the Judiciary must determine whether some piece of legislation complies with higher norms, such as a Constitution or an International

Treaty. The analysis is often summarized in a multi-step test, that ultimately aims to establish if the marginal gains produced by a legal provision outweigh its marginal losses, in terms of legal values (or legal principles, as many would call them). There are a number of reasons for this choice.

Proportionality analysis is a relevant subject in its own right. Recent academic production shows that it has spread worldwide in the practice of courts of both *common law* and *civil law* traditions[8]. As a consequence of being applied by constitutional and international courts, it is used to address matters of great social relevance, frequently related to human rights[9]. Lastly, it is a constant object of study and criticism, often centered in the possibility of it being rationally controlled[10].

From the perspective of the technical-contextual approach I propose, proportionality analysis is particularly interesting. There are efforts to detail how it should be carried out by courts, especially the influential account of Robert Alexy[11]. Thus, on the one hand, there is enough groundwork to let the argumentation tools be adapted. On the other hand, however, it remains controversial and difficult enough to offer plenty of room for discussion and improvements, allowing the technical framework to yield innovations. Furthermore, there are plenty of real hard cases to test the argumentation tools.

Finally, the discussions about proportionality analysis show that rules of legal argumentation may be justified by reference to matters of institutional design. For instance, one could argue that judges should defer to the weighing of values carried out by elected authorities if there is a wide and reasonable disagreement on the subject[12], given the democratic quality of such authorities. Thus, it illustrates how models of legal argumentation might be connected to problems of institutional design.

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[8] STONE SWEET, MATHEWS, 2008; SCHLINK, 2012.

[9] As it becomes clear of the description found in STONE SWEET, MATHEWS, 2008.

[10] For a survey on the criticism to proportionality analysis, see GORZONI, 2011, Chapter 2.

[11] In the form presented in the 2002 Postscript to the *Theorie der Grundrechte* (1986, in English *A Theory of Constitutional Rights*, in Portuguese *Teoria dos Direitos Fundamentais*). ALEXY, 2008.

[12] This is the position of the European Court of Human Rights in the S.A.S. x France case (Application 43835/2011, decision 1st July 2014). The deference is revealed in the margin of appreciation conceded in cases of wide and reasonable disagreement about a subject. I will discuss this case in Chapter IV.

Now that the relevance of the object of investigation is clear, for both its general and specific themes, I will elaborate on the technical-contextual approach I intend to develop and its promising features. The innovative results of the investigation derives from such an approach.

2. A Technical-Contextual Approach to Legal Argumentation

There are many studies on legal argumentation, but the approach to be developed in this work has some particular characteristics when compared to mainstream books of legal theory and philosophy of law, on the one hand, and to works in Argumentation Theory, Informal Logic and Artificial Intelligence and Law, on the other. These traits should result in some benefits.

Argumentation-wise, this work intends to be more *technical* than your average account of legal reasoning arising from legal theory or philosophy of law. Some classical accounts of legal reasoning and legal argumentation may be found in books like: *Legal Reasoning and Legal Theory* (1978) and *Rhetoric and the Rule of Law* (2005), by Neil MacCormick[13]; *Theorie der juristischen Argumentation: Die Theorie des rationalen Diskurses als Theorie der juristischen Bergründung* (*A Theory of Legal Argumentation: The Theory of Rational Discourse as Theory of Legal Justification*, 1978) and *Theorie der Grundrechte* (*A Theory of Constitutional Rights*, 1986, Postscript of 2002) by Robert Alexy[14]. If one compares the conceptual framework of Chapters I and II to these accounts, it becomes clear that argumentation is handled differently. The framework given by the literature I am referring to allows a description of how argumentation works step-by-step, proposition by proposition, being as explicit and precise as possible about it.

This is not to say that general accounts are inferior in anyway. They pave the way to more detailed studies, such as this one, and works by MacCormick and Alexy will be major references in Chapters III and IV. However, if we are to obtain an accurate and satisfactory

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[13] MACCORMICK, 1978; MACCORMICK, 2005.
[14] ALEXY, 1989; ALEXY, 2008.

answer to the question of how to decide which legal argument is stronger, we need further developments, which will benefit from an advanced conceptual framework to discuss argumentation.

Other similar attempts to use argumentation theory to deepen the investigation of more general accounts of legal argumentation may be found in the literature. For example, Thomas Gordon's book *The Pleading's Game* (1995) offers a formal model based on Robert Alexy's idea of procedural justice[15]; Giovanni Sartor built a formal model to assess proportionality judgments, also making reference to the work of Robert Alexy[16]; Douglas Walton, Giovanni Sartor, and Fabrizio Macagno have published recently on statutory interpretation[17], having as a major source of inspiration the typology of arguments created by Neil MacCormick and Robert Summers in *Interpreting Statutes* (1991)[18].

Following the lesson of works such as these, in spite of being based on Argumentation Theory, Informal Logic and Artificial Intelligence and Law, this investigation aims to be rather *contextual*, that is, concerned with the particularities of legal argumentation. Many types of models might be used to describe or evaluate legal reasoning, but there is always the risk of them being too abstract to provide meaningful help to solve a real case or particular challenges of legal argumentation. If there is some distinctive feature of legal reasoning, models that are too abstract are unable to grasp it.

Although contextual models are essential, and the Law is a constant object of attention, argumentation tools for legal purposes remain underdeveloped, and much research is still required. For instance, Douglas Walton, Giovanni Sartor and Fabrizio Macagno have recently recognized explicitly that issues of statutory interpretation have been neglected by Artificial Intelligence and Law research[19]. This is no minor issue, given that the theme is a crucial problem of legal argumentation.

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[15] GORDON, 1995.
[16] SARTOR, 2010; SARTOR, 2013.
[17] WALTON, MACAGNO, SARTOR, 2014; WALTON, SARTOR, MACAGNO, 2016.
[18] MACCORMICK, SUMMERS, 1991.
[19] WALTON, SARTOR, MACAGNO, 2016, Conclusions.

My Master's Degree dissertation corroborates the diagnostic of general insufficiency. In that opportunity, I have tried to use the important tools known as argument schemes to build an argument map. The subject was the responsibility of the State and military personnel due to events (especially tortures, kidnappings and executions) occurred during the Brazilian Military Government, with a particular emphasis in the criminal responsibility discussed by the Brazilian Supreme Court in the lawsuit ADPF 153[20]. Although I had dozens of argument schemes at my disposal, taken from a compendium found in the book *Argumentation Schemes* (2008)[21], it was very difficult to use them for description or evaluation, since they were not tailored to the needs of legal argumentation. In order to carry on the task, I ended up building new schemes of my own[22], which came to be very helpful, despite not entirely satisfactory and far from sufficient.

In short, the *technical-contextual approach* to legal argumentation receives its name because it is more technical than the most traditional accounts of legal theory in the description of argumentation, using a particular conceptual framework, but concerned with the particularities arising out of legal context. The use of argumentation schemes and argument maps as tools (which will be explained in Chapter I), and all the conceptual framework embedded in it, will provide the analytical technical edge. Contextuality will stem from taking into consideration legal theoretical accounts, and real legal material, especially hard cases. The general concept of the approach itself is not an innovation, since some of the works referred above more or less follow the ideas outlined here. However, it is a clear manifest of a research agenda that should be further developed.

As it has been presented until now, the approach of this work remains quite abstract. There are many possible technical methodologies that could be employed. Unavoidably, the precise outline of the conceptual argumentation framework and its tools will only be made clear by the presentation of Chapters I and II. For now, however, I may advance that my

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[20] The name of the judicial remedy could be translated as Remedy for the Non-Compliance with a Constitutional Fundamental Precept (in Portuguese, *Arguição de Descumprimento de Preceito Fundamental - ADPF*).
[21] WALTON, REED, MACAGNO, 2008.
[22] NÓBREGA LUCCAS, Victor. Mapa Argumentativo do Caso Araguaia em Protocolo de Disputas. Chapter II.

framework is *informal (or semi-formal)*, bearing more resemblance to natural language than to mathematical equations.

The idea of an informal framework calls for clarification on the relationship between informal logic, formal logic and artificial intelligence in the study of argumentation. In a conveniently simplified explanation[23]: *informal logic* investigates the use of argument in natural discourse, revealing the rules that guide argumentation and building precise concepts for its comprehension; *formal logic*, aware of the rules and concepts already provided, creates a representation model in artificial language, allowing for the realization of a calculus; and *artificial intelligence* converts the formalized model into something that can be understood and reproduced by a machine. Many works have been jointly written by researchers focused on these different areas. In addition, despite the focus of some text, references to all areas are often made.

Given this "division of labor", informal logic seems to have the fundamental role of providing the necessary starting point for formal logic and artificial intelligence. A formal logical model that has not been preceded by detailed observation of argumentation practice will end up furnishing an erroneous or simplistic representation and possibly lead to perplexities disconnected from reality. The avoidance of such problems calls for an informal analysis groundwork.

Once the role of informal logic has been established, reasons in favor of the chosen framework can be presented. Informal logic is closer to the average lawyer than formal logic or artificial intelligence. Lawyers, particularly those who work with lawsuits, analyse argumentation in a similar fashion to the informal logician, but without his theoretical knowledge and tools. Traditional legal education (at least in Brazil) and profession keeps lawyers away from the language of formal logicians, and even further away from the concerns of artificial intelligence researchers.

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[23] Of course, in reality these lines are blurred. It is possible to find texts whose main subject is formal logic or artificial intelligence, but that makes important contributions to informal logic, clarifying the rules that guide argumentation. WALTON, 2013, draws attention to the benefit of the interdisciplinarity of these studies.

Besides, informal logic deals more directly with the problem of how to choose the right answer, examining rules of argumentation and their application. Formal logic and artificial intelligence have complex challenges of their own[24], related to argumentation representation and systems implementation that pushes them away from the core problem, of how to decide which argument is stronger.

Finally, an informal approach is favorable to teaching argumentation. Historically, the field of Informal Logic had its development in the United States and Canada during the 1970's. It emerged linked to courses on how to argue about political and social problems, taught by philosophy scholars[25]. Today, many textbooks on the subject can be found, as mandatory reading material to graduation argumentation courses (also known as "critical thinking" courses)[26]. Notwithstanding, this work does not intend and cannot be as didactic as these textbooks, since it comprises an investigation about the rules of legal argumentation.

It is also important to offer reasons for choosing the fields of Argumentation Theory, Informal Logic and Artificial Intelligence and Law to provide the conceptual apparatus of this work. Certain justifications of my choices will be left for later, since they only make sense after a detailed exposition, to be found in Chapters I and II. Nonetheless, I am already able to explain what I believe to be the two main advantages of these fields of studies.

First and foremost, the literature develops an *argumentation technology*, an organized knowledge about the techniques and processes of arguing, that aims at identifying, analysing, evaluating and creating arguments[27]. Said technology, in principle, allows precise descriptions and evaluations of real cases, by showing *"how"* argumentation works. It is worth noting that the Law has served as an object of study and as a fountain of inspiration

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[24] An overview of the representation challenge with non-monotonical logics may be found in PRAKKEN, VREESWIJK, 2002. Challenges more directly related to the Law can be found in the following review, PRAKKEN, SARTOR, 2015.
[25] BLAIR, 2009, p. 18-19.
[26] Some examples, WALTON, Douglas "*Fundamentals of Critical Argumentation*" (WALTON, 2006(a)); GOVIER, Trudy "*A Practical Study of Argument*" (GOVIER, 2010); WRIGHT, Larry "*Critical Thinking*" (WRIGHT, 2012); TINDALE, Christopher W. "*Fallacies and Argument Appraisal*" (TINDALE, 2007).
[27] WALTON, 2013, p. 3.

for researchers of argumentation theory[28]. Since legal activity constantly demands argumentation, it offers a privileged perspective to observe how argumentation functions[29]. At the beginning, legal experience helped the development of argumentation theory, but now its concepts and tools can be used to enhance our knowledge about legal argumentation.

The best way to face certain issues is by a "how" approach. For instance, is it possible to create a human colony in Mars? People may argue indefinitely, but if a group of people successfully does it, the discussion is over. And, to do it, one needs to ask "how" and start planning every detail from there. How would people reach the planet? How would they get food and oxygen? How would their illnesses be treated? As the plan unfolds, old challenges are reformulated, new difficulties appear, and solutions are proposed. Every problem and solution are meaningful steps in answering the original question.

The problem of finding the right answer is one of these issues that demand a "how" approach, hence the formulation of the question "how to decide which legal argument is stronger?". Instead of abstractly arguing whether it is possible or not, it seems most promising to discuss how. Such an approach allows one to address an argument that seems the most difficult challenge to the existence of the right answer in any given hard case: the *persistent controversy argument*[30]. According to it, a right answer presupposes an argument whose conclusion needs to be accepted by the arguers, otherwise they would be deemed irrational[31]. The existence of controversy among experienced lawyers debating sincerely[32] – which can be considered rational – is evidence that there is no argument with the required

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[28] For this reason, there is a subarea within the Artificial Intelligence domain of knowledge called Artificial Intelligence and Law. There are specialized journals (e.g. Artificial Intelligence & Law), congresses (e.g. ICAIL – International Conference on Artificial Intelligence and Law) and even an international association (IAAIL – International Association for Artificial Intelligence and Law).

[29] This is one of the common points found in the classical accounts of Stephen Toulmin in *The Uses of Argument* and Chaïm Perelman and Lucie Olbrechts-Tyteca in *The New Rhetoric: A Treatise in Argumentation*. TOULMIN, 2003; PERELMAN, OLBRECHTS-TYTECA, 1969.

[30] The existence of controversy is an element that can be found in various arguments against the thesis that ordinarily there is a right answer. Despite the fact we are not following any author in particular, we believe many sceptics could embrace this argument.

[31] The first part of the argument resembles the "*demonstrability thesis*" attacked by Ronald Dworkin in (DWORKIN, 1985, Chapter 5). However, we have chosen a different name due to the last part of the argument as presented above. In my depiction, it is not enough to reject the need for demonstrability and to conclude for the possibility of preferable arguments. The persistent controversy argument questions the practical viability of deciding which argument is preferable.

[32] Highlighting the importance of sincerity, EEMEREN, GROOTENDORST, SALLY, JACOBS, 1993, p. 3.

property, and, ergo, that there is no right answer. It is no use to claim the possibility of a right answer if, in practice, there are no evaluation criteria clear enough to end the debate when the best argument appears. In other words, excluding those that do not understand legal practice and those that do not believe in what they are standing for, if, at the end of the day, after a debate, the controversy persists, there is no right answer.

To defeat the persistent controversy argument in a hard case, both knowledge about the subject matter and the legal rules of argumentation are required. In such cases, argumentation is usually complex or even confusing, and a systematic methodology becomes of utmost importance. Only a careful argumentation analysis will allow one to explain, in detail, why a thesis should prevail. An argumentation technology is intended to satisfy those needs.

Second, the development of studies with such argumentation technology may lead to *artificial intelligence implementations* tailored for the use of legal practitioners. Nowadays, some argument assistant software can be found, with varying functionalities and complexity degrees, as an offspring of the joint effort between argumentation theorists and artificial intelligence researchers[33]. If the necessary groundwork is covered, new programs could be built with enhanced capacity of helping judges, attorneys and lawmakers.

A figure that embodies this ideal and may help the visualization of the possibilities of artificial intelligence before us is what I call the *Talos judge*. In Greek mythology, Talos was an automaton created (by the god Hephaestus or the mortal Daedalus, depending on the myth version) to protect Crete from invaders. In other words, it was created to automatically perform specific tasks which help carrying out the will of others. Thus, the Talos judge represents any machine computer program designed to assist lawyers in accomplishing their objectives. Its modest place as an assistant makes it quite different from other mythological judges found in legal theory[34].

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[33] An example is *Carneades* (available in http://carneades.github.io/, last access in January 8th 2017). More examples will be given just below.
[34] Compare, for example, with Ronald Dworkin's judge Hercules (DWORKIN, 1977, Chapter 4) or François Ost judges Zeus (Jupiter), Hercules and Hermes (OST, 2007).

Imagine one wants to support a certain thesis, for instance, that the crime of passive corruption has been committed by Ronald, a public tax agent. The lawyer enters this proposition into a program interface, and Talos searches for the relevant legal provision that defines the crime of corruption. After finding the relevant norm, it lists its necessary and sufficient conditions, and asks the lawyer about the evidence supporting each one of them. If the lawyer enters enough evidence, then Talos also requests all relevant dates to verify whether some statute of limitations is applicable. If the program is sufficiently developed, maybe it could scan for the information in supplied digital documents. In any case, the interface shows each step of Talos's reasoning to conclude for or against Ronald. It is easy to visualize each proposition and how it is backed by rules, precedents or evidence. Possible exceptions and attacks are also represented. The whole reasoning is explicit and ready to be analysed by the lawyer.

Of course, an operational Talos judge functioning as described still requires a lot of effort, but it is not a far-fetched delusion. Programs that help to visualize the reasoning step by step already exists, despite its eventual flaws, like Carneades, Araucaria, ArguMed and Rationale[35]. To find the relevant norm, one could depend on a structured knowledge base or use the help of a program that searches for relevant information in unstructured databases (written in natural language), such as the commercial application Ross[36], designed to carry out legal research. As to the particular case, the Brazilian National Council of Justice made available in its website a program to verify the applicability of criminal statutes of limitations[37].

Although the Talos application described above is appealing, one should not discard simpler programs made to assist lawyers which could still be quite useful. For instance, a program for helping to decide whether some person has the right to obtain a social benefit. In Chapter I, after presenting argument schemes as the main argumentation tool of the investigation, I explain how this work may contribute to develop some abilities of the Talos judge.

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[35] WALTON, REED, MACAGNO, 2008, Chapter 12. Carneades was referred in another footnote above.
[36] http://www.rossintelligence.com/, last access in January 8th 2017.
[37] In Portuguese "Calculadora da Prescrição da Pretensão Punitiva", available at http://www.cnj.jus.br/sistema-carcerario-e-execucao-penal/calculadora-de-prescricao-da-pretensao-punitiva, last access in January 8th 2017.

Two closing remarks are in order to characterize the approach. My argumentation framework is *dialogical* (or procedural), it considers that one does not search for the right answer via unidirectional demonstration, but by a process in which parties have the opportunity to state conflicting arguments and uphold their claims. Such a feature is not only in line with the recent trends of argumentation theory, but also with the requirement that courts of law should be deliberative[38].

Testing the argumentation tools with *real cases* is of the essence, especially hard ones. Not only as a way to verify if they are working properly, but as a method of investigation. Much can be learned by researching the application of some tool, especially when the context must be taken into consideration to adapt it. This is why a long case analysis is carried out in Chapter IV, Section IV.3.

After describing and justifying, as long as possible now, the approach to legal argumentation of this work, I shall introduce its structure and some notes regarding its presentation style.

3. Structure of the Work

Chapter I provides an overview of what is needed to build a model of legal argumentation. It presents the fundamental distinction between a static and a dynamic perspective, as well as the most abstract elements to be modeled. The main tools of the work, argument schemes and argument maps, are presented, further detailing the object of the study and my technical-contextual approach as an argument scheme approach. Lastly, I present four claims directly related to it.

A discussion of the argumentation conceptual framework and the main tools used is found in Chapter II. I also raise important questions about the use of the tools to represent argumentative practice, eventually focusing on legal argumentation. I end by arguing for the relevance of building legal argument schemes.

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[38] MENDES, 2013; SILVA, 2013.

A brief account of arguments based in legal norms and precedents is given in Chapter III, which focuses on presenting some basic important argument schemes and pointing the direction of further research, which should unify technical argumentative investigations with theoretical accounts.

The heart of the work, a study of proportionality analysis, is in Chapter IV, by far the longest and most challenging. It starts by characterizing proportionality analysis against a wider background of teleological reasoning, then moves to discuss it according to the theories of Robert Alexy. Specific argument schemes are developed and subsequently tested in a real hard case from the European Court of Human Rights. After the application, the schemes and the model of proportionality analysis are reviewed, and additional challenges are described. The last section is dedicated to briefly discuss the virtues and vices of proportionality analysis.

The Conclusions summarize some general findings of the investigation, mainly as a defense of the approach followed in the work, and make some remarks on the continuation of a research agenda.

4. Presentation Style

The audience I had in mind while writing was a reader with no prior knowledge of argumentation theory, and just some acquaintance to the Law. He can be properly represented by a law school undergraduate student. The text is not meant to be didactic, but understandable with some effort from such reader. Despite being the imagined audience, this work is not supposed to be useful only to them. On the contrary, the effort of making oneself clear to a nonexpert can be quite enlightening for specialists.

Given the audience, I have abided by some principles, which define a presentation style:

Overview: Whenever possible, I try to explicitly state how my investigation is related to the wider literature about the subject. Chapter I's presentation of the basic elements of a model is an example. It might be used to organize discussions on technical literature on argumentation theory, informal logic, and artificial intelligence and law.

Progression: I start with the most basic concepts and progressively add details and complications. As a general formula, I introduce a concept, present examples, discuss difficulties, and restate it in a more detailed way. There are two subprinciples about the presentation of the technical argumentation conceptual framework:

- Legal problems are progressively introduced in examples and approximations. Usually, the core concepts are more easily understandable with mundane examples.

- Examples are recalled often as a way to explicitly show how analysis of argumentation can get deeper.

Line of reasoning: Whenever possible, instead of just presenting definitions and showing illustrations, I try to follow a line of reasoning in which the discussion of a problem or concept leads to another. This is especially important to show relationships and connections that must be thoroughly understood to discuss argumentation models.

References: References are almost always covered in footnotes. Direct citations or references to other authors in the running text will be scarce. The point is not to disrupt the flow of argument, making the text seamless and easier to read. Given the sheer number of technical concepts, if I were to constantly make references in the running text, it would probably get confusing (or even annoying). In other words: Do not worry, if you do not take my word for granted and want to check what authorities have said on the matter, the references will be there for you.

Technical Details: Technical details which I do not consider critical to the understanding of the point at hand for my intended audience, but could be useful for specialists, will be left to footnotes. This may include eventual comparisons of ideas between authors or distinctions

between what I am arguing and what someone else argued. Of course, if a point is too important, it will be discussed in the text with due references in footnotes. But my goal is to explain the subject based on the literature, not to explain the literature itself. The work does not intend to be a review (although it is sometimes based on one, as the references show) or a history of the ideas and arguments on the subject. Of course, I will adhere or reject ideas by many authors in the process, but I will not thoroughly reconstruct and discuss all of them. Such a procedure would render impossible to advance on the subject in a few pages. This orientation leads to a rule of thumb:

> - If you are an expert and you have a doubt about some point or feel that a discussion could be related, I invite you to look at the footnotes. The same applies if you are a curious person and wants the text to give you more trouble than what it is worth.

Italics: Besides Latin expressions, I will use italics whenever first introducing important concepts or, more rarely, to highlight important ideas.

CHAPTER I
BASIC ELEMENTS OF A MODEL FOR LEGAL ARGUMENTATION

Arguments are everywhere. Not only can they be found pouring out of garrulous lawyer's mouths at courts of Law, but also on Sunday lunch at family's tables debating what will happen on the next episode of their favorite series, groups of friends at a bar discussing the best player of the latest soccer match and in pretty much any situation one needs to convince another person of something (although there are other ways of "convincing" people)[39].

Arguments are especially important in the Law. Almost any meaningful legal decision is (or at least should be) preceded by argument based discussions. Judges only decide after careful consideration and extensively hearing the parties, who are given plenty of opportunity to state their cases and bring evidences in favour of their claim. Laws are enacted after vivid discussions by congressmen representing different interests and points of view, listening to many stakeholders, and appraising the measure's potential consequences. The whole argumentation (or at least most of it) is documented and made public for future reference, analysis and criticism.

There are good reasons for this meticulous attention. Not to lessen discussions about television series or soccer matches, for people take them seriously, but the very way we live – and, sometimes, even the very way we die - strongly depends upon the Law. Hence, the way we deal with legal decisions, and the arguments that support them, needs to be equally serious. If we expect to advance in the quests for the right answer and for legal certainty, we need precise control of our arguments. In order to do so, we need to build a model which will allow us to evaluate our legal argumentation. The right tool for this endeavor is a clear conceptual framework, which I will borrow from Argumentation Theory, Informal Logic

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[39] There are non-discursive ways of making people do what you want or believe in what you preach. Putting a horse's head on someone's bed, for example, might lead a director to cast a different candidate as an actor, as one may learn in the movie *The Godfather* (1972). I will study only the discursive elements that lead to change one's mind. A clear acknowledgement of this fact and an identical restriction may be found in PERELMAN, OLBRECHTS-TYTECA, *New Rhetoric*, p. 8.

and Artificial Intelligence and Law. Although distinctions may be drawn between those fields of study, they frequently overlap and, ultimately, deal with argumentation[40], reason why I will often use *argumentation theory* to refer to them collectively.

I will start (Section I.1) by offering two different perspectives on the right answer, static and dynamic, which will guide the construction of argumentation models. After that, in Section I.2, I will present what I find to be the basic elements for any model of argumentation, according to both perspectives, as well as provide some additional remarks about evaluating models and their limits. In Section 1.3, I will present the argument schemes, a very important tool for analyzing arguments, and explain that this investigation is focused on discussing such argument schemes in a specified legal context. Argument schemes, however, are not sufficient to build a complete model of argumentation, and by showing how they fit in a wider framework, I expect to clarify its usefulness and delimitate the scope of this investigation. In Section I.4, I will present some general ideas which further detail and justify the approach to legal argumentation carried out in this work. Finally, Section I.5 advances four theoretical claims that may be seen both as supported by the investigation and as presuppositions. It should be highlighted that improvements and innovations of more technical nature will not be listed as claims, but will be detailed along this thesis.

In terms of presentation strategy and style, this Chapter is supposed to provide a very brief overview of the questions that need to be addressed in order to build an adequate model of legal argumentation, which may help in what I called the quests for legal certainty and for the right answer (Introduction). Furthermore, it will allow one to visualize how this work fits into "the grand scheme of things", the literature about argumentation theory. Concepts will be first introduced in an intuitive fashion, and gradually get more technical and precise. Most of the ideas and concepts here will return eventually, often to receive yet more technical treatment.

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[40] The boundaries of these fields of study are not clearly defined. One could even argue that Informal Logic and Argumentation Theory are just different names for the same thing. Artificial Intelligence and Law has the more specific purpose of developing formal models and implementations of artificial intelligence, with legal applications. But, in any field, the Law is a test bed and a frequent source of inspiration.

I.1 Two Perspectives on the Right Answer

The concept of right answer is used intuitively. "Seven" is the right answer to the question "How much is two plus five?". No doubt about that. But there are contexts in which the right answer is not clear. Should the government raise taxes on imported products to protect national industry? There are arguments to defend both possible answers. On the one hand, raising taxes may ensure that the national industry will survive and maintain jobs. On the other hand, it might decrease the incentives for entrepreneurs to innovate, which are essential for an efficient and competitive industry in the long run. When the right answer is not immediately clear we are invited to ask ourselves how to find it. But, before starting the search, we need to know what we are looking for. What is exactly the right answer? How do we know it when we find it?

Again, intuitively, the *right answer* is the one supported by the stronger reasons. If one provides data showing that international competition is unfair, for products are being sold without profit just to eliminate competitors, and that the national industry will collapse in little time if not protected, it tips the scales in favour of raising taxes on imported products. In face of the new information, we say that there are stronger reasons supporting a tax raise than the opposite. Thus, raising taxes becomes the right answer.

But suppose the discussion continues. Specialists argue that the data according to which international competition is unfair is deeply flawed. In fact, international competitors are having profit with their prices, which are low because they managed to cut production costs by implementing new technologies obtained after many years investing in research and development. Furthermore, a former chief executive officer of the industry goes to newspapers to declare that national industry will not collapse if only company owners were willing to cut their profit margin, which is abnormally high when compared to other countries.

If we are to believe the specialists and the chief executive officer, then it seems neither international competition is unfair, nor the national industry will collapse. There is no clear right answer again, so are we back to square one? Not exactly, since we now have

a much more developed dialogue. One could say that we have no right answer, but we are closer to one than before. Does this make sense? Yes, if we consider two different perspectives on the right answer: static and dynamic.

According to a *static perspective*, the right answer is found by considering all arguments that have been advanced in a dialogue in a given moment. So, when the arguments about unfair international competition and the national industry collapse first appeared, before they were attacked, one could argue that to raise taxes was the right answer. If one could photograph the dialogue and evaluate all arguments, then he would find the right answer according to the static perspective. I shall call *static analysis* the activity of finding the right answer from a static perspective, as described.

But the static perspective on the right answer may be criticized. If there are important arguments missing from the dialogue, it will be difficult to say that it provides the right answer. As soon as one considers the arguments provided by the specialists and the chief executive officer, it cannot be said that to raise taxes is the right answer. If one performs a static analysis in this second moment, the results are different. Dialogues are developed like movies, a series of ordered different photographs. Looking at the dialogue as it unfolds offers a *dynamic perspective* on the right answer. I will call *dynamic criticism* the introduction of new arguments in a given dialogue, as a way to account for its continuous nature and to oppose the idea of static analysis.

Each perspective leads to different conceptions of right answer. I will call the result of static analysis the *best answer available* (*best answer* for short), an expression that conveys the idea that it is the answer we should choose among our given options, although it does not necessarily match our ideals. But what about the result of dynamic criticism? That would be the *ultimate answer*, obtained after considering every possible argument on the subject[41].

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[41] The different perspectives and conceptions of the right answer resemble a discussion in Artificial Intelligence and Law literature about how to decide the status of an argument. Should only arguments that have been effectively advanced in a dispute be considered, or additional arguments that could be constructed from a given theory (in a logical sense) too? In other words, how should we treat dynamic criticism in a model? Such a problem is briefly mentioned under the heading of *partial computation* in PRAKKEN, SARTOR, 2002, p. 350-351.

Although to find the best answer may be challenging, the demands posed by the ultimate answer seem absurd. Actually, it may be unattainable in practice. To arrive at the ultimate answer, it is required that the universe of possible arguments is finite and that there is a procedure to ensure, with absolute certainty, that all relevant arguments are raised and properly evaluated. I will not examine the possibility of finding the ultimate answer. Unattainable or not, for the purposes of this work, the relevant idea behind its conception is that the ongoing (or ever going) quest for the ultimate answer may improve our justifications and change our answers along time.

As I hope will become clear in the development of this work, the concepts of static analysis, dynamic criticism, best answer and ultimate answer help to elucidate the activity of legal argumentation and its relation to institutional design. For now, it is worth offering a glimpse of how they may be used to describe the practice of Law.

In a lawsuit, the judge hears (or reads) the arguments by the lawyers of both parties, evaluates them and the available evidence, and then drafts the sentence. The activity of judging is a mix of static analysis and dynamic criticism. The judge depicts the dialogue established by the parties and evaluates their arguments (static analysis), eventually adding considerations of his own (dynamic criticism). Hence, the lawsuit comprises an argumentative dialogue with at least three parties[42]: the plaintiff, the defendant and the judge[43].

The lawsuit procedure design itself is made to stimulate dynamic criticism, ensuring that most of the possible arguments are raised and evaluated before reaching a final decision. Two examples found in Brazilian law may be cited in this regard. First, the adversarial principle[44], according to which every time one party adds new information to the lawsuit (being it arguments or evidence), the other party must be granted opportunity to advance

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[42] I am not saying the judge is considered a party to the lawsuit in a legal sense, only to the dialogue.

[43] In this direction, accentuating the role the judge plays in the dialogue, PRAKKEN, 2001.

[44] Article 5º, LV of the Brazilian Constitution of 1988. In Portuguese, "*princípio do contraditório*". There is not a widely accepted precise formulation of its content, so I tried to convey the idea in the most impartial way I could.

their own considerations about it. Second, the doctrine of dual level jurisdiction[45], by which it must be possible for a superior court to reevaluate decisions at least once.

To develop our knowledge of how to reach the right answer, we will need an accurate description of how to perform static analysis and dynamic criticism. Such a description should take place within a model of argumentation. This takes us to the next section.

I.2 Basic Elements of an Argumentation Model

In this Section, I shall present what I believe are the basic elements of any good model of argumentation. These elements may be found or abstracted from many models in the literature on argumentation theory, including formal ones. Although part of the inspiration comes from formal logic and artificial intelligence, my presentation will be informal[46]. Not only because trying to provide a unifying formal framework is a challenge on its own and well beyond my limited capabilities, but also because I find comprehensive informal brief presentations like the one below are often lacking (it seems that there are not many of them, as far as I am concerned)[47] and are more suited to the intended audience of this work, which does not necessarily have formal training.

As an informal and introductory presentation, the concepts will be developed briefly, but accurately enough. The terminology to be presented may be found in texts of different origins, and undoubtedly it echoes many references. Nevertheless, I ask the reader to avoid trying to use the precise definitions they already have in mind to understand or to judge the text below. This will surely lead to misrepresentation. As the concepts are abstractions of

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[45] In Portuguese, "*duplo grau de jurisdição*". I called it a legal doctrine for it is not clearly stated in any statutes, but it is frequently debated by legal scholars and courts of Law. Again, there is not a widely accepted precise formulation of the doctrine, so I tried to convey the idea in the most impartial way possible.

[46] As noted by Douglas Walton, argumentation theory and informal logic have inspired formal models and research in artificial intelligence. After some time, there has been a "*feedback loop*" in which "*formal argumentation methods (…) are themselves being used to refine informal argumentation methods*". WALTON, 2013, p. 1.

[47] The literature of Artificial Intelligence and Law and formal logic, which I am referring to, usually offers very brief informal explanations before tackling a specific problem by formal methods. It is quite difficult for a curious bystander to become acquainted to the debate and organize all the ideas according to a simple overview (well, at least it was difficult for me). Surveys on the literature offer overviews but are often too complex and poorly explanatory for an introduction.

many slightly different ideas, most of the time one will naturally find resemblance, but not exact correspondence. References in footnotes will be relatively scarce, and frequently to literature reviews. There is no use in trying to exhaust references when the concepts introduced are so basilar, unless I were to do an extended review myself, which is not the point.

In subsection I.2.A, I will present the elements related to static analysis, the evaluation of a dialogue's photograph. Although static, this activity takes into consideration the fact that, in a dialogue, there are different points of view, and, hence, a proper picture of a dialogue needs to capture the relations between conflicting arguments. In subsection I.2.B, I shall introduce the model elements related to the performance of dynamic criticism, showing what must be taken into account when photographs are ordered to form a movie. The idea behind it is that the activity of participating in a dialogue is itself regulated. In subsection I.2.C, I will briefly discuss the evaluation of an argumentation model and its limits.

For those acquainted with the Artificial Intelligence and Law literature, the elements may roughly be comprehended as the main concepts of the so-called *layers of argumentation*: logic, dialectical, procedural and strategy layers[48]. I have not examined the relation between the elements and the layers in detail, but it could be interesting to compare. Some unfitness is immediately perceived. For example, the concept of knowledge base (Section I.2.A) does not correspond exactly to any layer - although it is presupposed for it all to work - and I present no concepts immediately related to the strategy layer. Further difficulties are expected to appear if a thorough analysis is carried out. The layers are very useful to organize the studies in argumentation according to their focus, but I find that a brief refence to them would not be sufficient for an introduction, since saying what the layer contains does not quite explains what it is. They will not be mentioned in the running text anymore, but are a worthy reference to reflect about the contents of this section.

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[48] The idea of argumentation layers is attributed to Henry Prakken. As far as my knowledge goes, it first appeared in PRAKKEN, 1995, but, at the time, they were just three and were called model levels. The fourth layer was added in PRAKKEN, 1997, p. 270-274. Another presentation of the layers is found in PRAKKEN, SARTOR, 2002, a review that uses it to organize the presentation of Artificial Intelligence and Law studies.

I.2.A Static Analysis: Knowledge Bases, Inference Structures and Preferred Extensions

Arguments are systems of propositions that allow one to infer a proposition named *conclusion*, from a set of propositions named *premises*. The premises are structured to support the conclusion, to justify it. In my terminology, an argument always has a single conclusion. A set of arguments, which may be related in anyway, is called an *argumentation*. This distinction shall avoid the ambiguity of the word "argument", which may be used to refer to a single argument, to a whole set of them advanced by one person to prove a point, or even to a dialogue with conflicting arguments[49].

In order to advance an argument, one needs to know where to look for premises and how to structure them in a way that the conclusion follows suit. Any model of argumentation needs to account for these two problems. I will call the set of propositions from where premises can be taken the *knowledge base* and the structure needed to obtain a conclusion an *inference structure*.

Some very simple examples may help understanding the concepts. Probably, the most classic example of argument is:

(Major premise)   *All men are mortal.*
(Minor premise)   *Socrates is a man.*
(Conclusion)   *Thus, Socrates is a mortal*

Suppose one changes the argument by substituting the major premise:

(Major premise)   *All men are immortal.*
(Minor premise)   *Socrates is a man.*

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[49] This happens not only in natural discourse, but also in the literature of argumentation theory. I believe this ambiguity leads to different conceptions of argument, an *illative* conception (or *illative* core), which considers only the structured set of propositions with the function of justifying the conclusion, and a *dialectical* conception, which deals with the ideas of dialogue and procedure. The dialectical aspects of the activity of argumentation will be dealt with further below, while discussing preferred extensions and dialogue protocols. For a systematic discussion on different conceptions of argument (illative definition, moderately dialectical, strongly dialectical and hyper dialectical) of many authors (mainly Ralph Johnson, Alvin Goldman, and Frans H. Van Eemeren), see FINNOCHIARO, 2013, Chapters 4 and 5.

| *(Conclusion)* | *Thus, Socrates is immortal.* |

Given common knowledge as our knowledge base[50], the conclusion is not supported because the major premise is false[51]. According to common knowledge, we may take "All men are mortal" as a premise. But "All men are immortal" is contrary to common knowledge. It could have never been a premise.

When making legal arguments, our knowledge base includes a given legal order, with its authoritative sources: statutes and precedents. Take the following example:

(Premise 1)	*To kill a man is to commit murder.*
(Premise 2)	*Mark killed John.*
(Premise 3)	*John is a man.*
(Conclusion)	*Thus, Mark commited murder.*

In Brazilian Law, Premise 1 can be found in Article 121 of the Criminal Code[52]. Since statutes are part of our knowledge base, the premises found in statutes may be used in the argument. If this argument is advanced in the context of a lawsuit, then Premise 2 will be the result of evidence presented in trial. And Premise 3 might be considered common knowledge.

The precise extent of our knowledge base may be debated. For example, Brazil's military regime created Law 5.250/1967, known as "Press Law", regulating the activity of journalists and press companies. When Brazil became a democractic regime again, and enacted the 1988 Federal Constitution, it became unclear whether the Press Law was still a

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[50] A logician could say that, in one possible world, "All men are immortal" could be true. But I am concerned with our actual world (sorry, no unicorns) and I make that constraint by fixing common knowledge as the relevant knowledge base.

[51] I am not saying that the premise is false because it does not belong to the knowledge base. It is false because one can find the proposition "It is false that all men are immortal" in the common knowledge base, or at least one can derive it from "it is true that all men are mortal". Propositions either belong or not to the knowledge base. If they do not belong, it is not possible to conclude that they are false, nor that they are true.

[52] The premise is not identical to the statute's text, but it can be interpreted from it. This recalls the distinction between *text* and *norm*, the meaning construed from the text's interpretation. It should be noted, however, that, in real argumentative practice, one usually represents a norm with the same language of the texts, natural language. These details shall be left aside for now, for the convenience of the presentation.

part of the legal order. In 2009, the Brazilian Supreme Court, by majority[53], ruled that the Press Law was incompatible with the 1988 Constitution, and, thus, it was not a part of the legal order. As a consequence, the premises lying in that statute are no longer part of the knowledge base.

The greatest difficulty in establishing the extent of our knowledge base arises from the fact that it changes by the introduction of arguments, which combines old propostions (premises) to arrive at new ones (conclusions). If there is a knowledge base consisting of only two propositions, "All men are mortal" and "Socrates is a man", one may combine both to arrive at a third proposition: "Socrates is a mortal". The updated knowledge base with three propositions is called an *extension* of the original knowledge base.

The idea of changing our knowledge base by using arguments to arrive at new propositions prompts the question: in what ways are we allowed to combine our propositions to arrive at new ones? What are the rules for structuring arguments? Redeeming the terminology above, what are the accepted inference structures? Obvious as it may be, one cannot combine propositions haphazardly. But it is important to stress that even what seems to make sense may not be deemed acceptable if it falls out of the recognized structures:

> *(Major premise)*   *All men are mortal.*
> *(Minor premise)*   *Socrates is a philosopher.*
> *(Conclusion)*   *Thus, Socrates is a mortal*

In spite of the fact that we know "Socrates is a mortal" is true (assuming a given knowledge base), the conclusion does not follow from the premises above. The inference structure one seems to be trying to apply may be represented as shown below, in which capital letters are categories (sets) and small letters are instances (elements). This type of argument may be called universal elimination[54]:

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[53] ADPF nº 130, adjudicated by the Brazilian Supreme Court in April, 30, 2009.
[54] Following how it is commonly referred to in first-order predicate logic.

(Major premise)	*All A are B.*
(Minor premise)	*x is A.*
(Conclusion)	*Thus, x is B*

If we substitute the categories "men", "mortal" and "philosopher" for the capital letters "A", "B" and "C", respectively, and the instance Socrates for "x", then we have:

(Major premise)	*All A are B.*
(Minor premise)	*x is C.*
(Conclusion)	*Thus, x is B*

It is clear that the argument falls out of the inference structure presented above. To my knowledge, it falls out of any accepted inference structure. Therefore, the conclusion does not follow from the premises. To be more succinct, arguments that follow an accepted inference structure will be referred to as *sound*, otherwise they will be unsound or not sound. If the argument is sound and the premises are true, I will also say that sound arguments *support* their conclusions.

The relevant inference structures vary according to the field of knowledge, what may be called *field-dependency*[55]. Take the argument from consequences for example, that may be represented as follows:

(Causal Premise)	*A causes B.*
(Evaluative Premise)	*B is a good thing.*
(Conclusion)	*Thus, one ought to do A.*

One can use such type of argument when discussing public policies:

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[55] The notion of field-dependency is one of the crucial ideas developed by Stephen Toulmin in the classic *The Uses of Argument* (1958, original publication). It emphasizes the fact that a certain degree of content is relevant to develop a proper logic, in the sense of a theory about the correctness of our arguments. My use of field-dependency above is narrow, since I am referring only to the variation of inference structures according to an undefined notion of fields of argument. If my use is able to cover the whole extension of Toulmin's concept is not important, nor is it a question that I will address. TOULMIN, 2003.

(Causal Premise)   *Raising import taxes protects the national industry, mantaining jobs.*

(Evaluative Premise) *To maintain jobs is a good thing.*

(Conclusion)   *Thus, one ought to raise import taxes.*

However, one can hardly find any utility for this inference structure in the domain of science whenever the aim is to prove a theory. Scientists are trying to describe the world as it is, and not prescribing what should be done. As I will show in the following Chapters, legal argumentation has its own inference structures.

Before moving on to present the last element of any basic model of argumentation, I must draw attention to a distinction between the two types of inference structures presented above. Assume one cannot introduce in the knowledge base propositions which are the exact opposite of those that are already there. For instance, if "Socrates is a man" is in the knowledge base, then one cannot add the proposition "It is not true that Socrates is a man" or, in a more natural way, "Socrates is not a man". A knowledge base without opposing propositions as such is called *conflict free*[56].

If one maintains the knowledge base conflict free, it is possible to introduce any premise in it without ever needing to withdraw conclusions based in universal elimination. Take the knowledge base of "All men are mortal", "Socrates is a man" and the conclusion by universal elimination "Socrates is a mortal". No matter what propositions we may add to it, we will never be able to conclude that "Socrates is not a mortal", except if we deny that "All men are mortal" or that "Socrates is a man", which is impossible according to our conflict free assumption. This property of reasoning is known as *monotony*[57].

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[56] In real life, one may expect to find knowledge bases which are not conflict free. In Law, for example, one may find conflicting legal precedents. If these precedents, as authoritative sources, are part of the knowledge base, then it is not conflict free. Some lawyers could even say that the legal knowledge base is *conflict full*, given the sheer amount of precedents with conflicting legal propositions. In these cases, one should decide which is the proposition that should remain in the knowledge base, while excluding the opposing ones. Binding precedents and institutional mechanisms that aim to standardize courts' decisions are methods employed in the practice of Law to solve the problem of a knowledge base with conflicting propositions.

[57] In formal terms, it means that if A ⊢ x, then A U B ⊢ x, in which A and B are arbitrary sets of propositions, U stands for the union of sets, and x is a proposition derived by classical logical consequence, represented by ⊢. One could argue that, since monotonic reasoning is usually boring, the terminology is quite appropriate.

Things unravel differently when it comes to the argument from consequences. The knowledge base consists of propositions "Raising import taxes protects the national industry, mantaining jobs", "To maintain jobs is a good thing" and the conclusion of the argument from consequences "One ought to raise import taxes". Given the same condition for introducing new premises, we may add those represented in the argument below:

(Causal Premise)   *Decreasing import taxes raises incentives to innovate.*
(Evaluative Premise) *To raise incentives to innovate is a good thing.*
(Conclusion)   *Thus, one ought to decrease import taxes.*

Without violating our condition for adding premises, one reaches a conclusion which is opposed[58] to the one already in the knowledge base: "One ought to raise import taxes". If one is to take action, he cannot do both things at the same time, and needs to decide which conclusion, if any, is preferable. One of the arguments may be considered stronger, and the contrary conclusion may be withdrawn from the knowledge base, violating the property of monotony. Because of this possibility, this kind of reasoning is called *nonmonotonic*. Inference structures of nontomonic reasoning are called *defeasible*, for their argument may be defeated as new information (premises and arguments) comes in, while those of monotonic reasoning may also be called *deductive*.

When dealing with nonmonotonic reasoning, the knowledge base may be subject to multiple possible extensions[59], depending on the arguments produced. In the import taxes

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Furthermore, monotonicity does not depend on the conflict free assumption as it will be further discussed in a footnote below.

[58] Since the conclusions are different prescriptions, some may argue that it is not logically appropriate to say there is a contradiction. In the literature about deontic logic, the idea that obligations cannot conflict - it cannot be obligatory to do something and not to do something at the same time - is challenged. This is one of the "puzzles" of deontic logic. I use the term "opposed" for this reason. However, everybody (I believe) agrees that, in practice, both things are not realizable at the same time, which is sufficient for my purposes. For a brief presentation and a list of deontic logic puzzles, see MCNAMARA, Paul, "*Deontic Logic*", *The Stanford Encyclopedia of Philosophy* (Winter 2014 Edition), Edward N. Zalta (ed.), available at https://plato.stanford.edu/archives/win2014/entries/logic-deontic/, last access in January 9th 2017. The particular problem I am referring to is mentioned under the heading of *Sartre's Dilemma*, as sometimes the puzzle is called.

[59] One could entertain the possibility of multiple extensions with monotonic reasoning, if he drops the assumption that the knowledge base must be conflict free. Consider the situation of conflicting propositions within a knowledge base. To deal with this situation, one can decide for embracing one of the propositions and,

example above, considering a knowledge base composed only of the arguments' premises, and the desire not to have opposing conclusions together, one has two options to extend the knowledge base: (i) add "One ought to raise import taxes"; or (ii) include "One ought to decrease import taxes".

It must be clear that the possibilities for extensions are many, but the big question is: how does one choose among the possible extensions? As expected, one needs rules for deciding what are the *preferred extensions*, the third element of a basic model of argumentation. The term is in the plural for it is possible to subscribe to more than one extension. Let us give some examples of how one may define the preferred extensions, by showing two general approaches[60].

According to the *sceptical* approach, one should prefer the extension composed only of conclusions that hold in all possible extensions. In the import examples above, since the conclusions are contrary, neither of them hold in all possible extensions. Therefore, the preferred extension would be empty or, as it is more natural to say, there would be no extension at all. This corresponds to a more cautious attitude when taking positions in argumentation. The *credulous* aproach, by its turn, considers every possible extension based on sound arguments acceptable. Therefore, in the import taxes example, both extensions would be acceptable and preferable. In practice, this implies an indifference regarding to which extension should be embraced.

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as a consequence, there may be multiple extensions. For example, one may imagine a knowledge base with "All men are mortal" and both propositions "Socrates is a man" and "Socrates is not a man". Depending on the one to be accepted, the knowledge base may or may not change to include "Socrates is a mortal". "Traditional" formal logic accounts cannot handle an inconsistent knowledge base. According to them, any proposition may be inferred from a contradiction, which is called the principle of *explosion*. In other words, a contradiction makes a logical system explode into *triviality* by allowing anything to be inferred. *Paraconsistent logics* are a family of logical systems in which the principle of explosion is not accepted. They are tools that may help formally modelling such situations. For a brief overview of paraconsistent logics, see PRIEST, Graham, TANAKA, Koji and WEBER, Zach, "*Paraconsistent Logic*", *The Stanford Encyclopedia of Philosophy* (Winter 2016 Edition), Edward N. Zalta (ed.), https://plato.stanford.edu/archives/win2016/entries/logic-paraconsistent/, last access in January 9th 2017.

[60] There are much more fine-grained possibilities, as one can see, for example in BONDARENKO, DUNG, KOWALSKI, TONI, 1997. The summary of different approaches can be found in p. 68. However, they are not necessary for the purposes of this informal introduction, and would require the presentation of a much more complex technical framework.

However, if one were to take a decision in real life, the results of these approaches would hardly be deemed acceptable. If neither of the extensions are right (sceptical approach) or both of them are right (credulous approach), then, it would seem that any decision would do. But decision makers usually want more. They want to know they are taking the single best decision they could, grounded in reasons. In a nutshell, they crave for a unique right answer.

When dealing with legal decisions by judges, this is more than a desire. It is legally binding. A judge cannot decide that both possible answers are correct, for something cannot be legal and illegal at the same time. Neither can he decide there is no answer. This is true at least for those legal systems in which the *non liquet* judgment is forbidden. So, if a judge faces a situation of doubt, he needs to deepen the investigation of the subject matter, looking for new premises and new arguments which will lead to a unique conclusion. This process draws attention to two fundamental concepts.

First, in a dialogue, arguments *attack* other arguments. This notion is crucial to describe how to obtain what is intuitively called the stronger argument and, consequently, to decide which is the preferred extension. The result of a conflict between arguments defines its *status* within a dialogue, which tells its contribution to resolving the issues at stake. According to their status, arguments may be defeated, justified or defensible[61]. *Defeated* are those which have been attacked in a way that its conclusion should no longer be accepted, a "losing" argument. *Justified* are those whose conclusion should be accepted, a "winning" argument. When it is not clear whether the conclusion of some argument should be accepted, then it is considered *defensible*.

Let us consider again the argumentation about import taxes. Assume there are two people engaging in a dialogue in which the issue is whether import taxes should be raised. They participate by taking turns, presenting one argument at a time. The first participant advances the argument that import taxes should be raised to protect national industry (Argument A). If we take a picture of the dialogue in this moment, this is the sole argument

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[61] For an overview of different (formal) studies of these notions, with the names "justified", "defensible" and "overruled"(instead of "defeated") see PRAKKEN, VREESWIJK, 2002.

leading to the conclusion. It is a sound argument, following the inference structure of an argument from consequences. The premises are undisputed. There is no reason not to accept it, so it is justified. The diagram below, in which circles represent propositions (identified by numbers, P for premises, C for conclusions), squares represent an argument (identified by letters), and arrows represent inferences (normal for support, dashed for attack), is our picture of the dialogue:
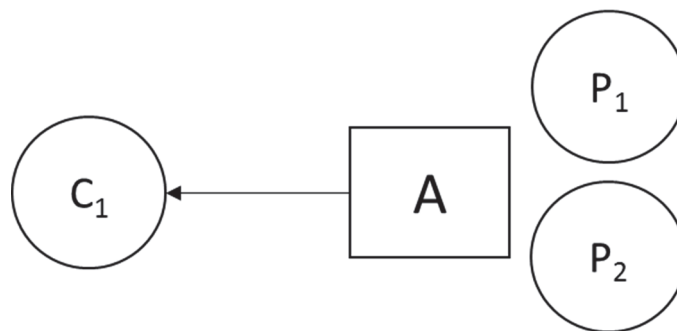
On its turn, the second participant presents the argument that import taxes should be decreased to incentive innovation (Argument B). The argument is also sound, and there is no clear way for us to decide which of the arguments raised is stronger. The picture of our dialogue in this second moment shows that both arguments are defensible. They attack each other, since they have opposite conclusions. To identify that Argument B is advanced by a opposing party, the circles and squares are painted black:
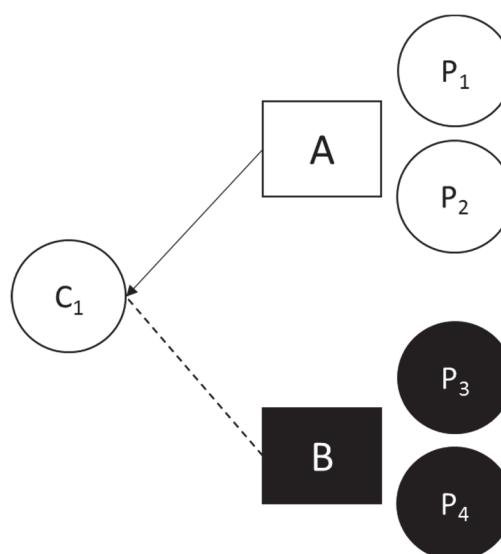
In a third moment, the first participant brings information about econometrical studies, showing that import taxes are not negatively correlated to investment in research and development (Argument C), challenging the premise that decreasing import taxes raise incentives to innovate (Premise P_3). The new argument, based on expert opinion, attacks the argument of the second participant, by having a conclusion which is contrary to its premise. If the new argument is sound and its premises are true, then we have reason to conclude that the attacked premise is false. In this case, Argument B no longer supports its conclusion, and it is defeated. Arguments A and C are justified.
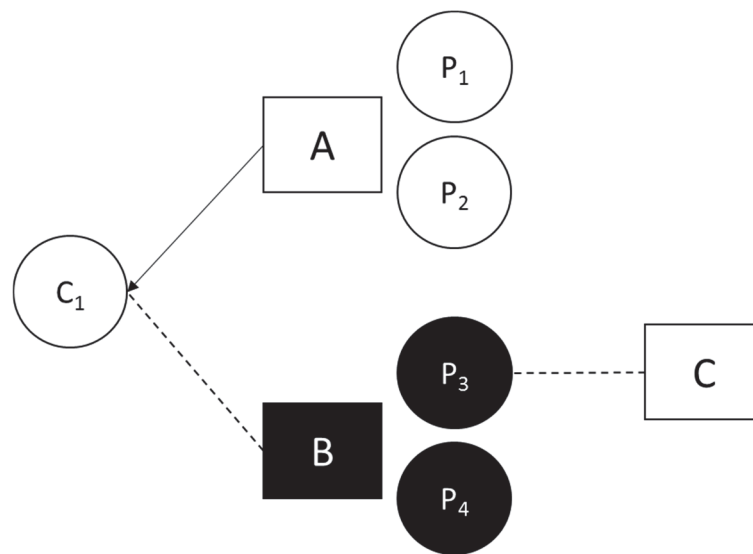
Preferred extensions may be defined as a function of the argument's status. For instance, one may define the preferred extension as comprising only justified arguments and its propositions. Therefore, the propositions of both the arguments by the first participant (Arguments A and C) would be included in the updated knowledge base.

Besides illustrating the concepts of justified, defeated and defensible arguments, the example above reveals other important aspects of attacks. An argument may be attacked, and even defeated, but it will still be sound. The property of soundness is given by the sole observance of an inference structure. If one wants to know about the actual support that an argument gives to a conclusion, he needs to look to the other related arguments and their status, what I will call the *dialectical frame*. The diagrams above skecthes a dialectical frame

representation, and will be called *argument diagrams* or *argument maps*[62]. This idea and the example above explains what I meant by a dialogical (or procedural) argumentation framework to evaluate the right answer, in the Introduction (item 2, close to the end).

I say that the frame is dialectical instead of dialogical for a reason. The term "dialogue" pressuposes two people; however, it is possible for oneself to present different arguments for and against a conclusion. Even a one-sided position may be represented within an argument map, in which the conclusions of some arguments will be the premises of others - a *chain of reasoning* - or in which different arguments will support the same conclusion – an *argument accrual*[63]. The diagrams below show examples of a chain of reasoning and an argument accrual:

Chain of Reasoning

Argument Accrual

Another aspect of attacks displayed by the examples above is that they are of different kinds. The first two arguments attacked each other by drawing opposite conclusions, while the third argument attacked the second by one of its premises. Understanding precisely how attacks work is invaluable to a model of argumentation and might be needed for a proper definition of preferred extensions.

The second fundamental concept is that of _burden of proof_[64], which may be intuitively understood as the assignment to someone of an obligation to prove that a proposition should be accepted[65]. If the obligation is not met, then the proposition is considered not accepted and the person "loses" the debate surrounding it. Take the second picture of the discussion about import taxes above. In that picture, both arguments are defensible, which means no one has been able to prove that his conclusion should be accepted. One way to eliminate the doubt about the right conclusion and determine a "winner" would be to assign a burden of proof to one of the parties. Then, the situation of uncertainty would be resolved.

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[64] An extended and recent discussion of the burden of proof in argumentation may be found in WALTON, 2014.

[65] The general notion of a burden is something that you must do, otherwise you will suffer a consequence. As it will be shown in Chapter II, there are different types of burdens that may impact the status of a proposition.

The concept of burden of proof is largely used in the Law[66]. As a rule, in criminal cases, the accusation has the burden of proof, which means that they need to prove that the defendant commited the crime. More than that, the proof needs to be presented beyond reasonable doubt. Such a concept conveys the idea that the degree of support to a conclusion may vary. The determination of how strong the support must be for the conclusion to be accepted is called the *standard of proof*[67].

Suppose a court of Law is trying to determine whether Mark killed John. According to ballistic analysis results, John was killed by a Desert Eagle semi-automatic pistol, owned by Mark. This fact can be used in the following argument:

(Premise 1)	*Generally, pistols are used by their owners.*
(Premise 2)	*The owner of the pistol that killed John is Mark.*
(Conclusion)	*Thus, Mark killed John.*

Assume both Premises 1 and 2 are true. Even if there is no argument to defend Mark, only his not guilty plea, is it enough to convict him? The argument above is defeasible, for it is possible that a shooter uses guns owned by other persons. One needs to ask, then, if the support to the conclusion is strong enough to sentence a man to jail based on such an argument, if it is *beyond reasonable doubt*. In civil cases, usually there is no equivalent to this question, and the rulings are made in favour of the party who has *preponderance of evidence*.

The assignment of burdens of proof and design of different standards of proof have a decisive role in defining the "winning" arguments and, thus, the preferred extensions. Just as with attacks, the concept needs to be investigated to build a model of argumentation and especially to legal situations. For now, it is only important to highlight that, intuitively, it

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[66] For a discussion on different types of burdens in legal argumentation, see PRAKKEN, SARTOR, 2009.
[67] For a classification of the standards of proof in the law, and an attempt to formalize them, see GORDON, WALTON, 2011.

makes sense to talk about different degrees of support for the conclusion, when it comes to defeasible arguments and also of different standards of proof[68].

As a closing remark, although I have acknowledged the possibility of argument maps being used to represent one-sided chains of reasoning, it should be noted that the concepts of preferred extensions, attacks and burden of proof, are closely related to the dialectical and conflicting aspects of argumentation, as captured statically by a picture of the dialogue. They are focused in relations between arguments, and in the evaluation of the argumentation process as a whole, being in contrast to the concept of inference structures, which concentrate in the arguments individually considered and their single evaluation.

I.2.B Dynamic Criticism: Dialogue Protocols

Arguments often exist into the context of a *dialogue*, a conversational framework with at least two ideal participants ("ideal" in order to account for the possibility of a dialogue between one and oneself)[69]. It is debateable if every conversational exchange which we intuitively refer to as a dialogue involves arguments, but it is clear that in at least some, arguments are essential. For instance, the discussion above about the tax raise to protect national industry.

Some elements of a dialogue must be distinguished in order to properly characterize them. Conversational exchanges have a *goal*[70]. In *persuasion dialogues*[71], in which

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[68] The idea of degree may be formalized by *many-valued logics*, a family of formal systems in which the truth-values of a proposition may be more than two (true or false). They are often related to the mathematical concept of *fuzzy sets*, whose elements have a degree of membership to a set which usually can be any real number from 0 to 1, resulting in the idea of *fuzzy logics*. For overviews, see GOTTWALD, Siegfried, "*Many-Valued Logic*", *The Stanford Encyclopedia of Philosophy* (Spring 2015 Edition), Edward N. Zalta (ed.), available at https://plato.stanford.edu/archives/spr2015/entries/logic-manyvalued/, last access in January 9th 2017; CINTULA, Petr, FERMÜLLER, Christian G. and NOGUERA, Carles, "*Fuzzy Logic*", *The Stanford Encyclopedia of Philosophy (Winter 2016 Edition)*, Edward N. Zalta (ed.), available at https://plato.stanford.edu/archives/win2016/entries/logic-fuzzy, last access in January 9th 2017.

[69] An acknowledgment of the possibility of a dialogue with oneself is found in PERELMAN, 1969, § 9 "*Self-deliberating*", p. 40-45.

[70] For the idea of the goal of the dialogue as critical to characterize it, see WALTON, KRABBE, 1995, Chapter 3. It is worth stressing that this book offers an interesting and influential account of dialogues and argumentation.

[71] Persuasion dialogues, for the obvious reasons of being focused on arguments, are the most important type of dialogue (the concept of types will be mentioned just below) for argumentation theory. For a review of formal

arguments play a major role, the goal is to solve some *issue* by persuading the other party. An example of issue is whether import taxes should be raised. There is at least one *thesis* about the issue. In the illustration above, there are two opposing theses, that import taxes should be raised, and that they should not. Each ideal participant has a different *viewpoint* on the issue. In our case, one side believes on the thesis that import taxes should be raised, and the other side believes in the opposing thesis. But viewpoints are not restricted to embracing a thesis. One could only have doubts about a thesis. One party could defend that import taxes should be raised and the other could doubt whether there are arguments strong enough for him to also support this position. In the former case, there is a *dispute*; and, in the latter, a *dissent*. Each party takes *turns* for contributing to the dialogue by speaking or writing. Each contribution is called a *move*.

A dialogue may be divided in *stages*. For example, a persuasion dialogue may have an opening stage in which the issues and thesis are defined, while the viewpoints of the participants are brought forward, defining the nature and extent of the confrontation. In sequence, the parties present the arguments that support their thesis or attack the opposing thesis, in what may be called an argumentation stage. Lastly, the parties agree to end the discussion and declare if they have changed their original viewpoints. In legal arbitration proceedings, the arbitration agreement illustrate the idea of an opening stage, since it is a document that defines the issues to be discussed, among other provisions[72]. Hence, the division in stages may help in dialogues analysis and organization.

Dialogues are also characterized by its rules. For example, if a lawyer is trying to persuade a judge that Mark is innocent of killing John, he cannot uphold his claim making an offer, such as: "If your honor rules that Mark is innocent, in the next case I bring before this court I will not appeal, no matter the result". Best case scenario, it would look like an odd joke. However, in the context of a negotiation, an offer would work just fine. A lawyer could reach a settlement of a legal dispute by making an offer: "If you pay ten thousand dollars for damages now, my client will give up on the charges for the crime of trespassing".

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systems dealing with persuasion dialogues, based in a proposal of a formal account of its main elements, see PRAKKEN, 2006.

[72] In Brazilian Law, the obligatory contents of an arbitration agreement, including the definition of disputed issues, are defined in Article 10 of Law n. 9.307/1996.

This shows that there are different *types* of dialogues[73], with varying goals and rules that change accordingly. The set of rules of a dialogue is called the *dialogue protocol*.

Dialogue protocols contain rules defining the relevant knowledge bases, accepted inference structures, possible attacks, burdens and standards of proof. All the conceptual framework to perform static analysis may be used to define a dialogue protocol precisely. But there is more. Some rules are properly *procedural* and are not embedded in the ones regarding the aforementioned concepts. For example, "no party to the dialogue may contradict himself/herself" or "every party may only assert what he or she actually believes in" are very general rules about non-contradiction and sincerity[74], which are not properly understood in terms of the concepts presented in the last section (I.2.A). More mundane rules could also be part of this set of procedural rules, such as "every party has five minutes to speak at their turn", "the dialogue will end after ten turns, five for each party", or "only PhD students may participate in the dialogue". All the different rules contained in the dialogue protocol will be called *rules of argumentation*.

Some procedural rules are essential to the comprehension of dialogues in general. The ones above, about non-contradiction and sincerity, were chosen because they are related to the fundamental notion of *commitment*[75]. The Miranda warning, made famous by crime television series, helps illustrating the idea. It says, in the relevant part: "*Anything you say can and will be used against you in a court of law*". If a suspect says something that may incriminate him, he cannot simply take it back whenever is convenient (non-contradiction), because it is presumed that people mean what they say (sincerity). One is committed to what he says, and there may be conditions for retracting it in an acceptable manner. Many arguments may be built on the existence of an inconsistency between what a person says and what he has already committed to. Liars are usually caught this way.

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[73] For a non-exhaustive but influential classification of dialogue types that include: *persuasion*, *negotiation*, *inquiry*, *deliberation*, *information-seeking*, and *eristics*, see WALTON, KRABBE, 1995, Chapter 3. The authors classify and describe the dialogues according to the context in which they take place, the goal of the dialogue, the individual goal of the parties, the way it works and its collaborative or adversarial tendency. A seventh type of dialogue, called the discovery dialogue, may be found in MCBURNEY, PARSONS, 2001. A didactic introduction of types of dialogue may be found in WALTON, 2006 (a), p. 183-191.

[74] Both rules adapted from ALEXY, 1989, p. 188. According to the author, they are the first two basic rules of practical discourse.

[75] WALTON, KRABBE, 1995.

Besides those rules that seem applicable to all dialogues, there are others which are linked to certain features of a dialogue. Its goal and the rules of argumentation contained in the protocol show a relation among function and structure. If the goal of a persuasion dialogue is to change someone's mind about something, it makes no sense to allow threats as possible moves, even if they could take the form of an argument, known as *ad baculum argument* or "argument based on the stick". Unless we are living in some fascist dystopia, threats are not a legitimate way to conform other's ideas. Nonetheless, in a negotiation, in which the goal is to make a deal, it is not regarded as problematic for a lawyer to argue: "If you do not accept my offer, I will appeal again and again. This lawsuit will never end, and you will never receive any money while you still live". It is not nice, but it is part of the game. Therefore, the goal of the dialogue must be observed when designing its rules and to evaluate which moves are legitimate or not[76].

The applicability of rules of argumentation may also depend on the stage of the dialogue. In a lawsuit, there are definite periods in which the parties can make their claims, contest, bring evidence or advance arguments. A factual allegation of a breach of contract in a civil procedure usually must be contested in time, otherwise it will be considered true for the purposes of the lawsuit. An evidence brought to court after the sentence may be discarded as useless (again, in a civil procedure).

Although there are classifications of general types of dialogue[77], their function and structure can be discussed in more detail if one looks closely to the context in which they take place[78]. As already argued, a lawsuit may be modeled as a dialogue (Section I.1), and I

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[76] This is one crucial point of Douglas Walton and Erik Krabbe. WALTON, KRABBE, 1995, p. 2. This idea is very important to review the conception of what may or may not be considered a fallacy, which will depend on some context.
[77] WALTON, KRABBE, 1995, Chapter 3, show that their types of dialogue have subtypes, which point to the possibility of more contextual thinking about dialogues.
[78] Thomas Gordon brings attention to the importance of contextualizing dialogue protocols, by saying about procedural rules "*(…) The norms should depend on the nature and purpose of the particular type of legal proceeding, and the rights and responsibilities of the participants should depend on their role, such as plaintiff, defendant, or judge. Notice that these procedural norms not only limit the discretion of the judge, but also regulate the behavior of the other participants in the proceeding. For this reasons, my model is not of legal argumentation in the abstract, but of a particular kind of legal proceeding: civil pleading.*" GORDON, 1995, p. 6.

should add that its design can be better understood if one reflects on its goals and legal context. The quest for legal certainty will demand a properly defined knowledge base, grounded in legal authoritative sources; and inference structures to handle these sources, as arguments for applying rules and precedents. The quest for the right answer explains the adversarial principle and the dual-level jurisdiction principle (Section I.1), as well as the wide-range of possibilities to introduce evidence. More concrete legal principles, by their turn, justify other applicable rules to lawsuits. The *non liquet* principle will justify the need to always define a winner. The principle that lawsuits should come to an end in reasonable time[79] orient the number of turns.

The lawsuit as a dialogue can be described and discussed using the conceptual framework presented herein. The legal authoritative sources as a knowledge base, the types of arguments as accepted inference structures, some rules of legal procedure as defining burdens of proof and so on. One may specify a dialogue protocol for a lawsuit by stating the applicable rules of argumentation (as comprehensively defined above). The existing rules of legal proceedings – being it civil, criminal, administrative procedures - may be classified and analysed according to this conceptual framework.

I.2.C. Audiences, Context and a Modelling Condition

An argumentation model has the objective of helping to identify, analyze, evaluate and create arguments[80]. All these tasks are intertwined, but the evaluation is more directly connected to the question that opened the introduction of this work: how to decide which legal argument is stronger? Given its special importance and inherent difficulty, it calls for a few additional comments.

Evaluations are always made from someone's point of view (and not from nowhere). In argumentation theory, arguments are directed to an *audience* which evaluates them[81].

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[79] In Brazil, "*princípio da duração razoável do processo*", found in Article 139, II of the Civil Procedural Code.
[80] WALTON, 2013, p. 2-3.
[81] The concept of audience was reinstated (from its origins in Greek and Roman philosophy) in the argumentation debate by Chaïm Perelman and Lucie Olbrechts-Tyteca in PERELMAN, OLBRECHTS-TYTECA, 1969. In recent years, it has been explicitly treated in formal models and computational models of

Each audience may react differently to certain arguments. For example, lawyers are usually easily convinced that evidence obtained ilegally should not be used in a lawsuit[82]. For them, a different position would amount to a grave violation of the Rule of Law, eliminating the difference between a democracy and an autocracy. If a murderer escapes jailtime because of an illegal interception of a phone call, they would probably complain about the police, but agree to the result. But laymen will often rebel against the laws, for protecting criminals, creating obstacles to the police work, and leaving society in danger. Just saying that it is the Law will not work. I recall a college classmate who once said that he wanted to write a book to justify for laymen certain legal doctrines which strike them as unjust or too liberal. The title was suggestive and captures the audience problem in a nutshell: "*An Introduction to Law for your Grandmother*"[83].

The meaning of an evaluation performed by an audience should be understood in a very broad sense. An audience, taken into context, may reject or accept any rules of argumentation. For instance, an audience composed by Brazilian judges will consider the Brazilia Federal Constitution as part of their knowledge base, and an audience of lawmakers will not be bound by arguments based in precedents in the same way as judges are. Therefore, the notion of audience highlights the fact that *argumentation takes place in some context*. Models can and should be designed with this lesson in mind. The adequacy and usefulness of a model will be judged considering it.

In the course of this work, I will have two different audiences in mind. First, in Chapter II, an abstract conceptual framework will be developed considering an audience of argumentation analysts, which intends to provide general tools for building argumentation models with different levels of abstraction. Second, in Chapters III and IV, legal argumentation will be studied based in an audience of lawyers, not attached to a particular jurisdiction, nor to a particular role in the legal system. However, the figure of a judge

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argumentation. See, for example, GORDON, WALTON, 2011. The models, however, use the audience to order values, or attribute values (ordinal or cardinal) to propositions. When discussing argumentation modelling, the role of an audience may be more comprehensive, as I will show.

[82] I say "usually" because recently, in Brazil, some members of the public prosecution's office, linked to the worldwidely-known "Lava Jato" corruption investigation (sometimes translated to "Operation Car Wash"), have defended a change in Brazilian Law to allow the use of illegal evidence collected "in good faith".

[83] In Portuguese, he called it "*Direito para a sua Avó*".

evaluating the parties' arguments before rendering his decision could be borne in mind to reflect upon the model.

After presenting all the elements above, one condition for the model to work should be introduced with help of the Law. According to a Latin legal aphorism "*quod non est in actis non est in mundus*", which translates, roughly, to "that which is not documented in the lawsuit does not belong to the world"[84]. In the practice of Law, this means that possible evidence or arguments which have not been discussed in the lawsuit will not be considered in the decision. The dialogue contains only what has actually been said by someone participating in the lawsuit. Although one pursues the truth in legal proceedings, a clear restriction of the relevant information is needed in order to reach a decision. To recall concepts presented in Section I.1, dynamic criticism cannot go on forever, and we need static analysis of a finite dialogue to find the best answer. This limitation reminds us that, in a sense, the Law is a model of the world, it deals with stylized facts, it reduces complexities.

Any model of argumentation needs to reduce complexities to give us answers, just as Law does. Hence, the condition for them to work properly is to assume there is nothing beyond their elements. There are no relevant propositions besides those found in the knowledge base, no sound arguments beyond the set of accepted inference structures, no way to decide the best answer unless by applying the preferred extension rules, and no procedural rules which are not stated in the dialogue protocol. There is nothing beyond the realm of propositions and rules. When dealing with a model of argumentation, this is our world. It is possible, of course, to discuss whether the representation of each element of the model is adequate, in comparison to how argumentation takes place in the real world. But it will always be necessary to fit one's concerns within the model's conceptual framework.

I will not provide a full-fledged model of legal argumentation. My investigation of legal argumentation will focus on the accepted inference structures, possible attacks and assignments of burdens of proof. More accurate subject delimitations will be given in section I.3.

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[84] In the literature about argumentation, this kind of restriction is known as a *closed world assumption*. As well as a legal principle, it is, in a particular sense, a feature of any model.

I.3 Object of Investigation: Argument Schemes for Legal Argumentation

Researchers deal not only with concepts, but also with methodological tools for empirical analysis. A chemist will not only theoretically discuss the velocity of chemical reactions, but will develop methods to measure it. Economists will define statistical procedures to gather data about unemployment or price inflation. In their own way, argumentation theorists also have methodological tools.

The argument maps mentioned in Section I.2.A are a tool that allows for easy visualization of argument structures and conflicting relations within a dialectical frame. The activity of drawing argument maps is called *argument diagramming*. Further explanations about this tool will be presented in due time. Nevertheless, argument maps are not the only relevant tool for dealing with argumentation.

The main tool that I want to use throughout my investigation is the *argument scheme*. It is a device that represents the inference structure of an argument, as well as lists the possible attacks to it by a set of *critical questions*, all of this while offering information about the burden of proof for parties advancing or attacking the argument[85]. Hence, it is able to represent both the internal structure of the argument, as well as possible relations to other arguments and to the definition of a preferred extension[86]. For this reason, its construction depends on different types of rules of argumentation. One may find an example of an argument scheme below. Do not worry about details at this point. Some of the information will only make more sense after Chapters II and III. For now, I only want the reader to have a clear glimpse of how does the technical product of this investigation look like.

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[85] The representation of the burden of proof is not usually part of the argument schemes as they are found in the literature. See, for example, the compendium of 96 schemes of WALTON, REED, MACAGNO, 2008, p. 308-346. Nonetheless, there are discussions about the decision to model a proposition as a premise or a critical question due to considerations of burden of proof. In this regard, GORDON, PRAKKEN, WALTON, 2007, especially the section "*Modelling critical questions in Carneades*". In order for the tool to be more useful, I intend to explicitly represent the information, whenever possible.

[86] If I were to use the notion of layers of argumentation, I would say that the argument schemes are a tool related mainly to the logical and dialectical layers. Henry Prakken discusses a logical and a dialectical perspective to argument schemes in PRAKKEN, 2010. In spite of focusing in the argument scheme as a logical construct, the author acknowledges that both views are reconcilable and outline how can this be done (Section 5, "*The role of argument schemes in dialogue*"). I endorse this reconciled approach.

Application of Legal Norms - Core	
Warrant (defeasible)	If there exists a legal norm N, which establishes that "if C, then it should be legal consequences X", and C is true, then, presumably, it should be legal consequences X.
Legal Norm	Legal norm N establishes that if C, then, it should be legal consequences X.
Antecedent	C is true
Conclusion	It should be legal consequences X.

Argument for Applying Legal Norms - Critical Questions	
Q$_1$ (Statutory Interpretation)	Is norm N's formulation correct?
Q$_2$ (Validity)	Is norm N valid? (*relative presumption*)
Q$_3$ (Applicability)	Is norm N in force? (*assumption*)
Q$_4$ (Exceptions)	Are there exceptions to norm N? (*relative presumption*)
Q$_5$ (Facts and Qualification)	Is C really true?

In spite of the fact that some of the information still might not make sense to the reader, I believe the argument scheme may still be overall understandable. Actually, it might even seem simple. This is due to the fact that the inference structure and the possible attacks are represented mostly in natural language, bearing resemblance to real arguments (at least more than formal models). Such *structural resemblance* itself may be considered a quality of the tool, since it is a characteristic sought after by argumentation models[87].

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[87] This is a quality of logics often emphasized by Jaap Hage, HAGE, 1997, p. 7-8; HAGE, 2001. Henry Prakken also mentions it as "isomorphic formalization", PRAKKEN, 1997, p. 34. Although I am not providing a formal model, there is no reason to think this would not be a quality of an informal model based in argument schemes.

In a nutshell, one can say that argument schemes help with the tasks of *identifying*, *analyzing*, *evaluating* and *creating* arguments, all the objectives of an argumentation model. With the inference structure laid down in premises and conclusion, one has parameters to scan a text written in natural language looking for arguments. But identification goes beyond this. The scheme also tells whether the reasoning is monotonic or non-monotonic, and embodies some argument classification, since it models one type of argument. The argument is analyzed by the scheme, for it is represented as an ordered set of parts, as a molecule described by naming and positioning its atoms. The evaluation is assisted by the scheme, for it lists and classifies potential attacks, as well as describes burdens of proof for propositions, which help determining whether an argument should be considered accepted, a part of the preferred extension. Finally, it aids in the creation (invention) of arguments[88], for one may be inspired in the schemes to create wholly new arguments or attack existing ones.

Obviously, a good argument scheme offers a description, as close to reality as possible, of accepted argumentative practices. Building the schemes, thus, is an activity that must be preceded by extended discussion over the argumentative practice. Both knowledge about the conceptual framework and the argumentative domain to be modeled are necessary.

After Sections I.1, I.2 and a brief explanation of what is an argument scheme, I may present my object of investigation in more detail than in the Introduction. My task throughout this work is to *contribute to answering the question of how to decide which legal argument is stronger, by building argument schemes that represent types of arguments accepted in the Law's domain*. In other words, I want to partially build a model of legal argumentation, describing the structures of arguments lawyers use, and the possible discussions over their arguments (of attacks, and burden of proof). In order to do this, I will use a framework of concepts and tools more precise than those commonly used in legal theory, as well as more accessible and detailed than formal models. This is obviously an abyssal task, reason why I will limit the scope of analysis and focus on certain types of argument.

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[88] For a computational implementation that creates arguments based on formalized argument schemes, see WALTON, GORDON, 2012.

First, I will only study argument schemes used in the context of judicial adjudication, in which a judge has to decide whether some conduct is legal or illegal, and its consequences. Different contexts could lead to other arguments schemes. A lawmaker trying to decide the best regulation to solve a problem usually has many options at his disposal, instead of only two possible outcomes (legal or illegal). As a consequence, one needs schemes that allow for comparison and choice among many options. Lawmakers also do not face the same legal restrictions than judges. Provided that they comply with higher level norms (usually the Constitution), if any, they do not have to take into consideration existing statutes and precedents. Naturally, argument schemes based on the application of legal rules and the use of precedents are not so important for the lawmaker, but are crucial for judges. Other contexts require argument schemes related to planning, such as the situation of citizens or companies choosing tax arrangements, or entering into contracts.

Second, I will only deal with arguments concerning legal rules, and will not study arguments about facts. Anyone who has watched crime television series knows that to discover what has really happened is a great problem. Documents, witnesses and all kinds of experts are used to support a lawyer's version of the story. A wide array of arguments are employed in this endeavor, from criticizing the impartiality of witnesses to upholding inferences based in the bloodstains placement. A good and fun example of argumentation about facts may be found in the movie Legally Blonde (2001) (spoiler alert!). A very rich man was killed and the main suspect was his new wife, Brooke Windham, far younger than him. Elle, the main character, defends Brooke in trial. The quotes below are from the scene in which Elle is cross-examining Chutney Windham, daughter of the man who was killed.

> *Elle: Ms. Windham, what had you done earlier that day?*
> *Chutney Windham: I got up. Got a latte. Went to the gym. Got a perm and came home.*
> *Elle: Where you got in the shower?*
> *The Honorable Marina R. Bickford: I believe the witness has made it clear that she was in the shower.*
> *[Courtroom audience laughs]*
> *Elle: Yes, your Honor.*
> *Elle: [a sudden brainstorm comes over Elle] Ms. Windham, had you ever gotten a perm before?*
> *Chutney Windham: Yes.*
> *Chutney Windham: Two a year since I was 12. You do the math.*

Elle: You know, a girl in my sorority, Tracy Marcinco got a perm once. We all tried to talk her out of it. Curls weren't a good look for her. She didn't have your bone structure, but thankfully that same day she entered the Pheta Delta Phi wet t-shirt contest where she was completely hosed to down from head to toe...

DA Joyce Rafferty: Objection, why is this relevant?

Elle: I have a point, I promise.

The Honorable Marina R. Bickford: Then make it.

Elle: Chutney, why is it Tracy Marcinco's curls were ruined when she got hosed down?

Chutney Windham: Because they got wet.

Elle: Exactly. Because isn't the first cardinal rule of perm maintenance that you're forbidden to wet your hair for at least 24 hours after getting a perm at the risk of deactivating the immonium thygocolate?

Chutney Windham: Yes.

Elle: And wouldn't somebody who had, say, 30 perms before in their life be well aware of this rule, and if in fact you weren't washing your hair as I suspect you weren't because your curls are still intact, wouldn't you have heard the gunshot, and if in fact you had heard the gunshot Brooke Windham wouldn't have had time to hide the gun before you got downstairs. Which means you would have had to found Brooke Windham with a gun in her hand to make your story plausible, isn't that right?

Chutney Windham: She's my age! Did she tell you that? How would you feel if your father married someone who was your age?

Elle: You, however, Chutney had time to hide the gun after you shot your father.

Chutney Windham: [Chutney is in tears] I didn't mean to shoot him!

Elle shows that Chutney's story is not plausible, based on the state of the witness hair, and some knowledge about "perms" (permanent wave hairstyles). At the end, she gets a confession and wins the case for Brooke Windham. Although not made explicit in the structures of premises and conclusions, there are arguments pervading Elle's questions. But not a single statute, precedent or whatever kind of source for legal rules was discussed or played any part.

Fun as they may be, arguments about facts are outside the scope of this work. To be precise, I will consider arguments concerning legal rules those which have premises taken from sources of law (e.g. statutes, precedents, contracts) or whose conclusions evaluate, establish or change some legal rule (e.g. stating a legal rule is invalid, establishing a relation between legal concepts, defining a correct interpretation).

If, on the one hand, my investigation will suffer the two limitations mentioned above, on the other hand, it will be expanded by not being attached to a given legal system. The argument schemes to be discussed are expected to be common to many legal orders. It is possible, however, that they are not exactly the same in each case, and adjustments must be made. For instance, precedents may be binding in a country (*stare decisis* principle), not binding at all in other and selectively binding in yet another one. An argument scheme for the use of precedent will need to account for these peculiarities. Hence, whenever discussing an argument scheme, I will try to present different versions of it, to show how they may be adapted to the reality of some legal systems. Only some variations will be discussed, and by no means do I intend present alternatives as to cover all legal systems.

Finally, it should be said that I do not expect to find and discuss every possible argument scheme (what would still be a herculean task), only some of them. For the reasons offered in the Introduction, I will focus on the argument schemes related to proportionality analysis (Chapter IV), but I will first present some basic schemes related to the application of legal rules and the use of precedent (Chapter III), given that they are omnipresent in legal argumentation.

I.4 An Argument-Scheme Approach

In the Introduction, I proposed a technical-contextual approach to legal argumentation. Now, I may further detail it as an *argument-scheme approach* to legal argumentation[89], for it is focused on building argument schemes. Also, some additional reasons may be given to support the approach.

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[89] For a discussion of an argument scheme approach in the literature of Artificial Intelligence in Law, emphasizing that it is often followed without being presented as such, PRAKKEN, 2005(a). Prakken's description of the approach, however, is not identical to mine, neither in the main goal, nor in its features. As argued in the Introduction, my ultimate objective is to help a lawyer to solve a case, and not to represent arguments for artificial intelligence models. It could be said that I am more optimistic (at least explicitly) about the potential uses of the tool. Moreover, in comparison to his text, I emphasize the importance to consider legal theory in the building of schemes, as well as the use of real hard cases as a test bed for designed schemes. If I could risk a guess, however, I believe he would agree with the importance of these two features. Finally, my argument scheme approach is not limited to, but focused on argument schemes, as it will be clear by the end of this section.

Argument schemes possess all the qualities of an informal framework described in the Introduction. They may be easily comprehended by lawyers and law students, if compared to formal approaches. Moreover, they have plenty of expressive power and flexibility to deal with peculiarities of legal argumentation, without having to face intricate problems related to the difficulties of providing a logical formalism[90]. Actually, building them may serve as groundwork for future formalizations and implementations. Finally, they are a tried and tested tool to teach critical thinking[91].

The tool embodies the idea of a "how" approach to argumentation. It indicates how the propositions must be structured in order to advance an argument, how arguments can be attacked and how the burden of proof is allocated. Thus, it constitutes a relevant piece of argumentation technology, that will enable a step-by-step, proposition by proposition, description of legal argumentation, achieving a new level of detail and precision. The results can be plotted in an argument map enhancing visualization.

Arguments schemes allow for great contextuality. By using them, one can describe propositions not only with abstract variables, constants and logical connectives as "not" and "or", but also with expressions like "legally valid" or "in force"[92]. Thus, premises, conclusions and critical questions may be modeled to closely resemble our natural argumentative practice. This feature does not make it "particularistic", in the sense that it represents argumentation as not susceptible to general rules. Abstraction is a matter of

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[90] Many formal systems are developed to handle certain aspects of our argumentation in the so-called *modal logics*, that brings more content into logical form and qualify propositions with it. For example, in *deontic logics*, an action, described by a proposition, may be obligatory or permitted (forbidden and facultative are also used). The deontic qualification, the property of being obligatory or permitted, is then formalized. There are other systems, such as *temporal logics* and *alethic modal logics* (*or modal logic in a narrow sense*, that deals with the expressions "necessarily" and "possibly"). The argument scheme approach gives freedom to deal with any kind of content without the difficulties of building formal systems and joining them together. For an overview in modal logics, see GARSON, James, "*Modal Logic*", *The Stanford Encyclopedia of Philosophy* (Spring 2016 Edition), Edward N. Zalta (ed.), available at https://plato.stanford.edu/archives/spr2016/entries/logic-modal/, last access in January 9th 2017.
[91] For a description of an experiment of using an argument assistant software with argument schemes (Araucaria) in a course of critical thinking, ROWE, MACAGNO, REED, WALTON, 2006. The use of argument schemes, however, is not limited to courses in which argument assistant software are used.
[92] For this point, PRAKKEN, 2005(a).

degree, and a lower level of abstraction, if compared to traditional formal logical accounts, may be required to improve the usefulness of argumentation analysis[93].

If we are to study legal argumentation and aim to meaningfully describe and evaluate it, we need tools with the capacity to describe what makes it properly "legal". Argument schemes allow to describe legal argumentation in this required intermediate level of abstraction. A bridge between legal practice and the building of argument schemes that represent them will be given by legal theory, that describes argumentation, but not yet with the technicality of an argument scheme. Application to real cases also will be of the essence. Here resides the contextuality mentioned in the Introduction, and that will lead to results that are more useful and usable by lawyers.

Concerning artificial intelligence, argument schemes have been used in a variety of ways[94], for example, to help in *argument mining*, the automated extraction of arguments from unstructured text data[95]. Very roughly, it is easier for the computer to find arguments if it has a model of what it is looking for, a parameter of comparison, given by the argument schemes. If one builds some which are specifically designed to handle legal argumentation, the argument mining of legal unstructured data bases may be improved. Furthermore, they also appear as tools in argument support software, like Araucaria and Carneades[96]. Legal argument schemes may upgrade the usefulness of this kind of software for lawyers.

As potential additional outcomes, the enhanced knowledge on legal argumentation may help renewing discussions of legal cases, institutional design and even legal theory, as it will be discussed in the following Chapters. On the other side, the concern with legal theory and real cases will likely bring new challenges for argumentation theory, the kind that

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[93] Jaap Hage brings attention to the same issue when talking about powerful logics that "*recognizes more logical form and abstracts less away as 'mere content'*". HAGE, 2001, p. 81.

[94] In the Chapter 12 "*Schemes on Computer Systems*" of WALTON, REED, MACAGNO, 2008, one may find a brief survey of argumentation schemes uses in natural language generation, interagent communication, automated reasoning and other computational applications. An updated survey would certainly reveal more uses and developments.

[95] As it is shown in LAWRENCE, REED, 2015. Incidentally, the use of argument schemes in argument mining and the usefulness of argument mining are briefly discussed in WALTON, MACAGNO, 2015.

[96] Already mentioned in the Introduction.

can be found only by attempts to apply a theoretical knowledge to practice. Therefore, the approach may be interesting for both lawyers and argumentation theorists alike.

Nevertheless, argument schemes are not a panacea, and also have their limitations as tool for building a model of legal argumentation. They do not clarify how a knowledge base may be structured, which is particularly important to Law, taken to be a system of rules that correlate cases to solutions, and which may refer to each other[97]. Also, they are not fit to describe legal procedures: many rules of argumentation inscribed in a dialogue protocol will not be represented in an argument scheme. Furthermore, they do not enable a good visualization of a dialogue, which is given by the already mentioned argument maps. Finally, they do not explain the techniques or procedures that may be used to reconstruct an argument from a text in natural language, gather material (premises) to build an argument or engage in argumentation strategically[98].

Given the argument schemes many limitations, they must not be the only argumentation tools considered in an approach. Obviously, they will not be my only tool. However, I find that it is worth maintaining the name "argument scheme approach". That is because the other tools will more or less revolve around them, giving support to the use of argument schemes (e.g. argument reconstruction, or techniques that help in building arguments), or being relatively dependent on them (e.g. argument maps, or the discussion of procedural rules in a dialogue).

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[97] A formal tool to represent systems of rules and that was inspired and used for legal purposes is found in the classic *Normative Systems* (1971), by Carlos Alchourrón and Eugenio Bulygin, later republished in Spanish as *Introducción a la metodología de las ciencias jurídicas y sociales*. ALCHOURRON, BULYGIN, 1993. The change of these systems may be also formalized by using logics of *belief revision*. For an overview of such logics, see HANSSON, Sven Ove, "*Logic of Belief Revision*", *The Stanford Encyclopedia of Philosophy* (Winter 2016 Edition), Edward N. Zalta (ed.), available at https://plato.stanford.edu/archives/win2016/entries/logic-belief-revision/, last access January 9th 2017. For logical operations of refinement designed to be used with legal normative system, with an example, see MARANHÃO, 2001.

[98] The points about building an argument and argumentation strategy are found in PRAKKEN, (AI, Logic and Argument Schemes), 2005, Section 8 "*Limitations of the Argument Scheme Approach*".

I.5 Four Claims

Although developing argument schemes is a contribution on its own to the study of legal argumentation, this study will have the side effect of supporting four additional claims closely related to the argument scheme contextual approach. I do not mean to provide an ultimate demonstration of their truthfulness, nor an extended discussion evaluating different theoretical positions and arguments. Actually, these claims may also be seen as presuppositions of this investigation. For if they were completely false, this work would be meaningless. The first and second claims are related to legal theory, whilst the third and fourth ones concern an approach to legal theory.

First Claim (Legal Theory): It is possible to decide which legal argument is stronger and, consequently, whether there is a best answer (a right answer from a static perspective), in the context of judicial adjudication.

Argument schemes may be used to evaluate arguments and, thus, to decide which argument is stronger. If they can be used to build an argument map in the context of a lawsuit, then they will allow one to decide which legal argument is stronger and find the best answer. Although the investigation will not offer a complete set of schemes, and argumentation theory alone is not able to solve every problem of legal argumentation, the work still shows how argument evaluation can be made in some situations. A small but meaningful step in supporting the first claim.

Second Claim (Legal Theory): Legal argumentation and institutional design are intrinsically connected

The argument schemes which lawyers must follow, the arguments and attacks they advance may differ according to the legal system, as it was made clear by the example above (Section I.3) about binding precedents. This shows that adequate models for legal argumentation are not universal, but, rather, dependent on institutional choices. Furthermore, the concepts used here will allow a precise characterization of the difference between legal

systems as well as empower us to make more conscious choices of institutional design, by accurately describing the argumentation mechanism.

Third Claim (Approach to Legal Theory): Argumentation tools, in general, and argument schemes, in particular, are useful to investigate legal argumentation, institutional design and legal theory.

The third claim is self-explanatory, and shall prove to be true if my investigation leads to clarification on issues of legal argumentation, institutional design and legal theory in general.

Fourth Claim (Approach to Legal Theory): Real cases are important to develop argumentation tools, in general, and argument schemes, in particular.

Any theory needs to be tested. Argumentation tools in general, and argument schemes in particular, must be used to represent real argumentation, to verify if they can really help identify, analyze, evaluate and create arguments. Real cases serve not only to reject an argumentation tool, but also to improve it and to show the need for new tools[99].

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[99] WALTON, SARTOR, MACAGNO, 2016, clearly acknowledge that real cases have their own challenges (p. 5), which I believe may lead to new tools, and also the need for testing in order to develop argument schemes for statutory interpretation, p.26

CHAPTER II
ARGUMENT SCHEMES

In Chapter I, I introduced the concept of argument scheme, a device that represents an argument's inference structure, possible attacks it may suffer and the burden of proof for each proposition. I also said that the focus of this work will be to investigate argument schemes used in legal argumentation, in the context of judicial adjudication. Namely, I will study argument schemes related to the application of legal rules, use of precedents and proportionality analysis.

In this Chapter, I intend to discuss how to understand, build and use argument schemes[100]. In order to do so, the structure of an argument needs to be detailed. In Section II.1, I present the main concepts required to an acute understanding of what is represented within such a structure, and why. In Section II.2, I define an argument scheme more technically, using the concepts of Section II.1. I also present some guidelines for building new argument schemes and refining existing ones, as well as briefly comment on argument maps, while introducing the conventions I use for them. In Section II.3, I shall raise some important questions about the use of argument schemes to represent argumentative practice. Finally, in Section II.4, I will further justify the importance of developing argument schemes for legal argumentation.

The same warning made in Chapter I about the terminology and conceptual framework remains valid throughout Chapter II. Again, I ask the reader to focus on the ideas as they will be presented in the text. The reasons for that must be further detailed this time, though. The concepts discussed hereinafter are present in a vast literature which has not

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[100] I already studied and discussed most of the concepts presented in this Chapter in the dissertation I presented as a requirement to obtain my Master's Degree, four years ago. This Chapter is an updated and heavily revised version of that presentation, which embeds many corrections and some new ideas. The original dissertation closely followed Douglas Walton's presentation of the concepts. Although he is still a major influence (which is only natural, since his work is mandatory reference in the area), the differences from the way he approaches the subject are now stronger, as a result of further contact with the literature on Artificial Intelligence and Law. The original presentation can be found in the Chapter I of NÓBREGA LUCCAS, 2013.

standardized their meaning[101], nor related them consistently[102]. Even authors taken in isolation change their ideas along time in different articles, conference papers and books[103]. Thus, the only way to present a conceptual framework systematically is to reconstruct it entirely, without following a specific author at all times.

II.1 Fundamentals of Argumentation Theory

II.1.A Inference Structures: Types of Propositions, Types of Argument and Rules of Inference

In this Section, I show that inference structures are systems of propositions composed of premises, a conclusion and also a rule of inference. Different types of propositions exist and knowledge about them is crucial for building an argument scheme. However, I do not intend to present a complete theory about propositions, nor to offer an in-depth system of classification. I would rather only show the relevance of classifying them. I highlight the importance of generalizations, a type of proposition which can be interpreted as a rule. Finally, I present rules of inference as generalizations that determine the type of reasoning carried out by a given argument.

Propositions are the bones of argument schemes' structures. Therefore, I shall offer some clarifications about what they consist of, just enough to have a working concept that will suffice. I do not intend to present a perfect definition, nor a detailed concept. There are

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[101] For example, Douglas Walton makes two extended discussions about attacks in the books *Argument Schemes* (2008) and *Methods of Argumentation* (2013). In both of them, he highlights the terminological chaos found in the literature. In the former he writes that there is a "*terminological swamp*" in the discussion of attacks (p. 221). In the latter, after listing some relevant terms, he says that they are "*at their present state of usage, not precise or consistent enough for us to helpfully differentiate their meanings in framing useful advice on how to attack and refute arguments*" (p. 27). WALTON, REED, MACAGNO, 2008; WALTON, 2013.

[102] For instance, discussions about attacks and burden of proof generally do not appear together and closely related. An extended work on argument schemes such as the book *Argument Schemes* (2008) has a chapter (7) dedicated to attacks, but no chapter specifically about burden of proof. The same happens in *Methods of Argumentation* (2013). There is a chapter (2) on attacks, but none on the burden of proof. And another book from Douglas Walton, *Burden of Proof, Presumption and Argumentation* (2014), has no chapter especially dedicated to the relations between burden of proof and attacks. WALTON, REED, MACAGNO, 2008; WALTON, 2013; WALTON, 2014.

[103] One may compare, for example, the accounts of attacks in *Argument Schemes* (2008) and *Methods of Argumentation* (2013), to verify the changes. Specifically, one may note that there is different criticism of the three-way hypothesis (arguments may be attacked in the premises, conclusion and their relation of support) in each text. WALTON, REED, MACAGNO, 2008; WALTON, 2013.

many different positions regarding propositions and sentences in the literature, as well as a whole inventory of definitional difficulties[104]. Life moves on in spite of the philosophical chaos, and so should we.

For my purposes, *propositions* are the meaning of assertions, whose truthfulness or falsity may be verified, at least theoretically. Assertions represent the propositions and need to have a complete and unambiguous meaning for the proposition to be properly identified. It is possible to have the same proposition expressed by different assertions. To simplify, I will often say that the assertion is itself a proposition, if it adequately represents one; and that it is not a proposition, otherwise. Some examples will help to illustrate the abovementioned characteristics. Consider the following sentences:

(i)   *Socrates is a man.*

(ii)   *Is Socrates a man?*

(iii)   *Socrates woke up naked at October 17th, 404 BC.*

(iv)   *He finds logic books extremely boring.*

(v)   *Socrates is working on it.*

(vi)   *(in an Athens Tabloid) Socrates found dead.*

(vii)   *Socrates ran away secretly to get married with Xanthippe.*

(viii) *Socrates eloped with Xanthippe.*

An assertion is the act[105] of affirming something. Thus, (i) is an assertion, while (ii) is a question and may not be considered a proposition. Example (iii) is a proposition, for its truth could be theoretically verified, although we will probably never know for sure, due to

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[104] For an introduction (not a survey) to the literature and the difficulties of the concept, see: MCGRATH, Matthew, "Propositions", *The Stanford Encyclopedia of Philosophy* (Spring 2014 Edition), Edward N. Zalta (ed.), available at http://plato.stanford.edu/archives/spr2014/entries/propositions/, last access in January 9th 2017.

[105] Commonly called a *speech act* in the philosophy of language. Arguably, one can make assertions without uttering any words, but, in our model, the utterance will be of the essence. Difficulties in precising the relation between locutionary acts and illocutionary force (which is considered to be underdetermined by the locutionary act) will also be overlooked, for the sake of simplification. They may be relevant, however, in discussing *argument reconstruction* (briefly discussed in Sections II.3.A and II.3.D). For an introduction to the literature on speech acts, see GREEN, Mitchell, "Speech Acts", *The Stanford Encyclopedia of Philosophy* (Summer 2015 Edition), Edward N. Zalta (ed.), available at http://plato.stanford.edu/archives/sum2015/entries/speech-acts/, last access January 9th 2017.

lack of evidence. Examples (iv) and (v) are not propositions for they do not have complete meaning. In (iv) it is not possible to know who is the subject of the sentence, and in (v) it is not possible to know the object. If one knew about the context, it would be possible to obtain the missing information and discover the proposition. Example (vi) cannot be considered a proposition, for it is ambiguous. The sentence may mean that Socrates was dead and someone found his body, or that Socrates found dead bodies (two different propositions). Examples (vii) and (viii) represent the same proposition, expressed differently, since they have the exact same meaning.

As already noted, propositions can be of different types[106]. Take the examples below:

(i) Socrates is a man
(ii) All men are mortal
(iii) Some philosopher is alive today

Proposition (i) states something about a particular individual ("Socrates"), thus it is a *particular statement*. Proposition (ii), on the other hand, states something about a group or category ("men"), it is a *generalization*. Proposition (iii) is called an *existential statement*, because it would be considered true if at least one philosopher is alive today, that is, if at least one of the kind described exists.

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[106] Classifications of propositions have been discussed since at least Aristotle, whose theory of syllogism, developed in the *Prior Analytics*, is based on a classification of categorical propositions (universal affirmative, universal negative, particular affirmative, particular negative). Categorical propositions may be combined according to some structures to form a valid argument. If the structures are not met, arguments are invalid. In the middle ages, the theory of syllogism continued to be developed: each kind of categorical proposition was coded in a letter (A, E, I, O), and mnemonic names were given to the accepted structures, for example Barbara. Also, relations between the categorical propositions were systematized within the theoretical device known as the *square of oppositions*. I do not subscribe to this classification of propositions, which presents difficulties of interpretation, such as the problem of existential import. More limitations and difficulties are discussed in texts about the *logical hexagon*, an improved substitute for the theoretical device of the square of oppositions, whose discovery is attributed to Robert Blanché and Augustin Sesmat, independently. For the original text about the theory of syllogism, see the book "*Prior Analytics*" in ARISTOTLE, Volume I, 1995, p. 39-113. For a brief overview of the modifications and improvements to the theory of syllogism during the middle-ages, see LAGERLUND, Henrik, "*Medieval Theories of the Syllogism*", *The Stanford Encyclopedia of Philosophy* (Spring 2016 Edition), Edward N. Zalta (ed.), available at http://plato.stanford.edu/archives/spr2016/entries/medieval-syllogism/, last access January 9th 2017. For an extended and modern discussion of Aristotle's theory of the syllogism, see PATZIG, Günther, 1968. For discussions about the square of oppositions and the logical hexagon, see the special issue of *Logica Universalis* on the Hexagon, Volume 6, Issue 1-2, June 2012 and especially BÉZIEAU, 2012.

This classification is of relevance because inference structures depend on specific combinations of certain types of propositions. Take the enduring example again:

(Premise)   *All men are mortal*

(Premise)   *Socrates is a man*

(Conclusion)   *Thus, Socrates is a mortal.*

In Chapter I, I called this an argument of universal elimination, and represented its structure by using capital letters to represent categories (sets) and small letters to represent instances (elements). Let us recall the structure:

(Major premise)   *All A are B.*

(Minor premise)   *x is A.*

(Conclusion)   *Thus, x is B*

It is easy to realize that the major premise is a generalization, the minor premise is a particular statement, and the conclusion is also a particular statement. Other combinations can be made that result in different argument schemes. Take the following argument, that could be uttered by some evil Greek god:

(Premise)   *All men are mortal.*

(Premise)   *All mortal are weak.*

(Conclusion)   *Thus, all men are weak.*

This argument is based on a different structure[107], that combines only generalizations:

(Major premise)   *All A are B.*

(Minor premise)   *All B are C.*

(Conclusion)   *Thus, all A are C.*

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[107] It is an instance of the famous B<u>arba</u>ra syllogism, receiving its name for being composed of three universal affirmatives (represented by A).

Obviously, not any combination will do. Take the following example[108]:

(Major premise)	*All men are mortal.*
(Minor premise)	*Pegasus is mortal*
(Conclusion)	*Thus, Pegasus is a man*

The argument is not sound. That is because there may be mortals that are not men. Even if all men are mortal (All A are B), this does not mean that all mortal are men (All B are A). Its structure, represented below, does not match any accepted argument schemes:

(Major premise)	*All A are B*
(Minor premise)	*x is B*
(Conclusion)	*Thus, x is A.*

There are different types of generalizations. In the examples above, the generalizations were *absolute*, meaning they were applicable to all instances (elements) of a category (set). To introduce another type, take a look at the following canonical examples[109]:

(Premise)	*Generally, birds fly.*
(Premise)	*Tweety is a bird.*
(Conclusion)	*Thus, Tweety flies.*

(Premise)	*Generally, things are what they appear to be.*
(Premise)	*The object appears to be red.*
(Conclusion)	*Thus, the object is red.*

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[108] The example is an instance of the fallacy of the undistributed middle.
[109] Both examples are commonly used in texts about non-monotonic reasoning. The "Tweety flies" example is the equivalent of "Socrates is a mortal" for defeasible logics. It has been used for at least some decades and can be found, for example, in REITER, 1987, p. 149, and WALTON, 1996, p. 21. The "red object" example is also widely discussed. It was originally used by John Pollock in his classic book Cognitive Carpentry (1995). POLLOCK, 1995, p. 41. The precise form in which the red object example is presented may vary, and mine is a little different from others. To illustrate, compare to WALTON, 2006 (b).

I use the expression "generally" for those statements which hold in ordinary conditions, but not in all situations. Tweety may not fly if he has a broken wing. An object may not be red but appear to be so if it is illuminated by a red light. Since the conclusions enabled by those generalizations may no longer be supported as new information comes in, they are called *defeasible generalizations*.

Generalizations can be interpreted as *rules* of the form "If C, then X" [110], being "C" the conditions, known as the *antecedent*, and "X" the consequences, deemed the *consequent*[111]. For example, the absolute generalization "All men are mortal" may be interpreted as the rule "If one is a man, then he is mortal". And what about the defeasible generalization "Generally, birds fly"? It can also be interpreted as a rule, but an *incomplete and provisory* one, with just some of its conditions stated. "If it is a bird, then it flies" is a rule, but provisory and incomplete. For one may learn that birds with broken wings cannot fly and might revise[112] the rule to obtain "If it is a bird and it has no broken wing, then it flies". The rule may be revised once again, when one discovers that penguins are birds that cannot fly, "If it is a bird and it has no broken wings and it is not a penguin, then it flies". This process of revising the rule[113] might carry on indefinitely, but if the conditions are

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[110] Frederick Schauer discusses generalizations as rules in Chapter 2 of the book *Playing by the Rules*. Schauer is particularly concerned with prescriptive rules, and argues that such rules are meant to remove some evil or promote some good. For him, generalizations are the factual predicate (the antecedent) of rules. However, he defines that rules are always absolute generalizations. To deal with the problem of defeasibility, he coins the concepts of under-inclusiveness and over-inclusiveness, which are related to the good being promoted. For example, the rule "no dogs allowed" in a restaurant aims to prevent annoyance to costumers. The rule is over-inclusive, since it forbids the entrance of guide dogs, which causes no annoyance. The rule is also under-inclusive because it does not forbid cats, which might annoy costumers as much as regular dogs. I refer to the same problems of over and under-inclusiveness by deeming some rules incomplete or provisory. My terminology aims to emphasize the possibility of changing the rule. SCHAUER, 1991.

[111] The concept of rule I am using should not be understood as comprising a relation of material implication (of propositional logic). This would render impossible the idea of a defeasible rule, discussed below.

[112] It could be said that one may revise the rule, but there is no need to do so, since the original defeasible generalization remains true. Even if birds with broken wings do not fly, it is still true that "generally, birds fly". This idea needs to be understood, considering that the new conditions may be treated differently, when it comes to discussing the application of the rule. To say that a bird flies, one may only bring up the defeasible rule "generally, birds fly", but he does not need to show, or even to mention, that the bird does not have a broken wing. Such condition is assumed to be false unless proved the contrary. I will discuss it in more detail in section II.1.C below. In the philosophy of law, as far as I am concerned, Herbert Hart first discussed this subject in HART, 1948-1949. In logic, the interpretation of negation as a failure to prove the opposite (nonprovability operator), based in a closed world assumption, also clearly conveys the idea. Negation as failure is a minimization approach used as a formal logic tool to assume as true what cannot be known for certain. For a brief presentation of negation as failure, see PRAKKEN, 1997, p. 76-82.

[113] It may be discussed whether the revised rule is the same rule or not, what is called by Bruno Celano the "*identity assumption*", which he challenges in the article *True Exceptions: Defeasibility and Particularism*. I find the question regarding the identity assumption irrelevant to understand how argumentation works.

completely stated, one will achieve an absolute generalization. As the rule's consequences cannot be defeated anymore by the introduction of new information, it makes no sense to speak of defeasibility. A complete rule may also be called *strict*, while an incomplete and provisory one may be deemed *defeasible*.

As it must be clear at this point, each type of generalization is more closely associated with a different type of reasoning, of those discussed in Chapter I. Arguments whose structure employ absolute generalizations indicate the presence of monotonic or deductive reasoning, whilst arguments based on defeasible generalizations hint into the presence of non-monotonic or defeasible reasoning. Yet, before stating any stronger conclusion about the relationship between types of generalization and types of reasoning, some examples must be discussed. Let us recall the structure of the argument from consequences, presented in Chapter I:

> *(Causal Premise)*   *A causes B.*
> *(Evaluative Premise)* *B is a good thing.*
> *(Conclusion)*   *Thus, one ought to do A.*

The structure as formulated above has no clear generalization among its propositions, but one can think of an example that comprises an absolute generalization in one of its premises. Suppose that a lawyer is representing a client who has been sentenced to pay a contractual fine to another person. The lawyer needs to decide whether he is going to appeal, and reasons as follows:

> *(Causal Premise)*   *Whenever one appeals, he gains time to pay the fine[114].*
> *(Evaluative Premise)* *To gain time to pay the fine is a good thing.*
> *(Conclusion)*   *Thus, one ought to appeal.*

Nevertheless, I believe that Celano's conclusions and final remarks, about the possibility of defeasible rules and true exceptions by referring to some concept of normalcy, are consistent with the contexts in which defeasible generalizations are usually employed, discussed in section II.2.A below. CELANO, 2012.

[114] This is not necessarily true in Brazilian Law, for not all appeals suspend the possibility of debt collection. But the provisory collection of debts is restricted, and usually it is not possible for the creditor to receive his money. To be didactic, let us just pretend that things are simple or that I am talking about an imaginary legal system in which the premise holds.

I used the expression "whenever" to build a sentence that sounds more natural, but the meaning is the same of absolute generalizations with "all"[115]. It could also be written in rule form as "If one appeals, then it (necessarily) gains time to pay the fine". Although I have used an absolute generalization, is the reasoning monotonic? No, because to gain time is not the only relevant variable to be taken into consideration in this decision. One could consider the costs of appealing, like the fees to be paid to the judiciary:

(Causal Premise)   *Whenever one appeals, he has to pay fees[116].*
(Evaluative Premise) To pay fees is a bad thing.
(Conclusion)   *Thus, one ought not to appeal.*

The second argument does not necessarily change the conclusion of the first. It all actually depends on an assessment of importance. If the client finds that buying time is more important than to pay fees, then he should appeal; otherwise, he should not. However, the mere possibility of changing the conclusion, even if dependent on additional assumptions, is sufficient to avert monotony. Thus, it becomes clear that there is no necessary relation between the types of generalizations in the premises of an argument and the type of reasoning (deductive or defeasible).

The questions that naturally arise are: how to determine if an argument is deductive or defeasible? What elements of the arguments' structure could define the type of reasoning produced? The answers are found in the *rules of inference* which are applied whenever a sound argument is made. Let us invoke our classic example once more:

(Premise)   *All men are mortal*
(Premise)   *Socrates is a man*

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[115] One could write it using first-order predicate logic as $(\forall x)\,(Ax \rightarrow Tx)$, in which Ax means "x appeals" and Tx stands for "x gains time". It is the same structure of a sentence such as "all men are weak": $(\forall x)\,(Mx \rightarrow Wx)$, in which Mx is equivalent to "x is a man" and Wx to "x is weak". This notation simplifies the natural language differences of stating that something causes another (the appeal causes a delay to obtain the final result of the lawsuit), and stating that things have certain characteristics (men have the characteristic of being weak).
[116] This is also not necessarily true in Brazilian Law, for there are exemptions for the payment of fees (for people who do not have money to pay them or for the State). Again, I will make things simpler.

| *(Conclusion)* | *Thus, Socrates is a mortal.* |

As already discussed, the conclusion is sound because the argument's structure fits into an argument scheme. I could write a rule to ascertain the soundness of such argument: "If all men are mortal and Socrates is a man, then Socrates is a mortal". When one affirms, according to a knowledge base, that "all men are mortal" and that "Socrates is a man", he triggers the conditions for the rule to be applied, enabling the conclusion that "Socrates is a mortal".

I could also write a rule based on the general inference structure: "If all A are B and x is A, then x is B". As discussed above whilst relating types of generalizations to rules, a rule may be complete or incomplete, depending on if all the conditions which are relevant to obtain the consequence are stated. In this case, the rule is complete. There are no other relevant conditions, for no new information could change the established consequence. Therefore, this is a *deductive rule of inference* or *strict rule of inference*.

There are also rules of inference for defeasible reasoning. Take the Tweety example again:

(Premise)	*Generally, birds fly.*
(Premise)	*Tweety is a bird.*
(Conclusion)	*Thus, Tweety flies.*

The rule can be stated as "If generally birds fly and Tweety is a bird, then, presumably, Tweety flies". One should note that I added "presumably" to the rule to make up for the fact that the conclusion is defeasible. The rule is incomplete, in the sense that there are other conditions that determine if Tweety flies or not, which are not in the rule's antecedent. It is also possible to build a rule based on the general inference structure being applied: "If generally A then B, and A, then, presumably, B". In this example, we have a *defeasible rule of inference*.

Before advancing the discussion of rules of inference, some technical terminology should be introduced. I will eventually use the expression *warrant* as a substitute for rule of inference (both absolute or defeasible), since the rule warrants the soundness of the conclusion[117]. Inference structures and argument schemes will be of different *types* according to the respective rule of inference, *deductive* or *defeasible*. A sound deductive argument will be called *valid*, and a sound defeasible argument, *plausible*. If the argument is sound and the premises are true, I will say that the warrant, the inference structure or the argument *support* the conclusion. A deductive argument will have a *necessary* conclusion, in the sense that the conclusion cannot be false and all the premises be true at the same time. A defeasible argument will have a *plausible* or *presumptive* conclusion, an expression that conveys the idea that, if the premises are true, we have a reason to find the conclusion true, but such a reason may be defeated by others.

Whenever one makes an argument, he presupposes the application of a rule of inference, which is ordinarily unstated. It is this rule that determines the type of reasoning. Strict rules of inference lead to monotonic reasoning and defeasible rules of inference stands for nonmonotonic reasoning. The rules of inference conditions are based on the argument's premises and may be propositions of different types. Take the example of the argument from consequences, shown above. It is based on the following defeasible warrant "If A causes B, and B is a good thing, then, presumably, one ought to do A". It is worth noting that "A causes B" allows propositions of different types such as the generalizations "A always causes B" or "generally, A causes B".

The application of rules of inference might raise issues. Someone, inspired by the dialogue between the Tortoise and Achilles[118], might ask: if the application of rules of inference warrant the soundness of an argument, and applying rules is a form of argument,

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[117] The expression is clearly inspired in Stephen Toulmin's *The Uses of Argument*. However, the reader should not assume that I am trying to use the term in the exact same way as Toulmin. Actually, in Toulmin's examples of Harry being born in Bermuda or Petersen not being a roman catholic, the warrants seem to be premises, and not rules of inference. One could state that "generally, a man born in Bermuda is British" and that "generally, a Swedish is not a roman catholic", in the same way as "Generally, birds fly". These generalizations are often discussed, reason why Toulmin presents the concept of backup. For the concepts of warrant and backup, see TOULMIN, 2003, Chapter III "*The Layout of Arguments*", p. 87-134.

[118] The dialogue by Lewis Carrol shows that there are always higher-level rules of inference that allow for the application of lower-level rules of inference, a kind of reasoning that leads to infinite regress. The dialogue was originally published in 1895. CARROL, 1995.

what warrants the soundness of applying the rules of inference? For instance, take the deductive rule "If all A are B and x is A, then x is B". The argument scheme could be rewritten as below:

(P1) (Rule of Inference)   If "all A are B" and "x is A", then "x is B".

(P2) (Major premise)   All A are B

(P3) (Minor premise)   x is A

(C) (Conclusion)   Thus, x is B

The rule of inference (P1) is saying that if P2 and P3 are true, then C is true. So, the truth of C depends on the truth of P1. But how do we know that if P1, P2 and P3 are true, then C is true? We need to subscribe to another unstated rule, according to which if P1, P2 and P3 are true, then C is true. This, of course, would lead to infinite regress.

Fortunately, both the Tortoise and Achilles have not been active in the scenario of real argumentation. People usually apply the rules of inference and do not ask about what this application would theoretically require, they just *accept* the rules. I take it from there. Reasoning is a human activity which philosophers are trying to model, and not a set of philosophical rules people are trying to apply. Being pragmatic, my concerns end where controversy ends. For the same reason, this digression is not only for the sake of fun, but it has two purposes.

First, it brings light to the fact that, in some level, we will always find a *modus ponens* structure of rule application[119]. This is the most traditional rule of inference discussed in

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[119] With small differences in the presentation, the same issue is observed by Henry Prakken, while discussing argument schemes. PRAKKEN, 2005(a), Section 2 "*Argument Schemes*". He says that "*from a logical point of view they (argument schemes) can be transformed into instances of logical inference rules by adding the connection between premises and conclusion as a conditional premise.*" Then, he gives the examples of how the schemes of the argument from expert opinion and the argument from consequences become instances of a defeasible *modus ponens* rule. He finishes by pointing that this fact allows for the formalization of argument schemes into systems of nonmonotonic logics. It should be noted that the author is using the expression "argument scheme" not to designate the representation of an inference structure, but the inference structure itself. Furthermore, his "conditional premise" is what I call the rule of inference. Furthermore, in a similar vein, Bart Verheij shows that a logic can always be explained in the background of another, more abstract, logic (e.g. Verheij says that classical logic can be explained by intuitionist logic plus a couple of assumptions (double negation and excluded middle)). The fact that semantically contextualized rules of inference in some level

logic, according to which the affirmation of a rule (it is true that the rule exists)[120] and the truth of its antecedent leads to conclude that the consequent is also true:

(Modus Ponens)   If "Rule" and "Antecedent" are true, then "Consequent" is true

(Rule)   If P, then Q
(Antecedent)   P
(Consequent)   Q

Such warrant has a defeasible variant for nonmonotonic reasoning, in which the rule affirmed is defeasible and the conclusion is only plausible. To distinguish between the two types, I will use the expressions *strict modus ponens* and *defeasible modus ponens*.

The *modus ponens* structure is easily visualized when dealing with the deductive warrant "If all A are B and x is A, then x is B". "All A are B" can be rewritten as a strict rule "If P then Q", "x is A" as the affirmation of the antecedent "P", and "x is B" as the affirmation of the consequent "Q". In other words, the warrant in this case is already *modus ponens (strict)*.

Other types of deductive arguments also lead to *modus ponens*, although in a different level. Take the example of a *hypothetical syllogism*[121], in which the warrant is "If all A are B, and All B are C, then all A are C". If one rewrites the generalizations as rules, he will obtain a chaining of rules and not a rule application:

(Major premise)   If A, then B
(Minor premise)   If B, then C.
(Conclusion)   Thus, if A then C.

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depend on *modus ponens* to be applied seems to resemble the phenomenon described by the author. VERHEIJ, 1999.

[120] In Law, the idea of existence of a rule faces many complications. For example, legal norms may exist but be invalid or not be in force. These details will be discussed in Chapter III, while building the argument scheme for norm application.

[121] The hypothetical syllogism is also known as a Barbara syllogism, already mentioned above.

Now, let us write down the new version of the warrant adjusted to the premises:

(Strict Warrant)   *If "if A, then B" and "if B, then C", then "if A, then C"*

The warrant is nothing but a strict rule of the type "If P, then Q", in which P is the conjunction of "if A, then B" and "if B, then C", and Q is "if A, then C". So, the warrant is not *modus ponens*, but the application of the warrant presupposes *modus ponens*. The same phenomenon happens with defeasible arguments and their warrants, but since, in this case, the rules are defeasible, the *modus ponens* to be found will also be defeasible.

Besides making the relation between argument schemes, rules of inference and *modus ponens* structures clearer, the problem of infinite regress draws attention to a relevant aspect of modeling argument schemes. Premises may be debated, but rules of inference are usually simply accepted by reasoners or parties to a dialogue. When a rule of inference is applied, people just acknowledge that the argument is sound, even if they disagree with the conclusion. Therefore, while building the structure of an argument scheme, the difference between premises and rules of inference will model different *attitudes* of reasoners regarding certain propositions. Rules of inference are simply used and taken as true, its discussion is out of boundaries[122]. Premises and conclusions, on the other side, are there to be discussed.

It should be highlighted that rules of inference are "usually accepted" because the actual set of accepted warrants and their precise formulation may be debated, especially when it comes to fields of knowledge which have their particular rules of inference, such as the Law. In the event of debate, the "rules of inference" will be represented in the model as premises or conclusions, since rules of inference are not debated by definition. This brief comment prompts many important questions: how do we know if a rule of inference *is* accepted? How do we know if a rule of inference *should* be accepted? Are there rules of inference accepted in *any* field of knowledge? Since rules of inference may be related to fields of knowledge, can we have more or less *abstract* conditions in the antecedent of the

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[122] If a premise which is also a rule is debated, in some level there will be another rule which is not debated. This higher-level rule will be the rule of inference, whose application will have a *modus ponens* structure.

rules? Some of these issues, that I regard more relevant for this work, will be discussed in Section II.3. Before doing that, I still need to discuss other elements in the representation of an argument scheme.

To end this section, a brief summary: the inference structure represented in an argument scheme is composed of a warrant (rule of inference), one or more premises and a conclusion. Premises and conclusions may be propositions of different types, which are crucial to define accepted argument schemes. The warrants are generalizations, that are either absolute (strict) or defeasible, and may be interpreted as rules (hence, rules of inference). Warrants determine the type of argument (deductive or defeasible) and reasoning (monotonic and non-monotonic), as well as the respective support for the conclusion. Rules of inference are usually accepted, and their application is not debated. Thus, I will model them as propositions which are accepted by the reasoners. Debated propositions will be modeled as premises. Below, I have prepared the first draft of some widely-used argument schemes, strict *modus ponens*, defeasible *modus ponens* and argument from consequences, to illustrate how the inference structures of this arguments are represented:

Strict Modus Ponens	
Warrant (strict)	If Rule and Antecedent are true, then Consequent is true.
Premise 1 (Rule)	If P, then Q
Premise 2 (Antecedent)	P
Conclusion (Consequent)	Q

Defeasible Modus Ponens	
Warrant (defeasible)	If Defeasible Rule and Antecedent are true, then, presumably, Consequent is true.
Premise 1 (Defeasible Rule)	Generally, if P, then Q
Premise 2 (Antecedent)	P
Conclusion (Consequent)	Q

Argument from Consequences (Positive)	
Warrant (defeasible)	If Causal Premise and Evaluative Premise are true, then, presumably, Conclusion is true.
Premise 1 (Causal premise)	A causes B
Premise 2 (Evaluative Premise)	B is a good thing
Conclusion	Thus, one ought to do A

II.1.B Burden of proof

The analysis of inference structures is a study of the argument individually considered. But arguments may be advanced in the context of a dialogue. For example, if two (or more) parties disagree about something, each party may try to persuade the other to accept his position by using arguments. This is the setting of a persuasion dialogue (already mentioned in Chapter I, Section I.2.B). Other ideal types of dialogues can be found in the literature[123], but the persuasion dialogue is the most relevant to our purposes, due to its close resemblance to what happens in judicial adjudication (to recall that I am concerned with argument schemes used within such a context, see Chapter I, Section I.3).

The persuasion is carried out by asserting propositions and drawing inferences which the other party accepts. Undoubtedly, any arguments or propositions may be challenged, but a minimal common ground is required if one has the expectation of solving the disagreement[124]. In this frame, the elements presented in Chapter I come into play. Propositions are taken from a shared knowledge base, and arguments are arranged in accepted inference structures. Finally, if no party will capitulate to the other, but the selection

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[123] As one can find, for example, in WALTON, KRABBE, 1995, Chapter 3. For more information, look at the footnotes of Chapter I, Section I.2.B.
[124] As noted by Chaïm Perelman and Lucie Olbrechts-Tyteca in PERELMAN, OLBRECHTS-TYTECA, 1969, and reinforced by Douglas Walton while commenting on how to get someone to accept a conclusion in a persuasion dialogue in WALTON, 2006 (a), p. 175.

of a "winner"[125] is necessary, then it is possible to appeal to definitions of preferred extensions.

As already shown in Chapter I, the preferred extension or the "winner" of the dialogue may be defined by rules of burden of proof, which may be of different types. Legal examples offer a rich variety of types of rules of burden of proof, which I will call *types of burden of proof*, for short[126]. Suppose a hypothetical jurisdiction in which most of the acts performed in the lawsuit are written and the parties make successive submissions of allegations to the court of law. At the end of the procedure, the judge delivers the sentence[127]. In said jurisdiction, Robert files a lawsuit against his health insurance company, claiming that he requested the coverage of expenses he had with a prosthesis implanted in an emergency surgery after a car accident, but the company refused to pay. As a consequence, Robert had to ask family and friends for help to raise the money to pay for the hospital bill. Such a process took some time, and Robert's name was included in a debtor's list from a credit protection agency[128].

As an answer to his factual claims, the health insurance company argues only that it has not refused to cover the expenses, since it has not even received any request for coverage. According to the germane legal system, each party should prove their own claims, but a party cannot be obliged to produce evidence that something has not happened (proof of a negative

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[125] I use "winner" between quotation marks because the expression is used in the context of playing a game, and it does not account for the possible cooperative aspect of a persuasion dialogue (in the search for the right answer). If you ask an attorney who deals with litigation, however, he will probably find the words "winner" and "loser" quite appropriate.

[126] The types of burden of proof discussed here are largely based in the article "*A logical analysis of burdens of proof*" (2009) by Henry Prakken and Giovvani Sartor, which define burden of production, burden of persuasion, tactical burden of proof, burden of claiming, burden of contesting and burden of argument. However, I do not examine the burden of production, nor the tactical burden of proof, and I use "burden of supporting" instead of "burden of argument", for reasons that are presented in a footnote below. Finally, the presentation and the emphasis on the types of burden are very different. I actually find more important the three types of burden (claiming, contesting, argument/supporting) the authors only mention in a few lines. PRAKKEN, SARTOR, 2009.

[127] The description of the procedure of our hypothetical jurisdiction is made to resemble civil law systems (as opposed to common law systems). This does not mean, however, that the discussion is not applicable to common law systems. It is just that the more concrete image of a lawsuit may help understanding the examples and the discussions.

[128] The case is not entirely hypothetical. It is based on my experience as a lawyer in Brazil, litigating against health insurance companies. Actually, lawsuits of this kind are very common in my country. The inspiration in past experiences allow the examples to be more detailed and resemble reality closely. Of course, adjustments were made to enhance its usefulness to present the issues about burden of proof.

fact)[129]. Therefore, since the health insurance company argued that it did not receive any request of coverage, Robert is required to provide evidence in this regard. In response to the denial, Robert supplies the lawsuit with a document issued by the very health insurance company, in which it clearly refuses to pay for the expenses. The act of denial was of critical importance, because, if it was not accomplished, the factual claim would be undisputed and considered true in the lawsuit. Since the health insurance company needed to deny Robert's claim to avoid it being considered true, then it had a *burden of contesting*.

As for the legal issues of the lawsuit, Robert claims that a certain statute obliges the health insurance company to provide coverage of the prosthesis expenses. Therefore, he requests to be paid back the full amount. But he argues this is not the only consequence of the unlawful act of refusal. Since his name was put in a debtor's list, he also requests to be granted an indemnification for moral damages (a compensation for his psychological suffering). The health insurance company argues that Robert was late in his monthly payments, a case which constitutes an exception to the obligation of coverage, according to another statutory provision. Furthermore, it argues that Robert offered no legal basis to his moral damages request, since no legal rule or precedent was mentioned. In a late manifestation, Robert presents the receipts of all the monthly payments, duly paid in time.

In the sentence, the judge argues that it has been proved there was a request for coverage. According to the relevant statutes, the health insurance company has a duty to provide coverage and was unable to prove any fact that could except this duty. Although it has argued that monthly payments were late, Robert proved the contrary with the receipts. As a consequence, the full amount of expenses should be paid back plus monetary correction. He observes that, although Robert did not ask for correction, its request is presumed, according to precedents[130]. On the other side, the judge notes that Robert could have asked

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[129] In Brazil, this is a commonly repeated doctrinal rule. Notwithstanding, it should be understood carefully. I am not claiming that the proof of a negative fact is impossible. Suppose John must pay the rent to Bob by a cash deposit to the latter's bank account. Bob argues that John did not pay in due time. Usually, legal systems would require John to present a proof of payment, a receipt for the deposit. However, the fact of not receiving the money could be proved by John with a bank statement showing all the movements of his account. Of course, such an example presupposes that any cash deposit must appear in the bank statement. Situations like this might justify treating rules like "one should not be obliged to produce evidence that something has not happened" as defeasible.
[130] Precedents of this kind can be found in Brazil.

for interest over the expenses; but since he has not explicitly claimed it, interests will not be granted. As for the moral damages, the judge asserts that there is no need for Robert to state the legal rules which grounds his request. Since there is a legal rule in favour of the claim, and the inscription of Robert's name in a debtor's list was not contested by the health insurance company, the judge grants Robert an indemnification for moral damages.

The example shows that the act of claiming is relevant, but propositions might be treated differently according to their function. An interesting and practical way to analyze discussions raised in a lawsuit is to think of an *argument map for each request*, which may be considered the issue of the dialogue, the ultimate proposition to be proved (see Chapter I, Section I.2.B). Let us consider the discussion about moral damages. Robert needed only to argue that he "should be paid indemnification for moral damages" and that he "was placed in a debtor's list of a credit protection agency" to be granted his request, although an argument would require the statement of a legal rule, as below:

> *(P1 – Legal Rule) According to the legal norm found in statute X, whoever is placed in a debtor's list of a credit protection agency shall be indemnified for moral damages.*
> *(P2 – Facts) Robert was placed in a debtor's list of a credit protection agency.*
> *(C1 - Request) Thus, Robert should be indemnified for moral damages.*

Robert had the *burden of claiming* that he should be indemnified for moral damages (C1), and also of claiming the facts (P2), since, if he had not done so, the request would not even be considered by the judge. It is worth highlighting that, in some sense, any proposition needs to be claimed to be a part of the dialogue (remember the modeling condition of Chapter I, Section I.2.C). The notion of the burden of claiming is related to the provision of some specific condition in order for the claim to be considered, as being asserted by a specific party at some determinate stage of the dialogue. It is said there is a burden because, at the time of the sentence, the judge could not grant indemnification for moral damages (C1) spontaneously, nor it would be possible for Robert to assert P2 in later stages of the lawsuit or in an appeal.

In spite of needing to assert the propositions P2 and C1, Robert did not need to provide evidence of being placed in a debtor's list, nor to make an argument based in a legal rule, given that he had not done so and was still granted the request. Thus, we say that Robert did not have the *burden of supporting*[131] the propositions P2 and C1 above.

Different legal rules may ground the allocation of the burdens of proof as in the example above. The principle of *non ultra petita* ("not more than requested") states that the courts of law may not grant more than it has been requested by the parties. Therefore, it imposes a burden of claiming a request. The principle of *iura novit curia* ("the court knows the law") states that the parties do not need to plead the applicable legal rules[132]. Therefore, it removes the need to affirm P1 and to support C1. Finally, there is a legal rule according to which if a fact is undisputed, it is taken as true[133]. Such a rule established a burden of contesting for the defendant and rendered unnecessary the support for P2. These legal rules establish different burdens of proof for requests, propositions related to legal rules and factual claims.

The sentence of Robert's case also shows that rules of burden of proof may have peculiarities, defined in concrete and substantial terms. Even if the general rule of *non ultra petita* demands that any request must meet a burden of claiming by being made explicit, monetary correction needs not. It is presumed to have been requested alongside any request for payment, as an accessory. The exception is quite specific, since a request for interests, although accessory in the same sense, is not presumed. Thus, a model of burden of proof may need to account for very specific situations, depending on the argument domain to be represented.

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[131] This seems equivalent to the *burden of argument*, quickly presented by Prakken and Sartor (2009). I prefer the terminology "burden of supporting" for the names of the other types of burden (contesting, claiming) also indicate some act.

[132] The idea behind the principle is that, if legal rules are mandatory, then they should be applied independently of the discussion carried out by the parties. The judge is there precisely to ensure that all the relevant legal rules will be applied correctly. If there was no *iura novit curia*, then the Law could end up being ignored in the decision (either by mistake or malicious intent of the parties). Of course, judges are also fallible (although some of them may not admit it), but their impartial position is expected to decrease the number of forgotten or misapplied rules. That is a good example of intelligent institutional design.

[133] In Brazil, such a rule may be found in the Procedural Civil Code, Art. 374, III. The statutory provision states that there is no need to prove undisputed facts. It is often interpreted that whatever fact is not contested it is undisputed, within the meaning of the aforementioned statutory provision.

The example also shows that the burden may *shift* from one party to the other and *change* into the process. In order to be considered in the discussion, Robert first needed to claim the refusal of coverage. There was a burden of claiming. So, he claimed having made a request for coverage which was refused. Next, the burden shifted to the defendant, which needed to contest the claim, otherwise it would be considered true. It was a burden of contesting. After the factual proposition was contested, the burden shifted back to Robert, who had to offer evidence to support his factual claim, a burden of supporting. He made an argument backed up by a document and the health insurance company offered no more arguments. The judge, then, recognized in sentence that there was a refusal to provide coverage.

The description above allows us to identify different *acts* in a dialogue that may impose a burden or produce a shift. The act of *asserting* (or claiming) a proposition alone may impose a burden in the other party to the dialogue, such as when Robert claimed there was a refusal and the health insurance company needed to contest it. The act of *contesting (*or *challenging)* a proposition by denying it is also relevant and may shift the burden, as it happened when the health insurance company contested Robert's factual claim about the refusal. Finally, the act of *advancing an argument* which supports a proposition is also relevant, such as when Robert offered an argument based on evidence for his claim of refusal.

A precise definition of how and in which situations such acts impose burdens or produce shifts is key to an adequate model of burden of proof. But the abovementioned acts are not the only relevant ones to an adequate description of burden of proof allocation. The propositions *content* might be important to define the burdens. Take Robert's example again. Legal rules did not need to be claimed by the plaintiff, due to the adoption of *iura novit curia* within the hypothetical jurisdiction.

Since the basic pieces of our argumentation model are the propositions, and they might impact the burden of proof allocation, a useful and relevant tool is a classification of propositions according to the relevant applicable rules of burden of proof. I propose a *twofold*

classification, first with regard to the act of *asserting* a proposition and bringing it up to the dialogue, and, second, with respect to the subsequent acts of *contest and support*. The classifications intend to be as general as possible, in order to orient the modeling of many real-life situations. As it will become clear, the first of them does not exclude the creation of refined classifications, more attached to particular situations being modeled[134]. Both classifications are inspired by the Law, but have the virtue of being potentially useful beyond its borders. On the downside, it is very likely that they are not expressive enough as to orient every possible modeling situation, even in the Law.

The classification of propositions according to their assertion is oriented by the potential restrictions to the act. Claiming a proposition may be restricted to certain parties to the dialogue, to determinate stages of the dialogue, to a knowledge base, or not restricted at all: respectively, these will be called *party-restricted*, *stage-restricted*, *base-restricted* and *unrestricted* propositions. A single proposition may be restricted in more than one way at the same time, in any combination. Let us, once again, consider that a lawsuit is a dialogue between parties in at least three positions, the plaintiff, the defendant and the judge (as argued in Chapter I, Section I.1). Legal examples of the first two types of restriction are easy to find. As discussed, judges cannot grant requests the plaintiff did not ask for, so a legal request is party-restricted. Legal requests are also stage-restricted, for they cannot be made at any time, as well as factual claims.

The concept of base-restriction may strike as odd, since in Chapter I the knowledge base was named a basic element for argumentation models. If there is always a knowledge base, what is the meaning of saying that a proposition is base-restricted? For sure, if the knowledge base is every possible proposition, it would be senseless to speak of a base-restriction. The concept, though, is aimed at situations in which a knowledge base is somehow defined (as a subset of every possible proposition). Models may have undefined knowledge bases, defined knowledge bases, or a mix of defined and undefined bases, depending on some characteristics of the propositions being asserted.

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[134] This is not so clear in the second classification. It may be possible that it does not allow further refinements. At this time, however, I do not have grounds to defend either position.

A base-restriction may be easily understood as a rule that only propositions taken from a list might be used in the dialogue. The Law complicates this depiction. In a lawsuit, a proposition asserting a legal rule is somehow base-restricted, for one must search for it within authoritative sources such as statutes and precedents. Nevertheless, any legal system is a tremendously large base, and one may argue for the existence of legal rules based on texts of different statutes and precedents, using many interpretation techniques. In spite of the difficulties, it has to be grounded in authoritative sources in some level, which cannot be overlooked or denied in legal interpretation[135]. Still, in a number of times, the rule may just be laying down clearly in the text of some statute, waiting to become a premise of an argument, what shows that the list picture remains useful[136].

A model of legal argument may also illustrate the possibility of mixing defined and undefined knowledge bases. On the one hand, asserting legal rules is base-restricted. Yet, on the other hand, factual claims are not. In principle, there is no defined list of what factual claims could be introduced in a lawsuit. The ways to support them might be limited, but this is not a claim-related problem.

As closing remarks, it must be said, first, that the classification can be refined for specific contexts. I have not said a word about the possible parties and stages, and just commented briefly on a knowledge base consisting of propositions taken or interpreted from authoritative sources of law. If one defines parties, stages and knowledge bases, he will be able to define corresponding types of restriction (e.g. plaintiff-restricted, trial-restricted, constitution-restricted propositions). And some kinds of proposition may be defined and associated with certain restrictions (e.g. factual claims may be stage-restricted and party-restricted, but not base-restricted). Second, the act of contesting may have the same restrictions than the act of claiming. For example, if the defendant does not contest a factual claim in the right opportunity, the plaintiff's claim may be considered true. In other words, factual contesting is stage-restricted. Contesting is nothing more than claiming the opposite

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[135] Such source-dependence is made explicit by some legal theorists as the principle of the undeniability of starting points. In Portuguese, "*princípio da inegabilidade dos pontos de partida*". FERRAZ JR, 2010, p. 25, citing LUHMANN, Niklas. *Rechtssystem und Rechtdogmatik*. Berlim: Kohlhammer, 1974.

[136] The idea of interpreting the authoritative sources presupposes there is a difference between the text of the source and the rule resulting from interpretation. This is sometimes referred to as the distinction between text and (legal) norm, already mentioned in footnotes in Chapter I, Section I.2.A.

of something. Finally, it is difficult to think about an entirely unrestricted proposition in the legal context of a lawsuit, but the possibility has to be open for models in general.

The classification of propositions by its relation to contest or support is oriented by the shifts of burden[137]. Therefore, one must consider the possible ways in which the burden shift behaves. Again, legal examples may be illuminating. There are propositions that, if not contested, are then automatically considered true for the purposes of the dialogue, which are called *assumptions*. They impose a burden of contesting to the adversarial party to the dialogue. In Robert's example, this was the case of the claim that his name was put in a debtor's list of a credit protection agency. Since it was not contested by the health insurance company, it was considered true.

Not all propositions are taken as true if not contested in a lawsuit. Let us look at a modified version of Robert's example. Suppose the story told by Robert is exactly the same, but the health insurance company did not provide an answer even after being summoned, nor any written submission until the time for sentence was due. Now the case must be judged *in absentia* of the defendant. This does not mean that all of Robert's allegations must be considered true by the court of law. Some propositions may still need to be supported by the plaintiff nonetheless, as a design to avoid inadmissible outcomes. Our hypothetical jurisdiction may deem necessary that Robert proves at least that he had a contract with the

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[137] A similar classification, between ordinary propositions, assumptions and 'certain' premises is in PRAKKEN, SARTOR, 2009, p.230-237, p.249 (for 'certain' premises). There are some salient differences, however. For them, an assumption is a premise which we should "*give up as soon as we have evidence they are false*", while, for me, an assumption is affected by the mere act of contesting. They try to account for this situation with the concept of a 'certain' premise, one which has been considered true due to lack of contestation. Their terminology is confusing, for the premise is only certain if it has not been contested. Actually, their concept of assumption seems to be what I call a relative presumption, but whose falsity is necessarily attached to a weak standard of proof (a scintilla of evidence). My classification tries to avoid mixing the representation of the relevance of an act (contesting or supporting), with considerations of standard of proof, what I believe leads to a more comprehensive model. In addition, their model lacks the concept of absolute presumption. Finally, I find that my terminology, using absolute and relative presumptions, is more akin to legal practice. Another classification, between, ordinary premises, assumptions and exceptions, is presented in GORDON, PRAKKEN, WALTON, 2007. I find that there is no logical difference between their concepts of ordinary premises and exceptions. Ordinary propositions need to be supported, otherwise they are considered false. For example, the act of murder needs to be proved to apply a criminal rule and send someone to jail. Exceptions work in exactly the same way, but have the opposite impact on some rule being applied. For instance, a legitimate defense is an exception that needs to be proven to avoid the consequence of the criminal rule. The factor is considered false until there is proof to the contrary. The difference, thus, may be important to distinguish conditions of legal rules, or distribute the burden between parties, but does not illuminate the relation of the burden of proof to certain acts. The classification also does not account for absolute presumptions, and does not explain legal terminology of absolute and relative presumptions.

health insurance company to grant his request, even if the allegation of coverage refusal may be considered true solely given the lack of contestation. Thus, the existence of a contract is a proposition which has a burden of supporting attached to it. Regardless of not being contested, it must be supported. If the proposition is not supported, it will be considered false for the purposes of the dialogue. I will call it an *ordinary* proposition.

Difficulties start to arise when one advances an argument with the intent of supporting the proposition. Recalling our definition in Chapter I, an argument supports its conclusion only if it is sound and its premises are true. Therefore, in a dialogue, the existence of support will depend on an evaluation (not a full one, as I will explain) of the existing attacks to an argument. Furthermore, even if there is some support to a proposition, this does not mean that it should be considered true, since it may not be enough to overcome the required *standard of proof*.

As it will be discussed in greater detail in the next section, one way to classify attacks[138] to an argument is according to the part of the argument's structure which they aim for. Attacks can be directed towards the premises (*undermining*), the conclusion (*rebuttals*) to the support relation between premises and conclusion (*undercutting*). Undermining and undercutting attacks, if successful, remove the support to the argument's conclusion. Rebuttals attack directly the conclusion, without removing the support. If there are two arguments that rebut each other, then the conflict may be solved if there is a stronger one (or a stronger set, depending on the number of arguments) which prevails, considering a determinate standard of proof.

The existence of support to a proposition by an argument will, thus, be verified by evaluating only the undermining and undercutting attacks. If they are successful and all support is removed, then the ordinary proposition will be deemed false. If they are not successful, and at least some support still exists, then a new evaluation must be made to verify if the required standard of proof is met. In this step, any rebuttals will be considered.

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[138] This widely used classification is sometimes called the three-way hypothesis (WALTON, REED, MACAGNO, 2008, Chapter 7). I will criticize it and provide alternative classifications at the next section.

Finally, if the standard of proof is surpassed, then the proposition is considered true, otherwise false.

Other modifications of Robert's example may be useful to illustrate the two-step evaluation procedure above. Recall that he argued that the health insurance company had a duty to provide coverage, and that the company alleged that he was not complying with his monthly payments. Let us suppose that Robert did not pay the company during the last four months, and, thus, was unable to provide evidence of payment. Additionally, assume there is a statutory provision in the hypothetical jurisdiction, according to which, if an insured client of a health insurance company does not pay for three months, the contract is deemed immediately terminated, and the person is no longer insured. The arguments can be structured as follows:

Robert's Argument

(P1 – Legal Rule) According to the legal norm found in statute X, health insurance companies have a duty to provide coverage to their insured clients.
(P2 – Facts) Robert is an insured client.
(C1 - Conclusion) Thus, Robert should be provided coverage.

Health Insurance Company Argument

(P3 – Legal Rule) According to the legal norm found in statute Y, if a client of a health insurance company does not pay for three months, the person is no longer an insured client.
(P4 – Facts) Robert did not pay for three months.
(C2 - Conclusion) Thus, Robert is not an insured client.

Let us consider C1 as an ordinary proposition. Robert tries to support it with his argument composed of P1, P2 and C1. However, Robert's argument is undermined by an attack to P2, based in P3 and P4, which has as a conclusion C2, which is the opposite of P2. In the step of assessing the attacks, the judge evaluates P3 and P4 as true, the argument as

sound and, therefore, C2 is also deemed true. If C2 is true, then P2 is false. If P2 is false, then C1 is no longer supported by any means and is also considered false.

Now, suppose that, in a different scenario of Robert's case, despite the existence of a general insurance coverage duty, there is a doubt regarding the coverage of the prosthesis. There are no statutory provisions, nor precedents that clearly settle the matter. Robert argues that the best interpretation of the duty to provide coverage must include prosthesis, as a way to promote the goal of integral coverage, presupposed by the legislation. On the other side, the health insurance company argues that the best interpretation actually should exclude prosthesis as a way to assure actuarial balance, a recognized goal of the legislation for the health insurance system. The arguments may be represented as follows:

Robert's Argument

(P1 – Legal Goal) The norms of statute Y have the goal to promote an integral coverage for clients of health insurance companies.
(P2 – Adequate interpretation) The interpretation of norm X of statute Y, which establishes the duty of health insurance companies to provide coverage, as including prosthesis, leads to the promotion of the integral coverage goal.
(C1 - Conclusion) Thus, the duty to provide coverage should be interpreted as including prosthesis.

Health Insurance Company Argument

(P3 – Legal Goal) The norms of statute Y have the goal to promote actuarial balance for health insurance companies.
(P4 – Adequate interpretation) The interpretation of norm X of statute Y, which establishes the duty of health insurance companies to provide coverage, as including prosthesis, leads to the demotion of the actuarial balance goal.
(C2 - Conclusion) Thus, the duty to provide coverage should be interpreted as <u>not</u> including prosthesis.

The arguments rebut each other, for C1 and C2 are opposite conclusions. If the judge evaluates all premises as true, and both arguments as sound, there will be support both for C1 and C2 or, in other words, to a conclusion and its contrary. It is in this scenario that the judge must appraise if the standard of proof was met. Usually, in legal civil cases, the standard of proof is the *preponderance of evidence* (sometimes called balance of 'probabilities'), which means that the stronger argument (the one whose conclusion is more 'probable') wins[139]. In this work's terminology and in such a context, the expression "stronger argument" means that the *degree of support* given by an argument (or set of arguments) to a conclusion C is greater than the degree of support given by another argument (or set) to the opposite of C. Hence, standards of proof like this one are related to the idea that the degree of support offered by defeasible arguments may vary. When we intuitively say that an argument is weak or strong, we are usually referring to its degree of support according to some scale.

In such a situation, one question naturally arises: what if there is no stronger argument? Who is the winner? This will be defined by the *burden of persuasion*, which states which party must support the proposition as to meet the specified standard of proof, on the penalty of the proposition be considered false for the purposes of the dialogue (and lose the discussion on the issue)[140]. The issue of the example above is relevant to determine if Robert has a right to the coverage of his prosthesis, which grounds his request for indemnification. In civil legal cases, the burden of persuasion for the conditions that are ordinarily sufficient to support the legal request is usually ascribed to the plaintiff[141]. Therefore, if we consider that having a right to prosthesis coverage is ordinarily sufficient to support Robert's indemnification request, and he is unable to persuade the judge that his statutory interpretation is better, he will not prove that he has a right to coverage, and will lose the issue. It is worth emphasizing that an ordinary proposition imbues a burden of persuasion.

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[139] PRAKEEN, SARTOR, 2009, p. 225, use the expressions "balance of probabilities" and "more probable". For other legal standards of proof and a formal analysis, GORDON, WALTON, 2011, already referred to in the footnotes of Chapter I.

[140] The concept of burden of persuasion is the same (although with a slightly different wording) of PRAKKEN, SARTOR, 2009, p. 243.

[141] In Brazilian Law, for example, it can be found in Art. 373, I, Civil Procedure Code. Usually, in civil cases, the defendant has the burden for 'exceptions', conditions that prevent the consequence of a rule from being obtained even if what is ordinarily sufficient is proved, as in Art. 373, II, Civil Procedure Code. In the same direction PRAKKEN, SARTOR, 2009, p. 226.

If someone must support a proposition, it is because this person has the burden of persuading others about its truthfulness.

In a lawsuit, the two-step evaluation described above takes place in the moment of rendering the sentence, the final stage of the dialogue[142]. Other evaluations, usually partial, may be carried out in earlier stages of the lawsuit (or of a dialogue). For example, in Brazilian Law, after the plaintiff files the complaint, the judge evaluates whether it is "inept"[143]. One possible cause of ineptitude is the presence of "ungrounded requests" or "requests without cause of action"[144]. This can be interpreted as a burden of supporting the legal requests that should be met right from the start. However, there is no evaluation of attacks[145], for the defendant has not provided his answer yet (actually, he has not even been summoned). At this stage, a single argument may be enough[146]. But this does not mean that the supported proposition will be considered true for the purposes of the dialogue, rather that it will not be considered automatically false. Another evaluation will come later, at the final stage, in which the judge may even find there is actually no support to the legal request due to an undermining or undercutting attack.

An analysis of the extent of the evaluations on each stage of the lawsuit is important to define a precise model. Nevertheless, I shall not examine this problem further, otherwise I would need to engage in more accurate descriptions of legal procedures that are well beyond the scope of my analysis, which is not focused on providing dialogue models. I would only like to remark that further inquiry might be invaluable to modeling lawsuits stages in general, and especially decisions that concede preliminary injunctions or which are taken without hearing both parties[147].

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[142] Let us treat the appeals as another dialogue. The sentences are final for our purposes.

[143] Art. 330, I, Civil Procedure Code.

[144] Art. 330, § 1º, I, Civil Procedure Code. In Portuguese "*falta da causa de pedir*".

[145] Assuming that the judge does not attack the arguments himself, which is a simplification. For instance, Brazilian Law allows the judge to render a sentence of dismissal with prejudice (in Portuguese "*sentença com resolução de mérito*") in some cases (Art. 332) before the defendant is even summoned.

[146] The arguments do not necessarily need to be advanced by the plaintiff. The judge may complete the argument with legal rules, based in *iura novit curia*, for example.

[147] Preliminary injunctions are very common in Brazil, and extremely important in practice. Since Brazilian lawsuits generally lasts for years, the injunctions remain in force for extended periods of time.

The third type of proposition is the *relative presumption*, which works precisely as the opposite of an ordinary proposition. The relative presumption does not need to be supported, even if contested. If it is not attacked by an argument that supports the opposite proposition, it will be automatically considered true for the purposes of the dialogue. If attacked, then there will be a two-step evaluation to verify if the opposite is really supported, and if the attack meets the standard of proof required to render the relative presumption false. In Robert's case, the allegation by the health insurance company that he did not pay the monthly fee enters the dialogue as a relative presumption. If Robert did not show evidence to the contrary, then it would be considered true. Only contesting it would not be enough.

It should be noted that, if a proposition is a relative presumption, then its opposite is an ordinary proposition, and vice-versa. For this reason, ordinary propositions and relative presumptions could be logically reduced to the other (in some formal model) and only one concept would be sufficient for logical analysis. In spite of these considerations being true, it is easier to have a different name to address "ordinary propositions" and "relative presumptions", instead of having to refer to their opposites by using only one concept. Moreover, having them both is more akin to natural language of argumentative practices. For example, it is more natural to say that Robert needs to prove he has a contract than to say that is presumed that Robert had no contract with the health insurance company. And we usually say that people are presumed to be innocent, instead of only pointing that it must be proved that someone is not innocent.

The final and fourth type of proposition is the *absolute presumption*. It is regarded as true for the purposes of the dialogue independently of any challenge or argument supporting the contrary. There is no evaluation in this case. The proposition is true and that is all. This classification is necessary to model propositions that require no defense, which may be axioms of certain domains. I am not arguing that in any field of knowledge there should or should not be propositions that require no defense, but I find it important to contemplate the possibility of modelling those, since there are people that defend such a position[148]. In the Law, the concept equivalent to absolute presumption may be found with the name *juris et*

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[148] Douglas Walton calls dialectical foundationalists those who argue there are certain propositions that require no defense, even if challenged. WALTON, (Burden of Proof), 2014, Chapter I, Section 4 "*Survey of Theories of Presumption and Burden of Proof in Argumentation*".

de jure presumptions, conclusive presumptions or irrebuttable presumptions. Relative presumptions, by contrast, are known as *juris tantum* or rebuttable presumptions[149].

One could argue that the absolute presumption should not be considered a classification of burden of proof: there is no burden, the proposition is simply taken as true. But to simply regard a proposition as true does not explain *why* it is considered true. There are differences of considering something true because it belongs to a special class and considering it true for other reasons, not being contested, for example. A proposition is not defined as an absolute presumption haphazardly. This special attribution is due to some characteristic of the proposition given by a theory of the knowledge domain being modeled. It is desirable that the argumentation model clearly indicates there is a theoretical reason, taken for granted in the model application, to consider some proposition as an absolute presumption. Furthermore, in real life argumentation, the discussion may revolve around whether some proposition should be granted this special status, because it may or may not fit the theoretical conditions for that.

After the presentation of both the classifications, one may ask how they are related. Does the classification of a proposition as ordinary, assumption, relative presumption, or absolute presumption has any implication to the burden of claiming? There seems to be no conceptually necessary relation between those classifications, although further investigation would be interesting, to verify whether there are relations of this kind in particular contexts. Is there a relation between the classification according to the shifting burden and the very need of claiming a proposition to advance an argument[150]? Could we say, for example, that, to advance an argument, assumptions need not to be claimed?[151] No, an example taken from Robert's case will show us that this is not true.

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[149] In Brazil, the Civil Procedure Code Art. 374, IV discards the need for support of facts that are presumed.
[150] Remember that the need to be claimed is not the same as a burden of claiming, as stated above in the beginning of the discussion about the burden of claiming.
[151] To my knowledge, this point seems to be unclear in the literature. The closest appraisal of this point is the discussion on how to decide between modeling propositions in premises or critical questions. For example, WALTON, REED, MACAGNO, 2008, p. 18-21; GORDON, PRAKKEN, WALTON, 2007, Section 5 "*Modelling Critical Questions in Carneades*". I will deal with the more specific subject related to the argument schemes in Section II.2.B below.

In the first version of the case, Robert argued, as part of his argument to request indemnification, that the health insurance company denied his request for coverage. The argument could be represented as below:

Robert's Argument

(P1 – Legal Rule) According to the legal norm found in statute X, if a health insurance company has a duty to provide coverage to some insured client, refuses to provide it, and the insured client pays for the treatment whose coverage was refused, then, the insured client should be granted indemnification.
(P2) The health insurance company has a duty to provide coverage to Robert.
(P3 – Facts) The health insurance company refused to provide coverage to Robert.
(P4 – Facts) Robert payed for the treatment whose coverage was refused.
(C1 - Conclusion) Thus, Robert should be granted indemnification.

As a comment, it was said that, if the company did not contest P3, then it would be considered true. Therefore, P3 is classified as an assumption. But even if it is an assumption, it needs to be claimed, otherwise some of P1's conditions will be lacking, and the argument will be incomplete. One cannot simply exclude certain conditions from P1, saying that it is enough for someone to pay in order to obtain indemnification from his health insurance company. That would be a wrong formulation of the legal norm, that does not account for the ordinarily sufficient conditions for its application[152].

The illustration shows there is no conceptual necessity between the classification of a proposition according to its shifting burden impact and the need for it to be claimed. Although I have dealt only with assumptions, one could think of similar examples for relative and absolute presumptions. These observations do not exclude the possibility of a relation

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[152] If only the condition of paying was considered as relevant, there would be an additional difficulty of distinguishing between the application of a rule of coverage and a rule of reimbursement. If the client did not even request for coverage, but incurred in medical expenses, he must ask for reimbursement. This right is regulated differently and may be often limited in comparison. For instance, a plan may cover all the expenses of a consultation with a dermatologist but not reimburse a client that has paid for it. The reason for this discrimination is that health insurance companies often negotiate special prices with service providers, so, it is cheaper to cover than to reimburse.

within some contexts, they mean only that one should not establish it aprioristically. And, if one were to design rules of argumentation and decide what someone needs to claim in order to advance an argument, he could consider that the fact of a proposition being an assumption or relative presumption offers a (non-determinant) motive to establish that it needs not to be claimed.

The discussion about the classification of propositions shows us that, depending on what happens in the dialogue and its current stage, propositions may be regarded as true, as false or neither. An assumption which was not contested in time will be regarded as true, an ordinary proposition which is never supported at all will be deemed false, and a relative presumption attacked by an argument supporting its contrary will need to be evaluated eventually, remaining neutral for the time being. I will call this the appraisal of the *propositions status*[153]. Their status will be defined as *true* or *false* only when there is no coming back, and as *neutral*, when relevant acts may yet happen, and some evaluation might still be performed. The neutral status is especially important as a mean of providing an adequate picture of the *current stage* of the dialogue. It may be the case that, at the moment in which the dialogue's picture is taken, the parties still have opportunity to provide support to their propositions, and challenge or attack the adversarial party's ones.

To avoid misunderstandings about this evaluation, it is important recollecting that the picture of the dialogue and, consequently, the status, will be defined by an analyst and not by the parties (Chapter I, Section I.2.C). Thus, if a proposition is true, false or neutral is dependent on analysis according to the rules of argumentation, within a given model[154].

The propositions' classification, according to challenge and support, may be understood and described more precisely by the impact of different acts on their status. The

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[153] Another classification of the proposition's status is found in GORDON, PRAKKEN, WALTON, 2007. The authors distinguish between accepted, rejected, questioned and stated propositions. The classification, in my opinion, has shortcomings, for it brings together assessments of truthfulness and a description of the performed acts, which is inadequate. Stating and questioning a certain proposition does not tell how they should be treated. For example, if one states a relative presumption, it will be true unless the opposite is proved. Merely questioning it will not produce any change. If it is said that the proposition was stated and then questioned, both evaluations are not informative about what should be the result of the dialogue at that moment.

[154] This seems to me an often unstated assumption of models, such as GORDON, PRAKKEN, WALTON, 2007.

summary below shows the status for each type of proposition after different acts. First, it describes the status of the proposition, assuming that the need of claiming has been met and the burden of claiming has been discharged of correctly. I will call it *prima facie* status. The other relevant acts are contesting (asserting the opposite proposition), supporting and attacking (supporting the opposite proposition). I accounted only for the acts which may lead to an irrevocable change of status for each type of proposition. For example, if an ordinary proposition is not supported in due time (as required in a given stage), it will be definitely regarded as false; but, if it is contested or attacked, this will not produce any automatic change, although an attack may be relevant to the final evaluation. It should be highlighted that, since an attack supports the contrary proposition, it presupposes an act of contesting. Finally, one should notice that, once contested, the assumption behaves as an ordinary proposition.

Assumption

- *Prima facie*:	Neutral
- *Contested*:	Neutral (behaves as ordinary)
- *Not Contested*:	True

Ordinary

- *Prima facie*:	Neutral
- *Supported*:	Neutral
- *Not Supported*:	False

Relative Presumption

- *Prima facie*:	Neutral
- *Attacked*:	Neutral
- *Not Attacked*:	True

Absolute Presumption

- *Prima facie*:	True

To state that a consequence is irrevocable presupposes that it will not be possible to amend the failure in a later stage of the dialogue. For instance, in Robert's example, the request for moral damages is an ordinary proposition, for it must be supported, otherwise it would be considered false. But the support only came in the sentence, when the judge made an argument supporting it, based in a legal rule which was not mentioned by Robert.

The concepts presented in this section allow to technically refine our definition of burden of proof (originally given in Chapter I). A *burden of proof* is established when someone is assigned an obligation to perform a specified act with respect to a proposition, otherwise its status will be as defined in the rule. For example, take the rule "if defendant does not contest proposition P in his answer, then P's status will be true". This rule assigns a burden of contesting (a type of burden of proof) to the defendant.

The classification of propositions according to its applicable burden of proof is relevant to design argument schemes. Each proposition described in an argument scheme, both for the basic inference and critical questions, might be classified according to its burden of proof. How to classify them may be subject of legal theoretical discussion. After the presentation about attacks, Section II.2.A will use the concepts just presented into designing argument schemes.

II.1.C Attacks

In a dialectical context, arguments may attack each other. If one intends to know what argument prevails and why, he will need a detailed understanding of what it precisely means for an argument to attack the other, or, in other words, of how attacks work (as argued in Chapter I, Section I.2.A). A good way to carry out this task is to present a classification of attacks and give examples. I will present a twofold classification of attacks and distinguish them from procedural objections, in a presentation which intends to overcome some difficulties and imprecisions found in the literature[155].

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[155] The discussion about attacks is involved in a terminological chaos, as already mentioned in footnotes in the beginning of this Chapter. For the purposes of this work, and following the parameters set forth in the Introduction (*Presentation Style*), it does not make sense to present a survey on the literature, with its many

The traditional classification of attacks differentiates them according to the part of the argument's structure which they aim at, and will be called *structural classification* (already briefly presented in Section II.1.B above). According to this approach, attacks can be directed to the premises (*undermining*), to the conclusion (*rebuttals*) or to the support relation between premises and conclusion (*undercutting*). Given the possibilities, this classification is sometimes referred to as the *three-way hypothesis*[156]. Undermining and undercutting attacks, if successful, remove the support to the argument's conclusion. Rebuttals attack directly the conclusion without removing the support.

Robert's case, in Section II.1.B, provided examples of different attacks. Let us recall the argument by which Robert claimed he should be provided coverage[157]:

Robert's Argument - Coverage

(P1 – Legal Rule) According to the legal norm N1 found in statute X, health insurance companies have a duty to provide coverage to their insured clients.
(P2 – Facts) Robert is an insured client.
(C1 - Conclusion) Thus, Robert should be provided coverage.

If an attack is directed to P2, concluding that Robert is not an insured client, then it would be a case of undermining. This was precisely the attack made by the health insurance company:

Health Insurance Company Argument

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problems and positions (it would be utterly long and not enlightening). I will present my own classification, trying to discuss and overcome difficulties in the literature, making references only by footnotes.

[156] WALTON, REED, MACAGNO, 2008, p. 222. The authors first characterize the undercut as arguing that "*the conclusion does not follow from the premises*". I believe that such definition leads to confusion between different types of attacks and objections (the difference will be explained further below) that could all be classified under this generic heading. Arguing that an argument is incomplete, that there is no accepted rule of inference to uphold it, or that there is an exception to a defeasible generalization are all different things which could fall into "the conclusion does not follow from its premises".

[157] The arguments' premises have been slightly modified for the purposes of this discussion, including explicit references to some norm N.

(P3 – Legal Rule) According to the legal norm N2 found in statute Y, if a client of a health insurance company does not pay for three months, the person is no longer an insured client.

(P4 – Facts) Robert did not pay for three months.

(C2 - Conclusion) Thus, Robert is <u>not</u> an insured client.

An observant reader could question if it is possible to reshape the argument of the health insurance company as an attack to P1. Since the norm mentioned in P1 could be stated as "If someone is an insured client, then the health insurance company should provide him coverage", is seems possible to merge P1's norm with the one mentioned in P3 to obtain "If someone is an insured client and is not in debt for three months, then the health insurance company should provide coverage". The outcome would be the same, for if it is established that Robert did not pay for three months, then there is no longer support to C1. The restructured attack to P1 seems a perfectly valid theoretical possibility. So, what is the correct representation?

It all depends on the actual argument one is trying to represent. The concepts and tools discussed here are developed to represent real argumentation and the best representation is the most similar to the source material (as argued in Chapter I, Section I.3). In real life, the health insurance company lawyers would unlikely advance an argument structured as above, rather a text in natural language like the following: "The plaintiff should not be granted coverage, for he has not paid the defendant during the last three months. As a consequence, he no longer can be considered an insured client, according to Article A of statute Y." This text can clearly be reconstructed to the argument of the example above, as an attack to P2, but not as an attack to P1.

All would be different if the health insurance company lawyers argued: "The plaintiff seems to ignore the relevant texts of the applicable statutes. They establish exceptions to the duty of coverage in some circumstances, as in the hypothesis of not having paid the insurance fee for three months (Article A of Statute Y). This is precisely what happened in the actual case. Ergo, the plaintiff cannot be granted coverage." This is a wholly different argument and could be reconstructed as follows:

(P5 – Norm) Norm N1 of statute X states that "if someone is an insured client, then the health insurance company should provide him coverage".

(P6 - Exception) Norm N2 of Statute Y establishes an exception to Norm N1 of statute X for the cases one is in debt for three months

(C3 - Conclusion) Thus, Norm N1 should be amended to include the exception of N2, resulting in "if someone is an insured client and is not in debt for three months, then the health insurance company should provide coverage".

If N1's correct representation is given by C3, then N1's version of P1 is not correct. Thus, the argument above supports a contrary of P1, undermining Robert's argument.

The challenges of reconstruction are critical to comprehending undercutting attacks. Attacks to premises and conclusions boils down to supporting propositions that are contrary to them. But what does it mean to attack the support relation between premises and conclusion? Do you need to conclude that the support of an attack does not exist? This seems strange, given that the support relation itself is not represented into a proposition, and the conclusions of arguments are propositions. Is it an attack to the rule of inference? Bottom line: how do undercutting attacks work?[158]

Let us begin by recalling the most classical example about undercuts in the literature, already mentioned in Section II.1.A above. Take the following argument:

(P1)   Generally, objects that look red are red.

(P2)   This object looks red.

(C1)   Thus, this object is red.

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[158] A long critical appraisal of undercutting attacks can be found in WALTON, REED, MACAGNO, 2008, p. 240-259. Although their criticism and discussion are interesting and an important reference to me, I disagree with some points of the analysis and find that the solution offered is not very clear. I will point out the disagreements in footnotes in the following pages. I believe that part of the confusion is originated in the lack of adequate understanding of rules of inference and of generalizations as rules.

The example goes on to consider the additional proposition "The object is illuminated by a red light". Given the new information, it is said that the conclusion is no longer supported by the premises, because the object may appear to be red only as a consequence of being illuminated by a red light. In spite of this, one could not conclude that the object is not red because being illuminated by a red light do not offer support to the proposition that "the object is not red". Therefore, there would be no attack to the premises, nor to the conclusion. The attack has to be directed at the inferential link.

I believe this description is faulty, for there is a simpler (Occam razor's-wise) and more accurate one. The support removal can still be explained by an attack to the premises of the argument, more specifically, to the defeasible generalization in P1. This generalization can be represented as a defeasible rule according to which "If an object looks red, then, plausibly, it is red". The attack brings an exception to the rule, which is found inapplicable whenever objects are illuminated by a red light. Thus, one should rewrite the generalization as "If an object looks red and it is not illuminated by a red light, then, plausibly, it is red" (let us call it P*). It is the same process of rule's revision that I described in Section II.1.A (with the example about birds that do not fly).

The generalizations P1 and P* are *contraries*, they cannot both be true at the same time. Either "being illuminated by a red light" is a relevant condition that should be part of the rule's antecedent (as in P*), or it should not (as in P1). If it is a relevant condition, then P1 is wrong as a rule, because, according to it, objects illuminated by red lights that look red would still plausibly be red. And this is not true, given that it has already been established that the conclusion is not supported in these cases.

The whole problem arose because the attack was poorly described. Just stating the fact that "The object is illuminated by a red light" is inconsequential. We must revise the rule which we are applying in order to remove the conclusion's support. In real life, however, we are used to state exceptions to rules while omitting that we are in fact upholding new

rules. Part of the literature[159] possibly could not see this phenomenon because they were not interpreting generalizations as rules (as I did in Section II.1.A).

Let us discuss other examples and aspects, to make the point crystal clear and avoid any confusion. Take the Tweety example again.

(P1)   *Generally, birds fly.*

(P2)   *Tweety is a bird.*

(C1)   *Thus, Tweety flies.*

One can add P3 to the discussion, according to which "Tweety is a penguin". As a consequence of P3 we know that C2, "Tweety does not fly", must be true. Considering that P1 can be rewritten as the rule "If x is a bird, then, presumably, x flies", then P3 may also work as an exception that brings a new condition to the rule. The only difference to the red light example is that P3, in a way yet unspecified, will support the contrary of the conclusion. Now, let us sort out how everything works.

First, one must discuss if the support for C1 is removed just like in the red-light example. In such a case, rule P1 should be replaced by a rule P* according to which "If x is a bird and it is not a penguin, then, presumably, x flies". But is it not possible to say, as we do intuitively, that "If x is a bird, then, presumably, x flies" still holds as a rule? Could we not just say that the rule is not applicable to the current case?[160] The problem is to make precise sense of saying that the rule "still holds" or that "is not applicable to the current case". I understand both statements as meaning the same thing, since, by saying that the rule "still holds", one means that the rule is not applicable to the current case, but still applicable in other cases.

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[159] For example, WALTON, REED, MACAGNO, 2008, Chapter 7. They know something is wrong, but fail to point it precisely.

[160] This is the strategy of Douglas Walton, Chris Reed and Fabrizio Macagno to explain undercuts, WALTON, REED, MACAGNO, p. 258. PRAKKEN, 2010, also say that undercuts reveal there is "*some exceptional situation in which the inference rule cannot be applied*".

Intuitively, in natural language, we say that a rule is not applicable when some of its conditions are not present. For example, if, in a given case, *x* is not a bird, then the rule "If *x* is a bird, then, presumably, *x* flies" is not applicable to the case. In spite of not being applied to the case, the rule still holds, for, if *x* were a bird, then it would, presumably, fly. But what could it possibly mean for a rule not to be applicable to the case in which all its conditions are present? The only answer that makes sense is that the rule is somehow provisory and incomplete, unable to account for a peculiar situation. This leads us to my position, according to which the rule should be replaced. It is the new rule that will not be applicable for not having one of its conditions present.

I insist, eventual difficulties in seeing undercuts as attacks to premises that contain rules is due to a problem of reconstructing the way we argue in real life. We just state what we claim to be exceptions to a rule, and do not explicitly say that we are changing some rule formulation by doing that. But *exceptions are nothing more than conditions in the antecedent of a rule which, if present, prevent us from obtaining the consequent.*

The Tweety example and the red-light example work the same when it comes to removing support, by an attack to the premise which contains a rule. But they differ when it comes to conclusions. The exception in the Tweety example also supports a conclusion contrary to the original, that could be represented by the argument below[161]:

(P3)   *Tweety is a penguin.*
(P4)   *Penguins do not fly.*
(C2)   *Thus, Tweety does not fly.*

The premise P4 is an absolute generalization that can be written as a strict rule "If *x* is a penguin, then *x* does not fly". The conclusion is valid and necessary. One could ask

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[161] PRAKKEN, SARTOR, 2009, p. 230-232, face a similar problem when dealing with an example on arguments about being a minor in Dutch Law. According to one rule, "If someone is a person and younger than 18, then, it is a minor", while according to the other "If someone is a person and younger than 18 and married, then, it is not a minor". Both rules are used as premises of different arguments. The authors say that one argument "*superficially*" attacks the other's conclusion but also attack the other's rule premise. It is more precise to say there are two arguments, one attacking the conclusion, and the other attacking the premise, instead of admitting a bizarre type of argument with two conclusions. It should be highlighted that the text is not discussing undercuts.

whether it would, then, be possible only to represent the two arguments (P1, P2, C1 and P3, P4, C2), without any arguments attacking the premise P1. Given that C2 is necessary and C1 only defeasible, the result is expected to be the same.

The problem is that the result is just apparently the same. For, if we do not represent the attack to the premise, C1 is still supported. Please find two diagrams comparing the situations, in which Argument C is an attack to the rule contained in P1:

Exceptions and Support Removal
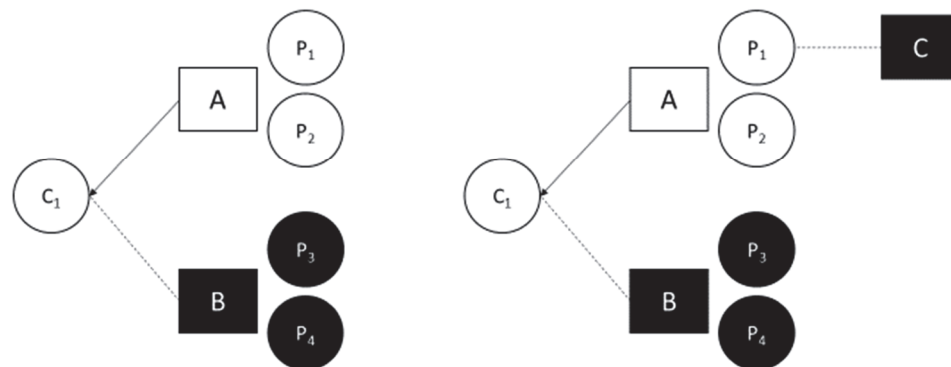
Besides making the difference between removing support, or not, easier to visualize, another important aspect the diagrams clarify is that the simple act of introducing an exception does not provide an argument to justify why the rule should be amended to include an exception. In other words, to introduce an exception does not tell why one should accept the exception as such. This could be solved, in the Tweety example, by something along these lines:

(P4)   *Penguins do not fly.*
(P5)   *Penguins are birds*
(C3)   *Thus, penguins are birds that do not fly.*

C3 would, then, be used to justify changing the rule P1 to P*. To avoid more complications, I will not describe the arguments by which C3 results in P* and by which P* attack P1. It is relevant, though, that one may justify the exception with arguments.

On the other hand, the red-light example does not allow for an attack to the conclusion, because there is no generalization by which being illuminated by a red light leads to conclude that something is not red. The amended rule "If an object looks red and it is not illuminated by red light, then, plausibly, it is red" does not allow us to state a strict rule by which "If an object is illuminated by red light, then, it is not red", and not even a defeasible rule stating that "If an object is illuminated by red light, then, plausibly, it is not red".

Another confusing explanation found in the literature is to say that the undercutting attack, by introducing an exception, renders the "argument scheme"[162] or the "rule of inference"[163] inapplicable. The first statement is clearly imprecise, and reveals a confusion in the use of the expression "argument scheme" in the literature. The scheme is a representation device embodying both the inference structure and critical questions listing the possible attacks. Undercutting attacks are often listed in the set of the argument schemes' critical questions. Thus, it would amount to say that using the scheme (critical questions) renders the scheme inapplicable, what is, at best, awkward.

As to the second statement, one must be careful, for it all depends on how the warrant is defined. Let us structure the Tweety example as a *defeasible modus ponens* argument, whose inference structure was modeled in the end of Section II.1.A:

(Defeasible Warrant)   *If Defeasible Rule and Antecedent are true, then, presumably, Consequent is true.*
(P1 - Defeasible Rule)   *If x is a bird, then, presumably, x flies.*
(P2 - Antecedent)   *Tweety is a bird.*
(C1 - Consequent)   *Thus, presumably, Tweety flies.*

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[162] WALTON, REED, MCAGNO, 2008, p. 258.
[163] PRAKKEN, 2010, following POLLOCK, 1995.

As I have shown, the exception P3 ("Tweety is a penguin"), may lead to attacks to P1 (with P* "If *x* is a bird and *x* is not a penguin, then, presumably, *x* flies") and to C1 (with C2, "Tweety does not fly"). But the defeasible warrant remains untouched. Hence, the introduction of an exception does not necessarily render the rule of inference inapplicable[164].

A last complication is found when examining an undercutting attack that supports a proposition which is part of the rule of inference, but was not mentioned in the original argument. Consider the following scheme of the argument from expert opinion[165]:

Argument from Expert Opinion – Inference Structure	
Warrant (defeasible)	If Expertise and Assertion are true, then, presumably, Conclusion is true.
Premise 1 (Expertise)	Source E is an expert in subject domain S, containing proposition A.
Premise 2 (Assertion)	E asserts that proposition A is true.
Conclusion	A is true.

Now, take the example below:

(Defeasible Warrant)   *If Expertise and Assertion are true, then, presumably, Conclusion is true.*

(P1 - Expertise)   *Dr. John is an expert in nutrition, subject domain containing the proposition "sugar is the main cause of obesity in the world".*

(P2 - Assertion)   *Dr. John asserts that "sugar is the main cause of obesity in the world" is true.*

(C1 - Conclusion)   *Thus, presumably, "sugar is the main cause of obesity in the world" is true.*

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[164] PRAKKEN, 2010, seems to consider what I call the premise P1, the rule of inference. This reveals another source of confusion in the use of terms in the literature, between rules of inference and rules contained in premises. If the premise P1 is inapplicable, then we go back to the discussion about what it means to say that a defeasible rule is inapplicable, and the need to revise the rule, supporting a more complete rule P*.
[165] WALTON, REED, MACAGNO, 2008, p. 310. The defeasible warrant was added by me, following their discussion of examples in p. 253-254.

As an attack to the argument, it is claimed that "Dr. John is not personally reliable as a source" (P3) because he is a compulsive liar that would say anything to get attention from the media. This proposition is intended to be an exception to the warrant, for if the expert is not trustworthy, then one cannot presume that the conclusion is true. The warrant could be rewritten to "If Expertise is true, Assertion is true, and Trustworthiness is true, then, presumably, Conclusion is true".

In reality, the exception based on the expert's dishonesty is listed as one of the scheme's critical questions, the *trustworthiness* question, in its traditional account. The list is as below:

Argument from Expert Opinion – Critical Questions	
Expertise Question	How credible is E as an expert source?
Field Question	Is E an expert in the field A is in?
Opinion Question	What did E assert that implies A?
Trustworthiness Question	Is E personally reliable as a source?
Consistency Question	Is A consistent with what other experts assert?
Backup Evidence Question	Is E's assertion based on evidence?

One may realize that the trustworthiness critical question, beyond demanding adjustments in the defeasible warrant, actually could be represented as a premise of the inference structure[166]:

Argument from Expert Opinion – Inference Structure	
Warrant (defeasible)	If Expertise is true, Assertion is true, and Trustworthiness is true, then, presumably, Conclusion is true.
Premise 1 (Expertise)	Source E is an expert in subject domain S, containing proposition A.
Premise 2 (Assertion)	E asserts that proposition A is true.

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[166] WALTON, REED, MACAGNO, 2008, p. 18-21, explicitly recognize this possibility.

Premise 3 (Trustworthiness)	E is personally reliable as a source.
Conclusion	A is true.

A question that naturally arises is: *why is Trustworthiness modeled as a critical question instead of a premise*? The answer is given by defining the need to claim the proposition to advance an argument (a point debated near the end of Section II.1.B). If it is defined that Trustworthiness does not need to be claimed, then it is modeled as a critical question. A point against the need for a proposition to be claimed is based on its burden of proof. The Trustworthiness is taken to be a relative presumption (Section II.1.B), a proposition that is considered true unless attacked by an argument supporting the contrary. Due to the fact that Trustworthiness is presumed to be true, it is argued that claiming it is unnecessary. Hence, it is modeled as a critical question.

The fact that Trustworthiness needs not to be claimed does not take us back to the original warrant, containing only Expertise and Assertion. One thing is to say that Trustworthiness is irrelevant, and other, completely different, is to state that it is relevant but does not need to be claimed by the one advancing the argument. A possible way to express the defeasible warrant more precisely in natural language, taking into consideration the burden of proof, could be: "If Expertise is true, Assertion is true, and Trustworthiness is not proven false, then presumably, Conclusion is true"[167]. If Trustworthiness is proven false, then, one of the conditions of the warrant is not present, rendering it inapplicable, and removing support.

Maybe it is easier to see that one is dealing with an exception if we consider the negation of trustworthiness: *dishonesty*. If "dishonesty" is present, then the consequence of the warrant is not obtained. Rewriting it again, we obtain: "If Expertise is true, Assertion is true, and Dishonesty is not proven, then presumably, Conclusion is true". In any event, the example shows that the precise formulation of the argument scheme's rule of inference,

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[167] In formal language, a possible way to represent the "not proven" would be by using a *nonprovability operator*, already referred to in the footnotes of Section II.1.A above.

considering burdens of proof, is crucial to affirm whether it is being rendered inapplicable by the presence of an exception.

This last discussion must be distinguished from the others above about undercuts. In the examples of the red object and Tweety, the defeasible rule was in the premises, which were attacked directly. But, here, the only defeasible rule is a warrant that is not stated. If we take the argument of Dr. John above and attack it with an argument whose conclusion is that "Dr. John is not trustworthy" (P3), it is neither directed at the premises, nor to the conclusion.

One option to solve this is to go back to the idea of undercuts as attacks to inferential links, but with the reservation that this only makes sense for the cases in which the exception is a condition of the rule of inference and not of a premise, according to the distinction of Section II.1.A. Another option is to consider that the attack is actually aimed at an unstated premise (e.g. it was unstated that "Dr. John is trustworthy"), thus, it is still an attack to the premises of the argument. The rule of inference itself may be treated as an unstated premise, if its formulation comes into debate when an undercutting attack is performed.

Since, in the end, the attacks are always changing rules (premises) or are based in unstated rules (warrants) which provide for additional premises[168], I find the second option more convincing, and conclude that undercuts do not really attack the support relation between premises and conclusion, but they remove support by attacking some premise of the argument. Therefore, a structural classification does not need the concept of undercutting. However, it will be considered further below as a type of attack for my second classification (functional).

Whatever the option, what is really important is a precise understanding of how such attacks work. Therefore, after all these intricate discussions, I will summarize the relevant conclusions and systematize what is important for the comprehension of undercutting attacks:

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[168] This also shows that one must try to model argument schemes and their respective warrants as to contemplate all possible exceptions. Otherwise, the distinction between premises and rules of inference will be blurred due to debate.

(i) an *undercut* occurs when an exception to some rule is introduced in the dialogue to be used in an attack;

(ii) an *exception* is a condition of a rule's antecedent which, if present, prevents the consequent from being obtained;

(iii) a rule is incomplete if it does not incorporate the relevant exceptions in its antecedent, and it is properly said that a rule is not applicable to a case only if some of the necessary conditions to obtain the consequent are not present;

(iv) there may be exceptions to generalizations which are the premises of an argument or the rule of inference of an argument;

(v) an exception may be part of an attack to an argument in different situations[169]:

> (a) there may be an attack to a rule contained in a premise, which is considered incomplete because it lacks an exception (e.g. the correct rule is "If *x* is a bird and *x* is not a penguin, then, *x* flies" and not "If *x* is a bird, then, *x* flies");
>
> (b) the attack introduces an exception that is not mentioned in the original argument's premises, but that is part of its rule of inference (e.g. the rule of inference is "If Expertise is true, Assertion is true, and Trustworthiness is not proven false, then presumably, Conclusion is true", the original argument says only "Dr. John is an expert in field F, containing proposition P" and "Dr. John says P is true", and the attack is an argument that supports "Dr. John is not trustworthy");
>
> (c) the rule contained in the premise of the argument already contains the exception in its antecedent, a premise says that the exception has not occurred, but the attack supports the opposite (e.g. one premise says "If *x* is a bird and *x* is not a penguin, then, *x* flies", and the other two say that "*x* is a bird" and "*x* is not a penguin", but now an argument attacks the last premise by supporting that "*x* is a penguin");

(vii) exceptions are represented in the rule of inference considering their burden of proof.

Finally, I may offer an example of rebuttal, already given in Robert's case to represent a debate over how a legal norm should best be interpreted:

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[169] There was no example of the possibility (c) above, but the description in the item is sufficient.

<u>Robert's Argument</u>

(P1 – Legal Goal) The norms of statute Y have the goal to promote an integral coverage for clients of health insurance companies.

(P2 – Adequate interpretation) The interpretation of norm X of statute Y, which establishes the duty of health insurance companies to provide coverage, as including prosthesis, leads to the promotion of the integral coverage goal.

(C1 - Conclusion) Thus, the duty to provide coverage should be interpreted as including prosthesis.

<u>Health Insurance Company Argument</u>

(P3 – Legal Goal) The norms of statute Y have the goal to promote actuarial balance for health insurance companies.

(P4 – Adequate interpretation) The interpretation of norm X of statute Y, which establishes the duty of health insurance companies to provide coverage, as including prosthesis, leads to the demotion of the actuarial balance goal.

(C2 - Conclusion) Thus, the duty to provide coverage should be interpreted as <u>not</u> including prosthesis.

Although the mechanism of rebuttals is easy to understand, they bring about the very difficult problem of how to define which is the stronger argument, how to establish a *priority* between arguments. In the example above, one must ask: should we privilege the goal of integral coverage or of actuarial balance? The problem of balancing goals will be discussed in detail in Chapter IV. Right now, I will focus in making additional remarks on the relation of support within an argument.

Preliminary, it should be noted that the problem of strength is only germane to defeasible arguments. Deductive arguments are either valid, and the conclusion is necessary, or invalid, and offer no support to the conclusion. When it comes to defeasible arguments, one does not necessarily face an all or nothing situation, it makes sense to speak of differences in strength.

Let us recall the example of the lawyer trying to decide whether he should appeal or not (Section II.1.A). He had considered an argument from consequences against the appeal, due to the fact one has to pay fees. But the lawyer will evaluate the argument very differently if the fees are of US$ 1.00 (one United States dollar) or US$ 1,000,000.00 (a million United States dollars). In everyday discourse one would say that the argument is very weak in the former case, and very strong in the latter. In arguments from consequences, both the strength of the causal link and the evaluation of the consequence may vary, resulting in different strengths of the argument. Different arguments from consequences may have opposite conclusions and one needs to evaluate which one (or which set) should prevail. This may also happen in other types of arguments, such as those based on expert opinion, whose strength may vary according to the credibility of the source. It is also often the case of finding experts endorsing opposing conclusions.

In contrast to the examples above, one can find defeasible arguments whose support to the conclusion seems less susceptible to the idea of degree. Take the Tweety example one more time. Either the generalization holds and the bird flies, or some exception comes into play and the bird does not fly. The exception actually removes all support to the conclusion. Nevertheless, the idea of degree is still applicable. The generalization may be considered stronger depending on the ratio of flying birds in relation to the total amount of birds. Another example may help illustrate the idea. Suppose Brazil has four active soccer clubs, and everyone in the population cheers for one and only one club. The distribution is as follows: 40% cheers for team A, and 20% for each other one. It is possible to state that "generally, Brazilians cheer for team A". However, if the distribution was 70% for team A and 10% for each other one, the same generalization would be stronger.

It is not always possible to easily compare the strength of generalizations. Either data is not available for factual claims, or we are dealing with normative claims whose truthfulness is not exactly dependent on data (as it happens in the Law). For instance, the rule "If x kills y, then, presumably, x committed a crime" could be rewritten as the generalization "generally, to kill someone is a crime". But when a professor of criminal law uses "generally" in this situation, he is not meaning to say that in most cases when someone

kills the other, there is a crime. That would be a sociologist's work. The "generally" intends to convey only that there are circumstances in which killing other person is not a crime. It may be the case that, in a given jurisdiction, eight out of ten killings are carried out in self-defense, and therefore, not crimes. But the criminal law professor will remain using "generally", and it would still be fine.

As a result, support for the conclusion can be *binary* (either it supports or not) or *scalar* (a matter of degree). Deductive arguments always offer binary support. Either they are valid and support the conclusion by necessity, or they are not valid and offer no support at all. Defeasible arguments offer scalar support, but, in actual discussions, the precise strength of the support may be irrelevant, depending on the attacks used and their success (e.g. if there are two arguments that rebut each other, but one is undermined). When scalarity matters, I will say that the support is *intensified* or *attenuated*.

The subsequent questions that plagues one's mind are: where does support's scalarity come from? How to define the degree of support of an argument? All I can say for now is that support is scalar because premises also may be seen as scalar in some sense. Propositions are defined as either true or false, but they may also convey information that could be appraised by a scale. Both propositions "the appellant has to pay fees" and "the appellant has to pay fees of US$ 1,000,000.00" are either true or false, but the second one explicitly scales the payment and allows for comparison. Scales need not to be numeric. Suppose, Joanna must decide if she will go to the birthday party of her nephew or of one of her work colleagues. She may say that "going to my colleague's birthday party is important" but "going to my nephew's birthday party is *very* important". Again, both propositions may be either true or false, but also allow for comparison within scales. This theme will be recurrent in Chapter IV, which will examine how the Law handles scalarity in evaluating whether some legal rule complies with the validity requirements related to the promotion and demotion of legal values (balancing). The proceedings in cases of constitutional values and human-rights treaties, analytically detailed by legal theoretical literature, will be used as reference to other situations of legal balancing (competing interpretations).

As a conclusion, our structural classification features two possible types of attack, to the premises (undermining) and to the conclusions (rebuttals). But such a classification does not tell us what we are doing when attacking arguments, only where they are directed at. It must be complemented by a *functional* classification of attacks, which explains how they proceed.

The first, obvious way, to make an attack, is by producing a *counter argument* which will conclude the contrary of a premise or a conclusion of the argument being attacked. The examples taken from Robert's case about undermining (Robert is not an insured client) and rebuttals (different goals for the law) were both counter arguments.

The second way is by *contesting* (or challenging) a premise with the burden of proof of an assumption. The mere act of asserting the contrary of a premise, in this case, is enough to be considered an attack, because it will compel the other party to produce a new argument to uphold the proposition. In Robert's case, he argued that the health insurance company refused his request for coverage; and the company denied the refusal, affirming that they did not even receive a request. The denial compelled Robert to offer evidence. If not supplied, then the proposition would be regarded as false, undermining Robert's argument.

The third way is by advancing an *exception*, what we discussed originally under the heading of *undercutting*. The introduction of an exception may actually comprise many different acts:

(i) assertion of some proposition which prevents the consequence of a rule from being obtained (e.g. Tweety is a penguin);
(ii) an argument sustaining the assertion of (i) (e.g. zoologist expert report about Tweety).
(iii) the claim that a rule being applied is wrong, because it does not account for a relevant condition (e.g. it is not true that "if x is a bird, then, plausibly, x flies", but that "if x is a bird and it is not proven that x is a penguin, then, plausibly, x flies");
(iv) arguments that justify the exception as a relevant condition (e.g. Penguins are birds that do not fly);

(v) an argument concluding the opposite of the rule being applied (e.g. Penguins do not fly, Tweety is a penguin, then Tweety does not fly).

The real use of exceptions needs to be analyzed to verify which acts have taken place. Due to the complexity involved, more investigation is actually required, something which will not be carried out in this opportunity. Nonetheless, the presentation of different situations in which an exception may be introduced (when the rules are premises or warrants), and the indication of the different acts involved, already serve as an outline to a future study. Theoretical adjustments aside, the description offered is rich enough to account for real arguments discussing exceptions.

A last remark is that exceptions are conditions of a rule which are assumed or presumed to be false. Suppose a biology student, member of an NGO for animal protection, is discussing literature with his friend from law school, and argues that killing Moby Dick would be murder (let us simplify by assuming that Moby Dick was killed by Ahab's harpoon):

(P1 – Legal Norm) According to the Criminal Code, if x kills y, then x committed murder.
(P2 – Facts I) Ahab killed Moby Dick
(C1 - Conclusion) Thus, Ahab committed murder.

The law student laughs at the biology student and explains that the Criminal Code is only applicable to people killing people, so, there was no murder. The argument, he continues, should be amended to the following:

(P1 – Legal Norm) According to the Criminal Code, if x kills y, and x and y are both people, then x committed murder.
(P2 – Facts I) Ahab killed Moby Dick
(P3 – Facts II) Ahab and Moby Dick are not both people.
(C1 - Conclusion) Thus, Ahab did not commit murder.

In spite of having added a proposition (P3) and of changing the norm by adding a relevant condition, it feels intuitively strange to say the law student introduced an exception. That is because the biology student got wrong the ordinary positive conditions for drawing the inference. In our everyday speech, we use the idea of exception for conditions that are assumed or presumed to be false, not for any new conditions added to a rule. For instance, we say that an allegation of self-defense is an exception to the rule of murder, even if we already know the condition in advance. The explanation is that the self-defense is initially assumed or presumed (depending on the legal system)[170] to be false. Thus, although there is an attack to a rule, it is not related to and exception and it is not an undercutting.

All the types of attacks have in common that they aim to refute a proposition, either by arguing that its contrary is true (and, thus, the proposition is false) or by removing any support to it. But there are moves in the dialogue that may affect its outcome without proceeding as such. I will call these *procedural objections[171]*, for they are based in the very rules of argumentation contained in a dialogue protocol, such as rules about commitment or burden of proof; or *meta-level objections*, for they demand a discussion about the application of the rules of the dialogue themselves.

The first and foremost example of procedural objection is arguing that the required *standard of proof* has not been satisfied[172]. This is made without arguing the contrary of any stated proposition and, consequently, not altering any support relation. Suppose that, in the case in which Mark is accused of killing John, there is a dispute over the factual claim that "Mark killed John". There is evidence supporting the proposition and its opposite. Mark was the owner of the gun used to shoot John, had an argument with him over a girlfriend a couple of years ago, and a witness saw a man that looked like John near the crime scene at a time consistent with the killing narrative. On the other side, Mark notified the police to say that someone stole his gun from his house, he is regarded in the community as a peaceful man

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[170] Some legal systems require the defendant to prove self-defense (relative presumption that self-defense is false), like in Brazil. Others require the defendant only to claim self-defense and, in that hypothesis, the plaintiff must prove that the killing was not carried out in self-defense (assumption that self-defense is false), like in PRAKKEN, SARTOR, 2009, p. 226.

[171] The terminology is inspired in WALTON 2013, Chapter 2, especially p. 57-62. However, the author does not give a clear concept of procedural objection.

[172] Douglas Walton, Chris Reed and Fabrizio Macagno consider this a fourth type of attack in WALTON, REED, MACAGNO, 2008, p. 258

with no prior antecedents, and the witness saw the suspect from a somewhat long distance, not being sure about who he was. Mark's lawyer can argue that the arguments do not support the proposition beyond reasonable doubt, which is the legally required standard of proof for conviction. This allegation does not fit any of the attacks described above. It is an evaluation of the overall support offered by pro's and con's arguments, which depends on scaling the support offered by each argument, accruing the arguments into sets (of pro's and con's), and comparing them to verify if the eventual difference in support matches the beyond reasonable doubt standard.

A thorough analysis of this objection would require tackling heads up very challenging problems of argumentation, for which I have not discussed methods. They are not imbued in what I have discussed, although a model could be extended to comprise them[173]. For my purposes, it is sufficient to notice this limitation and that a meta-dialogue about the arguments evaluation could be established.

Other type of procedural objection is to argue that someone's argument is *not sound*, for it does not follow an accepted argument scheme. Despite of looking like such an objection is removing support, it is actually doing something different. If one says that an attack removes support, he presupposes that, at least in some state of the dialogue (one picture), the argument has the potential of supporting the conclusion. But, if an argument is not sound, it never had the potential of supporting the conclusion in the first place. Suppose Robert's lawyer was reading a logic book on a Saturday night. His husband, an accomplished entrepreneur, sees it and starts complaining about how absurd it is that he would rather read a bunch of nonsensical and useless ideas instead of taking him out to dinner. They soon start to quarrel. After that, Robert's lawyer does the usual. He gets drunk and start to work at 2:00 A.M. This time he was a little too drunk and wrote in the complaint:

> (P1)   *Generally, birds fly.*
> (P2)   *Socrates is a mortal.*

_____

[173] As an example, the Carneades argument assistant software, in its first implemented version, required the user to attribute a value from 0 to 1 to characterize the degree of support offered by an argument. It simplified the discussion about what would be an adequate type of scale for the degree of support, but offered no orientation on how to decide the numbers.

(C1)   Thus, Robert should be provided coverage.

The argument follows no argument scheme (as far as I am concerned), the premises and the conclusion are simply disconnected. It has no potential of supporting the conclusion. This is a meta-evaluation of the attempted argument. Recall that rules of inference are out of discussion. A meta-level dialogue may be established to verify that, referring to the accepted rules of inference defined in the dialogue protocol. The same would happen in a fallacy like the Pegasus example of Section II.1.A.

A similar occurrence is the objection of *irrelevance*, that the argument does not contribute to solve the ultimate issue of the dialogue[174]. As a consequence, it also cannot possibly provide support to a proposition. Take the example of the Legally Blonde movie (Chapter I, Section I.3). Elle is conducting the cross-examination, and starts questioning the witness about hair permanents, intending to prove that her story is not credible. At the beginning, the district attorney objects that the argument is irrelevant, because it is seemingly leading nowhere. A few moments later, the relevance becomes clear. This type of objection is also related to a dialogue protocol.

The list of procedural objections and examples could go on, side to side with the rules established in the dialogue protocols. I do not intend to be exhaustive, just to remind that there is much more that may happen in dialogues which are not captured by my simplified model. A richer depiction could be elaborated by researching procedural objections and describing accurately how they work.

II.2 Argument Schemes and Argument Maps

II.2.A Defining Argument Schemes

In Chapter I, Section I.3, I said that the argument scheme is a device that represents the inference structure of an argument, as well as lists the possible attacks to it by a set of critical questions, all of this while offering information about the burden of proof for parties

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[174] WALTON, 2013, p. 29-30, also identifies arguments about irrelevance as procedural objections.

advancing or attacking the argument. I gave an example to the reader and asked him to ignore the details. Now, it is time to explain how all the concepts I have been discussing come together to build an argument scheme and shed light on such details. I will do this by presenting and discussing the schemes for the fundamental arguments of *strict modus ponens* and *defeasible modus ponens*.

The first part of an argument scheme is composed by a set of premises, a conclusion, and an undisputed rule of inference also referred to as warrant. I will call this set of elements the *argument scheme's core*, or simply *core*. All parts of the core must be claimed (or at least assumed to have been claimed implicitly[175]) for the argument to be successfully introduced into the dialogue[176]. The core of my arguments of choice have already been shown in the end of Section II.1.A, and, for the sake of convenience, are reproduced below:

Strict Modus Ponens - Core	
Warrant (strict)	If Rule and Antecedent are true, then Consequent is true.
Premise 1 (Rule)	If P, then Q
Premise 2 (Antecedent)	P
Conclusion (Consequent)	Q

Defeasible Modus Ponens - Core	
Warrant (defeasible)	If Defeasible Rule and Antecedent are true, then, plausibly, Consequent is true.
Premise 1 (Defeasible Rule)	Generally, if P, then Q
Premise 2 (Antecedent)	P
Conclusion (Consequent)	Q

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[175] To make sense of some arguments made in real life, we may need to assume that some proposition was implicitly claimed. For example, if someone says "Socrates is a man" and "thus, Socrates is a mortal", we could argue that the person implicitly claimed that "if someone is a man, then, someone is a mortal". This kind of argument is known since antiquity as an *enthymeme*, an argument with missing parts (conclusions may be missing instead of premises). Difficulties in dealing with enthymemes will be discussed in Section II.3.D.

[176] Otherwise it would be an incomplete, unsound argument, susceptible to a procedural objection (Section II.1.C).

The second part of the argument scheme is the set of *critical questions*, which lists possible attacks in the form of questions:

Strict Modus Ponens – Critical Questions	
Critical Question 1	Is Rule true?
Critical Question 2	Is Antecedent true?

The critical questions of the *strict modus ponens* argument scheme basically asks whether the premises are true. The question, however, should not be taken as an attack itself, but as an invitation to produce attacks directed at the premise. Structurally, these would be undermining attacks. Given it is a deductive argument, the conclusion is necessary and cannot be attacked directly, so only undermining is possible. What about the functional classification? Counter arguments to the premises are certainly possible. There can be no exceptions, since both the Warrant and the rule of Premise 1 are absolute generalizations. Finally, contesting could be enough, depending on the burden of proof for the premises.

This draws attention to the fact that the burden of proof for both the premises and the propositions suggested by critical questions needs to be represented somehow (although this is not common in the argument schemes found in the literature)[177]. Since there will be critical questions corresponding to each premise[178], I will supply them with a note in parenthesis, regarding the burden of proof of the proposition claimed in the core or taken to be true. The absence of parenthesis indicates an ordinary proposition. Such indications will be made exclusively in the critical questions and not on the core, to avoid repetition. For example:

Strict Modus Ponens – Critical Questions	
Critical Question 1	Is Rule true? (assumption)
Critical Question 2	Is Antecedent true?

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[177] As already mentioned in a footnote of Chapter I, Section I.3. Again, I refer the reader to the compendium of WALTON, REED, MACAGNO, 2008, to uphold by statement.
[178] As noted by VERHEIJ, 2003.

Above, Premise 1 of the argument scheme's core is classified as an assumption. It does not need to be supported unless contested. This means that the contesting attack will be enough for Critical Question 1. On the other hand, since Critical Question 2 has no parenthesis after it, then Premise 2 is an ordinary proposition, and needs to be supported. Therefore, even if an attack is not made, Premise 2 may be considered false, depending on how the dialogue develops.

The example, however, only serves to show how the burden of proof would be represented. The classification of propositions according to their burden of proof actually needs some justification, either by showing that it is an accepted argumentative practice, or by arguing that dialogues would have a more adequate outcome with such a design. These discussions can only be made sensibly in some determinate contexts[179]. *Modus ponens* arguments can be used in so many situations that it becomes difficult to decide about the burden of proof of propositions beforehand.

Now, let us look at the critical questions of *defeasible modus ponens*. The classification of the proposition's burden of proof will be ommitted due to the aforementioned difficulties:

Defeasible Modus Ponens – Critical Questions	
Critical Question 1	Is Defeasible Rule true?
Critical Question 2	Is Antecedent true?
Critical Question 3	Are there any exceptions to Defeasible Rule?

The critical questions are almost the same of the *strict modus ponens* scheme. The only relevant difference is the addition of Critical Question 3, which allows for exceptions, which are either assumed or presumed to be false (Section II.1.C). It is difficult to provide any more details justifiedly, given the lack of context. Notwithstanding, some questions may arise.

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[179] In the same direction, GORDON, PRAKKEN, WALTON, 2007, Section 5 "Modelling Critical Questions in Carneades".

If an unanticipated exception leads to an attack to the defeasible rule (which is incomplete), why are there two separate critical questions (1 and 3)? The short answer is that both critical questions are trying to capture different situations, Critical Question 1 is satisfied by just *denying* the rule, while Critical Question 3 points to a *revision* of the rule with the inclusion of a exception in the antecedent, altogether with the assertion of a proposition.

The extended answer demands a preliminary discussion: what does it mean for a rule to be true? A good way to see it is to convert the rule into a generalization, and ask whether that proposition is true. For example "If someone is a man, then he is a mortal" becomes "All men are mortal", and "If *x* is a bird, then, presumably, *x* flies" turns into "Generally, birds fly". Even intuitively, the requirements to the truthfulness of the generalizations change according to the type of generalization. Absolute generalizations and strict rules are quite simple, either they hold or they do not. If one finds an immortal man[180], then "All men are mortal" is no longer true. But the "generally" in the defeasible generalization raises the difficulty bar. In what situations can we say something holds generally? If more than half of the existing birds did not fly, it would be intuitively odd to say that "generally, birds fly". But simple majority does not seem enough. As per the example given above when discussing the strength of generalizations (Section II.1.C), sometimes less than the majority seems to suffice. If 40% of Brazilians cheer for Team A, 20% for Team B, 20% for Team C and 20% for Team D, it still seems intuitively sound to say that "generally, Brazilians cheer for Team A".

A temptative definition about the meaning of a defeasible generalization is that, given a set S, it makes a statement about which is the greater (with more elements) subset of S, being all subsets defined according to some uniform criteria. To say that "generally, birds fly" is to say that, given a set of birds, and subsets defined according to the ability to fly, the subset of flying birds is greater than the subset of non-flying birds (the only two subsets). To

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[180] Of course, the idea of an immortal man assumes that mortality is not a necessary condition of being a man, which is debatable. Let us just pretend that it is fine and avoid the discussion of what are the necessary and sufficient conditions to consider some being a man. This is a matter for science fiction with depictions of ultra-advanced artificial intelligence, like the novella *The Bicentennial Man* (1976), by Isaac Asimov (there is an irony in the example, but I do not want to give spoilers). For those who prefer watching than reading, there is the 1999 American movie *Bicentennial Man*, based on Isaac Asimov's story.

say that "generally, Brazilians cheer for Team A" is to say that given a set S of Brazilians, and subsets defined according to the team they cheer for, the subset of Team A is greater than every other subset (of Teams, B, C and D). Therefore, if there are more non-flying birds than flying ones, or if Team B has more fans than Team A, then, the generalization is false.

Due to practical reasons, it will probably be hard to find debates about the truthfulness of defeasible generalizations based on data, like the ones mentioned. Usually people resort to something as "generally" when data is not available or not easily obtained[181]. Nonetheless, there could be arguments trying to uphold or attack a defeasible generalization which are not based on data. For example, one could say that all birds have feathers, and feathers are optimal for flying. In addition, it would be senseless, from the point of view of evolutionary biology, for animals to have a characteristic adaptation for flying which is useless most of the time. In the Brazilian teams case, one could argue that Team B has amassed the greatest number of worldwide and national champions among all Brazilian teams during the last two decades. Since people tend to cheer for the winners, it is only natural that Team B would have the greatest number of fans, instead of Team A. Both argumentations are complex, depending on many other premises, including generalizations ("all birds have feathers" and "people tend to cheer for the winners"). They follow the general strategy of analysing other aspects (feathers or championships) of the elements contained in the greater set (birds or Brazilians), to find an argument sustaining the defeasible generalization. It should be highlighted that the attack in the Brazilian teams case does not amend the defeasible generalization, but *changes it completely*, from "generally, Brazilians cheer to Team A" to "generally, Brazilians cheer to Team B".

The temptative definition of defeasible generalizations above works well for factual generalizations, but not for normative generalizations (as already discussed in Section II.1.C, while examining the idea of degree of support). In these cases, it is more fruitful to understand the defeasible generalization as only trying to get the rule right, stating all its relevant conditions. Does this blur the distinction between Critical Questions 1 and 3? No, because one can still find arguments that aim at changing the rule in other ways than by

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[181] The use of defeasible generalizations in situations of uncertainty and unavailable data is commonly mentioned in the literature.

including exceptions in its antecedent. Take Robert's case again, when it was discussed what was the best interpretation of the duty of coverage, whether including or not the duty to pay for prosthesis. The rule is not being amended to include an exception in its antecedent, but to change the consequent (from "if *x* is a health insurance company, it has the duty to pay for prosthesis of its insured clients" to "if *x* is a health insurance company, it does not have the duty to pay for prosthesis of its insured clients").

All these discussions serve to show that defeasible rules might be attacked in different ways, either by having existing conditions or consequences changed, or just its antecedent amended to include an exception. Thus, the difference between Critical Questions 1 and 3 of the *defeasible modus ponens* argument scheme are justified.

A second question prompted by the defeasible *modus ponens* argument scheme is: if this is a defeasible argument, why is there no critical question allowing rebuttals, that is, attacks to the conclusion? The point is that, in our argumentative practice, *rules are not rebuttable, but defeasible*. If a rule contradicts the other, then one of them will be preferred, and the other will not be applied (defeated)[182]. The latter may be excluded entirely from the knowledge base (e.g. in Law, a norm which is declared invalid and revoked) or amended to include an exception. Suppose a rule says "If *x* is under 18 years old, he cannot enter into a lease contract" and other says "If *x* is married, he may enter into a lease contract". If, in a given case, *x* is both under 18 years old and married, the rules conflict. One possible solution will be to consider that someone who is married may enter into a contract, even if under 18 years old. Then, the first rule will be amended to "If *x* is under 18 and not married, he cannot enter into a lease contract". Therefore, any attack that renders the conclusion of a rule false will be part of Critical Questions 1 (deny or exclude the rule) and 3 (revise or amend the rule).

After presenting the argument schemes, it should be noted that the scope of relevant features that they represent is limited. For instance, they do not specify the standard of proof required for a proposition to be considered true, nor do they indicate the existence of a burden

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[182] This is a relevant aspect of rules that Robert Alexy considers in his distinction between principles and rules. The point will also be discussed in Chapter IV, Section IV.2.

of claiming (concepts discussed in Section II.1.B). In principle, it is possible to further develop the device to represent yet more information about the dialogical framework in which the arguments take place. But I will leave this discussion to future studies.

To summarize and conclude, argument schemes are composed of a core, containing a rule of inference, a set of premises and a conclusion, and a set of critical questions, which lists the possible attacks to the argument, and, eventually, the burden of proof for each proposition (according to the classification of propositions that are affected by the acts of contest or support). By looking at the type of warrant (strict or defeasible), to where the critical question is directed (premise, conclusion, or proposition which is not part of the core), and to the burden of proof of the proposition, one may explain precisely how the argument may be attacked (structurally and functionally), as well as its consequences to the dialogue development. The accurate understanding of the argument scheme depends on previous conceptual framework, and the development of an argument scheme depends on the same framework, as well as on contextual discussions about what the argumentative practice is and what it should be.

II.2.B Refining Argument Schemes

Many argument schemes can be found in the literature, and a quick look is enough for one to realize that their construction is not standardized, which falls short from a rigorous methodological ideal. Additional complications arise from the fact that schemes are the result of an investigation about arguments in certain domains, which can be more or less abstract. Conversely, they may need to be more or less detailed (e.g. defeasible modus ponens and an application of a legal norm), to allow for slight variations (e.g. different legal systems that follow or not the *stare decisis*), or to be improved over time along with newer studies. Therefore, to standardize their construction would be a valuable achievement.

The definition I have provided in the last section is a first step in providing parameters for building schemes, but there is still plenty of room to improve. So, in this section, I briefly

establish a procedure to organize the investigation and the construction of schemes, divided in seven steps[183].

1) Domain

The first obvious step is to define the domain of the argument. It could be as loose as "everyday conversation", to detailed as "Criminal Law in the Netherlands". Simply the "Law" is also possible. Although seemingly innocent, the move of establishing a domain will determine the source material for the investigation. For example, judicial decisions are a fundamental source for "Law", but are not a good fit for "everyday conversation", which could use a newspaper opinions section.

2) Informal description of the type of reasoning or type of arguments

Even a somewhat specific domain is still too comprehensive. The second step is to define the type of reasoning (e.g. teleological reasoning, analogical reasoning) or, if more precision is possible, the type of arguments (e.g. argument from consequences, use of precedent) that are the object of investigation. An informal description, preferably with examples, is crucial at the beginning of the study, even if little detail can be provided at this time.

At this point, it should already be possible to identify the type of reasoning of the future argument schemes: deductive or defeasible.

3) Conclusion, Premises, and Rule of Inference (Core)

To build the argument, one needs to identify the *conclusion* and the *premises*. For example, while analysing the argument from consequences, the researcher will find that it concludes that something should be done: "*one ought to do A*". In order to advance the argument, one has to assert that *A* leads to some consequence, and that this consequence is

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good, thus, the premises: "*A causes B*" and "*B is a good thing*". It may be easier to define the conclusion first, for the premises that lead to the conclusion are likely to be unstated or debated.

There is a very important guideline in this step, which is at the heart of the approach defended (and applied) in this work. Whenever possible, one should use existent *theoretical accounts* to understand the arguments in the domain, even if they do not employ an argumentation conceptual framework. For example, instead of reading judicial decisions at random, one would use his time better by studying the literature about legal argumentation. Theories are more systematic than reality, so they are a good start. In Chapter IV, I identify the relevant propositions in arguments about proportionality analysis after a review of the work by Robert Alexy (Section IV.2).

With the premises, the conclusion, and the type of reasoning (identified in Step 2), it is possible to determine the rule of inference, which will state that if the premises are true, then the conclusion obtains. It will be strict or defeasible, according to the type of reasoning. Then, it will be possible to build the first version of the argument scheme's core. Following the example of the argument from consequences:

Argument from Consequences - Core	
Warrant (strict)	If Causal Premise and Evaluative Premise are true, then, presumably, Conclusion is true.
Causal Premise	A causes B
Evaluative Premise	B is a good thing
Conclusion	Thus, one ought to do A.

As one can observe, the warrant is followed by the indication of the type of reasoning in parenthesis. The premises could just be numbered (P_1, P_2 and so on), but it is also possible to name them, as I did, offering information about its content.

4) Exceptions

Given the dialogical framework of argument schemes, one needs to account for possible attacks. Hence, not only the premises that are used to advance the argument must be identified, but also the *exceptions* to the rule of inference that prevent the conclusion for being obtained. The argument from expert opinion, for example, in its traditional account[184], does not hold if the expert is not personally realiable (trustworthiness condition) or if what he says is not consistent with what other experts say (consistency condition).

One should be aware of *procedural (or dialogical) conditions*[185] for the use of the argument scheme, which may be relevant to obtain the conclusion. For instance, the argument from expert opinion is supposed to be used in a dialogical setting to support a proposition pertaining to a field of knowledge in which the reasoners are not experts. One expects that two lawyers will discuss the merits for considering an action legal or illegal, instead of only repeating what a third lawyer has said. It is this context's particularity that differentiates (i) an acceptable argument from expert opinion from (ii) a fallacious argument from authority. If such a condition is relevant to the argumentative practice, it may be considered a relevant exception and put into the scheme.

5) Classification of Propositions (Critical Questions)

All the relevant propositions, the premises in the core and the exceptions need to be classified according to the burden of proof. Take the argument from expert opinion again. The trustworthiness condition may be considered a relative presumption, in other words, it is presumed that the expert is personally reliable, unless proven otherwise. But it is only

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[184] WALTON, REED, MACAGNO, 2008, p. 310.

[185] In his four-step method for investigating argument schemes, Bart Verheij separates exceptions from implicit conditions of the schemes (one in each step). The distinction is not entirely clear (he speaks of circumstances and context), but the latter seems to be related to some procedural setting. The example used by Verheij is, in a criminal case, the condition of a person being brought before a qualified criminal judge. For this reason, I use *procedural (or dialogical) condition*, instead of implicit condition. It is still not satisfactory, but a little more elucidative. Nevertheless, from the point of view of the rule of inference, I fail to see the difference, since both prevent the conclusion from being obtained. Thus, I am bringing both together in the same step. VERHEIJ, 2003.

assumed that opinion is backed by evidence (backup evidence condition). In the event of a contestation, the evidence needs to be provided.

The definition of the burden of proof can be quite challenging. If one is just trying to account for practice, he will often realize that this issue is not that clear. On the other hand, if one is designing a procedure, normatively, he will need to consider the effects that the allocation of the burden will produce in dialogues. An example of such discussions – and their difficulty - is found in Chapter IV, when I model the argument schemes for proportionality analysis.

In sequence, it is possible to model the critical questions and review the core. Only those premises that need to be claimed for the conclusion to be obtained should be in the core. As discussed (Section II.1.B), there is no necessary relation between the burden of proof of a proposition and the need for it to be claimed, but, as a general rule, assumptions and presumptions (relative or absolute) do not need to be claimed. That being said, the creation of critical questions is relatively simple:

(a) Allocate to the core all the propositions that need to be claimed for the conclusion to be obtained;
(b) Create a critical question for each premise in the core, that asks only if it is true in the actual case;
(c) Create a critical question for each remaining exception that was left outside the core.

It should be noticed that I have not talked about the creation of a critical question directed at the conclusion. This calls for some explanation. As I argued in the end of Section II.2.A, rules are not rebuttable, but defeasible. If they do not apply, either the rule is denied or revised. The issue is that, in some sense, argument schemes are always about the application of some rule, the rule of inference. Thus, if we cannot simply abandon the rule of inference, any attack to the conclusion will have to be some generic exception to it, that accounts for unforeseen cases. An example is found in a version of the scheme for the

argument from consequences[186]. The third critical question says: "*Are there any consequences of an opposite value that ought to be taken into account?*" This is the same as saying that "one should do A, except if there is a better reason not to", it is a generic exception.

There is no problem in having such a generic critical question. But, before stating it, one needs to verify if the exceptions already provided are exhaustive. If all exceptions are present, there is no need for a generic exception. Of course, one may be in doubt. In such a case, it is recommended to add a generic critical question for the conclusion. Thus, the last substep for designing critical questions is:

(d) Evaluate the creation of a critical question directed at the conclusion.

It is worth reminding that the critical questions should indicate the burden of proof of the premises (if they are addressed at the premises) or of the relevant conditions that are not in the core. Asssumptions and presumptions are indicated in parenthesis, and its absence points to an ordinary proposition. Below, a complete scheme for the argument from consequences[187]:

Argument from Consequences - Core	
Warrant (strict)	If Causal Premise and Evaluative Premise are true, then, presumably, Conclusion is true.
Causal Premise	A causes B
Evaluative Premise	B is a good thing
Conclusion	Thus, one ought to do A.

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[186] The critical question is from WALTON, 2006 (a), p. 106. I have just changed from "the opposite value" to "an opposite value", because the opposite values may be more than one.
[187] A modified version of WALTON, (Fundamentals of Critical Argumentation), 2006, p. 106. I have distinguished causal and evaluative problems. However, I am not making any questions about the likelihood of the cause (Causal Premise) or the weight of the value (Evaluative Premise). This sort of problems will appear in detail in Chapter IV, in the discussion of Alexy's *weight formula*.

Argument from Consequences Critical Questions -	
Critical Question 1 (Causal)	Is Causal Premise true?
Critical Question 2 (Evaluative)	Is Evaluative Premise true?
Critical Question 3	Are there any consequences of an opposite value that ought to be taken into account? (*relative presumption*)

6) Systematic Adjustments

After the argument scheme is complete, it is time to think about its application. Possible *variations* of the scheme should be designed, or at least considered, in order to adapt it to the needs of practice. Furthermore, other argument schemes that will help in applications of the original (e.g. schemes for arguments that support the premises) must also be selected or built. They may be called *auxiliary* schemes, in relation to the first one, and may be referred to in the critical questions.

7) Testing the Scheme

Finally, the argument schemes must be tested in *real cases*. This is the only way to know if they really help in the tasks of identifying, analysing, evaluating and creating arguments. This is another critical feature of the approach of this work, reason why a long test of the argument schemes for proportionality analysis will be carried out in Chapter IV.

One should keep in mind that the testing is not a matter of quantity, but of quality. Instead of looking for a whole lot of simple and similar cases, it is more interesting to test the schemes in hard cases or different ones, and try to discuss the case and the scheme application in detail. It will probably be hard, but the results should pay off the effort, by providing a deep analysis of an interesting case and improving the tool altogether.

After presenting all the steps, two closing remarks are in order. First, the procedure above should become more detailed and improved with the experience from the

investigations of argument schemes in various domains. There is still much to discuss. For example, what is the best wording for the propositions to improve the usability of schemes?

Second, if a warrant accounts for all possible exceptions, in principle, it should become a strict rule. However, some conditions may just be assumed or presumed to be true. Without an explicit affirmation of the conditions, the doubt lingers on and so the conclusion is not necessarily true[188]. The problem arises when a dialogical framework is considered. At the end of the dialogue, if an assumption or presumption are not proven false, they are true for all purposes. Moreover, in a dialogue, a deductive argument could have its premises questioned. Thus, a defeasible warrant with all exceptions in a dialogical framework apparently blurs the distinction between defeasible and deductive arguments. These are just first impressions, and further inquiry would be interesting.

Independently of the distinction between the types of reasoning, the issue illuminates the possibility of defining warrants that indicate only the premises in the core, or that lists all the other conditions. I suggest the former to be called a *minimal warrant*, and the latter a *maximal* or *complete warrant*. It does not seem necessary to write the complete warrant in the argument schemes, for it would be cumbersome and uninformative. However, they could be useful in formal systems. The challenge will reside in how to translate precisely the burdens of proof into the conditions of the rule.

II.2.C Argument Maps

Dialogues may be represented in argument maps, as already discussed and briefly shown in Chapter I. The representation may be adjusted to different degrees of detail. For example, one may only indicate the arguments, or the propositions that form them. Not only relations of attack and support, but the type of reasoning (deductive or defeasible) and even the argument schemes used can appear in the diagram.

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[188] This echoes the distinction made by Bart Verheij between the defeasible *modus ponens* and the *modus non excipiens*, in which is explicitly affirmed that no exceptions are present. VERHEIJ, 1999.

There is no widely accepted convention for argument diagrams, and, for the purposes of this work, I will use a simplified convention that has proven to be useful[189]. I will not discuss in detail the advantages and disadvantages of my method in comparison to others found in the literature[190], but I will justify its most peculiar choices.

The greatest difference from most other conventions is that I do not put the text of the propositions in the diagram. That is because, with full texts, big argument maps become untreatable, difficult to visualize or to handle. And hard cases usually require extensive maps. So, each diagram is accompanied by a list of propositions divided in arguments. Each argument is identified by a sequential capital letter (e.g. Arguments A, B, C) and possibly a name that summarizes its content (e.g. Argument A – Socrates Mortality). Premises are identified by the letter P and a sequential number (e.g. P_1, P_2, P_3). Conclusions are identified by the letter C and a sequential number (e.g. C_1, C_2, C_3). For example:

Argument A – Socrates Mortality

P_1.   All men are mortal

P_2.   Socrates is a man

C_1.   Thus, Socrates is a mortal

In a chain of reasoning, the conclusions of certain arguments will be the premises of others. In this case, the same proposition may be represented both by a letter P and a letter C, and I will indicate it with C=P or P=C:

Argument B – Socrates Manhood

P_3.   All beings that can speak are men.

P_4.   Socrates is a being that can speak.

$C_2=P_2$. Thus, Socrates is a man.

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[189] I used it in my Master's Degree Dissertation and also tested it in classroom, in the course referred in the introduction. Some adjustments were made for this work.

[190] For a survey of the literature, see REED, WALTON, MACAGNO, 2007.

The attack of a proposition occurs when its opposite is asserted, and may be directed either at a premise or at the conclusion of an argument. In this case, to represent the opposition, I will use C*P, P*C, or C*C:

Argument C – Speaking Parrots

P_5.   Parrots can speak

P_6.   Parrots are not men.

C_3*P_3. Thus, it is not true that all beings that can speak are men.

Exceptions may be challenging, depending on how they are actually used (recall the many possible acts of Section II.1.C). If there are attacks to a premise containing a rule or to a conclusion, it is enough to follow the instructions above. However, in argumentative practice, it is common for one to introduce an exception without explicitly attacking a premise or a conclusion, based on an unstated rule of inference. In this case, the conclusion of the argument introducing the exception will state that "*it is not possible to conclude that…*" and I will use C*C.

Argument A – Sugar is the main cause of Obesity

P_1.   Dr. John is an expert in nutrition, subject domain containing the proposition "*sugar is the main cause of obesity in the world*".

P_2.   Dr. John asserts that "*sugar is the main cause of obesity in the world*" is true.

C_1.   Thus, "*sugar is the main cause of obesity in the world*" is true.

Argument B – Dr. John is not trustworthy

P_3.   Dr. John is not personally reliable as a source.

C_2*C_1. Thus, it is not possible to conclude that "*sugar is the main cause of obesity in the world*" is true.

The list of propositions work as a subtitle to the argument map. I use circles for propositions, and squares for arguments. Both may appear together in the map, and the circles close to the square represent the premises of the argument. Inference links are represented by arrows: normal for support, dashed for attack. The inference arrows go from

the square of an argument to the circle representing a conclusion. The colors indicate if the argument is aimed at supporting or attacking the ultimate thesis of the dialogue (which will always be C_1 and will be colored). The diagram below shows an example, which does not correspond to the arguments and propositions listed above:
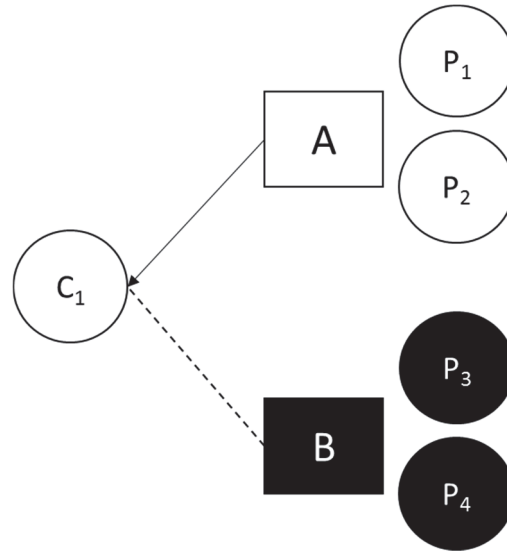
Exceptions based on unstated rules of inference, that do not attack premises or conclusions directly, are represented with an arrow directed at the center of the other arrow[191]. The example below is based on the arguments regarding Dr. John's expert opinion:

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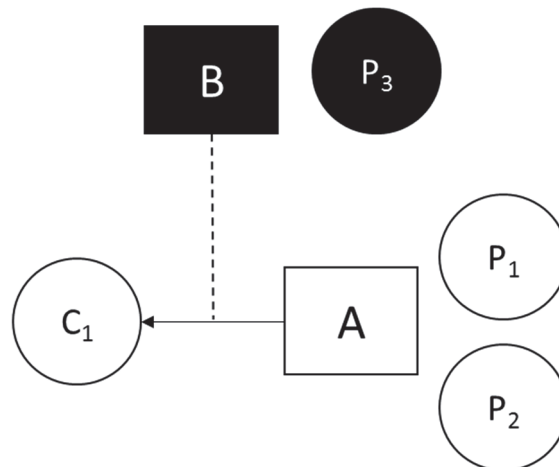
[191] In the literature, it is sometimes said that the attack is directed at the *entanglement*, and it represent attacks to the inferential link. WALTON, REED, MACAGNO, 2008, p. 397-399. The method of visualization is useful in those cases, although I already discussed my reservations to the idea of attacking the inferential link in Section II.1.C.

Another situation that calls for explanation is when an argument advances a rule with both positive conditions and exceptions, and the premises refer to each condition. In this case, it may be that some premises support a thesis by stating the presence of positive conditions to apply the rule, while other premises may state the presence of an exception, supporting the opposite thesis. For example:

Argument A – Tweety, the non-flying bird

P_1.   *If x is a bird and x is not a penguin, then x flies, otherwise x does not fly.*

P_2.   *Tweety is a bird.*

P_3.   *Tweety is a penguin.*

C_1.   *Thus, Tweety does not fly.*

In the example, the presence of P_2 positively contributes to the thesis that Tweety flies, while P_3 contributes to the contrary. This is represented by using different colors in the propositions of the same argument. The color of the winning conclusion predominates and is used in the rule:
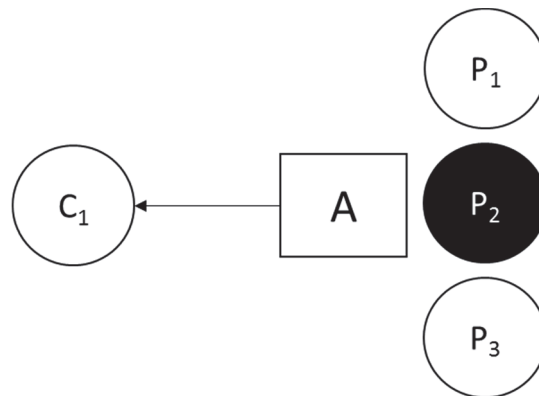
The final interesting feature to be presented is the possibility of *collapsing and expanding* the map. Since maps can grow too much, it is important to have some way to summarize them. The propositions can be omitted (except the ultimate thesis), collapsing into the arguments:
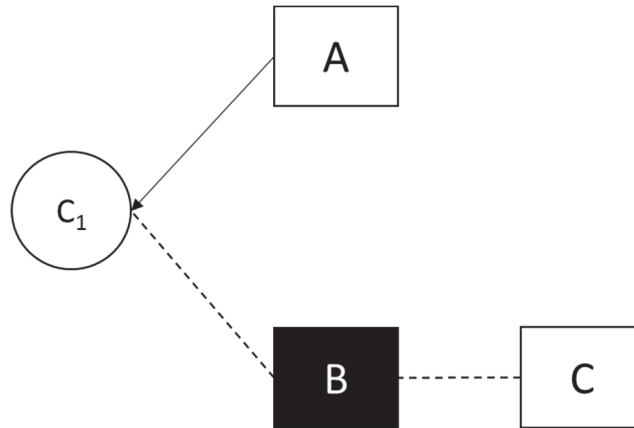
If there are many arguments, they can also collapse into rectangles that represent entire discussions. Suppose an extended discussion about the trustworthiness of Dr. John takes place, but one does not want it to take the entire field of view:
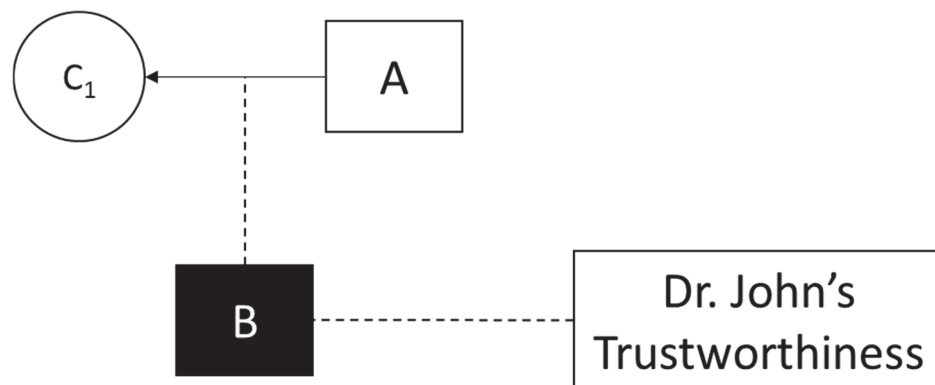
The idea of collapsing and expanding was created imagining that an argument assistant software would allow this to be made easily. It became important after trying to represent extended maps with many discussions, and it will be used in Chapter IV.

II.3 Argument Schemes: Relevant Issues

II.3.A How do argumentative schemes arise from argumentative practice?

While discussing rules of inference (Section I.1.A), which are essential to define the support premises may offer to the conclusion, I argued that they were *accepted* by reasoners, meaning that, when an argument was advanced by someone, he used the rule of inference;

and the rule, as well as its application, were usually taken for granted. Nonetheless, there could be a debate about the set of accepted rules of inference and its precise formulation. At this moment, I should add that such rules exist in a social context (they are social rules) and provide some clarifications on the concept of rule's acceptance[192].

To accept a (social) rule means to *recognize it as a pattern to evaluate behavior, shared within some group of people and applicable in some context*. For instance, arguments that follow a rule of inference are sound and provide support to the conclusion, while those that do not follow it have the opposite consequences. The rule of inference, thus, is used to evaluate the soundness of the argument (a property of the behavior of advancing arguments), and, consequently, the conclusion's support. Rules of inference may be sensitive to groups or contexts. Legal systems of different countries may have different rules of inference (e.g. the use of precedent may vary according to jurisdiction), which means that particular groups of people might have their peculiar rules of inference. Finally, the idea of context reminds us that rules of inference may be different according to the germane field of knowledge. Defeasible rules of inference, common in the Law, might not be applicable in a discussion about Physics or Mathematics. Acceptance is shown by the *use of the pattern as a means to evaluate behavior*.

Although acceptance depends on use, it does not imply approval of the rule's content. Suppose one argues that a guide dog could be allowed into a restaurant which forbids dogs' entrance, because the rule's justification is to prevent annoyance to customers and guide dogs cause no annoyance[193]. For this argument to provide any support to its conclusion, a rule of inference must be accepted. A legal philosopher could disapprove such a rule of inference because this type of argument would harm legal certainty, and, yet, concede that such a rule of inference is shared by participants of a given legal system. Furthermore, acceptance has nothing to do with a feeling towards the rule. People may like, dislike, love,

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[192] I am not following entirely any specific author for this concept. Hence, it should be understood as it is presented above. Nevertheless, there are obvious references. The concept of rule acceptance was originally discussed by Herbert L.A. Hart, as a crucial criterion for distinguishing between habits and rules, in the *Concept of Law* (1961), see HART, 1994, p. 55-58. However, Hart himself does not explain in great detail what acceptance entails. Other authors, commenting on the concept and on the distinction, are relevant to my brief account. MICHELON JR. 2004, p. 143-156; MACEDO JR., 2013, p. 117-136; MACCORMICK, 2008, Chapter 4.
[193] This classic example is taken from SCHAUER, 1991, Chapter 2.

hate, despise or revere the rule, it does not matter. It is only relevant if it is effectively used to evaluate behavior.

Since I am talking about social rules, some requirements for its shared existence should be stressed. First, there must be *public criteria* to verify whether the rule was followed correctly. Actually, the very investigation made in this work may be seen as an effort to systematize such criteria for rules of argumentation. Precise formulations as those offered by argument schemes allow for accurate verification. There may be disagreement concerning the public criteria, but to some limited extent. If no one can agree to what the rule is or how it is applied, it can hardly be said there is any rule. Second, there must be *shared support* to the rule at some level, generally identified by its use to evaluate behavior. If no one uses a rule, it may be difficult to sustain there is actually one. However, when the Law comes to mind, examples show why the support does not necessarily need to be met by the use (hence, generally). Suppose a hypothetical jurisdiction has a rule defining murder as a crime. The jurisdiction is so peaceful that no murder has taken place in the last two hundred years. Does the rule cease to exist? Not necessarily[194]. The actual use of the legal system as a whole may substitute the direct use of its specific rules.

I will not address the complicated discussions about the minimum parameters of agreement or support for the existence of a rule. Not only because prudence is calling me away from such intricacies, but mainly because this brief presentation is enough for my purposes on this section. In a nutshell, the point is that *the very use of rules of inference in argumentative practice endorses its existence*. This brings up the question I already put when first approaching the subject: how do we know if a rule of inference *is* accepted? The question is critical, for a model may have an elegant logical construction and, yet, be useless if it does not represent real argumentative practice. At this point, I may only provide an answer that may seem somewhat tautological: to know if a rule of inference is accepted, we should look at argumentative practice.

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[194] There could be legal rules according to which unused rules are excluded from the legal system, which is known as the legal doctrine of *desuetude*.

To make sense of my statement, the question needs to be reformulated in two slightly different questions. First, one may ask how to determine which *individual actions* show acceptance of a rule of inference. Second, one may consider whether a rule of inference is *collectively* accepted (shared by a group). Both questions derive from the original, but the answers to each of them have very different requirements as an analogy will show. Suppose one wants to know if a person is racist. It is possible to ask them directly. Since racism has a strong negative connotation in society, and some of racist practices are crimes, one may expect a negative answer. But would it be enough? People may have very different conceptions of being racist, and could also simply lie to look as better people than they actually are. One way to avoid the shortcomings of a direct question would be to observe people's actions in everyday life, preferably without them knowing it. Any useful observation would require a previously justified theoretical framework to what counts as a race (e.g. could Jews be considered a race for this purposes?), to evaluate some actions as racist and some as not (e.g. to tell jokes about Jews being miser would count as racist?), as well as a method to determine if a person is racist given his actions (e.g. is telling jokes about Jews sufficient to consider someone racist? How many of them?). Due to practical constraints (and legal ones too), it is not possible to follow a person twenty-four hours a day and seven days a week, during his whole life, judging his every action in order to, after the individual's death, ascertain whether he was racist or not. Everything gets worse if one wants to know whether a group of individuals is collectively racist. One way to answer this is to replicate the analysis of an individual to the whole group and establish that, if more than 50% of them are racist, then the group is collectively racist. Practical constraints would grow exponentially with the size of the group being evaluated. Yet other more challenging methodological problems could be raised: should we consider only the actions performed by these individuals together as a depiction of collectively racist? What kinds of actions would count as collectively performed? Is 50% of the individuals an adequate figure? Should individuals with different positions in the group have different weights in order to establish if the group is racist (e.g. in a whole society, politicians, judges, and journalist's actions may be more impactful than those of the average citizen)?

Similar problems arise when it comes to rules of inference. As for individual actions, asking people does not seem a good indicator of rule's acceptance. It is certainly more

trustful to observe people arguing. Collectively, it would be possible to design methodologies to establish if an institution represented by a group of individuals (e.g. a constitutional court) or even a whole legal system (e.g. Brazilian Law) actually accepts certain rules of inference[195]. This would demand not only very interesting empirical research, but also extremely difficult theoretical arguments justifying why some given criteria are adequate to assert that it follows from some factual findings that the rule is accepted collectively. These problems are way beyond the scope of this work. I want to address – very briefly - only the first question: how to determine which *individual actions* show acceptance of a rule of inference? Actually, a grounded answer to the second question presupposes an answer to the first one (unless someone believes that asking people which rules of inference they accept is enough), which, by its turn, depends on conceptual framework of the likes provided herein.

Suppose a philosopher is writing a text reflecting upon the mortality of men and argues (yes, again):

(P1)   *All men are mortal*

(P2)   *Socrates is a man*

(C1)   *Thus, Socrates is a mortal.*

Naturally (or at least normally), one only asserts what he believes to be true, which is sometimes called the *sincerity* condition of the speech act[196]. For our purposes, this means that the act of asserting itself embeds the affirmation by the speaker that the assertion is true. To make it easier to understand, one could add "it is true that" before each proposition:

(P1)   *It is true that all men are mortal*

(P2)   *It is true that Socrates is a man*

(C1)   *Thus, it is true that Socrates is a mortal.*

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[195] One could make empirical research to see if one person consistently follows a rule, but, since the concept of rule acceptance demands it to be collectively shared, even the most thorough analysis of an individual could never determine the rule's acceptance.

[196] A rule for dialogues about sincerity was discussed in Chapter I, Section I.2.B.

Assuming that the philosopher is being sincere, the new version of the argument above adequately represents what he is saying when he advances the argument about Socrates's mortality. I have shown on Section II.1.A that such structure presupposes a rule of inference (R1) stating that "If P1 and P2 are true, then C1 is true", otherwise the conclusion would not be warranted. Therefore, if one advances an argument as the one above, with the intent to provide support to the conclusion, he *must* find R1 true. He must apply the rule even if not explicitly stating it.

The same holds in a defeasible argument. Let our philosopher meditate upon what innate characteristics of a class defines membership to this class, and defend that:

(P3)	*(It is true that) generally, birds fly*
(P4)	*(It is true that) Tweety is a bird*
(C2)	*Thus, presumably, (it is true that) Tweety flies.*

The problem and the solution are the same. If the philosopher wants the premises to provide support to C2, he will need to find true the rule of inference (R2) according to which "If P3 and P4 are true, then, presumably, C2 is true". Again, the rule is applied inadvertently.

Looking at arguments in this fashion allows one to determine that the act of arguing itself shows acceptance of some rule of inference. It is a positive evaluation of the argument's soundness, manifested in the statement that the conclusion is true as a consequence of the premises ("Thus, (it is true that) …"). The soundness is a property of arguments that amounts to *truth-preservation*, it ensures the truthfulness of the conclusion as a consequence of the truthfulness of premises[197]. Rules of inference could also be used for criticism, for example, if a reasoner states that an argument is not sound because it has not followed the germane rule. Criticism amounts to negative evaluation and, thus, use of the rule, being another action that shows acceptance.

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[197] For a discussion soundness (following rules of inference) as truth-preservation, see VERHEIJ, 1999. It should be noted that truth-preservation has a peculiar meaning when it comes to defeasible arguments, since their conclusions are only plausible and not necessary.

The examples above (and the discussion in Section II.1.A) show a simple pattern. Someone advances an argument composed of premises and a conclusion. If they mean that the premises support the conclusion, they must apply a rule of inference by which if the premises are true, then the conclusion will be necessarily true or presumably true. It seems so simple that it could be automatically generated by some computer algorithm parsing texts and finding arguments. Of course, this simple picture is deceptive.

What is not so simple is to devise precisely, in a text written in natural language, which are the premises and which is the conclusion. People commonly do not write in a proposition by proposition structure, clearly indicating the premises they believe support a precisely defined conclusion. People just write argumentative texts and the analyst has to endure the trouble of making sense out of it, arranging the material into known inference structures, an activity called *argument reconstruction*[198].

Other major difficulty is to define how abstractly can the rule of inference be conceived. It is clear that the philosopher must accept that "If "all men are mortal" and "Socrates is a man" are true, then "Socrates is a mortal" is true". But must he accept the abstract version "If "All A are B" and "x is A" are true, then "x is B" is true"? In other words, does the *abstract logical form* of the rule of inference needs to be considered accepted? A thorough answer to this question would require an elaboration on complex matters of the philosophy of logic, concerning logicality[199], to be discussed in light of the argument-scheme approach to argumentation.

I have no intent of solving these problems in this work. Difficulties of reconstruction will mostly be ignored, except on Chapter IV, Section IV.3, in which a detailed analysis of a decision by the European Court of Human Rights will require a discussion of argument reconstruction, and it will be shown that argument schemes are a helpful tool in this regard. I will also present argument schemes in a somewhat abstract logical form without thoroughly

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[198] An extend discussion about a method of reconstruction, the principles governing it, techniques and difficulties can be found in EEMEREN, GROOTENDORST, JACKSON, JACOBS, 1993. For a simpler introductory discussion see WALTON, 2006 (a), Chapter 4, Section 7.
[199] A recent important account of logicality is found in *The Bounds of Logic* (1991) by Gila Sher, SHER, 1991. For a philosophical discussion of logic that deals with relevant aspects of logicality, HAACK,

describing a method of instantiating or abstracting rules of inference, although I will show examples of successive levels of detail in modelling inference rules and discuss related practical issues in Section II.2.C.

This acceptance-approach to rules of inference may be generalized to other elements of argument schemes and aspects of argumentation. Applicable burdens of proof, the list of possible attacks and its effects, and the definition of preferred extensions: the knowledge about them all may be coded in rules whose acceptance could be discussed, the *rules of argumentation* (as presented in Chapter I, Section I.2.B). Other techniques would be required to explain how the knowledge about these elements and aspects might be coded into rules of argumentation, and how to determine individual actions showing acceptance of those rules. This is a challenge I will not undertake in this opportunity. I believe the conceptual framework presented is enough of a contribution for my current (and enduring) limitations.

The idea of acceptance is also closely linked to the notion of an *audience*, presented in Chapter I, Section I.2.C. It can be said that it is the audience who accepts the rules of argumentation, by using – and abiding by - them. The image of an audience enhances the visualization of the collectivity that accept the rules.

It should be observed that the theoretical study of arguments may influence argumentative practice. The theory may become a better representation of practice because practice may change to subsume into theory. There is a circular feedback between argumentation theory and argumentative practice[200]. This does not mean that they both have the same status. It is the use of arguments that leads to rule acceptance and not their study. Of course, when one studies argumentation, he advances arguments about arguments. The arguments used lead to acceptance of other rules (the ones being used), but not directly of those which are being discussed. Argumentation studies may involve not only the description, but also the criticism of rules of argumentation.

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[200] I thank professor Henry Prakken for calling my attention to this point in one of our earlier meetings in the University of Groningen, 2016.

The practice of legal argumentation leads to the acceptance of rules of argumentation, as it has been discussed here. In some cases, the legal authoritative sources themselves concern rules of argumentation. For instance, the Brazilian Civil Procedural Code is a statute that has explicit provisions regarding the burden of proof[201]. Chapters III and IV may be understood as an investigation of the *rules of legal argumentation*, which organizes its representation in argument schemes. Recalling the concepts of Chapter I, the legal system may be modeled as a knowledge base with rules of argumentation for inference structures and preferred extensions (involving attacks and burdens of proof), which regulate the changes of the knowledge base. Although it is not the object of my study, it would be interesting to examine how this picture of legal argumentation could impact legal theories describing the Law (e.g. considering that the rules of legal argumentation are part of a rule of recognition which identify legal sources)[202].

II.3.B Are Argument Schemes Binding?

A relevant question is when one is bound to recognize some proposition as true due to the use of argument schemes, or, in other words, whether the result of applying argument schemes is binding. If our evaluation method is to be considered rational, we cannot consider the factual or psychological acceptance or rejection of the propositions, but what should be the position of the parties considering our model. If someone accepts *strict modus ponens* as a rule of inference, that "All men are mortal" is true, and that "Socrates is a man" is true, he must accept that "Socrates is a mortal". Then, in our model, "Socrates is a mortal" will be considered true, even if the real (probably delusional) party rejects the conclusion as false,

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[201] As shown in footnotes to Robert's case in Section II.1.B.

[202] Juliano Maranhão defends a *logical inclusive positivism*, which tries to overcome criticism offered to positivism by Ronald Dworkin. The author includes, as part of the legal system (hence, inclusive positivism), norms derived by deduction and principles derived by an abduction which infers the best explanation for the lawmaker's acts (hence, logical positivism). The possibility of abduction is justified as a consequence of lawmaking being a rational activity. Maranhão's legal system may be considered a knowledge base and his operations of deduction and abduction as governed by rules of argumentation (maybe for both inference structures and preferred extensions). My suggested account of accepted rules of argumentation seems to endorse his logical inclusivism, but with at least two immediate differences. First, the types of arguments are not restricted to deductions and those involved in the abovementioned kind of abduction, but vary according to an unspecified set of warrants, which may be different for each legal system. Second, the warrants are not based in the recognition of lawmaking as a rational activity, but in the acceptance of rules of inference just as legal sources are accepted (known as the positivistic sources-thesis). MARANHÃO, 2012. For deduction and abduction see especially p. 132-141, for abduction and lawmaking as a rational activity p. 140-141.

after upholding the premises[203] and the rule of inference. This is deductive reasoning, and, by definition, if the argument is sound, the premises cannot be true and the conclusion false at the same time.

The difficulty, however, is determining if and how a similar cogency could exist in defeasible reasoning. Suppose someone accepts *defeasible modus ponens* as a rule of inference, that "Generally, birds fly", and that "Tweety is a bird". Must this person accept that "Tweety flies"? As presented above, the warrant of defeasible *modus ponens* states that "presumably" the consequent is true. Therefore, the reasoner must accept that "presumably, Tweety flies", but that is something different than "Tweety flies", the difference residing in the qualification "presumably". Intuitively, it does not seem possible to constrain someone to admit that "Tweety flies" because "presumably, Tweety flies". One cannot be forced to admit the truth of something that is, by definition, not necessarily true, but only presumptively so.

But what good is defeasible argumentation if it cannot constrain someone to accept a conclusion? At this point, the dialectical aspect of argumentation comes into evidence, and the recurring idea that an argument's strength is evaluated within the context of a dialogue. If the party accepts that "presumably, Tweety flies", but does not accept that "Tweety flies", one will naturally ask why. And if, after being given the opportunity, no argument can be put forth to reject that "Tweety flies", then the position will be derived from stubbornness instead of rational appreciation. For there is a reason to believe that "Tweety flies" (the support given by the defeasible *modus ponens* argument) and no reason to believe the opposite. Thus, in some sense, it must be accepted that "Tweety flies".

The constraint does not arise from the type of reasoning, but from the *dialogue procedure*, more precisely, from the applicable rules of argumentation specified in the dialogue protocol[204]. To use the terminology of Chapter I, the parties agree into a preferred

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[203] It is possible to regulate the dialogue as to allow the party to retract their commitment to some proposition, in order to avoid an undesirable conclusion, as discussed in Chapter I, Section I.2.B. In this example, the party is not retracting anything.

[204] In the literature of informal logic, one can find an influent account, by Ralph Henry Johnson and John Anthony Blair (originally found in the textbook *Logical Self-Defense*, 1978), according to which an argument is cogent if and only if its premises are acceptable, relevant to the conclusion and sufficient to establish the

extension as an outcome of a dialogue. Hence, the knowledge base must be extended to include "Tweety flies". In the future, it may be possible to obtain new information and exclude "Tweety flies" from the knowledge base, but, in this moment, for all purposes, "Tweety flies" must be accepted.

The Law helps to show this phenomenon quite clearly. If someone wins a lawsuit, which is a sort of dialogue protocol (see Chapter I, Section I.2.B), some of the conclusions[205] will be considered part of the knowledge base. For instance, if the court finds that the health insurance company has the duty to provide coverage for Robert's prosthesis, this proposition will become part of the knowledge base, and the health insurance company will be legally obliged to comply with the decision[206]. The factual and psychological rejection of the conclusions, manifested in an unwillingness to comply, is unimportant. The judicial decision may be carried out by force, so its "cogency" is abundantly evident, going even beyond its discursive aspect.

Therefore, even defeasible arguments may be cogent, if one takes into account the context of a dialogue regulated by a protocol. I will refer to this conception as *dialectical cogency*. Since argument schemes are devices which incorporate some applicable rules of argumentation, they may be considered binding in this qualified sense, which must not be confused with having a necessary conclusion.

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conclusion, which is known as RAS (Relevance, Acceptability, Sufficiency) model. The problem is that "acceptability" and "sufficiency" are very ill-defined, and there are many different situations regarding the dialectical aspects of argumentation (attacks, burden of proof, argument accrual and strength comparison) which are not clearly covered in this account. John Anthony Blair himself has recently recognized the many limitations of the RAS model. To deal with the complexity upfront, I prefer to make reference to the whole network of what I called rules of argumentation. For the original account, see JOHNSON, BLAIR, 1994. For the recent recognition on the many limitations of the RAS model, see BLAIR, 2007.

[205] In Brazil, there is a discussion of what is binding in a judicial decision, which we can interpret as what should be included in the knowledge base. Only the final conclusions (in Brazil, the "*dispositivo*" of the decision), usually stated at the very end (e.g. the court finds that article *x* has been violated and y must pay damages to z), or also the arguments and intermediate conclusions which supported the final conclusions? The latter positions are called the *decisive motives theory* (in Brazil, "*Teoria dos Motivos Determinantes*") and have been rejected by the Brazilian Supreme Court in some opportunities.

[206] Of course, the picture can become much more complicated in real legal systems. Parties may be obliged to comply with judicial decisions before they are final (no more appeals available) and even if they are final, there may be some legal remedies to change the results in very special circumstances (in Brazil, we have the "*ação rescisória*").

A challenge could be made to the dialectical cogency. Is it not possible for the dialogue to go on forever, with new arguments and challenges at every turn? If the dialogue could continue like this, in what sense can we speak of "cogency"? This *infinite controversial dialogue* problem[207] echoes a search for what I called the ultimate answer in Chapter I, the one obtained after considering every possible argument. A pragmatic answer to the challenge would be to say that real dialogues, due to practical reasons or their dialogue protocol, eventually have an end. If one can take a picture of it as it ends, evaluate the arguments and find a winner, that is enough. Dialectical cogency is not an ultimate cogency, but it is as good as it gets. Rationality is determined according to the parameters of our limitations.

I should add that dialogues eventually end not only because people get tired of arguing (it is an extenuating activity), but because they may run out of arguments and attacks (for whatever reason, maybe because they cannot find them, or possibly because there are no more arguments available which would make a difference in the dialogue). Depending on the burden of proof for a proposition, it is not enough just to contest it, arguments are needed. And the propositions required to advance these arguments may need further support. At some point, either there will be no way to support them, or the propositions will be taken from a defined and shared knowledge base. Even if one can attack propositions that are already in the knowledge base, it will face the same problem of finding support. The idea is that, at some point, the conjunction of rules of argumentation (especially burden of proof) and knowledge bases in well-defined contexts may provide a constraint[208]. I am referring to well-defined contexts, for they are usually needed to specify rules of argumentation (as I argued in Section in II.2.A above, about *modus ponens* argument schemes) and the

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[207] Douglas Walton and Chris Reed call it the *completeness problem* of argument schemes. WALTON, REED, 2003, p. 203. The same problem is referred to in WALTON, REED, MACAGNO, 2008, p. 38. I find that the expression "infinite controversial dialogue" depicts the imagined situation more clearly.

[208] This idea may offer some temptative support to Ronald Dworkin's conjecture (in the text "*Is there really no right answer in hard cases?*") that in a "*modern, developed and complex system*" the right answer can likely be found (DWORKIN, 1985, p. 143). It is not clear, however, if he is referring to what I called the best answer or the ultimate answer. Furthermore, I call it a "conjecture" because, in his argument he seems to jump from the fact that the argumentative practice seems to indicate people know how to identify and evaluate arguments (and usually have a position about which is the right answer), to the conclusion that usually there is a right answer. He fails to explain precisely how this ability to evaluate arguments and the belief of having a right answer leads to actually having a right answer (which would be the better justified answer according to argumentative practice). Finally, I am interpreting "*modern, developed and complex*" legal systems as having a large knowledge base with a great deal of propositions, and reasonably clear rules of argumentation.

knowledge base (e.g. compare a discussion freely made in a pub and a legal discussion made in court, the sources for arguments are quite different).

Again, the Law may offer a good example. Although sometimes lawyers get obsessed in debating complex cases in which, apparently, arguments go on forever, it is at least doubtful that this would be true of most legal cases. People may simply breach contracts, be caught in the act of committing a crime, or have cause to file for a divorce. The solution may be simple enough for the Judiciary not to be even required to participate in a case[209]. When it comes to complicated problems, it should be highlighted that the legal knowledge base is constantly changed in order to offer solutions. Take Robert's case again. Suppose the doubt about the health insurance's company duty to provide coverage for prosthesis was replicated in many situations, and there was controversy among judges about the right answer to the issue, resulting in conflicting precedents. Institutional design aiming at legal certainty would make a higher court be called to examine the subject-matter and rule uniformizing the courts' position[210]. From this point onwards, the controversy ends, and the knowledge base's extension is clear[211]. It does not matter anymore what arguments could have been advanced to support one point of view or other, they are excluded from consideration[212]. Another possibility would be for the lawmaker to intervene and enact new legislation addressing the issue[213].

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[209] People may reach solutions according to law themselves, or there may be administrative instances to deal with them (such as public notaries). In Brazil, for example, divorces and inheritances may be settled without the Judiciary.

[210] In Brazil, for example, this may be done via a special procedure called *incident for ruling repetitive legal demands* (in Portuguese, "*incidente de resolução de demandas repetitivas*"), set forth in Article 976 to 987 of the Civil Procedural Code.

[211] The binding quality of these decisions is established in Article 927, III of the Civil Procedural Code.

[212] The higher court's decision could be considered some sort of "exclusionary reason" which excludes any other reason from consideration. The concept was originally developed by Joseph Raz to account for peculiarities of moral argumentation, and show that some second-order reasons excludes first-order reasons from consideration. Rules are exclusionary reasons, and he offers two justifications for that: (i) an 'argument from efficiency', for rules simplify discussions and reduce error's; (ii) an 'argument from authority', for they are some sort of authoritative directive. The original presentation of exclusionary reasons can be found in RAZ, 1999.

[213] It is possible even to have lawmaking activity in response to judicial decisions and vice-versa. A theoretical account of this relation may be found under the heading "*theories of institutional dialogue*". A review of some of them is found in MENDES, 2009.

Another layer of complexity could be added to the discussion about the cogency of rules of argumentation. In my explanation of dialectical cogency, I implied there were fixed and accepted rules of argumentation, but this is not necessarily true. Some rules of argumentation may be subject to (argumentative) debate, even if they are accepted within a field of knowledge. An idealist would say that the mere acceptance does not make the rules our best option, and different rules of argumentation should be adopted. I shall not venture into the task of providing a theoretical account of such *meta-argumentation* debates[214], but some broad comments are relevant. First, this could be considered a *second-order meta-argumentation* debate or a *third-order argumentation*. The first order of argumentation is the dialogue plain and simple. The second-order argumentation (or first-order meta argumentation), are the arguments about arguments, for example, the evaluations of soundness or degree of support (briefly mentioned in Section II.1.C while presenting procedural objections). These second-order arguments explicitly apply rules of argumentation to evaluate arguments[215]. Since I am talking about the controversy regarding the rules of argumentation themselves, dealing with arguments that justify the existence of certain rules about arguments, it seems proper to refer to it as third-order argumentation (or second-order meta-argumentation). Despite of not theorizing about meta-argumentation, in Chapters III and IV, I will eventually engage in considerations of third-order argumentation, by showing what could be relevant in arguing in favour of one or another rule of argumentation for some legal system. Second, the meta-argumentation debate will also depend on accepted rules of argumentation. Hence, in some level, there needs to be some agreement and the considerations above apply.

As a result, the infinite controversial dialogue should not be considered an obstacle to the concept of dialectical cogency, but as a source of qualifications, interesting questions, and even a justification. Dialectical cogency does not imply the existence of an ultimate answer, merely the possibility of having a best answer in a given moment in time, grounded in the stronger arguments available (qualification). In real contexts, one may ask whether, in

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[214] For an extended study on meta-argumentation, trying to provide a distinct approach for the subject (Part I: The Meta-Argumentation Approach), examining both meta-arguments of argumentation theorists (Part II: Theoretical Meta-Arguments) and in other contexts (Part III: Famous Meta-Arguments), see FINNOCHIARO, 2013.

[215] They are no longer the invisible warrants that are just presupposed when arguing.

an individual case, one can actually find a best answer according to some specified rules of argumentation. It is also possible to ask how frequently is it possible to find the best answer according to accepted rules of argumentation (an answer to this question does not need to be statistical, see the examples of how to uphold a defeasible generalization without resorting to data in Section II.2.A). Yet, another provocative question is how well developed are the dialogues of a certain field of knowledge, for there may be a suboptimal best answer, which does not consider possible arguments (and thus, is "less close" to the ultimate answer than ideal). Institutional design certainly can be discussed in order to obtain more satisfying outcomes. Lastly, the possibility of an infinite controversial dialogue justifies the concept of dialectical cogency, in the sense that it lights up the fact that is all the cogency we might expect.

II.3.C Degrees of abstraction in argument schemes

There are argument schemes which may "fit" under more abstract argument schemes, in some sort of gender-species relation[216]. An extended example will be illuminating. Let us begin by recalling the very abstract *defeasible modus ponens* scheme, which I will refer to as the DMP scheme:

Defeasible Modus Ponens - Core	
Warrant (defeasible)	If Defeasible Rule and Antecedent are true, then, plausibly, Consequent is true.
Premise 1 (Defeasible Rule)	Generally, if P, then Q
Premise 2 (Antecedent)	P
Conclusion (Consequent)	Q

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[216] WALTON, REED, MACAGNO, 2008, Chapter 10. For the same observation, specifically concerning legal argument schemes, WALTON, SARTOR, MACAGNO, 2016. For discussions about the loose boundaries between form and content in logic and its implication to a legal logic or to argument schemes, see VERHEIJ, 1999; VERHEIJ, 2003.

Defeasible Modus Ponens – Critical Questions	
Critical Question 1	Is Defeasible Rule true?
Critical Question 2	Is Antecedent true?
Critical Question 3	Are there any exceptions to Defeasible Rule?

The DMP scheme represents an argument based on a rule application. It can be adapted to legal rules, which I will call *legal norms*, or just *norms*, for short. Take again the argument scheme for Application of Legal Norms, briefly presented in Chapter I (Section I.3), which will be referred to as ALN scheme:

Application of Legal Norms - Core	
Warrant (defeasible)	If there exists a legal norm N, which establishes that "if C, then it should be legal consequences X", and C is true, then, presumably, it should be legal consequences X.
Legal Norm	Legal norm N establishes that if C, then, it should be legal consequences X.
Antecedent	C is true
Conclusion	It should be legal consequences X.

Argument for Applying Legal Norms - Critical Questions	
Q1 (Statutory Interpretation)	Is norm N's formulation correct?
Q2 (Validity)	Is norm N valid? (*relative presumption*)
Q3 (Applicability)	Is norm N in force? (*assumption*)
Q4 (Exceptions)	Are there exceptions to norm N? (*relative presumption*)
Q5 (Facts and Qualification)	Is C really true?

The premises and the conclusion of both schemes are, clearly, very similar. In both cases, the first premise states a defeasible rule, the second premise affirms the antecedent of the rule (or norm), and the Conclusion asserts the consequent of the rule (or norm). There are only some small differences in the wording, especially in the first premise, in which the DMP scheme only states the rule and the ALN scheme refers explicitly to the norm as N. But there is no real difference in information. The adjustment serves only to make the critical questions sound more natural.

The Critical Question 1 of both schemes are equivalent. To ask whether the defeasible rule is true means to ask whether a rule as described exists. The wording changes a lot because, in the ALN scheme, the way by which the attack is made is adapted to the context of legal argumentation. In Law, the norms are based on authoritative sources, namely, statutes and precedents. Sometimes, the source material is quite clearly formulated as a norm in the form "If C, then X", but things are not always that straightforward. Interpretation, then, comes into play. The existence of a legal norm is a matter of showing how it can be interpreted from legal authoritative sources.

Critical Question 2 of the DMP scheme and Critical Question 5 of the LNA scheme are equivalent, both represent possible attacks to the affirmation of the antecedent of the rule (or norm). Critical Question 3 of the DMP scheme is transformed in Critical Questions 2, 3 and 4 of the ALN scheme. They all deal with exceptions, but in the ALN scheme two exceptions were made explicit, concerning whether the norm is valid (consistent with hierarchically superior norms) and in force. These are two exceptions to legal norms in general, independent of the norm's content.

As a result, it is clear that the ALN scheme may be considered a species of the DMP scheme, with differences justified by the legal context. But one could design an even more concrete scheme. In Law, given the objective of attaining legal certainty, some illegal situations may become legal with the passing of time; or, at least, the legal consequences will no longer be enforceable. For instance, the norms of adverse possession[217] establish that

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[217] This is the institute's name in common law systems (United States and England). In Brazilian Law, it is called "*usucapião*".

someone may acquire a title of real proprietor after a certain period of time using a piece of land. Some crimes can no longer be prosecuted after a determined amount of time since they were committed. The norms which establish the required amount of time can be grouped under the heading *statute of limitations*.

All norms which are statutes of limitations have a certain pattern, and, if they are to be applied in an argument, they are subject to common requirements for claiming and for attacking. One may question not only if the necessary amount of time has passed, but when exactly is the initial mark for counting it, and if there are conditions that suspend or reset the counting[218]. Given this type of norm, one can devise an argument scheme as follows (warrant is omitted), which I will call the SoL scheme:

Argument for Statute of Limitations	
Premise 1	Legal norm N establishes that, if a period P has passed since initial mark I, in which H happens continuously, then, it should be legal consequences X.
Premise 2	I has occurred.
Premise 3	P has passed since I.
Premise 4	H happened during P.
Conclusion	It should be legal consequences X.

Critical Questions	
Question 1	Is I the correct initial mark? (*assumption*)
Question 2	Is P the correct period? (*assumption*)
Question 3	Is H the correct event to happen? (*assumption*)
Question 4	Is norm N's formulation correct? (*interpretation problem*) (*assumption*)
Question 5	Are there any conditions that suspend the counting of period P? (*relative presumption*)
Question 6	Are there any conditions that reset the counting of period P? (*relative presumption*)

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[218] In Brazilian Law, the relevant concepts are the "*termo inicial*", "*condições suspensivas*" and "*condições interruptivas*".

Question 7	Is norm N valid? (*relative presumption*)
Question 8	Is norm N in force? (*relative presumption*)
Question 9	Are there other exceptions to norm N?
Question 10	Is Premise 2 true?
Question 11	Is Premise 3 true?
Question 12	Is Premise 4 true?

In the SoL scheme's core, one notices that the abstract reference to the norm's conditions in the ALN scheme has been replaced by more explicit conditions. As a consequence, SoL scheme has Premises 2, 3 and 4, instead of having only the second premise of the ALN scheme. The conclusion remains exactly the same. Notwithstanding the changes, in both cases it all boils down to stating a defeasible rule, and subsequently affirming its antecedent.

The SoL scheme has much more critical questions than the ALN scheme, as a result from it being more concrete and contextual. However, it is easy to see how they fit under more general questions of the ALN scheme if they are grouped. Critical questions 1, 2 and 3 of the SoL scheme are all related to the formulation of norm N, they are just focused on the explicit conditions of the norm's antecedent. Critical question 4 is a residual question about norm formulation to account for different possible criticism. Critical questions 5 to 9 are about exceptions, being equivalent to critical questions 2 to 4 of the ALN scheme. The innovation comes in the form of questions 5 and 6, which deal with conditions that suspend or reset the counting of the period, a peculiar problem of applying a statute of limitations. Finally, questions 10 to 12 of the SoL scheme correspond to critical question 5 of the ALN scheme, and just ask whether the antecedent of the norm can really be affirmed.

Hence, one may visualize how the SoL scheme may be considered a species of the ALN scheme, which, by its turn, fits under the DMP scheme. One could go on and design an even more concrete and contextualized argument scheme. For instance, a scheme based in the Brazilian Law about the criminal statute of limitations, that is, when the State can no longer punish someone for committing a crime. Premises and critical questions would

become even more detailed. I will not do so, but I want the reader to have a clear picture of how concrete and contextual an argument scheme can be. Further developments could make it even easier to use, and simplified (without the more abstract critical questions) versions of highly detailed schemes could also ground computer programs that help legal activity. The Brazilian National Council of Justice, for example, provides a web application which, after the user enters the relevant data, states whether the criminal statute of limitations is applicable[219].

Argument schemes, thus, may have different degrees of abstraction, which may maximize their usefulness. More detailed schemes will not necessarily be more useful, it all depends on the purpose. If one is to present and discuss more general traits of reasoning and argumentation, more abstract schemes are better suited. On the other hand, if one wants to automatize mundane operations, more concrete schemes will be recommended. Given my object of investigation is legal argumentation, argument schemes with the degree abstraction similar to the ALN scheme will be preferred.

The discussion of the different degrees of abstraction of argument schemes also may shed new light on another old problem of the philosophy of Law: whether legal reasoning may be considered a distinctive type of reasoning[220]. By creating schemes for legal argument, one is allowed to clearly define what is peculiar to legal reasoning, and how it is related to more general traits of practical reasoning, by pointing more abstract schemes which can be instantiated in legal argument schemes or in similar ones from other fields of knowledge.

II.3.D Other issues

The issues explored in the last three sections (II.3.A, II.3.B and II.3.C) are the most important to understand the tool of argument schemes, but are by no means exhaustive. In

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[219] In Portuguese "*Calculadora da Prescrição da Pretensão Punitiva*", available at http://www.cnj.jus.br/sistema-carcerario-e-execucao-penal/calculadora-de-prescricao-da-pretensao-punitiva.
[220] This problem is addressed in the Introduction of Friedrick Schauer's recent book, *Thinking like a lawyer* (2009). SCHAUER, 2009.

this Section, I briefly cover, in a little more detail, two other problems which already have been hinted at: the reconstruction of arguments and the classification of argument schemes.

As already argued (section II.3.A), real arguments do not come nicely structured and ready for analysis. Premises or conclusions may be lacking, propositions might be unclear (either vague or ambiguous), the same points can be repeated with different words, a piece of text might allow for interpretation as two different arguments, and attacks could seemingly be directed nowhere, just to name a few possible complications. As a consequence, it may look like real arguments do not fit argument schemes. It enters the activity of *reconstructing arguments*.

The process of reconstruction creates a representation of the real argument with which one can work. As any representation, it selects and highlights some aspects of real argumentation to the detriment of others. A whole method must be designed for this task. And it will be certainly dependent on theoretical conceptual framework about how to understand dialogues and arguments. Argument schemes, which provide patterns of argumentation, are certainly invaluable guides to reconstruction.

According to one approach to reconstruction, the method is aimed at contributing to solve the issue of a dialogue, conceived as a critical discussion, and any transformation of the text will be oriented towards this end[221]. Each and every transformation should be efficacious, well-founded and parsimonious. It means that it should: result in a formulation that enables the application of other argumentative tools (*efficacy*); be grounded in some empirical element found in the discursive text (*well-foundedness*); and be the minimal necessary in order to achieve the ultimate end of contributing to solve the dialogue (*parsimony*)[222].

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[221] I am referring to the book *Reconstructing Argumentative Discourse*, of Frans H. Van Eemeren, Rob Grootendorst, Sally Jackson and Scott Jacobs, which provides an extended account of argument reconstruction by theorists of the influential pragma-dialectical approach. EEMEREN, GROOTENDORST, JACKSON, JACBOS, 1993, p. 37-38 (basic aim of reconstruction).
[222] EEMEREN, GROOTENDORST, JACKSON, JACBOS, 1993, p. 89.

A special problem in the activity of reconstruction should be highlighted: the attribution of unstated propositions to parties in the dialogue. When can we say that a party is committed to a proposition which was not explicitly stated? One possible line of inquiry leads us to the concept of arguments with missing propositions, either premises or the conclusion, which are called *enthymemes*[223]. Argument schemes may help us identify enthymemes, and complete the argument with unstated propositions. For instance, assume one argues that:

> *(P1) Socrates is a man.*
> *(C1) Thus, Socrates is a mortal.*

If one recalls the argument scheme of *strict modus ponens*, he will find that a premise is missing, the generalization "All men are mortal". If we know that the party to the dialogue has the intent to support C1 with an argument (given the connective "thus"), and assume that the reasoners want to follow the accepted rules of inference, then we may attribute "All men are mortal" to the party, as an unstated premise to which he has committed.

Real cases are not prone to be so simple, and, even in this example, one could try to argue that other generalization could be attributed, such as "Generally, men are mortal". A solution to this problem would be to establish a rule by which one should always reconstruct the argument as the strongest possible one. Since deductive arguments are stronger than defeasible ones, then "All men are mortal" is the right choice. Some additional criteria could be envisioned, like the proposition being part of a defined knowledge base or not being the contrary of other propositions asserted by the reasoner (commitment). This gives a sketch of possible problems and conceptual solutions to the activity of reconstruction. Since my focus lies elsewhere, I shall stop now, alerting to the importance of developing such methodology further.

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[223] For a discussion about argument schemes and enthymemes, see WALTON, REED, MACAGNO, 2008, Chapter 6.

There is no widely accepted classification of argument schemes, although there are some attempts to provide an organized taxonomy[224]. Despite the difficulties, the enterprise is still important, for it may be helpful in the tasks of identifying, analyzing, evaluating and inventing arguments. There are two ideas that one must bear in mind to better visualize how a classification could be useful. First, as shown in Section II.3.C above, some schemes somehow "fit" under other more abstract schemes, although sometimes this gender-species relation may not be so clear[225]. Second, different schemes might be connected by relations of attack or support. For instance, an argument from consequences has an evaluative premise and causal premise, which may be sustained by other types of arguments, such as an argument based in a precedent recognizing the value of something and an argument from correlation to cause.

If there are more and less abstract argument schemes, when analyzing real argumentation one may identify a general pattern, and then search within a hierarchical classification for less abstract schemes, which fit more precisely. To use the example of the last section, one could verify that there is a "rule application", then look for "statute of limitations", and finally for "criminal statute of limitations". No prior knowledge of the specific scheme would be necessary. In another analysis of real argumentation, one could find an argument from consequences. If the analyst wants to see the possibilities of supporting the causal premise, he may use a classification to look for different schemes which deal with cause. Again, there would be no need to have prior knowledge of the scheme to find it.

Besides the advantages of *having* a classification, there may be benefits in the very effort of *providing* a classification. One certainly needs a deep understanding of each scheme and what they are trying to accomplish in the context of dialogue, if he hopes to achieve a useful taxonomy. Different schemes need to be contrasted by clear criteria, not only among

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[224] An early attempt was made by Chaim Perelman and Lucie Olbrechts-Tyteca in *La Nouvelle Rhétorique: Traité de l'Argumentation* (1958), translated into English in PERELMAN, OLBRECHTS-TYTECA, 1969. Other classifications are found in KIENPOINTNER, 1986; KIENPOINTNER, 1992; KATZAV, REED, 2004; WALTON, REED, MACAGNO, 2008, Chapter 10, later refined in WALTON, MACAGNO, 2015. Surveys on the literature may be found in the last two texts.
[225] As discussed by WALTON, REED, MACAGNO, 2008, p. 347.

the subspecies of a gender, but also among different genders[226]. That brings up the question of what would the parameters of a good classification be. I shall only offer some brief comments on it.

Classifications must be precise and useful, but, above all, useful. Imagine a library that classifies its books by the total number of characters in the running text, in a lower hierarchical level by the number of characters in the footnotes, and, finally, by the author's date and time of birth. It would be much more precise (less subject to interpretation) than the Universal Decimal Classification (e.g. how should this thesis be classified?), but it would be totally useless. Still, precision is important and may be obtained by *clear and consistent criteria at each hierarchical level*. Despite looking like obvious advice, I have criticized elsewhere two important attempts[227] to classify argument schemes on these grounds.

Usefulness is more elusive. It is hard to define it in advance, but I can give some general ideas about what kind of features make a classification of argument schemes useful. First, one needs to be able to find what he wants with no prior knowledge of what exactly he is looking for. If someone knew exactly what to look for, we could simply have a big textual document with all schemes, use "Ctrl+F" and find it. The classification must be *informative*, in the sense that it will offer more information to the user than he already has. Second, a user should understand the classification and find what he needs with minimal knowledge and training, as if it were natural. Thus, it must be as *intuitive* as possible. Too complex or overly technical criteria should be avoided.

The first two features are actually commendable of any classification. But the other two have particular justifications. The scheme's assortment should be *partly hierarchical*. As discussed, some schemes may fit under more abstract ones, what demands a hierarchical structure of representation. But what about the division between the cluster of more abstract schemes? At this point, the user's perspective is paramount. Maybe abstract semantic

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[226] In the same direction, after presenting a classification of *ad hominem* arguments, WALTON, REED, MACAGNO, 2008, p. 359.
[227] In my Master's Degree Dissertation, I have analysed and criticized Perelman and Tyteca's classification and Walton, Reed an Macagno's attempt. NÓBREGA LUCCAS, 2013, p. 87-93.

properties could be relevant for artificial intelligence implementation[228], but, if one is looking to use schemes to analyze real argumentation, the more *contextual*[229], the merrier. The reason for that is one of those I used to defend that argument schemes and its corresponding "approach" to logic are interesting (Chapter I, Section I.4): the closer to reality, the greater the usability and usefulness of argument schemes. Compare a lawyer using an argument scheme for defeasible *modus ponens* and an argument scheme for the criminal statute of limitations. The latter is both easier to use, requiring less adaptations, and more useful, helping more in the tasks of evaluating, analyzing and inventing arguments. Of course, a contextual classification will require an equally contextual justification of its criteria.

The idea of contextual classification of argument schemes obviously leads to *multiple* classifications, with different levels of concreteness. One could think of a classification for legal argument schemes, judicial adjudication argument schemes, and of statute of limitations schemes[230]. The multiplicity seems just fine, as long as one has a clear procedure to create both argument schemes and classifications. If possible and convenient, reference should be made to more abstract schemes, for the more general patterns help to improve a classification usability. But one does not need to go all the way. Going back to our example of Section II.3.C, a classification could have "norm application" as its most abstract scheme, without contemplating defeasible *modus ponens*.

One could argue that, ideally, all classifications should be combined to form a universal classification, like the Universal Decimal Classification. For this reason, the more basic levels of classification should be decided first. Although I understand and appreciate the spirit of systematization, I disagree that this is the only, or even the most fruitful, path.

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[228] This is how Katzav and Reed justify their "natural classification" of argument schemes, but they acknowledge classifications oriented to other purposes. KATZAV, REED, 2004

[229] Kienpointner calls it a "field-dependent" classification. It rejects "field-dependent" classifications because of the great number of classifications that would be generated, as well as "repetitions" among classifications. Katzav and Reed attack Kienpotintner's first point with arguments similar to those I will develop above, and the second by saying that "repetition" begs the question, since the contextual classification would only be repetitive if abstract form alone were relevant. KATZAV, REED, 2004.

[230] The levels of abstraction and concreteness are not necessarily comparable. Imagine a classification of judicial adjudication argument schemes of Brazilian Law. Is it more or less abstract than a classification of statutes of limitations schemes? The problem is that the criteria for concreteness has changed after the judicial adjudication level.

The feasibility and the usefulness of a single universal classification of argument schemes (or any universal classification) is still doubtful (even the Universal Decimal Classification, although widely adopted, is not criticism-free), and it should not hinder the development of more concrete classifications. In our analogy, one can start developing the divisions of legal or mathematical knowledge before knowing precisely how law and mathematics should be related in the classification. A lawyer will probably have a lot of use for the inner classifications of Law (34) and maybe even Social Sciences (3), but he could not care less for knowing where lies Operational Research (519.8), nor Mathematics and Natural Science (5). Furthermore, concrete classifications are no obstacles to discussing more abstract and theoretical classifications. Indeed, the experience of classifying concrete situations could even lend some invaluable insights to the more ambitious project.

In this work, the set of legal argument schemes I intend to investigate is based on some sort of contextual classification. The schemes are related to a particular field of knowledge, the Law, in the specific situation of judicial adjudication, and comprises only arguments which involve legal rules, there are no factual argument schemes. A particular type of dialogue, the persuasion dialogue, is also assumed, as part of the judicial adjudication. The feasibility and usefulness of the research are directly related to its limited scope, explained by reference to a contextual classification.

II.4 The Need for Legal Argument Schemes

Until now, we have learned that Socrates is a mortal, Tweety may or may not fly, and that Robert and his health insurance company do not get along. Such grumpy synthesis serves to introduce a criticism to the whole enterprise: why do we need this conceptual framework to do what comes naturally? Lawyers have been arguing for millennia now, without these unnecessary complications. How could this be relevant for legal argumentation?

Let us take a detour. If one intends to build a bridge over a river, a civil engineer will most likely be hired. He is the professional with the expertise to devise the best way to build the bridge. If we are not talking about a small stream that flows through the back of

someone's property, but an actual wide river, legal regulations will demand an engineer to approve a project and oversee the construction. To meet the legal demand, the engineer will need a university's diploma and to be duly enrolled in the relevant class organ. Universities require that the civil engineering undergraduate studies calculus, geology, hydrosystems engineering, mechanics of materials among other complex and highly technical subjects. But, wait. Bridges have been built by humanity for centuries, back in a time in which these fields of knowledge did not even exist. Why would someone need to undergo all those studies? Are they really necessary?

The problem is what is meant by 'necessary'. Buildings can be made without civil engineers, medical procedures with no doctors, and contracts entered into regardless of lawyers. Everyone knows a little bit of all these things, yet it would be risky to the point of unreasonable to allow some of the most complex feats of engineering, medicine and law to be performed without the presence of an expert. And what makes an expert is its technical knowledge, which changes overtime. What engineers, medical doctors and lawyers know today is certainly different from some decades ago. One way in which technical knowledge may change and evolve is by acquiring new degrees of understanding about what people already do. An engineer of the Roman Empire had a practical knowledge of how many pillars could withstand the roof of a temple, a medical doctor of today may know that some medicine works to cure a disease, but both might not have the slightest clue of why. However, the practical knowledge alone is not entirely satisfactory. A good theoretical comprehension will help to improve old solutions and obtain new ones, to old and new problems alike.

It is the same with the Law and legal argumentation. A complex theoretical framework is certainly not 'necessary', in the sense that a lawyer needs it to perform his everyday role. But it is crucial to improve our comprehension of legal argumentation and, as a consequence, benefit our legal practice. Legal discussions, in courts or by lawmakers, may be improved, advancing our quests for the legal certainty and for the right answer.

The gains of a precise technical framework will be more evident in solving complex cases. A civil engineering's expertise may not be required to build a small bridge over the

stream flow, but it will be for the Golden Gate. Advanced knowledge of the rules of legal argumentation may not be needed in simple cases, but it might be useful to settle complex debates. The perception of many lawyers and citizens is that the solution to certain legal problems are a matter of political position or taste. That is because the criteria to evaluate which arguments are stronger is not sufficiently clear. An investigation of the rules of legal argumentation may solve some of these cases, or at least allow a precise specification of what issues still need to be handled.

A conceptual framework may also help teaching the subject to newcomers. It is easier to point out a mistake, and explain why it is considered as such, when there is a good theory backing you up. It is also simpler to state the motives of considering a piece of reasoning good. Thus, one can teach argumentation in a way other than by example (the "watch and learn" method of teaching). Finally, the framework is also groundwork for formalization and computational implementation of artificial intelligence tools, which may help lawyers (as already argued in Chapter I, Section I.4).

One could say that, even if there are some gains, don't we already have a satisfactory level of precision in argumentation? Or, more plainly, aren't lawyers already technical enough? There are clear indications that the answer here is no. First, when it comes to difficult cases, legal disagreements go far and wide. But the relevant fact is not the existence of disagreement, which is only natural, but the fact that it persists over time, and people are not able to agree on who would be the winner at a given point (a picture of the dialogue). One thing is to be uncertain about the ultimate answer, due to possible dynamic criticism, another is not to know the best answer, as a result of unclear winning criteria.

About education, I find amusing that law schools often insist that their primary role is to teach legal reasoning and legal argumentation, but students frequently are not exposed to any comprehensive theoretical account of argumentation during their courses[231]. Maybe the subject is so sacred that it should not be openly discussed. But a possible better explanation is that law schools do not teach argumentation more technically because they

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[231] Schauer also shares this perception. SCHAUER, 2009, Preface.

cannot[232]. Lastly, if precision was already enough, the research agenda of Artificial Intelligence and Law would be more focused on implementation, and computational programs of legal reasoning would already be widespread.

Some closing remarks are in order. It may take some time to make the conceptual framework ready to be applicable by lawyers in general. It is usually a long way from theory to practice, but this is no reason to give up; rather, to employ more effort in the endeavor. Anyhow, argument schemes are immediately understandable, although partially, by potential users, which makes them an especially promising tool for legal practitioners. It should also be highlighted that investigating legal argumentation is not the only possible avenue of research to solve our difficult cases. In reality, material knowledge of the issue at hand may be often more important, for it will fuel new dynamic criticism in existing dialogues. Still, argumentation theory is supposed to be useful, not a reasoning panacea.

At this point, I expect some disbelievers will at least give it a shot at the detailed and technical framework exposed above. But there is other possible general challenge to the project, which could come from those well versed in the concepts discussed herein. There are already lots of argument schemes out there[233], why should we need any more? I shall outline a general answer.

In spite of the argument scheme being widely used as a tool, frequently discussed and problematized, it is not easy to find a very systematic treatment of how it is built, or all the concepts needed to its proper understanding. This long chapter offers a comprehensive account of argument schemes, which tries to fill this theoretical need. As a consequence, the argument schemes to be discussed in the following chapters will benefit from this study and stand on more solid – or at least more organized - grounds.

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[232] I do not know if this is the best explanation. It is also surprising that legal argumentation is found to be so important, but technical research on legal argumentation, of the type discussed herein, is relatively scarce. Maybe law schools are satisfied with the "watch and learn" method, or even believe it is preferable. Or the legal reasoning thing is just marketing, a way to pretend that students have learnt something although the law changes too often.

[233] A compendium from 2008, already had 96 schemes, divided into 60 groups. WALTON, REED, MACAGNO, 2008, Chapter 9.

Moreover, the theoretical literature even refers to an "empirical task" of logicians[234], which should dive into the context to achieve a better understanding of argumentation. As far as I am concerned, however, most of the argument schemes that we have and of the available literature do not get "legal enough", and applications to real hard cases are rare. In other words, there is still much work to do in order to develop more useful and usable argument schemes that will help in the many challenges of legal argumentation[235]. I will attend to the problems of law[236] by both reviewing legal theoretical accounts of argumentation in light of argument schemes, and by examining in detail a legally complex case (instead of just simple examples with didactic purposes, as I have done so far).

In a nutshell, I intend to provide a discussion of argument schemes which is organized methodologically and sensitive to the legal context. Chapter III encompasses a brief overview of relevant work with these characteristics, and Chapter IV will provide original investigation about proportionality analysis, illustrating how this can be made.

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[234] VERHEIJ, 1999. In a similar vein, Jaap Hage argues that the study of legal logic should start with the law, HAGE, 2001. Henry Prakken's observations on the need for an argument scheme approach to account for legal arguments, due to its content, also point to some sort of "empirical" task. PRAKKEN, 2005 (a).
[235] As recognized, for example, in WALTON, SARTOR, MACAGNO, 2016.
[236] I could identify a new compendium of schemes and explain why they do not fit well with legal argumentation, but I believe it is more practical to show why a handful of schemes are good than why dozens of them are bad.

CHAPTER III
RULES AND PRECEDENTS

It is a truism that the Law comprises a system of rules. Legal rules define what is forbidden, obligatory and permitted. They state that one cannot kill others, must pay taxes, and can rent his house. They even regulate the creation of other norms, establishing procedures, material limits and defining competent authorities. The set of norms may be called a system because it has a certain structure and aims to perform certain functions.

Legal certainty is the strongest candidate to be the main universal abstract function of all legal systems. It is a special kind of predictability, very hard to define, arising out of the enterprise of ruling human activity, as argued in the Introduction. Rules are, par excellence, the agents of predictability. If a case falls into the antecedent of a rule, then its consequences should follow. All cases that are essentially the same, falling under the scope of the rule, will be treated the same, a notion that could be called *formal justice[237]*.

One could point, however, that the Law is also about precedents, judicial decisions that adjudicate a conflict and give it a solution. Future cases that are essentially similar also must receive the same solution, according to precedent. Thus, precedents are the other side of the coin of formal justice. The general structure of the application of rules and precedents, in this level of description, is the same: if some conditions are obtained, a certain consequence also should be obtained[238]. Therefore, rules and precedents are crucial to legal certainty, and they are recognized as the main authoritative *sources of law*.

The expression "sources", however, is curious. For it seems to imply that rules and precedents are not exactly elements of the legal system, but a place to look for them. In a certain sense, this image is quite right. When a lawyer talks about rules and precedents, he is usually talking about *authoritative texts*, found either in statutes or in judicial decisions. The structure of condition and consequence is frequently not there, at least not clearly stated

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[237] Following PERELMAN, 2000, p. 160.
[238] An extended argument upholding that the general logical structure of rules and precedents, so conceived, are the same is found in VERHEIJ, 2008. I have made a similar point in my Master's Degree Dissertation. NÓBREGA LUCCAS, 2013.

and ready to be applied. Much to the contrary, these structures, which I will call *legal norms* to avoid confusion, must be interpreted from the authoritative texts. Hence, the distinction commonly made between *text* and *norm*[239].

Concerned with rules, Neil MacCormick argued, in the book *Rhetoric and the Rule of Law* (2005), about the fundamental importance of what he calls *legal syllogism*, which is nothing more than the argument which states a rule, its antecedent, and then concludes its consequent. It is equivalent to what I have called the *modus ponens* structure in Chapter II. According to MacCormick, the legal syllogism is so important because "*it is what provides the framework in which the other arguments make sense as legal arguments*"[240].

I will interpret MacCormick's insight as stating that there is an argument, with a *modus ponens* structure, whose premises[241] lead to all legal discussions. I will present argument schemes[242] for such an argument in two forms, one adapted to deal with statutes, and other to deal with precedents. The construction of these argument schemes will let me provide a brief overview of possible legal discussions and refer some relevant literature from Artificial Intelligence and Law[243].

III.1 Rules (Statutes)

I call the first scheme the Argument Scheme for the Application of Legal Norms, which could also be called scheme for *subsumption*, a widely-used expression in legal theory:

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[239] For example, ÁVILA, p. 5-6.
[240] MACCORMICK, 2005, Chapter 3, Section 2.
[241] It is worth remembering that critical questions could have been premises. The difference is that it is considered that they do not need to be claimed in order to advance the argument.
[242] Both schemes were originally designed in my Master's Degree Dissertation and appear here with some adjustments. NÓBREGA LUCCAS, 2013.
[243] For a recent expanded review of the literature in Artificial Intelligence and Law, see PRAKKEN, SARTOR, 2015.

Application of Legal Norms - Core	
Warrant (defeasible)	If there is a legal norm N, which establishes that "if C, then it should be legal consequences X", and C is true, then, presumably, it should be legal consequences X.
Legal Norm	Legal norm N establishes that if C, then, it should be legal consequences X.
Antecedent	C is true
Conclusion	It should be legal consequences X.

Argument for Applying Legal Norms - Critical Questions	
Q1 (Statutory Interpretation)	Is norm N's formulation correct?
Q2 (Validity)	Is norm N valid? (*relative presumption*)
Q3 (Applicability)	Is norm N in force? (*assumption*)
Q4 (Exceptions)	Are there exceptions to norm N? (*relative presumption*)
Q5 (Facts and Qualification)	Is C really true?

The core of the scheme has the required *modus ponens* structure, indicated by MacCormick. The warrant is defeasible in order to account for the defeasibility of legal norms, the possibility that they will not be applied in under exceptional circumstances, which are categorized in the critical questions[244].

One could argue that legal norms are complete, containing all their relevant conditions, just our formulations are provisory. Unfortunately, in practice we argue with our incomplete formulations, so my argument scheme will depict this fact, and I will refer to legal norms not as the complete ideals, but as our tentative formulations. Even when they

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[244] Such critical questions are supposed to capture the difficulties in rule's application identified by Jaap Hage in HAGE, 1997, especially Chapter III.

look complete, the correct attitude is to treat them as potentially defeasible due to the phenomenon of *open texture*[245], the fact that they may need to be applied to unforeseen circumstances.

The discussions start with the Legal Norm premise, which needs to be interpreted from statutes[246]. The problem is that statutory interpretation, apparently as everything in Law, is highly debatable. Thus, Q_1 accounts for this possible legal discussion. To model it as an ordinary proposition seems a sensible policy, because lawyers should indicate where they believe the norm comes from. And they usually do it even in the simple cases, by indicating articles, paragraphs or other parts of statutes.

There are many techniques to handle doubts arising out of statutory interpretation. One could prefer a certain interpretation based in the *ordinary meaning* or in the *technical meaning* of a given expression, which are supposed to be appropriate in certain settings. The need to standardize the use of an expression in a statute or set of statutes leads to an interpretation based on *contextual harmonization*. I will not discuss, but list other categories that, like the first three, have been identified by Neil MacCormick and Robert Summers in *Interpreting Statutes* (1991)[247]. According to them, interpretations may be supported with arguments from: *precedent*, *analogy*, *legal concept*, *general principles*, *history*, *purpose*, *substantive reasons* and *intention*.

These interpretive arguments work very differently. Some of them seems to establish a definition (ordinary meaning, technical meaning, legal concept) for an expression (which could be called a *definitional rule*), while others try to establish a general coherence (contextual harmonization, analogy, history, precedent) in authoritative texts. And there are those that uphold an interpretation based on its greater value (general principles, purpose, substantive reasons). It is harder to find the right group – if there is such a thing – for

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[245] A concept widely used in legal theory. It probably became famous due to its use in Herbert L. A. Hart's classic *The Concept of Law* (1961). HART, 1994.
[246] Neil MacCormick seems to refer to this issue as a "relevance problem". MACCORMICK, 2005, Chapter 3.
[247] MACCORMICK, SUMMERS, 1991, Chapter 13. Maccormick uses this classification again in the *Rhetoric and the Rule of Law*. MACCORMICK, 2005, Chapter 7.

intention. Neil MacCormick recognizes these affinities and sketches a similar categorization[248].

I will not discuss the merits or shortcomings of the categories, nor investigate further how these arguments work. It is just worth mentioning that, recently, researchers in Artificial Intelligence and Law are trying to build a set of argument schemes for interpretive arguments based on Neil MacCormick and Robert Summer's classification[249], with some general schemes of which each argument is a species. With some adjustments, these schemes could be connected to Q_1 above. I would also add that the study of proportionality analysis to be carried out in Chapter IV may also shed light on those arguments that support an interpretation based in its greater value, since in both cases there is a background of teleological reasoning.

The next critical questions deal with what I call, based on my experience with Brazilian Law, *validity*, the problem of complying with hierarchically superior norms. Here, it will be debated, for instance, if a certain legal norm, interpreted from a statute, complies with the constitution. The Brazilian Supreme Court interpreted that Article 1.723 of the Civil Code should allow for civil union between homosexuals, in spite of the text referring to the union between "man and woman"[250]. Therefore, of two possible interpretations, one was preferred and the other excluded, for not complying with the Brazilian Federal Constitution. The illustration is interesting, because only an interpretation of the text was ruled invalid, while the authoritative text remained the same, which clearly shows the distinction between text and norm[251].

The Q_2 is modeled as a relative presumption, due to the fact that statutes' authoritative texts, from which norms are interpreted from, are usually presumed to be valid. The proportionality analysis, to be discussed in Chapter IV, connects to the problem of legal

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[248] MACCORMICK, 2005.
[249] WALTON, MACAGNO, SARTOR, 2014; WALTON, SARTOR, MACAGNO, 2016.
[250] ADPF 132, adjudicated in May 5th 2011.
[251] In Brazil, this is called the technique of *interpretation according to the Constitution* or *declaration of unconstitutionality without text reduction* (in Portuguese, "*intepretação conforme a Constituição*" or "*declaração de inconstitucionalidade sem redução de texto*").

validity. The conclusion of the argument schemes to be built will clearly show this connection, having the validity of a certain provision as its conclusion.

The question about the legal norm being in force (Q_3) is due to the fact that statutes often stipulate a moment in time in which they become applicable[252]. Regardless of looking like a very simple issue, the Law has its way of making it difficult. For example, in Brazilian Law, the Federal Constitution lays down rules for the creation of taxes, which could be called the "previous year rule" and the "ninety-day rule"[253]. Depending on the type of tax, it can only be charged from citizens in the following fiscal year or ninety days after the promulgation of the law creating them. However, it may be debated which taxes must follow each rule, and what amounts to the creation of a tax (e.g. raising the tax, adjusting the situations in which it must be collected).

One may have other doubts about whether a statute is in force. When they are promulgated, it is usually indicated what other statutes they are revoking, but life is not always so easy. A statute may implicitly revoke another statute, or some of its legal provisions, due to the widely-known rules of specialty (*lex specialis derogat generalis*), posteriority (*lex posterior derogat priori*) and superiority (*lex superior derogat inferiori*). Although these problems could be construed as an issue of interpretation, they may also be framed as the removal of force from certain authoritative texts. An example in this regard was given in Chapter I, in the case that the Brazilian Supreme Court decided that the Press Law from the Military Government has been implicitly revoked by the new Federal Constitution[254].

I have modeled Q_3 as an assumption, which makes sense if one is asked to show that a statute is already applicable. But the different types of issues that might be involved may require a revision of this burden of proof assignment, or even of the critical question itself. A more precise account of the problems related to this critical question shall be left to future research.

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[252] The idea is difficult to convey in English for the lack of a proper concept, but in Portuguese, it would amount to "*vigência*".
[253] In Portuguese, "*princípio da anterioridade anual*" and "*princípio da anterioridade nonagesimal*".
[254] ADPF nº 130, adjudicated by the Brazilian Supreme Court in April 30th 2009.

The fourth critical question (Q$_4$) is supposed to account for the problem of *implicit exceptions*, those that are not provided for in the authoritative texts of statutes. It is probably the origin of the most heated debates both in legal theory and legal practice. A famous example, in Brazilian Law, is the Brazilian Supreme Court case of the anencephalic fetus. Abortion is a crime in Brazil, and there is no statutory exception providing for the case of anencephaly, a disorder that leads to the absence of significant parts of the skull and brain of the fetus. By majority, the Court ruled that the crime of abortion presupposes the possibility of life outside the uterus, which does not exist if the fetus has anencephaly[255]. The "possibility of life outside the uterus" is not provided for in the statutes, hence, it is an implicit exception.

For the discussion of the difference between critical questions Q$_1$ and Q$_4$, I refer the reader to Chapter II, Section II.2.A, in which a distinction was made between the denial or exclusion of the rule, and the revision or amendment of the rule. Q$_4$ is modeled as a relative presumption for the obvious fact that the creation of exceptions not explicitly found in authoritative texts decreases legal certainty.

Finally, Q$_5$ questions the truthfulness of the Antecedent premise, and comprises two types of discussions. First, questions of fact in a strict sense, for instance, if Mark shot John, or if he had an affair with John's wife. Since Chapter I, these questions were excluded from the scope of this work, but it is worth highlighting that there is a growing literature on the subject to be found in the field of Artificial Intelligence and Law, which deals with probabilities, argument, stories and Bayesian networks[256]. Second, questions related to the classification of certain facts as being instances of a norm's condition. Some types of arguments upholding statutory interpretations may also be used to sustain the classification of facts into conditions, as the case to be discussed in Chapter IV will show. Again, further details will be left to future research.

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[255] ADPF nº 54, adjudicated by the Brazilian Supreme Court in April 12th 2012.
[256] For a recent overview, see PRAKKEN, SARTOR, 2015, Section 4.1. I believe that Section 4.2 of the article should not be under the heading of questions of fact, since burdens and standards of proof are also relevant for legal argument, as I have shown in Chapter II, Section II.1.B.

The presentation revealed that there is much to be investigated and improved about the argument scheme in this section. But it is a good start if one wants to build an integrated set of schemes to legal argumentation.

III.2 Precedents

As authoritative texts, precedents are more complex than statutes. They identify legal issues, describe the facts of a case, evaluate evidence supporting such a description, classify facts into rules' conditions, discuss exceptions, validity, statutory interpretation, priorities, and even other precedent; ultimately, they are pieces of reasoning that apply legal rules and precedents to actual cases. Therefore, one can look not only for a rule, but for all types of arguments and issues in a precedent. This is why it is discussed *what is binding in a precedent*, and lawyers try to identify the *ratio decidendi* of a case, separating it from the *obiter dictum*.

Not only may one discuss what is binding inside the authoritative text of a precedent, but also if the precedent, as a whole, is binding. In legal practice, not all precedents have a binding quality. In Brazilian Law, for example, the Brazilian Supreme Court is not only a constitutional court, but it is also a final court of appeals and even a first instance trier of fact, depending on the case. According to the Civil Procedural Code, not all Brazilian Supreme Court decisions are binding, but only those related to the performance of its role as a constitutional court role and those that follow a special procedure called the *incident for ruling repetitive legal demands*[257]. Thus, the distinction between precedents: *binding or authoritative*.

The decision to consider a precedent binding is a problem of institutional design, and might consider the quality of the procedure that leads to the decision, in terms of dynamic criticism. For instance, the decisions in the situations mentioned above are taken by the Court's plenary, instead of just a part of its judges. Ideally, more judges should produce a better dialogue. However, *even if a precedent is not binding, this does not mean that the*

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[257] According to the Article 927 of the Civil Procedural Code. Details were left aside. The incident, in Portuguese, is called "*incidente de resolução de demandas repetitivas*" and it is also used by the Superior Court of Justice.

argument has no force. If the Law is striving for legal certainty, the more coherence between decisions, the merrier. So, if there are no arguments tipping the scales in favor of one decision, the mere existence of a precedent is already relevant by itself.

One of the reasons why using precedents in legal argumentation is more difficult than using statutes is because the former does not necessarily set forth a clear general rule structure that states the antecedent to obtain the consequent, while trying to account for all relevant conditions. Precedents only establish an *individual norm* for the given case. Therefore, in a future case, the application of the precedent will demand an exercise of comparison, which will take into account *factors*, which may be binary or scalar. For example, in Brazilian Law, the same effects of marriage apply to a couple living in a civil union[258]. The problem is that the civil union requires no contract or any other formal legal act, and there are many factors to be taken into account to decide whether it legally exists: if the couple lives in the same house or not, for how much time they have been together, whether they share living expenses, among others. A precedent will describe some of these factors and will conclude for the existence or absence of a civil union, but will not state a rule structure saying which possible combinations of factors certainly lead to a civil union. This phenomenon usually happens whenever there is *vagueness*, such as in concepts like moral damages, good faith, and reasonable expectations. The judicial decisions create factors based on real cases to handle the vagueness.

Artificial Intelligence and Law models have been designed to account for these situations, generally under the heading of *reasoning with, or about, factors[259]*. A particular model allows a precise account of the distinctions between *following*, *overruling* and *distinguishing* a precedent, used in countries of *common law* tradition[260]. Informally, it could be said that, in the first case, the new individual norm does not conflict with precedents; in the second case, the new individual norm conflicts with norm from precedents; and, in the last case, it just amends the norm set forth by precedents, by indicating the presence of a new factor that renders the norm inapplicable. The difference between the notions of overruling

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[258] In Portuguese "*união estável*".
[259] Again, an overview may be found in PRAKKEN, SARTOR, 2015, especially Sections 3.3.1 and 3.3.2.
[260] HORTY, 2011.

and distinguishing is similar to the distinction I presented in Chapter II, Section II.2.A (and mentioned in the last section), between denying a rule and revising a rule to include an exception.

Such an account of precedents is important to explain *a fortiori* arguments from precedent, those that take the approximate form of "if there are reasons to decide x in precedent given some factors, there is yet stronger reasons to decide x in the present case, for all the original factors are present and even more (or in a higher degree) pointing to the same direction"[261]. These kinds of arguments allow the construction of a network of precedents, from which one may eventually induce some general norm that explains all individual norms[262].

One may also reason about the factors used in precedents. Should factor f be considered relevant to obtain decision x? If so, how? What should be its precise impact? Are there other relevant factors? Are they more or less important? How to prioritize them? Once again, such discussions connect to arguments that intend to support something as valuable, and may draw on the discussions to be made in Chapter IV, due to the background of teleological reasoning.

I meant to offer an overview of issues related to the use of precedent, but I will present only one argument scheme, which concerns itself with the fact that a precedent creates an individual norm for a case. It deals directly with the problem of formal justice, of the beginning of this Chapter: if there are two cases which are essentially similar, they must receive the same solution. I call it the Argument Scheme for the Strict Use of Precedent:

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[261] A discussion of *a fortiori* arguments with factors, both binary and scalar (dimensional as he calls it), is found in SARTOR, 2005.
[262] This is called abductive reasoning, and may also be used with rules.

Strict Use of Precedent - Core	
Warrant (defeasible)	If case B has received decision X and case A is essentially similar to case B, then, presumably, case A should also receive decision X.
Individual Norm	Case B has received decision X.
Similarity	Case A is essentially similar to case B.
Conclusion	Case A should receive decision X.

Strict Use of Precedent - Critical Questions	
Q1 (Precedent Interpretation)	Has case B really received decision X?
Q2 (Similarity)	Is case A essentially similar to case B?
Q3 (Binding Precedent)	Is the precedent of case B binding? (*assumption*)
Q4 (Authoritative Precedent)	Was X the right decision to case B? Or case B should have received decision Y? (*relative presumption*)

The scheme is seemingly simple. The premises only state that a case *B*, which might be conceived as a group of relevant factors, has been decided in some way; and case *A* is essentially the same, thus, it should receive the same decision. The critical questions Q_1 and Q_2 only ask whether the premises are true. Q_3 and Q_4 have a special relation. If the precedent is binding, Q_4 cannot be asked, but, if the precedent is not binding, then one could ask if the decision is the best available. The authoritative precedent may be used as a tie breaker, but if there are arguments that justify the preference for one decision, they should be considered.

The premises of this scheme are equivalent to those of the Application of Legal Norms. Q_1 discusses if a certain norm that links factors to a consequence may be interpreted from the text of the source material, just like the statutory interpretation critical question. Q_2 comprises the discussions about facts and fact qualifications, that can be found in Q_5 of the

scheme of last section. It is this question that will involve reasoning with and about factors. Q_3 and Q_4 resemble less closely the subsumption scheme, for they are related to the particularities of precedents as an authoritative text. However, they are nothing more than the discussion of possible exceptions to the individual norm. Q_3 is some sort of precedent's validity, while Q_4 allows any type of discussions that would lead to a different outcome, being the "implicit exception" of precedents.

Again, the scheme demands further investigation, but it has the potential to organize all the discussions involving the use of precedents. The schemes of this Chapter III will be eventually used in the argument maps of Chapter IV, but they are more useful to provide an overview of the field of research, whilst suggesting an integrated framework.

CHAPTER IV
TELEOLOGICAL REASONING AND BALANCING

The main task of lawmakers is to address social problems by implementing policies which are (or at least should be) preceded by careful consideration of the goals to be achieved and of the ways to achieve them. In their endeavor, lawmakers often face the challenge of having to make a choice between alternatives and frequently it is the case that each alternative has both good and bad consequences. Therefore, one needs to argue in favour of some of the alternatives. The activity of arguing about the preferable goals and the preferable way to achieve them is called *teleological reasoning*.

Given the ubiquity of this kind of reasoning, efforts were made to establish procedures of how to reach an *appropriate outcome*[263]. In legal practice, in the context of the judicial review carried out by constitutional and international courts, we can find an example of these procedures, a widely known approach[264] called *proportionality analysis*. There are different ways to conceive the analysis[265], all of them often summarized in a multi-step test. A common ground to the different conceptions of the analysis is that a decision is considered *proportional* if the marginal gains of adopting it outweigh the marginal losses. Due to the weight metaphor, the analysis is also known as *balancing*.

It is worth noting that there are different ways to conceive an appropriate outcome, and a proportional decision is just one of them. A proportional decision is not necessarily the best alternative available (that could be called a *maximizing* decision)[266], for even if the marginal gains outweigh the marginal losses for a given decision, there might be an

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[263] The normative branch of Decision Theory and Multiple Criteria Decision Making are good examples of this sort of effort. It should be noted that both are interdisciplinary fields of studies that comprise scholars such as economists, mathematicians, statisticians, political and social scientists, philosophers, psychologists and computer scientists. This shows the omnipresence of teleological reasoning issues.

[264] One of the reasons it was made famous is its theoretical account by Robert Alexy in the "*Theorie der Grundrechte*", originally published in 1985. Besides new editions and a posface in 2002, the book was translated to English by Julian Rivers as "*A Theory of Constitutional Rights*" in 2002 and to Portuguese by Virgílio Afonso da Silva as "*Teoria dos Direitos Fundamentais*", in 2008.

[265] The European Court of Human Rights, for example, uses a somewhat different multi-step test than the one presented by Robert Alexy. Arguably, however, the differences are superficial and may fade away into a common theoretical background.

[266] The difference is equivalent to Giovanni Sartor's distinction between a *non-negative trade-off* and a *maximal trade-off*. SARTOR, 2010, p. 201-202.

alternative that provides a better outcome, with greater total gains[267]. But why settle for a proportional decision, if we can look for a maximizing one? The answer to this question demands some clarification on the limits of teleological reasoning and legal institutional context.

Our teleological reasoning is limited, for we cannot be completely sure either of constructing the best alternative possible or of making the right choice among the devised alternatives[268]. Firstly, it may be impossible to consider all alternatives, which leaves us uncertain of having the best possible option available. Moreover, to make the right choice, one would need sufficient knowledge of the consequences - which are subject to probabilities and uncertainties, that grow further the longer the time we consider - as well as very precise ideas about our value preferences. It is not our concern if one can potentially overcome these limitations or if they are unsurmountable in principle. For our purposes, it is only relevant the fact that, in practice, these limitations are present. As a consequence, one can only expect to arrive at the best possible option for a determinate time, given a set of information. Thus, the best possible option as an appropriate outcome means the best option conceived so far (including inaction as a possibility), and this is the meaning I adopt for a *maximizing* decision. To use the concepts of Chapter I once again, it is a conception of the maximizing decision as the best answer available, and not the ultimate answer.

It seems only natural for the lawmaker to look for a *maximizing* decision as, by definition, the best option is always preferable. The *proportional* standard of appropriate outcome is not meant to be observed by the lawmaker, but by the judges who are evaluating the lawmaker's decision. This implies that the proportionality approach, as presented above, limits judicial review.

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[267] This does not mean that the maximizing alternative is *pareto superior* (an evaluation made in the necessity step of proportionality analysis). Suppose choice C_1 promotes value A to 9 points, but demotes values B and C in 2 points each. The overall result is 5 points positive. Now, choice C_2 promotes value A to 8 points, but demotes values B and C only in 1 point each. The overall result is 6 points positive. To be pareto superior, a choice needs to be better than the other in one or more aspects, and at least equal in every other. So, choice C_2 is not pareto superior, for it demotes B and C less than C_1, but also promotes A less.
[268] SARTOR, 2010, p. 184.

The existence of judicial review and its constraint both call for justification. In fact, it is the consequence of an argument which upholds that an institutional arrangement that allows for limited judicial review is better than one which does not allow or does not limit judicial review. This argument recognizes value in a form of separation of powers that allows for some *interference* and, at the same time, some institutional *deference*. Although there seems to be consensus that there should be at least some limit to judicial review, there is an ongoing debate about what should the actual limits be[269]. The proportionality test is a well-known parameter, but it is often criticized for being too vague and empowering judges too much, turning them into lawmakers[270]. Finally, some academics argue that the proper limits can only be clarified by reference to particular institutional arrangements[271].

The conceptual framework of the proportionality approach is surely useful to clarify the activity of teleological reasoning. However, I believe it is also limited, being unable to provide a satisfying account of what real cases require if they are to be addressed thoroughly. I argue that, if the proportionality approach is fit in a wider legal argumentation framework, using the tools and concepts discussed in this work, its role will become clearer; allowing to rebut some criticism, further refinement of the test, and the presentation of possible ways to conceive it in particular institutional arrangements. I shall develop this argument throughout this Chapter, while trying to support two general claims of this work.

First, I intend to show that choosing a conception of an appropriate outcome of teleological reasoning and a detailed account of how one should proceed in a proportionality test depends upon the acceptance of some legal theoretical doctrine that is not embedded in the concept of teleological reasoning. If I am successful, this will support my general claim (Second Claim) in Chapter I, that legal argumentation is closely related to institutional design and the definition of a set of legal argumentation rules depends upon adopting some solution to legal theoretical debates. Second, I will develop argumentation tools, based on

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[269] Jeremy Waldron, for example, is against judicial review in many, but not all, contexts. Thus, one can interpret that Waldron proposes a sort of context-related limit to judicial review, WALDRON, 2006. John Hart Ely upholds a model in which judicial review should not address the substantive political choice, but be limited to questions of participation and procedure, ELY, 1980.

[270] For a brief review of different types of critiques to the proportionality test, see GORZONI, 2011, Chapter 2.

[271] For example, SARTOR, 2010, p. 208.

the concepts of Chapter II, to enhance our understanding of teleological reasoning in the Law. Again, this will support my general claim (Third Claim), that argumentation tools are useful to improve our comprehension of legal argumentation, and, at the same time, may help the development of legal theory.

Before venturing into the analysis of the proportionality approach, one should realize that the Law provides just one case of teleological reasoning with multiple criteria among many others. Different areas of knowledge that experience the same challenge may help us build an analytical framework useful to understand legal issues. Therefore, in the first section, I will introduce some concepts from a field of studies known as Multiple Criteria Decision Making – MCDM, a sub-field of operations research, by its turn considered a sub-field of mathematics, which aims at establishing a procedure to achieve the best possible decision whenever there are multiple, often conflicting, criteria. MCDM concepts enable a better characterization of an appropriate outcome, and greater precision in establishing decision-making procedures.

Not only MCDM will be useful. Teleological reasoning in the Law has the particularity of "weighing" alternatives and establishing an order between them without using numbers. Measurement Theory investigates the procedures by which one is able to establish order between objects within scales, even without numbers. The insights of such a theory will also cast light on legal balancing.

The following section will discuss the proportionality test as conceived by Robert Alexy, emphasizing what kind of appropriate outcome the test is trying to ensure. A detailed analysis of each step will be provided, aiming to achieve improved and more precise definitions of the legal arguments performed. At the last part of the section, I will build argument schemes (my main argumentation tool) that model the proportionality test.

After reviewing the test and modeling it, I will present an extended example of proportionality analysis, given by the case S.A.S. x France (Application 43835/2011, decision 1st July 2014) of the European Court of Human Rights (hereinafter, "ECHR"). The Court's argumentation will be reconstructed in order to discuss the proportionality test

details of application. By dealing thoroughly with an actual case, the knowledge about the test will be refined, and I will show how proportionality arguments are connected to other types of arguments. An argument map will be constructed by using the argument schemes for proportionality analysis, which will provide the backbone for the argumentation chain.

The case discussion will indicate which argument schemes could be used to justify an assessment in each step. This will help to address the criticism that the proportionality test is too vague, by showing that the test is not supposed to be a reasoning panacea, but should be discussed within a larger conceptual framework for legal reasoning. Moreover, it will reinforce my general claim about the importance of real cases to argumentation theory (Fourth Claim).

In the fourth section, I will discuss refinements of the proportionality analysis model, all focused on ways to make legal argumentation more precise, drawing on previous discussions. I will start by presenting a background of institutional deference, which one should have in mind when designing a model of proportionality analysis. After, I will outline how to determine a set of alternatives and a set of relevant values, as well as present a refined version of the proportionality test and its corresponding argument schemes. I will end by presenting further challenges that will lead to other refinements.

Finally, the fifth section will provide some thoughts on the question whether proportionality analysis may be considered rationally controllable, and about how it could be justified in general terms of institutional design.

IV.1 Concepts from other fields of knowledge

IV.1.1 MCDM - Appropriate Outcome

To engage in teleological reasoning, we need a way to evaluate if our choice is appropriate. There are many ways to conceive what an appropriate outcome is, and we will introduce the most basic ones, inspired by concepts of MCDM. However, to show that the

dialogue with MCDM may be fruitful, I shall first provide a very brief overview of its field study, and argue that it is related to teleological reasoning in Law.

As already mentioned, MCDM studies the process of making a decision with multiple, often conflicting, criteria[272]. MCDM is divided in two sub-areas, depending on whether one is dealing with the process of *designing* alternatives or with the process of *selecting* one from a finite set of alternatives. The former is called Multiple Objective Decision Making – MODM, and the latter Multiple Attribute Decision Making – MADM. Both share some characteristics:

Multiple Criteria: Each problem situation has multiple criteria, either objectives (MODM) or attributes (MADM). An objective is something to be maximized, while an attribute is a parameter that provides means of evaluating an objective's level of satisfaction.

Conflicting Criteria: Each problem situation has conflicting criteria. In order to increase the level of satisfaction of some objective or attribute, another will suffer a decrease in its level of satisfaction.

Incommensurable Criteria: Criteria are incommensurable. It may be the case that there are both qualitative and quantitative criteria. There also may be different scales of measurement for different criteria (ordinal, interval or ratio). Finally, even if they have the same type of scale, the dimension measured (weight, volume, cost, etc.) or the units (kg, lb, cc, cu ft, dollars, euros) may be different.

Although considered a sub-field of mathematics, since it uses mathematical tools to model its decision-making procedures, MCDM is an interdisciplinary field of studies,

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[272] For the concepts of MCDM presented below, I am based on HWANG, YOON, 1981, a literature review that introduced the distinction between Multiple Objective Decision Making - MODM and Multiple Attribute Decision Making - MADM. Despite being an old review, it has the merits of clearly presenting basic concepts and the assumptions for the application of MCDM techniques. On the contrary, newer literature reviews tend to focus on the mathematical techniques that have been developed in the last 35 years. These techniques are useful for cases in which numbers are meaningfully applied to the evaluation of an objective's satisfaction. However, as it will be discussed in Section IV.2.3 below, one cannot meaningfully apply numbers to evaluate the promotion or demotion of legal values yet, rendering the new mathematical techniques useless. A recent extended review of the MADM literature is TZENG, HUANG, 2011.

drawing upon knowledge provided by diverse areas such as statistics, psychometry, economics, decision theory and information science. This occurs because MCDM provides an abstract and formal framework for addressing the ubiquitous teleological reasoning.

If we consider that, in Law, the objectives are legal values to be promoted, and the attributes are concrete instances of legal values (if the instance occurs, then the value is being promoted), the similarity of MCDM problems to teleological reasoning in Law is clear. Legal cases susceptible to teleological reasoning usually present the same characteristics of MCDMs problems: they have multiple values at stake (multiple criteria); when promoting a value another is demoted (conflicting criteria); and there is no common measure to the satisfaction of legal values (incommensurable criteria). The activity of lawmaking and of judicial review in proportionality analysis have something of MODM and MADM, since alternatives are both designed and selected from a set of available options.

Given this similarity, some MCDM's basic concepts and insights are useful for the purpose of understanding teleological reasoning in Law. In this regard, MCDM offers a basic classification for the types of solution to a problem which helps us to better characterize an appropriate outcome, distinguishing ways to conceive it. Based on MCDM, I will introduce the concepts of *ideal*, *nondominated*, *feasible*, *satisficing* and *maximizing* solution, all of which may be used to describe an appropriate outcome.

Ideal, nondominated and satisficing solution are all concepts found in the book *Multiple Attribute Decision Making: Methods and Applications* (1981)[273]. A feasible solution is a concept mentioned in the same book, but not defined. A maximizing solution is also not defined, but represents the whole idea of what MCDM is trying to achieve. Finally, the book presents the concept of a preferred solution, the one achieved by a decision maker at the end of information processing. However, since it offers no guidance as to how one should evaluate a solution, I will not consider it in the following classification.

(i) Ideal Solution: The ideal solution is the one that achieves the maximum possible results for each of the objectives or attributes.

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[273] HWANG, YOON, 1981.

Suppose Herbert is buying a house. For him, size and price are the relevant attributes to be considered. The bigger house available has 345 square meters, and the cheaper house costs US$ 100,000.00. Unfortunately, they are different houses. An ideal solution would be a house with 345 square meters and costing only US$ 100,000.00. The problem is that, in most cases, the ideal solution is not available. It often serves only as a parameter to evaluate our available solutions. In Law, it is even more difficult to deal with an ideal solution, since what would be a maximum possible result might be unclear. The solution availability problem brings us to the next concept.

(ii) <u>Feasible Solution</u>: A feasible solution is one that can be actually implemented in practice, given some constraints to the decision and to the decision-making procedure. Available alternatives are only considered as such if they are feasible.

Take Herbert's example again. Since there is no house for sale with 345 square meters that costs US$ 100,000.00, should we consider that the ideal solution is not a feasible solution? To evaluate feasibility and answer this question, one needs to be precise about the situation that demands a solution and its *constraints*. Maybe Herbert could build a house of 345 square meters for the cost of US$ 100,000.00, but then he would be building a house, instead of buying one. Given the constraint of "buying", building is not an option. Maybe, he could wait a little longer to see if a new house for sale would appear satisfying these requirements. If there is no time constraint, the feasibility is unclear and may be a matter of probability. However, if Herbert needs to decide right now, and there is no time to wait for new offers, then the solution is not feasible.

Constraints can be of various kinds. One could consider Law itself as a constraint, which means that a solution may be considered not feasible if it violates the Law. Suppose a country's social security system faces an enormous deficit. One could devise a solution based on decreasing by half the amounts paid to people that are already retired. But the country's constitution forbids any changes in benefits already being paid. The solution is legally impossible and, therefore, not feasible.

From the perspective of institutional design, it should be noted that different institutions may have varied capabilities of evaluating distinct constraints. For example, Brazil has a regulatory agency dedicated to the electric power supply market, called *ANEEL – Agência National de Energia Elétrica*. The agency has a team of experts who are aware of the economy chain, the services rendered by companies, their costs, investments, current demand for electricity, and Brazil's needs for power supply, considering future growth and infrastructure projects. Therefore, they are (or at least should be) able to evaluate what would be an adequate price range for electricity, ensuring that companies have return on their investments, as well as that consumers can afford it, which are considered constraints to devise different solutions (price ranges). Considering the education and professional experience of the average judge, the Judiciary power would certainly be less capable than ANEEL to perform this factual assessment. However, if some companies of the electricity market decided to sell consumer's data to marketing analysts (e.g. to see which households have the greatest number of electronic devices, and provide better geographical direction of advertising), the lawfulness of the act would more likely be better discussed by judges, instead of by ANEEL experts.

When dealing with complex legal issues, the feasibility of a solution, and even the practical constraints themselves, might be unclear. In spite of this, legal decisions are still made. In the famous case Brown v. Board of Education Topeka (347 US 483 (1954)), the United States Supreme Court decided to end racial segregation in public schools. Nevertheless, the means to actually implement said decision were unclear, and the United States Supreme Court was brought to decide about them a year later in Brown v. Board of Education Topeka (349 US 294 (1955)), laying down some directives and conferring responsibilities to local authorities.

These comments on feasibility indicate that it would be interesting to have a systematic account of possible constraints that determine whether a solution is feasible. Lawmakers in particular are subject to a variety of constraints. The Judiciary may not have the adequate capabilities to evaluate all of them, especially when it comes to factual and technical assessments. The Brown case of 1955 gives an example of the Judiciary delegating the assessment of practical constraints, and part of the solution design to local authorities. I

will discuss this matters again in Section IV.4.1 below, about institutional deference, but I do not intend to provide a systematic account of constraints to legal decision making.

Although a feasible solution is a necessary condition of any actual solution, it is not enough to characterize what would be a good solution. Hence, other concepts are needed.

(iii) Nondominated Solution[274]: A solution is nondominated if there is no other feasible solution that will yield an improvement in one objective or attribute without causing a degradation in at least one other objective or attribute.

We may think of a simplified example of such situation in Law. Suppose the lawmaker needs to decide whether the Tax Administration needs a court order to access taxpayers' bank information, or if it can access data directly[275]. There are only two relevant values, privacy and law enforcement. If the court order is needed, privacy is promoted and law enforcement is demoted, since it will become more difficult for the Tax Administration to verify whether the taxpayers have declared their income correctly. If the court order is not needed, then, privacy is demoted and law enforcement is promoted. There is no alternative which can ensure the same level of one value without demoting the other value.

In economics cost-benefit analysis, the non-dominated solution is called a *Pareto-optimal choice,* and the fact that the increase of some good necessarily implies the decrease of other good is called a *trade-off*. It is relevant to introduce these concepts here, since proportionality analysis often makes reference to *pareto-optimality* and to other concepts of economic analysis[276].

(iv) Satisficing Solution: A solution is satisficing if it exceeds all the aspiration levels of each objective or attribute. An aspiration level is a threshold that determines the acceptable level of satisfaction of an objective or attribute.

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[274] The concept of nondominated solution is the same of pareto-optimality discussed by SARTOR, 2010, p. 185.
[275] This is a problem discussed by the Brazilian Supreme Court in the cases RE 601.314, ADIN 2386, ADIN 2390, ADIN 2397 and ADIN 2859, which addressed the same theme and were judged together.
[276] For example, Alexy and Sartor make reference to Pareto-optimality and to the law of diminishing returns. ALEXY, 2008, p. 166-176 and p.588-593; SARTOR, 2010; SARTOR, 2013.

The concept of satisficing solution intends to offer criteria to determine a set of acceptable alternatives. Satisficing solutions may be dominated, so both concepts may be used together to characterize a choice.

(v) Maximizing Solution: A maximizing solution is a feasible, nondominated and satisficing solution that provides the greater overall outcome among all available alternatives that meet these three criteria. The greater overall outcome is determined by the joint evaluation of the satisfaction levels of each objective or attribute.

The maximizing solution represents the best possible option. It may or may not be also an ideal solution, depending on whether the ideal solution is feasible or not. Decision making procedures are usually designed in order to achieve this kind of solution.

These types of solutions are basic ways to characterize an appropriate outcome, and in no way exhaust the possibilities. For example, as I have already shown above, proportionality analysis is a procedure to establish an appropriate outcome. In spite of its limitations, these basic concepts will help discussing proportionality analysis and judicial review.

IV.1.2 MCDM – Decision-making procedures

Besides characterizing the solutions, the core of MCDM is designing procedures to evaluate alternatives. It starts by defining *objectives*, something to be maximized or minimized. For instance, Herbert has the objective of paying as little as possible to buy his house. One could also think of objectives which are binary, they are either achieved or not. For example, Herbert could want a swimming pool in his house, no matter the size or shape. The *attributes* are the parameters used to evaluate the level of realization of an objective. In Herbert's case, they are quite simple: the house price and the presence of a swimming pool. Finally, one may have *goals*, aspired levels of realization of an objective, defined in terms of attributes. Herbert could aspire to pay no more than US$ 200,000.00 (two hundred thousand dollars) for his house, and to only buy a house with a swimming pool.

All available and relevant information is condensed in a *decision matrix*, in which lines represent alternatives and columns the attributes. For example, Herbert may have found five alternatives of houses to buy, considering the attributes of cost, size and presence of a swimming pool:

	Cost	Size	Swimming Pool
House 1	150,000.00	200 sqm	Yes
House 2	100,000.00	200 sqm	Yes
House 3	190.000,00	345 sqm	Yes
House 4	80.000,00	178 sqm	No
House 5	250.000,00	500 sqm	Yes

Herbert wants a maximizing solution, the one with the best overall outcome. The ideal solution is not available, for there is no alternative that is better in every attribute. The cheapest house is House 4, and the biggest house is House 5. All alternatives are feasible, for all of the houses are for sale. One can exclude House 1, for it is a dominated solution. It has the exact same attributes for Size and Swimming Pool than House 2, but it costs more. One can also exclude Houses 4 and 5, for they are not satisficing. House 4 has no swimming pool, and House 5 costs more than US$ 200,000.00 (two hundred thousand dollars). Only Houses 2 and 3 remains, but how to choose between them?

Here MCDM methods come into play. Some of them have already been applied. The exclusion of a dominated solution is called the *dominance* method. The exclusion of solutions which do not satisfy certain goals is called *satisficing* method[277]. But when these methods are not enough to obtain a unique solution, there are a plethora of other ones. The problem is how to choose between them, considering the particulars of a case.

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[277] The satisficing method is also called conjunctive method.

From the start, I will not examine methods that depend on assigning numbers to attributes[278]. As it will be discussed in Section IV.2.3 (strict proportionality), using concepts of Section IV.1.3 (measurement theory), numbers cannot be meaningfully applied to account for reasoning about the promotion or demotion of legal values. Although MCDM's framework may cast some light on legal reasoning issues, one shall not mistakenly believe that a bunch of equations or numbers amounts to a higher degree of objectivity. The use of MCDM's techniques in legal reasoning must be preceded by careful analysis of its assumptions, in order to verify whether they hold for the Law. And in the case of numbers, they do not.

Preliminaries aside, the remaining methods may be examined. The first one is based on the idea that a chain is only as strong as its weakest link, and it is called *maximin*. It selects the alternative with the highest value in its lowest attribute. In other words, it searches for the maximum among alternatives, and the minimum across attributes. Imagine two chains with each link's strength evaluated by a number from 0 to 1:

	Link 1	Link 2	Link 3
Chain 1	0.52	0.51	0.54
Chain 2	0.95	0.35	0.99

In both alternatives, Link 2 is the weakest link, it is the minimum across attributes. But Link 2 of Chain 2 is weaker. Therefore, Chain 1 would be more resistant than Chain 2, and it should be chosen. The maximin method defines this choice.

But this method does not fit quite well into our problem. The lowest attribute of House 2 is its size, and the lowest attribute of House 3 is its price. These are things that do not compare immediately, so, without some additional procedure to put these values in a common scale, maximin is not applicable. There are mathematical ways to do that[279], but

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[278] Considering the terminology of HWANG, YOON, 1981, this means I will not consider any methods whose salient feature of information is "cardinal" or "marginal rate of substitution". The permutation method is also eliminated due to the need of numerical interpretation even when dealing with ordinal preferences.
[279] HWANG, YOON, 1981, list the eigenvector method, weighted least square method, entropy method and LINMAP (linear programming techniques for multidimensional analysis of preference).

how to justify such a procedure without resorting to convention or appealing to a loose conception of reasonableness is a really difficult problem.

Even if one had a common scale, maximin could yet yield an undesirable outcome, for, despite having the "weakest link", an alternative's advantages could by far compensate its flaws. Intuitively, one could think of a house that is much costlier than another which has a fair size and is located in a good neighborhood. But if the costly house has an impressive size and sits into an incredible neighborhood, one would say that the price is compensated and it would still be preferable.

A similar method is called *maximax*, which selects the alternative with the highest value in its highest attribute. It faces exactly the same problems as maximin. Intuitively, one could think of a house that is by far the cheapest of all, but it is ridiculously small, and very close to a noisy and polluting factory. Its outstanding cheapness does not compensate its remarkable annoyances.

Another procedure is the *disjunctive method*. It selects an alternative which meets a goal for at least one attribute. The goals are set with the idea of selecting an alternative with an exceptionally high level of a certain attribute. For example, a soccer trainer will choose football players which are either exceptional at running or kicking, and place them in positions in which those abilities are useful. This method may lead to multiple alternatives being selected. And, if these alternatives meet goals in different attributes, then it offers no way to choose between them. For instance, there could be a goalkeeper and a center forward player meeting the goals. But, if only one can be hired, the problem persists. Furthermore, if the method is used alone, it also presents the risk of selecting an alternative which does not compensate its shortcomings. The center forward player may be an outstanding runner, but lousy in every other aspect.

Finally, there is the *lexicographic* method, already considered as a candidate to appraise the work of lawmakers[280]. It starts by ranking the attributes according to its importance, and proceeds by evaluating alternatives according to the most important

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[280] BENCH-CAPON, PRAKKEN, VISSER, 2011.

attribute. If one of the alternatives wins, it is selected. If there is a tie, the alternatives are, then, compared according to the second most important attribute, and so on. For example, Herbert could say that the most important thing for him is the size of the house. Therefore, he would choose House 5 (assuming no houses have been excluded yet). If only houses 2 and 3 remained, he would choose House 3. Only if the houses were of the same size, then he would proceed to evaluate the next attribute. The problem is, again, whether the additional size is compensated by the extra price. It is worth noticing that the price per square meter of House 2 is US$ 500.00 (five hundred dollars), while for House 3 is approximately US$ 550.00 (five hundred and fifty dollars). Is it worth paying more for each square meter? The lexicography method avoids this question.

A more complex version of the method is called *lexicographic semi-order*, in which, when evaluating the alternatives, they have to win by a significant margin. For example, Herbert could say that size is more important, but only differences of more than 50 square meters would be significant. House 3 would still beat House 2. However, even in this more complex account, it is still possible that other attributes would compensate the significant gain in the more important one.

A common shortcoming of the maximin, maximax, disjunctive and lexicographic methods may be summarized into the fact that they do not account for possible compensation between attributes, thus, they are called *non-compensatory models*[281]. The metaphor of balancing does not apply to non-compensatory models, since the marginal gains of the alternatives selected do not necessarily outweigh their marginal losses. They are clearly different from proportionality analysis. Although their applicability to the Law seems possible, it is also questionable, due to the difficulty of justifying a procedure whose outcome may be a subpar situation, in which everyone is worse-off.

The need for a compensatory model that does not require numbers actually justifies the discussions about the strict proportionality, which is supposed to overcome this difficulty. As it will be shown in Sections IV.2.3 and IV.4.4, this is one of the hardest theoretical struggles involving proportionality analysis.

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[281] All the compensatory models of HWANG, YOON, 1981, use numbers to account for the compensation.

IV.1.3 Measurement Theory - Scales

Our knowledge about any object is attained by distinct procedures. One may *classify* objects, e.g. when one assigns gender (man or woman) or nationality (Brazilian, Canadian, French, Italian, etc.) to a person. One may *scale* objects, e.g. when one asserts that Rostropovich's interpretations of the Bach Suites for Cello are aesthetically superior to Yo-Yo Ma's. Finally, one may *measure* objects, e.g. by saying that Brazil has a population of 200 million people.[282]

Each of these procedures make some claim about objects' relations, and are based on different reasoning operations. Classification states whether an object falls within a category, implying that some objects are equal or different with regard to some aspect being considered. Scaling establishes an order between objects, by comparing some of its properties. Measurement assigns some cardinal number to objects, allowing for additional statements about their relation, e.g. that the difference of temperature between 10ºC and 15ºC is the same difference of 25ºC and 30ºC, or that Brazilian population is four times greater than Colombia's.

Measurement Theory concerns itself with the study of these distinct procedures, notably scaling and measurement, both in physical and social sciences. Although there are many disagreements about specifics, measurement theorists seem to share what is probably the most important insight of such a theory[283]: *the properties of mathematical objects (e.g. numbers or sets) and its relations are analogous to the properties of empirical objects and its relations, thus, we can meaningfully represent empirical objects and its relations by using mathematical concepts.*

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[282] The concepts roughly correspond to Rudolf Carnap's distinction between classification, comparison and quantification concepts. The terms were modified in order to be more adequate to deal with the following discussion about measurement theory. CARNAP, 1962, p. 8-11.

[283] Stevens, for example, says that "*(…) there is a certain isomorphism between what we can do with the aspects of objects and the properties of the numeral series*", STEVENS, 1946, p. 677.

The relationship between empirical objects may be understood by the use of *scales*, which can be classified according to the empirical operations they represent and the mathematical concepts used to represent them. A famous[284] classification of scales types is provided by S. S. Stevens in "*On the Theory of Scales of Measurement*" (1946)[285]: nominal[286], ordinal, interval and ratio scales. The types of scales are presented cumulatively, in the sense that the empirical operations and mathematical representations from one scale are also meaningful in the next scale.

Nominal Scale: A nominal scale uses labels to classify objects. The empirical operation is determination of equality, and the mathematical concept is identity (x = y). E.g. Gender scale. Joelma is a woman. Johann is a man. Martha is a woman. Joelma and Martha are equal. Joelma and Johann are different. But there is no sense in saying that Joelma is greater than Johann within a gender scale.

Ordinal Scale: An ordinal scale uses labels to rank-order objects. The empirical operation is to determine what objects are greater than the others, with regard to some aspect being considered, and the mathematical concept is order (x < y). E.g. Football quality scale. Brazil's Soccer Team is very good, France's Soccer Team is good, and the Ivory Coast Team is mediocre. Then, Brazil is greater than France and the latter is greater than the Ivory Coast. But it is questionable if we can say that the difference between Brazil and France is the same of that of France and the Ivory Coast.

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[284] The echoes of Stevens' classification can be found in almost every statistical textbook or entry-level book, under the topic "classification of variables". Nominal and ordinal variables are considered species of categorical variables, sometimes alongside dichotomous variables. Interval and ratio variables are considered species of continuous variables.

[285] Stevens actually uses three criteria to justify his classification: (a) basic empirical operations; (b) mathematical structure; and (c) permissible statistics. I will not discuss the third one, because it is not important for my argument, and it has been heavily criticized, with many authors arguing that the statistical analysis limitations presented by Stevens are incorrect, since statistical procedures do not require specific scale properties. For a brief review of such critical literature, see GAITO, 1980.

[286] Some authors argue that the nominal scale is not a scale at all, since measurement implies at least some assignment of order and classification does not establish order (BERKA, 1983(a), 1983 (b)). Stevens himself anticipated criticism (STEVENS, 1946, p. 679). Nevertheless, even if one cannot talk about measurement nor scaling, the idea of mathematically representing empirical operations is elucidated by presenting the nominal scale.

Interval Scale: An interval scale uses numbers to allow statements about the intervals (or differences) between objects. The empirical operation is to determine the equality between intervals, and the relevant mathematical concepts are addition and subtraction (x + y, x − y). E.g. The difference between 0ºC and 10ºC is the same difference between 10ºC and 20ºC. So, one may add or subtract the differences meaningfully, but it is not proper to say that 20ºC is twice as hot as 10ºC, since 0ºC does not represent the absence of hotness.

Ratio Scale: A ratio scale uses numbers and determines an absolute zero (the absence of the measured property) to allow statements about the ratio between objects. The empirical operation is to determine the equality of ratios, and the relevant mathematical concepts are division and multiplication (x / y, x . y). E.g. Not only is the difference between 0kg and 10kg the same difference of 10kg to 20kg, but it is proper to say that 20kg is twice as heavy as 10kg.

Although, usually, nominal and ordinal scales are considered "qualitative", whilst interval and ratio scales are considered "quantitative", it is more meaningful to consider the growing degree of expressiveness of each scale, according to the mathematical representations allowed.

Clyde H. Coombs[287] extended Steven's classification[288]. For our purposes, the most important idea introduced is that of *composite scales*. He realized that the representation ideas of nominal and ordinal scales could be applied both to the objects themselves and to the difference between those objects. Take the soccer team example again. We could argue that not only can one say that Brazil is better than France and France is better than the Ivory Coast (order between objects), but also that the difference of Brazil to France is smaller than the difference between France and Ivory Coast (order between differences). One could also argue that the difference between Brazil and France is small, while the difference between France and the Ivory Coast is large.

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[287] COOMBS, 1952 and COOMBS, 1953, *apud* BERKA, 1983(a) and BERKA, 1983(b).
[288] Karel Berka argues that there are relevant differences on Coombs' approach that makes his account more than a simple extension of Stevens'. These differences are related to more general assumptions concerning a particular view on mathematics and measurement theory. For our purposes, however, to consider Coombs' work as an extension will suffice. BERKA, 1983(a), p. 22/26.

As one may have already noted, the choice of scale type is a choice of a model representing empirical relations which depends upon a previous understanding of the empirical objects to be modeled. In this sense, there is a second important insight of the Measurement Theory: *the scale, comprehending its type and each possible value, is the result of a process of attaining knowledge about an object*.[289]

The abovementioned insights of Measurement Theory and the scales types presented will be useful to understand how one might argue about degrees of values' realization in Law, even if no numbers are assigned.

IV.2 Proportionality Analysis

Robert Alexy makes a distinction between rules and principles. According to him, legal rules are *definitive commands*, while legal principles are *optimization requirements*. On the one hand, if some rule "If C, then X" is valid and its conditions ("C") of application are present, then it should definitely be applied. On the other hand, principles demand something to be realized "*to the greatest extent possible given the legal and factual possibilities*"[290].

Some details about the concept of optimization should be stressed, in order to avoid misunderstandings[291]. To optimize does not mean to promote a principle to its highest imaginable level, but to the best possible level, taking into consideration practical feasibility and the existence of other principles at stake, which also must be considered. To use MCDM concepts (Section IV.1.2), it is not about reaching the ideal solution, but a maximizing solution accounting for all relevant attributes. Furthermore, to optimize means both to promote the principle and to avoid demoting it.

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[289] We are generalizing Karel Berka's assertion that "*The progression of scale values is not the starting point but the result of the empirical process of measurement*". BERKA, 1983(a), p. 51.

[290] ALEXY, 2014, p. 52.

[291] Sartor argues that his notion of value-norms is broader than Alexy's principles, saying that optimization is usually unachievable and that they do not consider the need to respect (avoid demoting) a value. I believe Sartor failed to understand Alexy's ideas correctly in this regard. The last difference he points between his and Alexy's account, the fact that value-norms may indicate what is irrelevant, could be understood simply as something not being a principle. SARTOR, 2013, p. 6

The definition of a legal rule could be questioned. In order to say that a rule must "definitely" be applied (as in a strict *modus ponens*), one would need to be sure that some set of conditions is sufficient to a legal consequence, and that the presence of no other condition could change this outcome, all of which is a matter of frequent debate. One could say that a complete rule, with an established set of all relevant conditions, their classification, and the outcome of all possible combinations, should "definitely" be applied. But such a knowledge would be rare, if not impossible. In practice, we work with incomplete rules. Hence, it would be more cautious, and akin to our argumentative practices, to say that a legal rule, or at least the formulations of legal rules which we use, are *defeasible commands*. This comment, however, would only amount to a terminology adjustment. Alexy acknowledges the defeasibility of legal rules, while discussing what happens when they have opposite outcomes. According to him, these conflicts may be solved by adding an exception clause to the rule or excluding it from the legal system[292], features considered in the construction of my argument scheme for applying legal norms (Chapter III). If one is focused on the fact that we use incomplete formulations, "defeasible command" may be more appropriate. But, if one wants to highlight the ideal of a complete legal rule, and that each revision discards previous formulations, "definitive command" seems acceptable.

The distinction could also pose some challenges. One will have a hard time finding statutes or constitutions determining that some goal or value should be "realized to the greatest extent possible". Usually, one will find vague or seemingly utopic orders that are interpreted as being optimization requirements. For example, Article 215 of the Brazilian Federal Constitution states that[293]:

> Article 215. *The State shall guarantee to all the full exercise of their cultural rights and access to the sources of national culture, as well as support and encourage the appreciation and diffusion of cultural manifestations.*

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[292] ALEXY, 2008, p. 92-93.
[293] Free translation of the text "*Art. 215. O Estado garantirá a todos o pleno exercício dos direitos culturais e acesso às fontes da cultura nacional, e apoiará e incentivará a valorização e a difusão das manifestações culturais*".

The meaning of "full exercise", "cultural rights", and "sources of national culture", for example, are not properly defined in the Constitution (nor anywhere, as far as I am concerned). But, no matter how vague, one could argue that the State is not doing its duty if it does not guarantee the "full exercise" of someone's cultural rights. Such a discussion would focus on how to establish the meaning of "full exercise". In spite of the vagueness, there would still be a rule, since, if the conditions are met, it should be applied. Consequently, neither vagueness, nor defeasibility distinguish between legal rules and a principle[294]. So, how to distinguish between them?

A fundamental feature of the distinction is the different ways legal rules and principles conflict and constrain legal reasoning and legal argumentation. Either legal rules are applicable or not; if they conflict, only one can prevail. Principles, however, might be considered together, even if they support opposite conclusions[295]. Part of the difficulties in separating them arise because a single authoritative text can be interpreted as grounding both a vague legal rule and a principle. For instance, Article 215 above may be interpreted as entailing both a vague rule, as argued above, and an optimization requirement. Brazilian constitutionalists would say that it recognizes "culture" as a value that should be taken into account by the State, or by anyone engaging in legal teleological reasoning.

Besides conflicts, the difference between binary and scalable states of affairs is also helpful to understand the distinction between legal rules and principles[296]. Whenever applying a legal rule, the reasoning is about verifying whether the State has guaranteed or not the "full exercise" of someone's cultural rights (binary), which characterizes the relevant action as legal or illegal. When it comes to principles, the problem is to what extent someone's cultural rights are promoted (scalable), an evaluation which has no immediate legal consequence.

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[294] Sartor insists that his distinction between action-norms and value-norms, which correspond to Alexy's distinction between legal rules and principles, is not reduced to a distinction between defeasibility or not, nor between indeterminacy and determinacy. SARTOR, 2013, p. 8-9; SARTOR, 2010.

[295] Alexy upholds the distinction emphasizing the fact that principles survive the collision. ALEXY, 2008, p. 94-99.

[296] Sartor emphasizes this as criteria for distinguishing between his action-norms and value-norms, which correspond to Alexy's distinction between legal rules and principles. SARTOR, 2010; SARTOR, 2013.

It should be stressed that, if one fixes a threshold, a scalable state of affairs may be analyzed as binary. For example, "richness" can be analyzed both ways. It is a scalable trait, because the more assets one has, the richer he is. But one could simply define "richness" as owning assets worth US$ 1,000,000.00 (one million dollars) or more, making it binary. The same goes for certain legal factors. One can define a threshold for the State to comply with his duty towards culture, for example, investing a percentage of the Gross National Product - GNP. But one could also say that the State should promote culture as much as possible, even if the threshold has already been surpassed[297].

Despite being different, legal rules and principle are closely related. On the one hand, in a certain sense, legal rules carry out the promotion of principles. For instance, if there is a rule prohibiting the government from obtaining citizen's bank statements without a judicial order, then "privacy" is being promoted. On the other hand, a decision obtained after taking principles into consideration will have the form of a rule. Suppose the government of a country prohibits cryptography in online communication services to facilitate criminal investigations[298]. It could be said that "social safety" is being promoted, for criminal activity will be deterred; but "privacy" is being demoted, for it will be easier to have access to anyone's data. The rule according to which cryptography is forbidden embodies a judgment of precedence between principles in the situation of online communication services. Alexy insists on the idea that a rule results from a decision solving a conflict of principles, and calls it the *law of collision[299]*.

The example of Herbert buying a house discussed in Section IV.1.2 about MCDM may offer a last help in understanding the distinction. Herbert evaluated his alternative houses by considering size, price and the presence of a swimming pool. The houses could be bigger or cheaper, but the swimming pool was either present or not. So "increase size"

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[297] One could also argue that different concrete actions amount to the same level of promotion of a principle, which further distinguishes between rules and principles.

[298] A discussion inspired by recent judicial decisions in Brazil, which have suspended the *Whatsapp* application because the company would not aid a criminal investigation by supplying a record of the communication between the application users. The police was unable to decode communications due to cryptography, and the company argued that, according to Brazilian Law, it has no obligation to store the content of such a communication. Thus, criminal investigations came to a halt, raising the question of what should be the limits of cryptography.

[299] ALEXY, 2008, p. 94-99.

and "reduce price" were equivalent to legal principles, which should be promoted as much as possible. And a rule said that an alternative would only be acceptable if there was a swimming pool. Either the condition was obtained or not, just like actions are legal or illegal. Finally, the principle of "reduce price" had a definite threshold beyond which the alternative was not acceptable, so a definite level of the principle "reduce price" was transformed into the condition of a rule determining the acceptability (legality) of an alternative.

After making the necessary clarifications, we may continue to present Alexy's ideas. According to the author, whenever a decision affects at least two principles at the same time, one positively and the other negatively (which is called a *collision* of principles), the reasoner needs to engage in balancing, in order to verify whether the decision reaches an appropriate outcome that satisfies the optimization requirements of law. *Balancing should be made according to a "principle of proportionality", that consists of three sub-principles, each of which aims at optimization: suitability, necessity and proportionality in the narrower sense.* It should be highlighted that, although Alexy calls it "principle" of proportionality[300], he acknowledges that is actually a rule, composed of three sub-rules.

These ideas require some elucidation. First of all, in real legal cases, it is debatable whether some principle is really being affected. In the minimum case, of a principle X supposedly being promoted and a principle Y supposedly being demoted, one will find the following set of possibilities, in which "T" means "it is true that the principle is being affected in the way described" and "F" means "it is false that the principle is being affected in the way described":

Promote X	Demote Y
T	T
T	F
F	T

[300] Virgílio Afonso da Silva stresses the point that it is actually a rule in SILVA, 2002. I call it "*principle of proportionality*" to follow Julian Rivers' translation into English, and Robert Alexy's own use (in ALEXY, 2014). However, in the German original of "*Theorie der Grundrechte*" Alexy uses "*Grundsatz*" instead of "*Prinzip*", to emphasize the difference between the principles in general and the "principle of proportionality", as pointed out by Virgílio Afonso da Silva in its preface to the Portuguese translation of the book. ALEXY, 2008.

F	F

If one were to take instructions literally, the second, third and fourth alternatives would be irrelevant for proportionality analysis, since they are either both unaffected or just one of them is affected, meaning there is no collision of principles. I consider this literal interpretation problematic for two reasons. First, as I will show below, it would exclude the suitability step of proportionality analysis, diverging from legal practice. Second, the best model of actual legal argumentation should include all possible debates concerning the subject. Therefore, I consider that proportionality analysis takes place whenever it is *discussed* whether a decision affects at least two principles at the same time, one positively and the other negatively.

Furthermore, it should be clarified what it means for a principle to be affected positively or negatively. In any given *status quo*, principles are promoted to some extent. Whenever a decision is taken, it may change the *status quo* as to promote or demote a principle, in comparison to the level of promotion before the decision. In the context of judicial review, this means that law enactment may promote or demote principles, in comparison to the situation before the law has come into force. One should realize that a new law might make the situation worse off. Therefore, it could be better to have no new law. In the next pages, I will call *inaction* the situation in which no law is enacted and the *status quo* is upheld[301]. Thus, I am referring to the inaction of the legislator, which may be preferable. These ideas are critical to the proper understanding of proportionality analysis.

The *status quo* needs not to be conceived statically, as a fixed point in time[302]. Suppose hate crimes affecting homosexuals have occurred in a hypothetical country, and that there are statistical data indicating a growing rejection of such minority by the population. As a reaction, the Congress approves a law defining homophobic acts as

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[301] Sartor calls it the "*null action*" and uses it as reference to assess the realization-impact of values in his model. SARTOR, 2013, p. 15-17.
[302] I thank Fabrício Gomes for drawing my attention to this point. I am not fully aware of its consequences yet, but it is noteworthy anyhow.

crimes[303]. If "protection of minorities" and "minimum criminal law"[304], are principles, then it would be discussed how these principles have been affected by the new piece of legislation. The debate would have to take into consideration the constantly deteriorating situation of the homosexuals and the likelihood of violent hate crimes in order to establish how much "protection of minorities" is being promoted, as well as its importance in the context.

IV.2.1 Suitability

According to Alexy[305], suitability amounts to *effectiveness*, that is, a choice is suitable, with regard to principle X, if and only if it promotes principle X to some extent.

Promote X	Suitable
T	T
F	F

The concept of suitability is related to the idea of a nondominated solution, or Pareto-optimality (as an economist would say)[306]. As stated above, proportionality analysis takes place in the context in which a principle's demotion is also discussed. If a choice does not promote principle X and demotes principle Y, being those the only relevant principles, then inaction would be a better solution, since it would equally satisfy X and it would promote Y more. Alexy's suitability test, thus, intends to verify whether some choice is a nondominated solution with regard to inaction. As I will discuss further below, the necessity test complements the analysis, verifying whether some choice is a nondominated solution with regard to alternative choices, except inaction (already verified in the previous step).

Although the definition of suitability above concerns itself only with the principle X to be promoted, it is also relevant, for proportionality analysis, whatever is happening to

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[303] This example is also inspired by Brazilian debates about a proposed bill according to which homophobia should be considered a crime.
[304] The principle means to ensure that the number of crimes defined by the legislation are kept to a minimum.
[305] ALEXY, 2008, p. 588-590. In the pages referred here, the author does not explicitly define suitability as I did, but the definition I offered is supported by the interpretation given to Alexy's work. Upholding the idea of suitability as effectiveness (promotion to some extent), see SILVA, 2002; SARTOR, 2010.
[306] ALEXY, 2008, p. 589 and ALEXY, 2014.

principle Y, expected to be demoted. The following table helps seeing the possibilities, by assigning truth-values to the events of promoting X, demoting Y, and the consequence to suitability, considering the definition of suitability as effectiveness:

Promote X	Demote Y	Suitable
T	T	**T**
T	F	**T**
F	T	**F**
F	F	**F**

Although in both the first and second possibilities the decision is considered suitable, there is a great difference between them. In the first scenario, the proportionality analysis will move forward, but, in the second one, since there is no actual collision of principles, the discussion ends.

The third and fourth lines of the table are also greatly different settings, in spite of being labeled "not suitable" all the same. If X is not promoted and Y is demoted, the decision is not suitable and not proportional, and it must be stricken down by the Judiciary. However, if none of the principles are promoted, nor demoted, as in the fourth line, it is questionable whether the result should be the same. In other words, should we allow the Judiciary to strike down inconsequential legislative choices? Now, one could develop such a debate by invoking philosophical arguments of different origins. I shall not do this. In practice, the probability of finding a legislative choice that is totally inconsequential is very similar to the odds of finding a pink elephant wandering around the streets of Groningen[307]. And, if there are truly inconsequential decisions, given that they are inconsequential, one should not be worried at all.

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[307] One could argue that, in Brazil, it is common to have legislative decisions that change the name of streets, which would be inconsequential. However, not only are there costs involved, but some names are matter of heated political debate. For example, in the city of São Paulo, it was discussed whether a street should be named Carlos Marighella, who was a leader of an armed opposition to the Brazilian Military Regime. In the Faculty of Law of the University of São Paulo, there were also intense debates about changing the name of some classrooms in exchange for donations from legal firms.

This brief discussion brings attention to two related points. Proportionality analysis does not take for granted that a principle is really being affected by the law. Thus, if one were to state that proportionality analysis only deals with cases of actual collision (a principle being effectively promoted and another one effectively demoted), suitability analysis would not be a part of proportionality analysis, but a previous condition. Again, proportionality analysis is about the *discussion* of a collision of principles. Moreover, it is worth stressing that one needs to discuss not only whether X is really being promoted, but also whether Y is actually being demoted, for the answer is of critical importance. The demotion of Y is often taken for granted, but a proper model needs to consider the discussion of this proposition.

Until now, I have discussed choices that may affect only two principles, X or Y, but one can use the same ideas to analyse decisions that affect three or more principles. To maintain precision, in such cases, suitability should be considered with regard to each principle, or possible set of principles, that are being promoted. Therefore, if a choice promotes X and Z, and demotes Y, one may ask whether the choice is suitable with regard to X, with regard to Z, and with regard to X and Z. In the latter case, I shall consider suitable a choice that is suitable with regard to at least one principle. This is justified because, if at least one principle is promoted, then it is possible that the choice is proportional as the marginal gains of promoting one principle may outweigh the marginal losses of all the other principles being demoted.

Since a single principle is theoretically capable of outweighing the marginal losses imposed to all other principles, one can only be sure that a choice is not suitable if he is certain that no promoted principle is missing from the analysis. This suggests that a suitability analysis should entail some procedure to ensure, observing potential constraints, that all potentially promoted principles are evaluated. As far as I am concerned, this problem is not duly discussed in the relevant literature. It will be further developed in the next section (Section IV.2.2) and in my revision of proportionality analysis (Section IV.4).

After discussing the concept of suitability, and relating it to the idea of appropriate outcome, two other observations are noteworthy. First, in Alexy's concept and in the

definition above, suitability requires only that principles or goals are promoted or advanced in some extent, but do not need to achieve a certain threshold[308]. This is possible since the realization of principles or goals is a matter of degree. However, a model could also consider that the promotion of a value or goal needs to surpass a minimum threshold to be considered suitable.

Second, Alexy's concept and the definition above are also silent as to the legal possibility of adopting certain principles or goals. Nevertheless, it has been argued that suitability analysis should include a sub-step to verify whether the goal pursued is permissible[309]. Another way to address this problem, defended by some authors, based on the practice of the European Court of Human Rights, is to include a new step in the proportionality test, previous to suitability, by which one would verify the legitimacy of the principles or goals to be evaluated[310]. I shall refer to this as a problem of *permissibility[311]*. I find the terminology preferable to "legitimacy"[312], an expression that may have political connotations.

Permissibility may also be related to the idea of obtaining a nondominated solution with regard to inaction[313]. Suppose that a choice promotes goal X and demotes goal Y. If one finds that X is not permissible, then the promotion of X should not be taken into account (or taken into account negatively), and only the demotion of Y will remain (or along the negatively valued promotion of X). Therefore, the choice will be worse than inaction.

If the permissibility analysis should be considered a part of the suitability analysis or an entirely different step in the test is irrelevant. It is only important that, in any case, permissibility analysis precedes effectiveness analysis. It is of no use to verify whether some choice advances a principle or goal X, if X is not permissible, that is, should not be taken into account. For the purposes of this text, I will discuss both under the heading of suitability,

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[308] As it has been pointed out by Virgílio Afonso da Silva in SILVA, 2002.
[309] SARTOR, 2010.
[310] SILVA, 2002, p. 13, footnote 47.
[311] Following SARTOR, 2010.
[312] This expression is used by the European Court of Human Rights.
[313] As shown by Giovanni Sartor in SARTOR, 2010, p. 197.

since both permissibility and effectiveness analysis are related to the idea of obtaining a nondominated solution with regard to inaction.

IV.2.2 Necessity

Necessity, in Alexy's words "*requires that of two means promoting P1 (one principle) that are, broadly speaking, equally suitable, the one that interferes less intensively with P2 (another principle) has to be chosen. If there exists a less intensively interfering and equally suitable means, one position can be improved at no costs to the other. Under this condition, P1 and P2, taken together, require the less intensively interfering means be applied.*"

In other words, if there are two means of promoting principle X to the same extent, one should choose the means which demotes principle Y less. It is worth stressing that both alternatives have to advance principle X to the same extent, a requirement which may be a source of difficulty and debate in actual cases. The choice is "necessary" in the sense that there is no other way of achieving the same result (promoting X to the same extent) without demoting Y even more. Thus, it is "necessary" to obtain the intended result.

Despite the explanation, the term *necessity* is misleading, for one could reasonably suppose that, if some choice is necessary, then it ought to be adopted. Nevertheless, this is not the case, since, according to Alexy, a measure should not be adopted if it is *necessary*, but not *strictly proportional*. Furthermore, "necessary" may be used with different meanings in different contexts. For example, it has been pointed that the term's usage by the European Convention and the ECHR does not follow Alexy's technical terminology, even though the Court engages in a balancing activity[314]. To avoid confusion, I will use the expression *minimal intrusion* (*minimally intrusive* choice) to refer to Alexy's idea of "necessity".

As already mentioned, the test of minimal intrusion aims to ensure that the legislative solution is nondominated (or Pareto-optimal)[315]. If there is an alternative choice that can

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[314] SARTOR, 2010, p. 203-204.
[315] As argued by Alexy (2014) and shown by Sartor (2010)

promote X to the same extent, while demoting Y less, being those the only relevant principles, then, the minimally intrusive alternative would be a dominant solution. Hence, minimal intrusion is a test to verify whether some choice is nondominated with regard to alternatives, except inaction. The nondominance of inaction has already been verified in the suitability step. If any principle is promoted, then a decision is better than inaction somehow, and it can no longer be dominant.

However, Alexy's definition does not account for all the types of dominance, regarding the set of possible choices that promote X and demote Y, being those the only relevant principles. It only deals with the case that an alternative choice promotes X to the same extent and demotes Y less. But dominance would also occur if an alternative choice promotes X more and demotes Y to the same extent, or if it promotes X more and demotes Y less. The table below reveals all possibilities of dominance with regard to Choice A, considering only two levels of promotion or demotion of a principle, high and low:

	Promotes X	**Demotes Y**	**Dominance w.r.t. Choice A**
Choice A	Low	High	-
Choice B	Low	Low	Dominant (minimal intrusion)
Choice C	High	High	Dominant (maximal promotion)
Choice D	High	Low	Dominant (fully superior)

One could discuss whether Alexy intended to use the necessity test to verify all these possibilities of dominant solution or only the possibility represented by choice B. But the focus of this work is not interpreting Robert Alexy, reason why I will not examine such question. It is only noteworthy that Alexy does not deal explicitly with the possibilities of choice C and choice D of the table above. I will call a choice that avoids domination of the type provided by choice C above a *maximally promotional* choice, corresponding to a *maximal promotion* test. A choice that avoids domination of the type provided by Choice D is not necessary nondominated, because it still may fail either in the minimal intrusion or in the maximal promotion tests. I will refer to a choice of the type provided by Choice D above as a *fully superior* choice. If there is a choice D, then choice A fails both in minimal intrusion and maximal promotion.

Given this array of possibilities, an important issue to be addressed is: what types of dominance verification should be allowed in judicial review[316]? Should we allow both types of verification (*minimal intrusion* and *maximal promotion*) or just one? Since a dominant solution is always preferable, it seems that we should allow testing for both types of dominance. But, with each test, the scope of judicial review grows, which is a matter of concern for institutional design (and the separation of powers). With minimal intrusion, judges are only allowed to ask whether there is a less intrusive way of satisfying one principle. By maximal promotion, judges are entitled to investigate whether there is an equally intrusive way of satisfying a principle even more. By adding tests, judges have more alternatives to consider, which may be an undesirable arrangement from the institutional design point of view. The limitation of judicial review will be discussed in more detail in Section IV.4.1 below. For now, I only want to stress that there are different possible types of dominance test (minimal intrusion and maximal promotion), and that the acknowledgement of this variety contributes to refining proportionality analysis.

The two types of (partial) nondominance test, as well as a unified test, can be defined as follows, acknowledging that a fully superior choice is possible and dominant in both cases (so I will use the expressions "*at least*" and "*at maximum*"):

Minimal Intrusion: A choice C_1, which promotes X and demotes Y, is minimally intrusive if there is no choice C_2 that promotes X at least to the same extent and demotes Y less.

Maximal Promotion: A choice C_1, which promotes X and demotes Y, is maximally promotional if there is no choice C_2 that demotes Y at maximum to the same extent and promotes X more.

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[316] Sartor argues that the necessity step involves a test of pareto-necessity (or pareto-optimality), defined as follows "*choice a, diminishing value v, is Pareto-necessary to achieve goal g when no alternative b exist that (a) equally achieves the legislative goal g (b) involves a lesser diminution in v, and (c) is not inferior to a with regard to each other relevant value*". He avoids Alexy's definition shortcomings related to nondominance, but he also did not discuss such shortcomings, nor acknowledges the possibility that the restriction of dominance verification is a possible institutional arrangement. SARTOR, 2010, p. 197-199.

Nondominance: A choice C₁, which promotes X and demotes Y, is nondominated if there is no choice C_2 that satisfies any of the following conditions:

> *(a) promotes X to the same extent and demotes Y less;*
>
> *(b) demotes Y to the same extent and promotes X more;*
>
> *(c) promotes X more and demotes Y less.*

It is possible to say that a choice is minimally intrusive, maximally proportional or nondominated with regard to an alternative. If it is only said that a choice is minimally intrusive, maximally proportional or nondominated, it is meant to be in regard to the whole set of available alternatives.

It should be noted that, according to the definition of minimal intrusion, if a choice C_2 promotes X more than C_1 and demotes Y to the same extent, choice C_1 is still minimally intrusive, although dominated. It is the "minimal intrusion" required to achieve a desired level of a principle's promotion, not being possible to decrease the intrusion further, without also decreasing the promotion. On the other hand, according to the definition of maximal promotion, if a choice C_2 demotes Y less than C_1 and promotes X to the same extent, choice C_1 is still maximally promotional, although dominated. It is the "maximal promotion" possible, given a tolerable level of a principle's demotion, not being possible to increase the promotion further, without also increasing the demotion.

These standards seem useful in different contexts. Minimal intrusion seems adequate to ensure that there is less demotion of principles, as in the context of civil liberties constraining the State's actions (e.g. privacy, freedom of expression, freedom of religion). Maximal promotion seems appropriate to guarantee more promotion of principles, as in the context of social rights (e.g. education, culture). If one considers "minimize government expenditure" as a principle, maximal promotion may model a budgetary decision, in which the budget is a tolerable level of a principle's demotion (minimizing government expenditure) and the objective is to find a measure that achieves the best result with the same budget.

Finally, nondominance indicates that there is no way of promoting a principle without demoting another one (what economists call a trade-off, as shown in Section IV.1.1).

Another shortcoming of Alexy's definition is that it only deals with the minimum case of two principles being affected. It needs to be revised to accommodate cases in which more than one principle is being promoted, and in which more than one principle is being demoted. The definitions below are extended to include these possibilities, and consider that any choice C_n promotes a set of principles X_n and demotes a set of principles Y_n. Levels of promotion and demotion are made in reference to inaction, as explained in the introduction of this Section IV.2. If a principle is not promoted, nor demoted, it is not an element of either set. Not promoting a principle when compared to any level of promotion is considered to be promoting to a lesser extent. Not demoting a principle when compared to any level of demotion is considered to be demoting to a lesser extent. Finally, in the definitions, subsets are not proper (or strict, in the mathematical sense), thus if I say X_1 is a subset of X_2, it allows X_1 to be identical to X_2.

Minimal Intrusion: A choice C_1, which promotes a set of principles X_1 and demotes a set of principles Y_1, is minimally intrusive if there is no choice C_2 that satisfy all the following requirements:

> *(a) X_1 is a subset of X_2 and C_2 promotes each principle of X_1 at least to the same extent as C_1;*
> *(b) Y_2 is a subset of Y_1 and C_2 demotes at least one principle of Y_1 to a lesser extent than C_1; and*
> *(c) C_2 demotes all other principles of Y_1 at maximum to the same extent as C_1.*

Maximal Promotion: A choice C_1, which promotes a set of principles X_1 and demotes a set of principles Y_1, is maximally promotional if there is no choice C_2 that satisfies all the following requirements:

> *(a) Y_2 is a subset of Y_1 and C_2 does not demote any principle of Y_1 more than C_1;*
> *(b) X_1 is a subset of X_2 and C_2 promotes at least one principle more than C_1; and*
> *(c) C_2 promotes all other principles of set X_1 at least to the same extent as C_1.*

Nondominance: A choice C₁, which promotes a set of principles X₁ and demotes a set of principles Y₁, is nondominated if it is minimally intrusive and maximally promotional.

I apologize for the definition being quite complex, but I found no other way to be precise in this situation. In order to make it more understandable, I will provide two alternative illustrations with arbitrary principles, aimed at different audiences. The first one will be more informal, and the second one will be semi-formal. For those wanting a real example, the definition of minimal intrusion will be used to criticize the European Court of Human Right's reasoning in section IV.3.1.B.

First, the informal illustration. Suppose a choice C_1 which promotes the principles "health" and "equality" to a "medium" extent and demotes "privacy" and "certainty" also to a "medium" extent. The scale of possible extents is "low", "medium", "high". There is an alternative choice C_2, which promotes the same principles to the same extent and demotes the same principles, but to a different extent. Although "certainty" level of demotion is "medium", the "privacy" level of demotion is only "low".

Since C_1 and C_2 promote the same principles, then X_1 is equal to X_2 and X_1 is a subset of X_2. Thus, C_2 satisfies the requirement of definition's clause (a). C_1 and C_2 also demote the same principles, so Y_1 is equal to Y_2, and a Y_2 is a subset of Y_1. The principle "privacy" is demoted to a lesser extent by C_2, it is "low" instead of "medium". Then, C_2 demotes one of Y_1 principles to a lesser extent than C_1. As a consequence, clause (b) of the definition is satisfied. Finally, "certainty" is demoted by C_2 to the same extent as C_1. Hence, clause (c) is satisfied. Since all clauses are satisfied, choice C_1 is not minimally intrusive.

Intuitively, it is easy to see that choice C_2 is less intrusive than C_1. It promotes everything that C_1 promotes, but it has the edge when it comes to privacy, demoting it less. But the definition makes it precise, and it is supposed to be used in cases with a lot of principles involved.

Now, the same example will be analyzed with a semi-formal representation. Let us consider that a choice C_n is a pair (X_n, Y_n), in which X_n is the set of principles promoted by

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C_n and Y_n is the set of principles demoted by C_n. X_n and Y_n are represented by $(a,b,…)$, in which each letter corresponds to one principle. One also needs a function of evaluation which when applied to X_n or Y_n returns a set of pairs $((a,alfa), (b,beta),(…))$, in which the first element of the pair is the principle, and the second element is the extension to which is promoted. This set of pairs will be denominated Eval.X_n or Eval.Y_n, accordingly. The extension to which a principle is promoted may be represented by any scale (ordinal, or cardinal).

Take again the example in which the choice $C_1(X_1, Y_1)$ promotes the principles "health" and "equality" (X_1) to a "medium" extent and demotes "privacy" and "certainty" (Y_1) also to a "medium" extent. Then, we have:

> *C_1 (X_1, Y_1)*
> *X_1 (health, equality)*
> *Y_1 (privacy, certainty)*
> *Eval. X_1 ((health, medium), (equality, medium))*
> *Eval. Y_1 ((privacy, medium), (certainty, medium))*

Now, take a choice $C_2(X_2, Y_2)$, which promotes and demotes the exact same principles to the same extent, except by "privacy", which is demoted only to a "low" extent:

> *C_2 (X_2, Y_2)*
> *X_2 (health, equality)*
> *Y_2 (privacy, certainty)*
> *Eval. X_2 ((health, medium), (equality, medium))*
> *Eval. Y_2 ((privacy, low), (certainty, medium))*

One can use the definition to see that C_2 is less intrusive than C_1. If one compares Eval. X_1 and Eval. X_2, it is clear that clause (a) is satisfied. And if one compares Eval. Y_1 and Eval. Y_2, then it is easy to see that clauses (b) and (c) are satisfied. I will not provide further illustrations of the definitions in use, although I invite the reader to do so and test if they work as expected.

It is crucial to notice that the nondominance tests of the necessity step assume that all relevant principles, both promoted or demoted, and all possible alternatives, have been taken into consideration. If any principle or alternative is forgotten, the results could be different, and the analysis would be flawed. To visualize the problem of a missing relevant principle, suppose there is a choice C_1, that allegedly promotes X and demotes Y. Even if it is true that there is no choice C_2 that promotes X at least to the same extent and demotes Y less, there may be some principle Z demoted by C_1 which is relevant, but have not been taken into consideration. Such principle Z may change the conclusion about minimal intrusion, for there might be some alternative C_2 that promotes X at least to the same extent, demotes Y to the same extent, and demotes Z less.

The problem of alternatives is much more straightforward. The dominance verification tests are based on the claim there are no dominant alternatives. Since one cannot devise and test an infinite number of alternatives, such a statement depends on a given closed set of relevant alternatives, all of which fail the test. But there is always the risk of overlooking a dominant alternative.

Therefore, the reasoning about principles and alternatives is defeasible, and conclusions may be retracted if new principles or new alternatives come in. It can be said that the result of proportionality analysis is based on two *closed world assumptions*, according to which all relevant principles and alternatives have been considered. Neither of these assumptions have been made explicit by Alexy.

Adopting a closed world assumption seems akin to legal practices. The reasoning of proportionality analysis implicitly claims to consider every relevant principle affected and feasible alternative. Of course, the assumption might be challenged by someone analyzing a concrete piece of reasoning. Nonetheless, if the critic finds that another relevant principle had been affected or feasible alternative had been ignored, he will amend the flawed reasoning by including the new principle or alternative and, then, reinstate the assumption. Thus, I will model the dominance verification tests of the necessity step as making such closed world assumptions.

I now may return to the idea of last section (IV.2.1), according to which it would be interesting to have a procedure ensuring all relevant values are found. Actually, what we want are procedures that guarantee both our closed world assumptions have been thoroughly examined. To use concepts of Chapter I, we need to design a procedure that will enhance dynamic criticism about our assumptions that all the relevant values and alternatives have been considered. Then, we can rest assured knowing that we have not only the best answer available, but a good answer. The judicial review is a way of double checking our reasoning, and may be seem as contributing to this objective. I will discuss the assumptions further in section IV.4.2.

As a closing remark, the first two steps somehow perform nondominance verification, with regard to inaction (suitability) and to alternatives (necessity). But, even if both are surpassed, it is still possible that inaction is a better outcome. The decision might be nondominated, but the marginal losses may outweigh the marginal gains. Enters strict proportionality analysis.

IV.2.3 Strict Proportionality or Proportionality in the Narrower Sense

Strict proportionality or *proportionality in the narrower sense* is the most delicate, controversial and complex step of proportionality analysis. I will discuss it in the form presented by Alexy in the 2002 afterword to the book "A Theory of Constitutional Rights", in which he addresses the main criticism his theoretical account has received since the original publication in 1986. Eventually, some reference to more recent work may be made, but, in general, there have been no substantial changes in his position since then[317].

According to Alexy, a strictly proportional decision needs to satisfy the 'Law of Balancing', which states: "*The greater the degree of non-satisfaction of, or detriment to, one principle, the greater must be the importance of satisfying the other.*"[318]

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[317] Posterior work is found in ALEXY, 2003; ALEXY, 2005; ALEXY, 2014.
[318] ALEXY, 2008, p. 167 and p. 593; ALEXY, 2014, p. 54.

To properly understand the Law of Balancing, a distinction must be made between the *extent* to which some principle is advanced and the *value* arising from such advancement. It may be the case that some principle X is promoted to a great extent, but the value arising from such promotion is inferior to the value arising from a little promotion of principle Z. For example, assume that "access to movies" is a principle, an instance of the more general principle "culture". Suppose there is a country in which half of the inhabitants are able to afford going to the movies once every two months. If a public policy subsiding movie tickets enables every citizen to watch a movie for free every month, then "access to movies" is promoted to a great extent. Now, suppose, in the same country, that only half of the children have access to primary school, an instance of the more general principle "education". If a public policy subsiding access to primary school (building public schools or paying the fees for private schools, it does not matter) ensures that 60% of the children have access to primary school, then the principle is promoted to some extent, but arguably not so great as the advancement of "access to movies". Nevertheless, it seems intuitive that the second public policy is much more valuable and important than the first one, even if it has promoted "access to primary school" to a comparable lesser extent than "access to movies".

Alexy uses the expression *intensity of interference* to denote the extent to which a principle is promoted or demoted, and *concrete weight*, or simply *weight*, to refer to the value arising from a promotion or demotion[319]. Nevertheless, in the 'Law of Balancing' formulation above, Alexy uses the expressions "*degree of non-satisfaction*" and "*importance*". Both should be taken to mean *concrete weight* in order for the 'Law of Balancing' to be understood properly. Thus, the 'Law of Balancing' could be rewritten as follows:

Law of Balancing (reformulated)*: An actual decision that promotes principle X and demotes principle Y is strictly proportional if the promotion of principle X outweighs (i.e. has more concrete weight than) the demotion of principle Y.*

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[319] Sartor uses the expressions realization-quantity and utility-quantity to refer, respectively, to intensity of interference and weight. SARTOR, 2013, p. 14-15. In spite of Alexy's inconsistent use of terminology, I will prefer to use his expressions, since his work is the main reference in the area. I shall standardize the terminology during the presentation.

Given the importance of the concept of weight, and its distinction from intensity of interference, two obvious questions arise: how to determine the weight of a principle in an actual case, and how are intensity of interference and weight related. The answer is given by what Alexy calls the 'Weight Formula'. Along the 2002 afterword, the 'Weight Formula' receives increasingly complex formulations, according to the growing number of variables that contribute to determine the weight. The variables are: *intensity of interference*[320], *abstract weight*, and the *degree of reliability* of the empirical assumptions concerning what the measure in question means for the non-realization of a principle (degree of reliability, for short)[321]. The value of all variables is always determined for some concrete case, thus, the name *concrete weight*.

The importance of determining the weight in the concrete case arises from the assumption that there is no absolute precedence between principles[322]. Conflicts are not solved by some previously fixed hierarchy of the likes "life always triumphs". This is both a statement of fact, about how people (and especially courts) reason, and a normative guideline, according to which such a hierarchy would lead to undesirable outcomes.

Since I have already explained the meaning of intensity of interference, I shall focus on the latter two variables. The *abstract weight* aims to represent the importance attributed to a principle in comparison to another principle independently of the intensity of interference. It may explain our intuition in the example above about the measures concerning "access to movies" and "access to primary school". Since "access to primary school" (fundamental to the development of individual and society) is more important than "access to movies" (go read a book!), we find that the policy which advanced "access to primary school" is more valuable than the one that promoted "access to movies", even if the promotion is made to a comparable lesser extent. Thus, whenever evaluating the *concrete*

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[320] Alexy uses *intensity of interference* for the principle being demoted, and *importance* for the principle being promoted, but acknowledges that the concept is the same. He just refers to them differently because he finds that it is more akin to how lawyers actually refer to such phenomena. I prefer maintaining "intensity of interference" in both cases, to enhance precision and avoid using two different expressions for the same concept. ALEXY, 2008, p. 602.

[321] Sartor's formal account (SARTOR, 2013) does not take into consideration the added complexity of the degree of reliability. Sartor explicitly states that probabilities are left outside the model (p. 16) But he acknowledges the difference between the weight of a value (Definition 10, p. 21) and the intensity of interference, as realization-quantity.

[322] ALEXY, 2008, p. 94-99.

weight of a principle in an actual case, one needs to take into account intensity of interference together with abstract weight.

Notwithstanding the "abstract" in the concept's name, the abstract weight is not completely independent of the actual case. The abstract weight actually varies according to the degree of realization of a principle before the adoption of the analyzed measure[323]. If a principle is already very developed, its promotion is not so valuable as if it was poorly implemented. Alexy argues that this property could be called 'Law of Diminishing Returns', as it is similar to the economic 'law' of the same name. It justifies the wording of the definition I proposed above, stating that the abstract weight is independent of the intensity of interference, instead of independent of the actual case.

Suppose that a country has only one university, and there are just enough vacancies for 10% of the population to attend college. The State, intending to increase "access to college", creates another nine public universities, and now every citizen may attend college, if they want. Finally, in a third moment, the State creates another nine universities, with the same number of positions to students and the same quality level of education of all the other ones, to ensure that the citizens have many options of universities to go, closer to their hometowns. Do both measures have the same concrete weight? Although the intensity of interference is arguably the same, since in both cases nine universities were created, the first measure may be considered more important, since it guaranteed the universalization of access; whilst the second measure only gave every citizen more options, enhancing geographical distribution. If this were to happen in a real country, the first measure would

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[323] Sartor criticizes this idea without referring to Alexy directly, by talking about a "*mysterious context dependency of abstract weight*" (SARTOR, 2013, p. 26). The author explains the same variation in the concrete weight (utility-quantity) by a different intensity of interference (realization-quantity) instead of a variation of the abstract weight. He would say that the abstract weight is fixed, it is our appraisal of the intensity of interference that changes. Although it is a possible way to explain the concept, the advantages are not that clear. First, it does not convey the idea that we may find some levels of promotion more satisfactory than others. Second, if one does not allow changes in the abstract weight, then more fine grained differences in the intensity of interference would be required to explain changes in our concrete weight evaluations. This would demand a more detailed scale of intensity of interference, what works as mysteriously as the "context dependency of abstract weight". Finally, it would lead to counterintuitive descriptions. The income distribution program "*Bolsa-Família*" in Brazil gives approximately R$ 400,00 to poor families, which is considered a small amount of money. But, to these families, it is an outstanding help. It is more akin to the way we speak to say that it promoted just a small income distribution (Brazil's income remains startlingly concentrated) with great gains, instead of saying that it was a huge promotion of income distribution with great gains.

more likely be strongly supported than the second measure, which could be criticized as unnecessary government expenditure carried out to satisfy the student's whim of being close to their hometown. This difference is represented by saying that the abstract weight of the principle "access to college" changed, given the level of satisfaction of the principle before each measure.

The *degree of reliability* aims to represent the strength of the premises concerning the empirical consequences of adopting a measure. Its relevance is given by what Alexy calls 'Epistemic Law of Balancing', according to which "*The weightier the intervention in a fundamental right, the greater must be the certainty of the premises in which such intervention is based*" [324]. It should be noted that the degree of reliability is important both for assessing consequences that promote a principle X, as for consequences that demote a principle Y. The concept tries to take into account the probability that the promotion or demotion of a principle will actually happen or are true[325].

Suppose[326] that the lawmaker intends to reduce the number of skin cancer cases, satisfying the principle "protection from skin cancer", an instance of "health". One possible cause of skin cancer is the use of tanning beds, which is unrestricted in our hypothetical country. The lawmaker has the alternatives of: (i) inaction; (ii) restricting and regulating the use of tanning bed, preventing minors and people in groups of risk to use it, limiting the number of tanning sessions per user, as well as demanding a written informed consent from them; (iii) fully prohibiting the use of tanning beds. Both alternatives (ii) and (iii) demote the principle of "free enterprise", by which government restrictions on economic activities should be minimal, but (iii) interferes more intensely than (ii).

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[324] ALEXY 2008, p. 617.

[325] The formulation that the promotion or demotion "will happen" or "are true" is made in order to avoid taking sides in the debates about the best approach to statistics, classical (frequentist) or Bayesian, and about the best concept of probability. A discussion of the how these two approaches deals with some statistical themes is found in ROMEIJN, Jan-Willem, "*Philosophy of Statistics*", *The Stanford Encyclopedia of Philosophy* (Winter 2016 Edition), Edward N. Zalta (ed.), available at https://plato.stanford.edu/archives/win2016/entries/statistics/, last access in January 9th 2017. A directly related overview and fine grained analysis of different concepts of probability may be found in HÁJEK, Alan, "*Interpretations of Probability*", *The Stanford Encyclopedia of Philosophy* (Winter 2012 Edition), Edward N. Zalta (ed.), available at https://plato.stanford.edu/archives/win2012/entries/probability-interpret/, last access in January 9th 2017.

[326] The example is based on the discussions of lawsuit number 0013902-43.2014.4.03.6100, which is awaiting trial at the Brazilian Federal Court of the Third Region.

The decision depends on the extent to which a given alternative will promote "protection from cancer" (intensity of interference), to the importance given to "protection from skin cancer" (abstract weight), and also about how sure we are that tanning beds actually cause (or increase the risk of) skin cancer (degree of reliability). Assuming that the abstract weight of both "protection from skin cancer" and "free enterprise" are the same, the decision will depend only upon intensity of interference and degree of reliability. The extent of promotion varies according to the alternative. Fully prohibiting tanning beds will promote "protection from skin cancer" to a great extent. Restricting and regulating tanning beds will promote the same principle to a lesser, but still significant, extent. The degree of reliability will depend upon the scientific studies that show a causal link between tanning beds and skin cancer. If those studies clearly establish a causal link, there is a stronger argument for the full prohibition (iii), but if the studies only indicate a possible link, the regulating alternative (ii) seems more appropriate.

It should be noted that, albeit dealing with consequences, rather than numeric probabilities (in percentages), the degree of reliability is presented by Alexy within a triadic ordinal scale, created by the German Constitutional Court: (i) sure consequence; (ii) plausible consequence; (iii) not evidently false consequence[327]. The use of an ordinal scale is the first sign of difficulties involving the evaluation of reliability. Notwithstanding the relevance of the *degree of reliability* to determine weight, both the example above and Alexy's discussion overlook relevant complexities in dealing with consequences.

First, there is a difference between the *degree of reliability of a premise*, and a *premise that states, with some degree of reliability, that some consequence will occur*. In the example described above, it was implied that either tanning beds caused cancer or not, and this statement could be more or less reliable. In other words, I assumed an absolute statement saying "tanning beds cause cancer", and this statement could be more or less reliable. But one could have a different statement saying that "there is a 70% chance that tanning beds cause cancer" and still evaluate how reliable this statement is. This happens because, even if a scientific study concludes something as "there is a 70% chance that tanning beds cause

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[327] ALEXY, 2008, p. 619, footnote 97.

cancer", more studies will need to be made to check the strength of such assessment, by replicating the same method or by using a different one. If we have different studies reaching similar conclusions, even if all of them have probabilistic conclusions, they tend to be more reliable. It all gets trickier, because it is possible to assign probabilities to the reliability of a set of studies, by performing meta-analysis and using statistical tools. On the other hand, it is possible to have a statement saying that some consequence will plausibly occur, without assigning a probability. And such statement could also be evaluated as being more or less reliable. Thus, when dealing with degrees of reliability, the assessment can be complicated by sequences of probability evaluations, which may be based in different types of scales (ordinal or cardinal).

Second, since principles are matters of degree, one decision may have different possible extents of promotion to the same principle. Some choice C may have a low chance of promoting X to a great extent, and a high chance of promoting it to a lesser, but still significant, extent. Take the example of skin cancer again. As far as our knowledge about cancer goes, the disease is not the necessary consequence of a single cause as in "If you use a tanning bed, you will get cancer". Many factors play a role in increasing the risk of skin cancer, ranging from genetics, stress levels, exposure to the sun, among others. Using tanning beds is one factor that increases risk. But there may be doubts about how much the risk is actually increased. It is not uncommon to find scientific studies whose finding is a stronger or weaker association between some cause and some consequence. For example, we may be sure (high reliability of the premise) that the use of tanning beds increases the risk of skin cancer to some extent, and have plausible reasons (medium reliability of the premise) to believe that the use of tanning beds increases the risk of skin cancer to a great extent. This trait complicates the question of how to evaluate the promotion or demotion of a principle, since the different levels of promotion and demotion need to be taken into account together somehow or, at least, ignored in a systematic and justified fashion.

Finally, some considerations about decision theory are in order. In such a theory, risk is the probability that some event will not happen or is not true, and *risk aversion* is the behavior of a decision-maker that tries to avoid taking risks (there are also risk neutral and risk-loving decision-makers). Alexy's 'Epistemic Law of Balancing' resembles a rule

guiding risk aversion, which could be written: "*As the demotion of some principle grows, the decision-maker should become more and more averse to risk*".

This interpretation may be sophisticated by considering the distinction between risk and uncertainty. In decision theory, *risk* is a quantifiable probability, susceptible of measurement, while *uncertainty* is not. As well as there is *risk aversion*, there is *uncertainty aversion*, usually called *ambiguity aversion*. It may be the case that actual decision-makers prefer taking risks rather than facing uncertainties[328], as in the English Proverb: "Better the devil you know, than the devil you don't". Should we take the 'Epistemic Law of Balancing' as a rule for risk aversion, for ambiguity aversion, or for both? If we are to avoid uncertainty, there is, then, the thorny problem of how to identify, or at least establish, procedures to identify such a situation when evaluating some policy. Statistical prediction has intrinsic limitations, since it is based on past events that follow some pattern that may not be repeated due to the variation of something which has not been taken into account. The financial crisis of 2008 is a good example of uncertainty that could not be avoided.

Finally, in any case, it is unclear how to scale risks and uncertainties in order for them to be considered in legal decisions. Should we use an ordinal scale like the German Constitutional Court? Are there cases in which numbers could be used? If so, how? Is it possible to convert numeric probabilities to an ordinal scale by some transformation rule?

The brief description of the complexities above is important for one to grasp the substantial difficulties that may arise whenever dealing with empirical consequences. They are relevant both to modelling legal reasoning and to defining institutional arrangements. To build a model to reason with consequences in Law, one has to consider how to deal with such complexities, even if the decision is to simplify the model by ignoring some of them. As for institutional design, one needs to consider the capability of the Judiciary to deal with factual matters that involve such levels of complexity.

The presentation of Alexy's Weight Formula is not yet complete. After presenting all variables, two questions arise: (i) how do we determine the actual value of each variable;

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[328] ELLSBERG, 1961.

and (ii) how are these variables related. Only by answering these questions will one be able to determine the weight of a principle in an actual case.

In order to answer the first question, I shall examine Alexy's discussion of the possible values of *intensity of interference*. He argues[329], based on argumentative practice, that the degrees of the intensity of interference may be *light, moderate* or *serious*, falling in a triadic scale. After presenting his scale, he acknowledges that a refinement is possible, but indicates that as the level of precision increases, by adding new possible values to the scale, the meaningfulness of our statements decreases[330]. Suppose each of the values are divided in three sub values, e.g., lightly serious, moderately serious, and seriously serious. It is easier to state the difference between serious and moderate, than between seriously serious and moderately serious. In spite of accepting the possibility of a more precise scale, Alexy explicitly rejects a cardinal (numerical) *continuum* scale going from 0 to 1[331], which amounts to rejecting an infinite degree of precision in our statements. But his idea of the triadic scale is not limited to intensity of interference. An analogous triadic scale, already shown, is used to represent the *degree of reliability* of empirical assumptions: *sure* consequence, *plausible* consequence, *not evidently false* consequence.

A triadic scale is also used to represent the *concrete weight*. The author, then, states that different numbers could be assigned to represent such a model[332]. While discussing the possibilities, he argues that a geometric progression sequence (e.g. *light* as 2^1, *moderate* as 2^2, *serious* as 2^3) would offer a better representation of a demoted principle's concrete weight than an arithmetic progression sequence (e.g. *light* as 2, *moderate* as 4, *serious* as 6). The reason is that a geometric progression would be able to represent the idea that the concrete weight of an actual interference grows more as the demotion becomes more intense (what is explained by the variation of the abstract weight).

The discussion of Alexy's triadic scales may be better understood and developed if we consider the Measurement Theory insights and scale types discussed above. Alexy is

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[329] ALEXY, 2008, p. 599/611.
[330] ALEXY, 2008, p. 610.
[331] ALEXY, 2008, p. 603.
[332] ALEXY, 2008, p. 605.

actually trying to present a model that can meaningfully represent how we argue about principles. A critical part of his model is the set of *ordinal scales* that have three scale values. It means that we may compare and order levels of intensity of interference, degree of reliability and concrete weight.

Nevertheless, *interval* or *ratio* scales do not seem adequate. We do not measure intensity of interference and attribute a number, as one does while measuring temperature or weight. This is a wrong depiction of how we proceed. Maybe, we could find adequate numbers to represent the variable's value, but only *after* we have already reached the case's solution. Furthermore, chances are that, in another case, we would not be willing to assign the same number to an identical situation of promotion or demotion, for the results would be unsatisfactory. This is why Alexy's discussion about numbers is inconclusive: he cannot establish a procedure to assign numbers whose outcomes are meaningful. At this point, numbers do not enhance our understanding, much to the contrary[333].

Finally, the relationship between variables is given by the Weight Formula, which is represented by a multiplication between each of the three variables. In Alexy's notation:

$$GP_{ij}C = \frac{IP_iC \times GP_iA \times SP_iC}{WP_jC \times GP_jA \times SP_jC}$$

IP_iC means the *intensity of interference* of the principle being demoted, while *WP_jC* means the intensity of interference of the principle being promoted. *GP_iA* and *GP_jA* means the *abstract weight* for each principle. *SP_iC* and *SP_jC* means the *degree of reliability* of the empirical assumptions for each principle. *GP_ijC* means the result of the balancing.

The notation is somewhat confusing, because multiplications and divisions would only make sense if one could meaningfully assign numbers for each variable. What could a "division between a light demotion of privacy and a moderate promotion of public safety" or a "multiplication between a moderate promotion of public safety and a plausible degree of reliability" mean? Furthermore, the division of the concrete weight of each principle itself

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[333] Giovanni Sartor also upholds this point. SARTOR, 2013, p. 11.

tells us nothing about the proportionality, unless there is some rule stating which results means a proportional outcome and those that means the opposite. Since we have no meaningful way to assign numbers to the value of each variable, it is difficult to make heads or tails out of the formula. Thus, the Weight Formula should not be taken as comprising proper multiplications or division. It only intends to represent that: (i) the concrete weight of a principle's promotion or demotion is the result of some interplay between the importance of the principle (abstract weight), the extent to which the principle is expected to be realized (intensity of interference), and the actual probabilities of it happening (degree of reliability); and (ii) that proportionality involves a comparison between concrete weights.

Alexy claims that the Weight Formula allows for cancelling two variables which have the same value, like in an actual multiplication. For example, if two principles X and Y, the former being promoted and the latter demoted, have the same abstract weight and degree of reliability, such variables may cancel each other, resulting in a simplified formula whose only relevant variable is the intensity of interference:

$$GP_{ij}C = \frac{IP_iC \times \cancel{GP_iA} \times \cancel{SP_iC}}{WP_jC \times \cancel{GP_jA} \times \cancel{SP_jC}}$$

$$GP_{ij}C = \frac{IP_iC}{WP_jC}$$

Although the idea seems to make sense, it only does whenever the values are the same (which may be debatable). For all the other cases, the aforementioned problems of interpretation persist. Therefore, this observation means only that not every variable will play the same part in all cases. The analysis may be focused in only one variable, for instance, intensity of interference.

A final extension of the Weight Formula envisioned by Alexy aims to represent cases with more than one principle being promoted or demoted[334]:

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[334] Alexy actually deals only with the hypothesis of the multiple promoted principles, but his question may be generalized to the cases of multiple demoted principles. ALEXY, 2008, footnote 64.

$$GP_{i-m}C = \frac{(IP_iC \times GP_iA \times SP_iC) + (...) + (WP_nC \times GP_nA \times SP_nC)}{(WP_jC \times GP_jA \times SP_jC) + (...) + (WP_mC \times GP_mA \times SP_mC)}$$

He observes that such an extension depends on the assumption that the concrete weight of the set of principles promoted or demoted is determined by the mere addition of the concrete weight of each principle in the set, letting unanswered whether this is the best representation of the legal treatment such cases should receive. This may be called an *assumption of independence*, for the addition would fail only if the presence of some principle somehow interfered in the concrete weight of another[335].

Again, since the values of variables are given in ordinal scales and not in numbers, it is not possible to properly refer to addition (an operation of interval scales), albeit one may recognize that more principles might produce more weight. To highlight the fact that one is not dealing with numbers, I will use the expression *accrual* of concrete weights (as in the accrual of arguments, Chapter I, Section I.2.A).

In spite of the imprecision of talking about addition, the assumption of independence might be justified. If somehow a principle X_1 being promoted would interfere in the concrete weight of another principle X_2 being promoted, such interference would already be considered in the determination of the concrete weight of X_2, for one evaluates the consequences of the lawmaker's measure as a whole. Suppose the lawmaker intends to increase the access to movies (X_1)[336]. The policy does so by subsidizing access to the internet, thus, enabling people to use streaming film services (instance of X_1). Two indirect consequences are that, with internet, people will have easy access to other forms of culture (e.g. music and literature) and to a wide array of tools for attaining knowledge in almost any area. Hence, the access to internet gives a boost to cultural promotion, since it facilitates the access to other forms of culture (other instance of X_1), and also promotes education (X_2). To evaluate the measure means to evaluate the whole picture and, thus, the interferences will be

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[335] SARTOR, 2013, explicitly assumes that the weight (utility impact in his terminology) of each principle is independent (Assumption 2) and endorses addition.
[336] Example inspired by the article by Alexandre Pacheco da Silva and Victor Nóbrega Luccas, *Picking the wrong winners: Evaluating a legal policy beyond the law* (not yet published).

considered in determining the concrete weight of each principle. If they have not been considered (e.g. ignoring the extra benefits of the policy for education), then, the representation of the consequences is faulty and must be amended. In other words, the interferences that may affect the accrual are considered in a previous step of the analysis, ensuring the assumption of independence soundness.

As a conclusion, Alexy's attempt of formalizing the Weight Formula must be rejected, but the ideas that motivated it are worth preserving, as a discussion of the meaningful statements one can make about balancing principles (optimization requirements) in the Law. A brief summary of Alexy's most relevant ideas may be presented as follows:

(i) Strict proportionality aims at determining if a measure adopted by the lawmaker is *preferable* to inaction. If a measure is preferable, it is said that the promoted principles *outweighs* the demoted principles in the concrete case. Thus, the overall value of a principle in an actual case, which justifies preference, is called *concrete weight*.

(ii) The determination of the *concrete weight* of a principle depends upon the following related variables: *intensity of interference*, *abstract weight* and *degree of reliability*. An increase in the value of any one of those variables produces an increase in the concrete weight. A decrease in the value of any one of those variables produces a decrease in the concrete weight.

(iii) The values assigned to the intensity of interference, degree of reliability and concrete weight belong to an *ordinal* scale.

(iv) Whenever there are multiple principles being promoted or multiple principles being demoted, the concrete weight of each principle is assumed to be *independent*, allowing for the *accrual* of their concrete weights.

Despite its valuable insights, the account of strict proportionality has notable shortcomings:

(i) May the values of abstract weight also be represented within an ordinal scale?

(ii) How do we argue to establish the value of a variable within an ordinal scale? For example, how do we argue that, in an actual case, a "interference in privacy is serious" or the "degree of reliability is plausible"?

(iii) How do we determine the concrete weight within an ordinal scale after we have established the value of the variables? For instance, if we have established that the intensity of interference is moderate, and the degree of reliability is of a sure consequence, may we conclude that the concrete weight is moderate?

(iv) If there are many principles being promoted or demoted, how do we determine the overall concrete weight of promotion or demotion after we have determined the concrete weight of each individual principle? In other words, how does the accrual of individual concrete weights impact the overall concrete weight?

After having presented Alexy's model of proportionality analysis, I will build argument schemes and try to show its strengths and weaknesses by discussing its application to a real hard case. The knowledge obtained by such discussion will, then, be used, along some theoretical and practical discussions to refine the model. Finally, I will make the refined model more precise, by representing each step of the test with reviewed argument schemes.

IV.2.4 Argument Schemes for Proportionality Analysis: a first version

Proportionality analysis may be modeled by argument schemes. In this section, I will present the first version of these schemes, based on Alexy's account and on the discussions presented above. Not every adjustment I proposed will be considered in this version, in order for the schemes to resemble Alexy's theory more closely. The schemes will be revised in Section IV.4.3 below; then, the remaining adjustments will be incorporated. Another reason why I have decided to present more than one version of the schemes is because this work intends to show how a model based on argument schemes can be built. By showing each

step of their construction, it will be easier to visualize what changed after the refinement discussions and the whole process will become clearer.

In the wording of the argument schemes, I will no longer use the term "principle" to refer to an optimization requirement, as Alexy has done. The term "*value*" will be used instead hereinafter, including the next sections of this Chapter. The terminology adjustment is due to the fact that "principle" is often used in a different sense than Alexy's, to refer to names of important rules, such as in "principle of legality" or in "principle of proportionality". "Value" will avoid confusion, while being capable of communicating the core idea, that its realization is a matter of degree.

Since proportionality analysis ordinarily deals with the judicial review of the legislation according to the constitution (or international treaties), the lawmaker's choices will be referred to as "laws". But the schemes could be modified to refer more generally to decisions, both legal or beyond the Law. In spite of being created in the context of judicial review, the structure of proportionality analysis fits perfectly into a wider framework of teleological reasoning. It is a procedure for multiple criteria decision making, which takes into consideration different types of appropriate outcomes, and tries to provide a *compensatory model* without resorting to cardinal scales, overcoming the limitation of the methods discussed in Section IV.1.2.

The warrants of all the schemes are absolute generalizations, and, as a consequence, if any of the premises are false, then the conclusion will also be false[337]. Thus, the argument schemes may be easily adapted to reach opposite conclusions, such as "Law L is suitable" and "Law L is not suitable". Additionally, following the convention set forth in this Section IV.2, I will continue to use X to refer to values being promoted and Y for values being demoted.

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[337] Since the arguments are deductive, they could be represented as definitions in first order predicate logic (or even in propositional logic). For example, one could write suitability as $\forall x \forall l\ (P(x).A(l,x)) \rightarrow S(l)$, in which $P(x)$ means value "x" is permissible, $A(l,x)$ means law "l" promotes value "x", and $S(l)$ means law "l" is suitable. Nevertheless, the argument scheme presentation is still useful to enhance precision without resorting to a full formal language, allowing the reconstruction and diagramming of real argumentation. In other words, the argument schemes help creating argumentation maps.

The first scheme to be presented is the most general one, whose conclusion is the validity of the law being discussed:

Proportionality Analysis – Core	
Warrant (strict)	If Law L is suitable, necessary, and strictly proportional, then, Law L is legally valid.
P₁ (Suitability)	Law L is suitable.
P₂ (Necessity)	Law L is minimally intrusive/maximally promotional/ nondominated
P₃ (Strict Proportionality)	Law L is strictly proportional.
Conclusion	Law L is legally valid.

Proportionality Analysis – Critical Questions	
Q₁ (Suitability)	Is Law L suitable? (*relative presumption*)
Q₂ (Necessity)	Is Law L minimally intrusive/maximally promotional/ nondominated? (*relative presumption*)
Q₃ (Strict Proportionality)	Is Law L strictly proportional? (*relative presumption*)

Each proposition of the scheme is the result of a step of proportionality analysis: P_1 corresponds to suitability, P_2 to necessity and P_3 to strict proportionality. In P_2, there are three distinct possibilities of conceiving the nondominance test, according to Section IV.2.2. Although all premises need to be advanced for an argument claiming legal validity of a Law L, I have modeled them as relative presumptions. This is because laws enacted by some authoritative lawmaking body of representatives have a *presumption of validity*, called a *presumption of constitutionality*, in the constitutional context. Thus, it is always the one seeking to strike down the law that will need to prove that it is not suitable, not necessary or not strictly proportional.

Nevertheless, the extent of the presumption of constitutionality can be discussed, and details about the burden of proof may be adjusted in a model. There is plenty of room for fine-grained adjustments. First, one may discuss exactly what propositions involved in

proportionality analysis are reached by the presumption[338]. Second, the *standard of proof* for each relevant proposition, which is not represented above, may also account for differences[339]. In any case, it must be considered that proportionality analysis only starts with the scheme above and the schemes about each step, but the debate may go a long way and contemplate many factual and legal discussions.

This last observation reminds us that it all happens in the context of a dialogue. When one looks at the schemes of proportionality analysis, it is easy to realize that the difficulty in applying them relies on establishing the truth of its premises, which is done by advancing other types of arguments. By its turn, these other arguments might also be represented by argument schemes, allowing the creation of a conceptual framework that makes every step of the reasoning explicit, and amenable to be represented in an argument map. In addition, the fact that all the proportionality analysis schemes have absolute generalizations means the defeasibility of the legal argumentation in such cases is given by the arguments that support the premises. So, what is the importance of such schemes, if the real argumentative challenge lies elsewhere? The argument schemes proposed are fundamental, because they provide the logical core of proportionality analysis, and organize all the discussions of a concrete case. They are the *backbone* of an argumentation map. The analysis of a real case in the next section will exemplify how this works. But, to complete the representation of this logical core, I must, first, present the argument schemes whose conclusions are the propositions of the main scheme above.

IV.2.4.A Suitability

The first step in proportionality analysis – suitability - may be presented as follows:

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[338] For instance, Joseph Eliot Magnet argues that some factual propositions involved in constitutionality analysis should be upheld by the government, otherwise the State could hide behind the presumption. MAGNET, 1980.
[339] For example, Edward Dawson argues for a beyond rational doubt standard of proof to overcome the presumption of constitutionality in the United States. DAWSON, 2013.

Suitability – Core	
Warrant (strict)	If value X is legally permissible and Law L promotes value X, then, Law L is suitable.
P$_1$ (Permissibility)	Value X is legally permissible.
P$_2$ (Effectiveness)	Law L promotes value X.
Conclusion	Law L is suitable.

Suitability – Critical Questions	
Q$_1$ (Permissibility)	Is Value X legally permissible? (*relative presumption*)
Q$_2$ (Effectiveness)	Does Law L really promote value X? (*relative presumption*)

The argument scheme as presented above draws upon the discussion of Section IV.2.1. It comprises permissibility and assumes it as a part of suitability analysis. It endorses the definition of suitability as effectiveness, excluding inconsequential choices. It considers that, for a law L to be suitable, it requires only one value X to be permissible and effectively promoted. Finally, the critical questions are modeled as to allow arguments whose conclusion is the denial of P$_1$ or P$_2$. Since the warrant of the scheme is an absolute generalization, rebuttals (direct attacks to the conclusion) and undercutting (attacks based in exceptions) are not possible. The argument may be attacked only by undermining it (attacks to the premises).

I have defined the premises as relative presumptions, following the same line of reasoning of this section's introduction, based on the presumption of validity. However, the same considerations about alternative models apply. For example, one could argue that at least P$_2$ should be considered an assumption, for, in a lawsuit, if someone claimed the invalidity of a piece of legislation on proportionality grounds, and questioned the promotion of X, the lawmaker would (or should) need to show evidence that led him to believe that the value X is effectively promoted by law L. Such alternative burden of proof assignment could be itself justified by a theoretical account. One could argue it prevents the government from

hiding unfounded decisions behind a presumption of validity[340]. A possible reason for the existence of a presumption of validity, although not the only one, is that lawmakers must offer rational grounds for their decisions. Therefore, when law L is being evaluated in judicial review, the government should be able to present its reasoning for adopting the piece of legislation. To demonstrate that a value can, as a matter of fact, be promoted, is at the very heart of such reasoning. Therefore, there is no motive to take it for granted.

The discussion about the alternative modelling could be much further detailed. Even if the burden changes, it remains an open question what should be the standard of proof for the government. It could be enough to present any argument based on evidence, and then the one attacking the legislation would have the burden of proving the evidence wrong, or providing stronger evidence to the contrary. Another possible controversial point would be about the need for the government to present arguments in legal matters, such as permissibility analysis, instead of factual matters. Bringing up such questions serves to emphasize that the model's details are dependent upon theoretical discussions (Chapter I, Second Claim). On the other hand, such discussions can benefit from the conceptual framework of argumentation, that allows precise statements about the consequences of a theoretical point of view (Chapter I, Third Claim).

Considering that more than one value may be permissible and effectively advanced by the Law L, one may use an almost identical scheme to verify whether the Law is suitable with regard to some value. Only a small adjustment in the conclusion is needed (warrant and critical questions are omitted):

Suitability (with regard to some value) – Core	
P₁ (Permissibility)	Value X is legally permissible.
P₂ (Effectiveness)	Law L promotes value X.
Conclusion	Law L is suitable <u>with regard to value X</u>.

This is important because only values which are permissible and effectively advanced will be considered in the following steps of the proportionality analysis. The conclusion of

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[340] As already mentioned in a footnote, this argument is advanced in MAGNET, 1980.

the second scheme may be easily connected to the conclusion of the first scheme, since the Law needs to be suitable with regard to only one value to be regarded as suitable in general. I provide two additional schemes that allow for this inference and establish the set of values in regard to which a Law is suitable (set of suitable values, for short) (warrant and critical questions are omitted).

From Suitability with regard to one value to General Suitability - Core	
P$_1$ (single suitability)	Law L is suitable with regard to value X.
Conclusion	Law L is suitable.

Set of Suitable Values – Core	
P$_1$	Law L is suitable with regard to value X$_1$.
P$_2$	Law L is suitable with regard to value X$_2$.
(…)	(…)
P$_n$	Law L is suitable with regard to value X$_n$.
Conclusion	Law L is suitable with regard to values (X$_1$, X$_2$, … X$_n$).

It should be highlighted that the suitability argument scheme above does not explicitly address the idea of a threshold of relevance for a value to be considered promoted (Section IV.2.1), but it could be part of Q$_2$, considering that a value is only promoted if it surpasses a certain threshold. And, although the argument scheme for the set of suitable values deals with the fact that many values may be evaluated, there is still no procedure here to ensure that all relevant values are evaluated. Finally, the argument schemes do not account for demoted values. Such problems will be dealt with in Sections IV.4.2 and IV.4.3 below.

IV.2.4.B Necessity

As discussed in Section IV.2.2 above, Alexy's *necessity* step aims to verify the existence of dominant alternatives. Three types of test have been devised, according to the type of dominance verification to be performed: *minimal intrusion*, *maximal promotion*, *nondominance*. I have also discussed the importance of two *closed world assumptions*, regarding the set of relevant values and the set of relevant alternatives. These assumptions

need to be incorporated in the argument schemes in order to allow the conclusion that the Law is minimally intrusive, maximally promotional or nondominated in general. Both will be manifest in the argument's premises. The former will be considered via propositions asserting the "*only relevant values*", and the latter by statements of the kind "*there is no alternative that…*".

The argument schemes below deal with each possible test for the case of only one value being promoted, and only one value being demoted (warrants and critical questions omitted):

Minimal Intrusion – Core	
P₁ (promoted values)	Law L only promotes value X
P₂ (demoted values)	Law L only demotes value Y.
P₃ (alternatives evaluation)	There is no alternative L_a that promotes value X at least to the same extent as Law L and demotes value Y less.
Conclusion	Law L is minimally intrusive.

Maximal Promotion – Core	
P₁ (promoted values)	Law L only promotes value X
P₂ (demoted values)	Law L only demotes value Y.
P₃ (alternatives evaluation)	There is no alternative L_a that demotes value Y at maximum to the same extent as Law L and promotes value X more.
Conclusion	Law L is maximally promotional.

Nondominance – Core	
P₁ (promoted values)	Law L only promotes value X
P₂ (demoted values)	Law L only demotes value Y.
P₃ (minimal intrusion)	There is no alternative L_a that promotes value X at least to the same extent as Law L and demotes value Y less.

P₄ (maximal promotion)	There is no alternative L_a that demotes value Y at maximum to the same extent as Law L and promotes value X more.
Conclusion	Law L is nondominated.

Again, the warrants of the schemes are absolute generalizations, for rebuttals and undercuts are not possible. The arguments may be attacked only by undermining them. Thus, the critical questions of each scheme may be modeled to allow undermining attacks for each premise. I have not assigned burdens of proof, but, in principle, one could treat all premises as relative presumptions, with the possibility of justified alternative models, as commented in the last section. As a brief example, one could argue that all premises starting with "there is no alternative…" should be ordinary propositions, because the government must show it has followed some procedure to be sure that it has considered all relevant alternatives. The analysis would, then, have to be complemented by argument schemes ascertaining compliance with such a procedure. Again, this will be discussed in Sections IV.4.2 below.

The argument schemes may be adapted for the cases in which multiple values are being promoted, demoted or both. In order to do this, one should adjust the premises of the argument schemes by using the definitions set forth in Section IV.2.2 above. I will not do this here, for the premises will become as long as the definitions, with no gain in understanding. It must only be clear that those definitions may be incorporated into argument schemes.

IV.2.4.C Strict Proportionality

The argument scheme for strict proportionality, in the case of only two opposing values, may be presented as follows:

Strict Proportionality (two values) – Core	
Warrant (strict)	If Law L promotes only value X, with weight W_x, and demotes only value Y, with weight W_y, and W_x is greater than W_y, then, Law L is strictly proportional.
P₁ (promoted values)	Law L only promotes value X

P₂ (demoted values)	Law L only demotes value Y.
P₃ (promoted weight)	Value X, as promoted by Law Y, has the concrete weight W_x.
P₄ (demoted weight)	Value Y, as demoted by Law L, has the concrete weight W_y.
P₅ (outweighing)	W_x is greater than W_y.
Conclusion	Law L is strictly proportional.

Strict Proportionality (two values) – Critical Questions	
Q₁ (promoted values)	Does the Law L promote other values than X?
Q₂ (demoted values)	Does the Law L demote other values than Y?
Q₃ (promoted weight)	Does value X really have the concrete weight W_x?
Q₄ (demoted weight)	Does value Y really have the concrete weight W_y?
Q₅ (outweighing)	Is W_x really greater than W_y?

Just as in the previous steps, the warrant of the scheme is an absolute generalization. As discussed above in Section IV.2.3, although the relevant variables to determine the concrete weight are known (intensity of interference, abstract weight and degree of reliability), there is neither a precise account of how to determine the value of the variables, nor of how to determine the concrete weight once given the values of the variables (except when only intensity of interference is relevant). Therefore, I still cannot provide means to model these reasoning operations.

Despite the fact that values are a matter of degree, each premise is either true or false. The problem of dealing with degrees is supposed to be solved in the definition of the concrete weights W_x according to some unspecified scale. The best way to provide these concrete weights will not necessarily be by some argument scheme, but possibly by using other tools (as recognized in Chapter I, Section I.4). The Weight Formula is Alexy's candidate, which I reject as insufficient for the reasons of Section IV.2.3. Notwithstanding, the results produced by these hypothetical tools will lead to a premise that fits an argument scheme, sustaining the centrality of schemes (also argued for in Section I.4).

It is also possible to build an argument scheme that deals with the possibility of multiple values being promoted or demoted, even though there is no precise account of how to represent the concrete weight of a set of values as an accrual of the concrete weights of the individual values.

Strict Proportionality (multiple values) – Core	
Warrant (strict)	If and only if Law L promotes only a set of values X, with weight W_x, and demotes only a set of values Y, with weight W_y, and W_x is greater than W_y, then Law L is strictly proportional.
P₁ (promoted values)	Law L promotes only the set of values X (X_1, …, X_n).
P₂ (demoted values)	Law L demotes only the set of values Y (Y_1, …, Y_n).
P₃ (promoted weight)	The set of values X, as promoted by Law L, has the concrete weight W_x.
P₄ (demoted weight)	The set of values Y, as demoted by Law L, has the concrete weight W_y.
P₅ (outweighing)	W_x is greater than W_y.
Conclusion	Law L is strictly proportional.

Strict Proportionality (two values) – Critical Questions	
Q₁ (promoted values)	Does the Law L promote other values than the elements of X?
Q₂ (demoted values)	Does the Law L demote other values than the elements of Y?
Q₃ (promoted weight)	Does the set of values X really have the concrete weight W_x?
Q₄ (demoted weight)	Does the set of values Y really have the concrete weight W_y?
Q₅ (outweighing)	Is W_x really greater than W_y?

Once again, the attacks are restricted to the premises and I have not assigned burdens of proof, all commentaries made before apply. In real instances of the argument, it is likely

that one will not define any value to W_x and W_y, and yet, state that W_x is greater than W_y, which is to say that the marginal gains of Law L outweigh the marginal losses.

Some concluding general remarks are noteworthy. By looking at the schemes, it is easy to tell that many other types of arguments are needed to carry out a discussion of proportionality analysis, by supporting or attacking the premises. As a consequence, my statement in this Chapter's introduction that the proportionality test must be considered into a larger conceptual framework of legal argumentation becomes clearer. The need for more tools, argument schemes or others, is evident too. Part of Alexy's theory limitations were made clear during the presentation of Sections IV.2.1, IV.2.2 and IV.2.3, but the activity of scheme building has highlighted that problems of burden of proof have been largely overlooked, in spite of them being critical for a proper argumentation model. At last, connections between abstract accounts of argumentation, theoretical discussions of different levels and modelling with argument schemes have been made explicit.

IV.3 Application of Proportionality Analysis

As argued in the beginning of this work (Chapter I, Fourth Claim), a good way to test the strengths and weaknesses of any model is trying to apply it to an actual case. Authors that study proportionality analysis, including Alexy himself, frequently make reference to real cases, in order to show the practical utility of the model and illustrate how it works[341]. Nevertheless, most of them are presented in a brief and simplified fashion, that conceals application difficulties and the fact that there is much more to argumentation than just the core of proportionality analysis. I shall present an extended example, aiming to avoid these problems. By discussing the details of application, it will be possible to refine our knowledge about the test; and, by showing the other arguments needed in an actual case, it will be possible to fit proportionality analysis in a wider argumentation framework.

A real and rich example of proportionality analysis is found in the case S.A.S. x France (Application 43835/2011, decision 1st July 2014) of the European Court of Human Rights (hereinafter, "ECHR"), which discussed whether the ban on wearing clothes designed

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[341] As stressed by SILVA, 2016.

to conceal the face in public places was in accordance with the European Convention on Human Rights (hereinafter, "Convention"). The ECHR analysed (in the merits) whether the ban violated the right to private life (Article 8 of the Convention) or the right to freedom of religion (Article 9 of the Convention). The mentioned articles state:

Article 8

1. Everyone has the right to respect for his private and family life, his home and his correspondence.

2. There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others."

Article 9

1. Everyone has the right to freedom of thought, conscience and religion; this right includes freedom to change his religion or belief and freedom, either alone or in community with others and in public or private, to manifest his religion or belief, in worship, teaching, practice and observance.

2. Freedom to manifest one's religion or beliefs shall be subject only to such limitations as are prescribed by law and are necessary in a democratic society in the interests of public safety, for the protection of public order, health or morals, or for the protection of the rights and freedoms of others."

It should be highlighted that Paragraph 2 of both articles establishes the conditions in which there might be interference or limitation to the rights to private life and freedom of religion. In both cases, the interference or limitation needs to be "*prescribed by law*" and "*necessary in a democratic society*". Furthermore, both paragraphs list the aims that may justify the interference or limitation. The ECHR finds that the list is exhaustive, according to the paragraph 113 of the decision. As a side note, throughout Section IV.3, I will often refer to the paragraphs of the decision in parenthesis, like this: (§ 113). This will make it easy for anyone to check my description of the Court's reasoning.

The State argued that the ban pursued legitimate aims, necessary in a democratic society, namely "public safety" and the "protection of the rights and freedoms of others". It also argued that there were three instances of rights and freedoms of others to be protected: equality between men and women; human dignity; and respect for the minimum requirements of life in society, also deemed requirements for "living together" (in French, "*vivre ensemble*").

The Court's assessment has been divided into the following steps, which verify the presence of the conditions for the limitation of Articles' 8 and 9 rights, and also carry out a version of a proportionality test:

(i) whether there has been an "interference" or a "limitation";
(ii) whether the measure is "prescribed by law";
(iii) whether there is a legitimate aim;
(iv) whether the measure is necessary in a democratic society.

The existence of a "limitation" or "interference" which was "prescribed by law" are readily recognized by the Court. The discussions of Alexy's suitability, necessity and strict proportionality are not found in the steps (i) and (ii). Thus, my analysis will focus on steps (iii) and (iv). Despite this, steps (i) and (ii) are relevant and will impact my revision of the proportionality test, as it will be made clear in Section IV.3.1.A. I will also briefly discuss them in the final conclusions, Section IV.3.3.

While discussing ECHR's proportionality test, I will show how each of these steps are related to Alexy's suitability, necessity and proportionality in a narrow sense. Immediately after the discussion of each step, I will build the corresponding argument map according to the conventions set forth in Chapter II, Section II.2.C, using the argument schemes modeled so far in this work. I take the Court to be a rational reasoner that follows the rules of legal argumentation, which are adequately modeled by the argument schemes.

The argument map will not be developed to its fullest, for there are many chains of arguments, and often it is not clear what type of argument the ECHR is trying to advance - which would require alternative versions of the map, according to different interpretations of the Court's reasoning. However, the map will be developed enough to show, in general, the utility of argument schemes, and, in particular, how the argument schemes for proportionality analysis function as the backbone of the argument map. My ultimate objective is to discuss the tools, and not to offer a complete analysis of the case.

In general, the map will look one-sided, for it was based on the Court's reasoning, and not on a dialogue between the parties. There will be exceptions, when the Court's report allows to reconstruct attacks to its own arguments, when I introduce some criticism to further discuss the argumentation model and the theoretical account of proportionality analysis, or during the analysis of the dissenting vote.

Despite of all being the Court's reasoning, I will identify by colors the arguments that ultimately support a point of view pro or contra the validity of the French Law. These arguments correspond to the position of each party to the lawsuit, although they might not be claimed by them. White elements represent the position of the State. Black elements represent the position of the citizen.

I will experiment with the reconstruction of arguments (briefly discussed in Chapter II, Section II.3.D). Sometimes, the wording of the propositions will be more formally structured. In other moments, it will look more natural or resemble the original text more closely. Some arguments will be merged together to simplify the reasoning. As long as it is reasonable, I will justify my options. Clarity is always paramount. But this work is not about reconstruction. The aim of experimenting is to stress the flexibility and difficulty of such activity. Existing general guidelines need much improvement to achieve a high level of standardization, what can only be done after extensive experimentation.

The decision is this case was not unanimous. Case analysis will begin with the reconstruction and mapping of the majority vote. After that, I will complement the map with the arguments obtained from the dissenting vote. At the end of each step, I will provide some

partial conclusions highlighting the important points regarding both argumentation tools and the theoretical knowledge about proportionality analysis.

The existence of divergence between the judges was one of the reasons to choose the case, for it amounts to a more challenging argument map. It was also relevant the fact that the Court went through every step of proportionality analysis. As for the merits, the theme is important and controversial (as one can see by reading the report made by the Court in the decision), and the presence of international law adds an extra layer of complexity. In other words, this is a *hard case*.

The case figured in the ECHR *Reports of Judgments and Decisions* of 2014, an annual publication containing a selection of the leading cases judged, according to key members of the Court[342]. I preferred the ECHR to the Brazilian Supreme Court, despite my acquaintance with the latter, due to its usual overabundance of separate votes and lack of uniform reasoning[343], which makes the decision too confusing. Also, the writing style of the Brazilian Supreme Court members also tends make the reconstruction of arguments more difficult[344].

IV.3.1 The Majority Vote

IV.3.1.A Suitability - Whether there is a legitimate aim

i. General Discussion

The suitability step is related to the ECHR question - whether there is a legitimate aim. The ECHR first analysed whether "public safety" should be considered a legitimate aim. The reasoning took two steps. First, the Court noted that "public safety" is one of the aims enumerated in Paragraph 2 of both Articles 8 and 9 of the Convention (§115). This

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[342] The Reports of Judgments and Decisions started in 1998 and may all be found in http://www.echr.coe.int/Pages/home.aspx?p=caselaw/reports&c=, last access in January, 6th, 2017.

[343] This is a sign and a cause of poor deliberative performance. This problem of the Brazilian Supreme Court is discussed in SILVA, 2013.

[344] I do not know any academic reference to that, but it is a truism in Brazilian legal community.

might be understood as a test to verify whether the goal is permissible. A goal would only be permissible if it is one of the aims stated in the aforementioned paragraphs.

In the second step, contrary to expectations, the Court did not consider whether the measure was able to advance the goal, as an effectiveness analysis would require. It assessed whether the government actually considered public safety as a justification to adopt the measure during the legislative process that led to it (§115):

> "(…) It further notes the Government's observation in this connection that the impugned ban on wearing, in public places, clothing designed to conceal the face satisfied the need to identify individuals in order to prevent danger for the safety of persons and property and to combat identity fraud. Having regard to the case file, it may admittedly be wondered whether the Law's drafters attached much weight to such concerns. It must nevertheless be observed that **the explanatory memorandum which accompanied the Bill indicated – albeit secondarily – that the practice of concealing the face "could also represent a danger for public safety in certain situations"** (see paragraph 25 above), and that the Constitutional Council noted that the legislature had been of the view that this practice might be dangerous for public safety (see paragraph 30 above). Similarly, in its study report of 25 March 2010, the Conseil d'État indicated that public safety might constitute a basis for prohibiting concealment of the face, but pointed out that this could be the case only in specific circumstances (see paragraphs 22-23 above). **Consequently, the Court accepts that, in adopting the impugned ban, the legislature sought to address questions of "public safety"** within the meaning of the second paragraphs of Articles 8 and 9 of the Convention." (emphasis added)

This indicates a new requirement for the proportionality test in judicial review: the values and goals to be considered in the analysis in favour of the measure must have been explicitly taken into consideration by the lawmaker before adopting the measure. For it could be the case that public safety only appeared as a justification during the judicial process. I acknowledge that the ECHR is not entirely clear about considering this as an actual requirement, since it does not say it explicitly. But, if this were not a requirement, then we should consider the piece of reasoning useless, which is not in accordance to basic text interpretation rules.

The requirement can be further refined by examining the continuation of the Court's reasoning, when analysing the second legitimate aim, "protection of rights and freedoms of others", and its three instances, argued by the State. It is worth noting that the three instances were explicitly stated in the 'explanatory memorandum' that accompanied the Bill when it was put to vote (§25), but "protection of rights and freedoms of others" was not explicitly stated there, nor in any of the descriptions made by the Court about the legislative history (§§15-27). On the other hand, "public order" was explicitly mentioned in the 'explanatory memorandum'. Given this scenario, the Court ruled (§117):

> "(…) As the Court has previously noted, these three values do not expressly correspond to any of the legitimate aims enumerated in the second paragraphs of Articles 8 and 9 of the Convention. Among those aims, the only ones that may be relevant in the present case, in relation to the values in question, are "public order" and the "protection of the rights and freedoms of others". The former is not, however, mentioned in Article 8 § 2. Moreover, **the Government did not refer to it either in their written observations or in their answer to the question put to them in that connection during the public hearing, preferring to refer solely to the "protection of the rights and freedoms of others". The Court will thus focus its examination on the latter "legitimate aim"**, as it did previously in the cases of Leyla Şahin and Ahmet Arslan and Others (both cited above, § 111 and § 43, respectively)" (emphasis added)

Although "protection of the rights and freedoms of others" was not explicitly stated in the legislative process, the Court found it should be examined. Then, it seems sufficient for an aim to be taken into consideration if some *instance* of it has been explicitly considered in the legislative process. At the same time, "public order" was not examined, because it was not referred to during judicial proceedings. The requirement could be revised as follows: *the values and goals to be considered in the analysis in favour of the measure, or at least some instance of them, must (i) have been explicitly taken into consideration by the lawmaker before adopting the measure and (ii) have been referred to as justification during the judicial proceedings.*

Some partial observations may be fruitful at this point. The sophistication of the requirement allows for a discussion concerning the instantiation of values, showing how increasingly complex a seemingly simple permissibility analysis can become. This is

relevant to the claim that the proportionality analysis only makes sense within a wider legal argumentation framework. Furthermore, the demand for taking a value, or its instance, into consideration before the adoption of the measure and during judicial proceedings requires the Government to actively and consistently engage in reasoning activities. This is relevant to characterize the institutional arrangement, by detailing what is expected from the lawmaker.

The Court, then, moved on to analyse the "protection of the rights and freedoms of others" as the other legitimate aim pursued by the State. However, the State actually argued about instances of such aim. So, in order to assess whether there was a legitimate aim, the Court first needed to evaluate whether "equality between men and women", "human dignity", and "living together" were instances of "protection of the rights and freedoms of others".

The ECHR first considered "equality between man and women", and recognized it as an instance of "protection of the rights and freedoms of others" (§119), having the potential to justify a limitation to the exercise of rights and freedoms enshrined in the Convention. In order to uphold such instantiation, the Court argued that it had already been recognized, *mutatis mutandis*, in precedent, namely: *Staatkundig Gereformeerde Partij v. the Netherlands* (Application 58369/2010, 10 July 2012). It also argued, in support of the instantiation, that the advancement of gender equality is a major goal in the member States of the Council of Europe. In turn, to support this statement, the ECHR cited the abovementioned precedent (see, especially, §72), as well as *Schuler-Zgraggen v. Switzerland*, 24 June 1993, § 67, Series A no. 263, and *Konstantin Markin v. Russia* (Application 30078/06, 22 March 2012, §127). As a consequence, the ECHR concluded that "equality between man and women" is a permissible goal.

The instantiation itself comprises complexity, since the Court offers two arguments to support it. First, it uses a precedent, *Staatkundig Gereformeerde Partij v. the Netherlands*. The application of the precedent to the current case, nevertheless, is not that simple, since the Court stresses the need for analogical reasoning, by using the expression "*mutatis mutandis*". Second, it points the "advancement of gender equality as a major goal in the

member States of the Council of Europe" as a factor which also supports the instantiation. The precise argument which the Court is trying to advance, though, is not clear, since it does not state why this factor matters. One possible interpretation is that the practice of the member States is positively relevant for something to count as a right or freedom. Since the advancement of gender equality is a major goal in the member States, their practice shows that they understand it as an important right or freedom. Thus, in the actual case, the member States' practice offers a reason to include gender equality as an instance of "protection of other rights and freedoms".

In spite of recognizing "equality between men and women" as an instance of "protection of the rights and freedoms of others", the Court decided that there was no legitimate aim in the actual case (§119):

> "*The Court takes the view, however, that **a State Party cannot invoke gender equality in order to ban a practice that is defended by women – such as the applicant – in the context of the exercise of the rights enshrined in those provisions**, unless it were to be understood that individuals could be protected on that basis from the exercise of their own fundamental rights and freedoms.*" (emphasis added)

It is worth asking if the reasoning of the Court can be considered an effectiveness analysis. Even if it is not using the expressions "promotion" or "demotion" of a value, the Court is, apparently, arguing that the ban does not promote gender equality. The conditions which allow us to conclude that there is no promotion of gender equality, however, are unclear. It may be the case that "restricting the exercise of a right by women" is sufficient to conclude that gender equality is not promoted. Or it may be the case that said condition is not sufficient, and "practice defended by women" must also be present. Since the Court does not clearly state the rule "If C, then does not promote gender equality" the doubt lingers on.

The following remark, "*unless it were to be understood...*", complicates the interpretation further. The Court may mean that what follows is an exceptional condition to the unstated rule "If C, then does not promote gender equality", or it might mean that if said rule is not adopted, then the consequence would be subscribing to the unacceptable paternalistic view that "*individuals could be protected on that basis (gender equality) from*

the exercise of their own fundamental rights and freedoms". Such difficulties of interpretation could be avoided if the potentially applicable argument schemes were considered, which would lead to a different wording, more precise from a technical argumentative perspective.

The ECHR, then, considered "dignity" and ruled that it is not a legitimate aim in the actual case (§120):

> "*Secondly, the Court takes the view that, **however essential it may be, respect for human dignity cannot legitimately justify a blanket ban on the wearing of the full-face veil in public places**. The Court is aware that the clothing in question is perceived as strange by many of those who observe it. It would point out, however, that it is the expression of a cultural identity which contributes to the pluralism that is inherent in democracy. It notes in this connection the variability of the notions of virtuousness and decency that are applied to the uncovering of the human body. Moreover, it does not have any evidence capable of leading it to consider that women who wear the full-face veil seek to express a form of contempt against those they encounter or otherwise to offend against the dignity of others.*" (emphasis added)

This piece of reasoning cannot be considered permissibility analysis, since the Court recognizes the essentiality of human dignity ("*however essential it may be, respect for human dignity…*"). It may be interpreted as effectiveness analysis, though. To properly understand it, one must consider it is a direct answer to the State's argument that the full-face veil harms the dignity of the women wearing it, since it is a sign of subservience (§17, report) or "effacement" (§82); and the dignity of others, since it amounts to a refusal of social exchange. The State's argument is summarized in the abovementioned explanatory memorandum (§25):

> "*Moreover, this form of public confinement, even in cases where it is voluntary or accepted, clearly contravenes the principle of respect for the dignity of the person. In addition, it is not only about the dignity of the individual who is confined in this manner, but also the dignity of others who share the same public space and who are thus treated as individuals from whom one must be protected by the refusal of any exchange, even if only visual.*"

Given the context, one shall interpret that the Court argues: first, that the use of the full-face veil does not harm the dignity of those using it, since it is an "*expression of a cultural identity*"; second, that the use of the full-face veil does not harm the dignity of others, for there is no evidence that it expresses any form of contempt, thus, it is not a refusal of social exchange. Hence, wearing the full-face veil does not demote human dignity, and, consequently, prohibiting it does not promote human dignity.

If we consider this to be the Court's conclusion, then there is no suitability with regard to dignity. In addition, it may be asked whether the Court is implying that the prohibition has the opposite effect, and actually demotes human dignity. The demotion could be justified by the fact that the prohibition denies the possibility of a person to express his or her cultural identity.

A final detail should be highlighted. Part of the State's concerns with the full-face veil is related to the possibility that women are not actually choosing to wear it, but do it under duress (§§17, 19 and 23). During the legislative process, the French National Advisory Commission on Human Rights has proposed to draw a policy focused on fighting this specific situation (§19). The Commission argued that a general prohibition could worsen the situation of women using the veil under duress, since it could lead them to be forced to stay at home (§18). Third party interveners refer to empirical research that uphold such hypothesis (§§95/97, 104) and also details the bad consequences of the ban for women who wear the full-face veil, even if not under duress.

The statement that the full-face veil is an expression of cultural identity could be challenged in the event someone is wearing it under duress. If someone is not doing something of his or her own volition, it can hardly be considered the "expression" of oneself. So, the Court's reasoning is not capable of attacking an argument based on the use of veil under duress. There are two possible solutions to this problem. First, to argue that, even for those using the veil under duress, dignity would be demoted, since these women would be forced to stay at home. Second, argue that the ban's demotion of dignity outweighs the promotion of dignity. Even assuming that the ban promotes dignity in the cases of duress, in most cases this does not happen, so the ban also demotes dignity by prohibiting an expression

of cultural identity. If the demotion of dignity outweighs the promotion of dignity, then the ban demotes dignity and is not suitable.

The second solution shows the interesting possibility that a suitability analysis may be the result of some special kind of balancing that happens when a decision both promotes and demotes the same value. There is neither contradiction nor incoherence, but it is only possible as the result of applying the same rule to different situations. One could discuss how to determine the weight of the demotion and the promotion in such a case. Each situation could be treated as different values to be promoted or demoted, and the variables of the 'Weight Formula' might be applied. Above, we considered only the number of cases of each type, which seems relevant to establish the intensity of interference. But other variables may be relevant. Someone living under duress has arguably less dignity than one who lives freely. Thus, the situation of those under duress has more abstract weight than the situation of someone who lives freely. This is in accordance to the 'Law of Diminishing Returns': the smaller the amount of dignity, the more significant its improvement is. The likelihood of the consequences also looks different. The ban certainly demotes the dignity of women who want to express themselves, but one could ask about the odds of someone's situation under duress actually improving. This takes us back to the argument that, in fact, women would be forced to stay at home.

This interpretation raises the question of what could be considered a demotion of dignity in relation to other values. If one considers the ban demotes dignity, it must be clear whether dignity is demoted alongside private life and freedom of religion, or if it is a more abstract value comprising them both. The assessment of the necessity step and of strict proportionality will surely change if one (dignity) or three (private life, freedom of religion and dignity) values are being demoted. A mistake could lead to *double counting* some value. If dignity is nothing more than an abstraction of the other two values, considering there are three demoted values will produce a double count of the weight of demoted values.

In any event, the Court does not advance any of the arguments above to deal with the cases of duress. The question is left unanswered. Nevertheless, when it says that a "*blanket*

ban" cannot be justified, it seems to be implying that a different policy, focused on fighting duress, could possibly be justified by human dignity.

Finally, the ECHR considered whether "living together" should be considered a legitimate aim and gave a positive answer (§§121/122):

> "*The Court takes into account the respondent State's point that the face plays an important role in social interaction. It can understand the view that individuals who are present in places open to all may not wish to see practices or attitudes developing there which would fundamentally call into question the possibility of open interpersonal relationships, which, by virtue of an established consensus, forms an indispensable element of community life within the society in question. **The Court is therefore able to accept that the barrier raised against others by a veil concealing the face is perceived by the respondent State as breaching the right of others to live in a space of socialisation which makes living together easier**. That being said, in view of the flexibility of the notion of "living together" and the resulting risk of abuse, the Court must engage in a careful examination of the necessity of the impugned limitation.*" (emphasis added)

The Court argued that the veil breaches the "*right of others to live in a space of socialisation which makes living together easier*". However, the Court is in the process of balancing and, according to the terminology used until now, one balances values. Thus, the alleged "right" may be interpreted as an instance or a more precise definition of the value "*living together*". The paragraph may be interpreted as carrying out effectiveness analysis, where it is argued that the ban promotes the value of "*living in a space of socialisation which makes living together easier*" (hereinafter I will use "living together" for short, with this meaning).

Nevertheless, the use of "right" has an explanation. The State argued that the value "living together" is an instance of the legitimate aim "protection of rights and freedoms of others". The expression "*right of others to live in a space of socialisation which makes living together easier*" solves the problem of arguing for the necessary instantiation, for if the State aims at protecting the "*right of others to…*" then it clearly has the legitimate aim of "protection of rights or freedoms of others". Hence, to preserve technicality, one must assume that the Court is implicitly claiming that the word "rights" of the expression

"protection of rights and freedoms of others" found in Articles 8 and 9, might mean scalable "values".

The suitability analysis of each relevant value intended to be promoted by the ban may be summarized as follows. I have highlighted whenever the analysis was not carried out by the Court, or it was just left implicit. If the Court considered there was a legitimate aim, it is assumed that both permissibility and effectiveness are present, even if there was no actual discussion:

Public Safety
Permissible: Yes
Effective: Yes (not discussed)

Public Order
Permissible: No
Effective: (not discussed)

Protection of rights and freedoms of others
Equality between man and women
Permissible: Yes
Effective: No
Dignity
Permissible: Yes (implicit)
Effective: No
Living Together
Permissible: Yes (implicit)
Effective: Yes

ii. Argument Map

Although the question is whether the Law is suitable in general, I will examine each value separately, as the Court did, using the argument scheme for "Suitability with regard to

some value", presented above (Section IV.2.4). Whenever permissibility or effectiveness analysis are not discussed, I will not represent arguments supporting such premises, for it is assumed that the Court implicitly considers that the relevant value is permissible or effectively promoted.

The Court first discussed public safety and concluded that the Law is suitable with regard to it. The Court argued that the value is legally permissible, but did not discuss whether it was effectively promoted by the ban. To build an argument map, one should start from the argument that supports the ultimate conclusion of the discussion, which is, in this case, that the French Law nº 2010-1192 is suitable with regard to public safety (I will use just "<u>French Law</u>", for convenience):

Argument A - The French Law is suitable with regard to Public Safety

P_1. Public safety is legally permissible.

P_2. The French Law promotes public safety. (implicit)

C_1. The French Law is suitable with regard to public safety.

While proposition P_2 is an implicit assumption, P_1 was backed up by an argument for the legal permissibility of public safety, which may be reconstructed as follows:

Argument B - Public Safety is legally permissible

P_3. If a value is explicitly laid down in the Paragraph 2 of Article 8 of the Convention as being able to restrict "private life", explicitly laid down in the Paragraph 2 of Article 9 as being able to restrict "freedom of religion", was addressed by the legislature before the adoption of Law L, and was addressed by Government in Court, then it is legally permissible. (implicit)

P_4. Public Safety is one of the values laid down in paragraph 2 of Article 8 of the Convention.

P_5. Public Safety is one of the values laid down in paragraph 2 of Article 9 of the Convention.

P_6. Public safety was a value addressed by the legislature.

P_7. Public safety was a value addressed by the Government in Court. (implicit)

C₂=P₁. Public safety is legally permissible.

The first proposition, P_3, states a rule to establish whether a value can be considered legally permissible for the purposes of the analysis. It was not stated by the ECHR, so it is implicit. For this reason, I have tried to devise a rule whose conditions are as close as possible to the propositions which were advanced. For instance, P_3 says that a value must be "*explicitly laid down in the Convention as being able to restrict…*", but one could discuss the possibility of non-explicit values that arise from the Convention. I have not stated whether P_3 is a strict or defeasible rule, for the Court is not clear in this regard. Nonetheless, in a cautious approach, one could follow the policy of considering formulations of legal rules defeasible, unless there is reason to the contrary (as discussed in the beginning of Section IV.2). And, since P_3 is a legal rule, I have modeled it as a premise and not a rule of inference.

The conditions affirmed by propositions P_4 and P_5 are relevant because Articles 8 and 9 of the Convention enshrine the rights being discussed, and Paragraph 2 of both articles explicitly lists the aims that may limit rights protected therein. Since both "private life" and "freedom of religion" are demoted, if a value cannot restrict any of them, it is not legally permissible. P_6 and P_7 are there due to the interpretation that the Court requires the value to have been explicitly taken into consideration by the lawmaker before adopting the measure, and referred to as a justification for the measure during judicial proceedings. P_7 is not explicitly stated, but I assume it to be implicitly recognized by the Court. On the other hand, P_6 is supported by an argument which refers to documents of French Law's nº 2010-1192 legislative history:

Argument C - The legislature addressed matters of public safety
P_8. The explanatory memorandum which accompanied the Bill indicated – albeit secondarily – that the practice of concealing the face "could also represent a danger for public safety in certain situations".
P_9. The Constitutional Council noted that the legislature had been of the view that this practice might be dangerous for public safety.

P$_{10}$. In its study report of 25 March 2010, the Conseil d'État indicated that public safety might constitute a basis for prohibiting concealment of the face, but pointed out that this could be the case only in specific circumstances.

C$_3$=P$_6$. Consequently, the Court accepts that, in adopting the impugned ban, the legislature sought to address questions of "public safety".

The Court is not clear whether P$_8$, P$_9$ and P$_{10}$ are all necessary to the conclusion C$_3$, or just a subset of them would be enough (e.g. each proposition alone would allow the conclusion). Thereby, I have not presented a rule of inference, nor a rule inscribed in a premise. Following the parsimony rule of argument reconstruction, I preserved the closest structure to the Court's utterance. The wording of P$_6$ is not identical to C$_3$, as it would be recommended, but is clear enough that the meaning is the same. In comparison to argument B, I have made less textual transformation.

Finally, the argument map for the French Law's suitability with regard to public safety can be represented in the diagram below:

Majority Vote – Suitability (Public Safety)
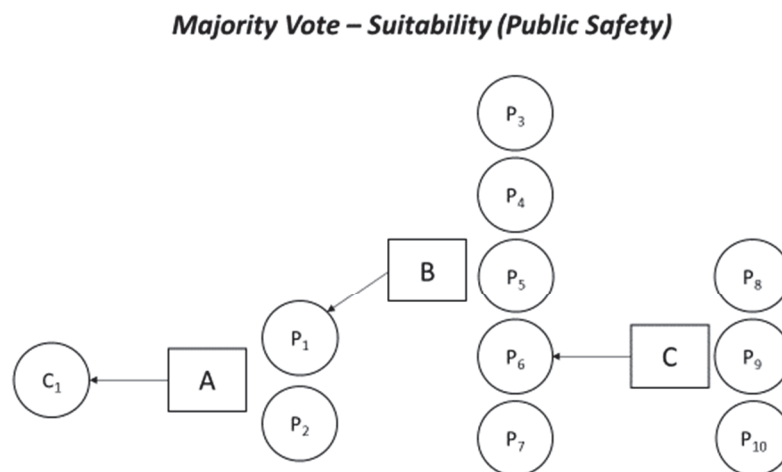
Public order was the second value considered by the Court. It was deemed not permissible, because it was not addressed by the French Government in Court. Furthermore,

it was not one of the aims that could limit the right to private life, according to Article 8, Paragraph 2 of the Convention. The first argument can be represented as follows:

Argument A - The French Law is not suitable with regard to Public Order

P_1. Public order is not legally permissible.

C_1. The French Law is not suitable with regard to public order.

Since the denial of legal permissibility is enough to conclude against suitability, and effectiveness was not discussed by the Court, I will not present the second proposition of the argument scheme model.

It should be stressed that the legal permissibility of the public order was evaluated considering that two different values are being demoted, "private life" and "freedom of religion". These values cannot be restricted by any other values, but only by those enumerated as aims in the paragraph 2 of articles 8 and 9 of the Convention. As a consequence, if a value allegedly promoted by the legislation was not enumerated in any of said provisions, it would not be legally permissible. This is important to understand the argument below:

Argument B - Public Order is not legally permissible (Article 8 – Right to Private Life)

P_2. If a value is not explicitly laid down in the Paragraph 2 of Article 8 of the Convention as being able to restrict "private life", or not explicitly laid down in the Paragraph 2 of Article 9 as being able to restrict "freedom of religion", or was not addressed by the legislature before the adoption of Law L, or was not addressed by Government in Court, then it is not legally permissible.

P_3. Public Order is not one of the values laid down in paragraph 2 of Article 8 of the Convention.

P_4. Public Order is one of the values laid down in paragraph 2 of Article 9 of the Convention.

P_5. Public Order was addressed by the legislature.

P_6. Public Order was not addressed by the Government in Court.

$C_2=P_1$. Public Order is not legally permissible.

P_2 actually represents the same rule stated in the proposition P_3 from the discussion about Public Safety, but in a form that leads to the opposite conclusion. The conjoint reading of these propositions implies that the conditions in the antecedent of the rule are considered necessary to obtain legal permissibility. The argument map is represented in the following diagram:

Majority Vote – Suitability (Public Order)
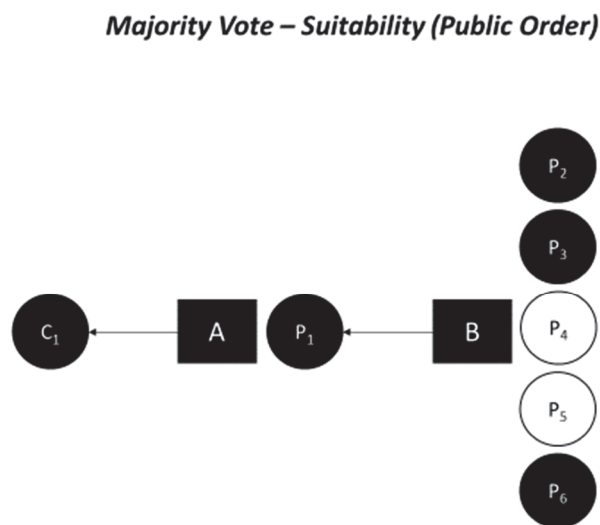
After, the Court discussed three values which may be considered instances of the abstract value "protection of rights and freedoms of others". I will build the map for each one of the instances, considering separately the discussion whether each value is a possible instance of "protection of rights and freedoms of others", and whether the value is legally permissible or effectively promoted by French Law nº 2010-1192. To make the argument map simpler, I will not represent the arguments which would conclude that the "protection of rights and freedoms of others" is legally permissible and, therefore, an instance of it is also legally permissible. An argument concluding that a value is an instance of "protection of rights and freedoms of others" will automatically be considered as supporting legal permissibility. Nor will I show that the instances of the abstract value also comply with the

requirements of being addressed by the legislature and by the French Government in Court. I will focus only on the instantiation and effectiveness discussions.

The equality between men and women (or simply gender equality) was the first value to be addressed. The Court concluded that it is an instance of "protection of rights and freedoms of others", but understood that the State's measure does not promote it.

Argument A - The French Law is not suitable with regard to Gender Equality

P_1. Gender equality is legally permissible.

P_2. The French Law does not promote gender equality.

C_1. The French Law is not suitable with regard to gender equality.

The Court seems to offer two arguments to uphold that gender equality is an instance of "protection of rights and freedoms of others", by citing a precedent and arguing that gender equality is a major goal of the member States of the Council of Europe. However, as already noted, the precise nature of those arguments is not clear. I shall further detail the problem.

As already discussed in Chapter III, the argument scheme one intends to apply when citing a precedent is often elusive. It may be the case that one is applying a legal rule set forth in the precedent (Argument Scheme for Norm Application), but it also may be that one is arguing that both situations are essentially similar, thus, the decision must be the same (Argument Scheme for the strict use of precedent). The Court seems to apply the Argument Scheme for the strict use of precedent, for it uses the expression "*mutatis mutandis*" (once the necessary changes have been observed), which is typical of discussions about case similarities. Then, the argument could be represented as follows:

Argument B.1 - Gender Equality is an instance of Protection of Rights and Freedoms of Others - Precedent (Strict use of Precedent)

P_3. Staatkundig Gereformeerde Partij v. the Netherlands (Application 58369/2010, 10 July 2012) decided that Gender Equality is an instance of "protection of rights

and freedoms of others" within the meaning of Paragraph 2 of both Articles 8 and 9 of the Convention.

P₄. The present case is essentially similar to Staatkundig.

C₂=P₁. Thus, Gender Equality should be considered an instance of "protection of rights and freedoms of others".

The difficulties in sustaining this interpretation of the argument arise because the Court neither explicitly affirms P₃, nor explains the similarities and differences between cases (P₄). Actually, the Court does not even tell what *Staatkundig Gereformeerde Partij v. the Netherlands* is about. In addition, to consider gender equality an instance of "protection of rights and freedoms of others" appears to be a matter of defining a relation between legal concepts, something independent of the facts of the case.

The alternative interpretation of the argument is that it applies a definitional rule about legal concepts which was established in the precedent. The alternative representation of the argument is found below:

Argument B.2 - Gender Equality is an instance of Protection of Rights and Freedoms of Others – Precedent (Norm Application)

P₃. Staatkundig Gereformeerde Partij v. the Netherlands (Application 58369/2010, 10 July 2012) established the definitional rule, that if it is the case of gender equality, then it should be considered an instance of "protection of rights and freedoms of others" within the meaning of Paragraph 2 of both Articles 8 and 9 of the Convention.

P₄. It is the case of Gender Equality.

C₂=P₁. Then, Gender Equality should be considered an instance of "protection of rights and freedoms of others".

The other argument in favor of P₁ above also bears competing interpretations. It is not clear how the fact of gender equality being a major goal in the member States of the Council of Europe works as an argument in favor of considering the value an instance of "protection of rights and freedoms of others". On the one hand, the Court may be meaning

to apply a rule according to which, if something is a major goal in the abovementioned sense, then it should be considered a right or a freedom to be protected within the meaning of Paragraph 2 of both Articles 8 and 9 of the Convention. On the other hand, the Court may consider that any major goal is something desirable and this is a reason, although not definitive, to interpret it as a right or freedom to be protected within the meaning of the aforementioned articles (Argument from Consequences). Both the alternatives may be found represented below:

Argument C.1 - Gender Equality is an instance of Protection of Rights and Freedoms of Others – Major Goal for the Member States of the Council of Europe (Norm Application)

P_5. If something is a major goal for the member States of the Council of Europe, then it is a right or a freedom to be protected within the meaning of Paragraph 2 of both Articles 8 and 9 of the Convention

P_6. Gender Equality is a major goal for the Member States of the Council of Europe.

$C_2=P_1$. Then, Gender Equality should be considered an instance of "protection of rights and freedoms of others".

Argument C.2 - Gender Equality is an instance of Protection of Rights and Freedoms of Others – Major Goal for the Member States of the Council of Europe (Argument from Consequences)

P_5. To interpret Gender Equality as a right or a freedom to be protected within the meaning of Paragraph 2 of both Articles 8 and 9 of the Convention will enhance its promotion.

P_6. A major goal for the member States of the Council of Europe is something desirable.

P_7 Gender Equality is a major goal for the Member States of the Council of Europe.

$C_2=P_1$. Then, Gender Equality should be considered an instance of "protection of rights and freedoms of others".

The arguments B and C, in any of their versions, are used to ultimately support P_1 of argument A, that gender equality is legally permissible.

The majority also argued that the French Law does not promote gender equality. It seems that they applied some definitional rule by which, if a law restricts the rights of women, then, gender equality is not promoted. Details about such a rule are unclear. Maybe the fact that the practice is defended by women is relevant, and it is possible that the sentence starting with "*unless…*" amounts to an exception. Since the type of argument is the same, I just present one possible reconstruction, the most simple. I start from P_8, due to the possibility of argument C having three premises:

Argument D – The French Law does not promote Gender Equality

P_8. If a law restricts the rights of women, then it does not promote Gender Equality.

P_9. The French Law restricts the rights of women, namely, Private Life and Freedom of Religion.

$C_3=P_2$. Thus, the French Law does not promote Gender Equality.

The argument map of the suitability with regard to gender equality may be found below. I am only showing propositions for argument A, since all other arguments only uphold P_1 or attack P_2 from argument A, and arguments B and C have two different versions with varying number of propositions. The conclusions of Argument B and C lead directly to P1 because I am skipping the reasoning from being an instance of "protection of rights and freedoms of others" to being legally permissible.

Majority Vote – Suitability (Gender Equality)
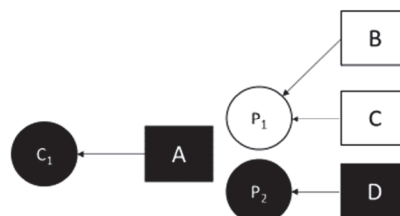
The next step is the map about dignity. In this part, following the discussion above, the reasoning of the Court is an explicit answer to arguments by the State. So, I have reconstructed the arguments aiming to emphasise the dialogue. Once more, it starts with the argument about suitability, but as advocated by the State:

Argument A - The French Law is suitable with regard to Dignity

P_1. Dignity is legally permissible.

P_2. The French Law promotes Dignity.

C_1. The French Law is suitable with regard to Dignity.

P_2 is supported by two different arguments, based on the grounds that the full-face veil harms the dignity of those wearing it and of others. Both apply definitional rules:

Argument B – Full-face veil harms the dignity of those wearing it

P_3. If someone is made subservient, then Dignity is demoted.

P_4. The full-face veil makes the women wearing it subservient.

P_5. The French Law bans the full-face veil.

$C_2=P_2$. The French Law promotes Dignity.

According to the ECHR's report, the State argued that the full-face veil is a form of "*subservience*" and of "*effacement*" (§§17 and 82). I have simplified it all as "making someone subservient". It should also be stressed that to remove a cause of demotion of a value equals to promote a value. For the sake of simplification, the argument about the relation between demotion and promotion was not represented in the argument map.

Argument C – Full-face veil harms the dignity of others

P_6. If someone refuses social exchange, then Dignity is demoted.

P_7. The full-face veil implies the refusal of social exchange by those wearing it.

P_5. The French Law bans the full-face veil.

$C_3=P_2$. The French Law promotes Dignity.

Again, the "refusal of social exchange" is a simplification. The State argued, in reality, the problem is that the others who "*share the same public space*" are "*treated as individuals from whom one must be protected by the refusal of any exchange, if only visual*" (§25, explanatory memorandum).

The ECHR rejects arguments B and C, by reinterpreting the practice of wearing the full-face veil. According to the Court, it is an expression of cultural identity: not a sign of subservience, nor a form of contempt against others by the refusal of social exchange. The argument can be reconstructed as a counterargument to proposition P_4, premise of Argument B, based on the application of a definitional rule about the practice of wearing the veil:

Argument D – Full-face veil is an expression of cultural identity

P_8. If something is an expression of cultural identity, then people wearing it are not being subservient. (implicit)

P_9. The full-face veil is an expression of cultural identity of the women wearing it.

C_4*P_4. The full-face does not make the women wearing it subservient.

It should be stressed that the actual argument is an enthymeme and the rule being applied, represented by P_8, has been left implicit. Following the guideline of parsimony, I have reconstructed the rule as narrowly as possible. The Court also mentions the "*variability of the notions of virtuousness and decency that are applied to the uncovering of the human body*" (§120), but the role this proposition should play in the argumentation is too unclear for me to represent it in any argument.

The Court's appraisal of argument C should be considered a procedural objection, in which the standard of proof for proposition P_7 is not satisfied. It is argued that the State "*does not have any <u>evidence</u> capable of leading it to consider that women who wear the full-face veil seek to express a form of contempt against those they encounter or otherwise to offend against the dignity of other*" (no underlines in the original) (§120). In order for argument's C support to be removed, it must be implied that the State had the burden of providing support to P_7. In other words, P_7 is an ordinary proposition, according to the classification

of burden of proof. Since the State failed to provide any evidence to support P_7, it must be considered false, and, thus, the support of Argument C to $C_3=P_2$ is removed.

I will not provide a reconstruction of this piece of reasoning, for it involves meta-argumentation and, in the limited scope of this work, I have not provided argument schemes, nor diagramming techniques to deal with this situation. The analysis above, however, is sufficient to explain what has happened using the conceptual framework of Chapter II. And, to avoid the map being incomplete, I will add an informal reference to the objection.

While discussing the suitability of dignity, I highlighted the fact that it is argued that some women wear the full-face veil under duress, a detail reported by the ECHR, but not taken into consideration in the analysis of the case merits. Although I will not build a diagram on this particular discussion, I want to show how it poses difficulties which may demand new argument schemes or other tools. Take argument E below, in its version E.1:

Argument E.1 – Wearing the full-face veil under duress harms dignity
P_{10}. If someone is forced to do something under duress, then Dignity is demoted.
P_{11}. Some women are forced to use the full-face veil under duress.
P_5. The French Law bans the full-face veil.
$C_5=P_2$. The French Law promotes Dignity.

Intuitively, in natural language, the reconstruction of the argument seems fine. But, when one tries to fit it into an argument scheme, difficulties arise. Suppose this argument is a rule application. Either the rule's conclusions are obtained or not. It may be the case that the rules conditions are not well-conceived (including missing exceptions), or that some condition is not present. But one does not simply attack the conclusion directly (as discussed in Chapter 2, Sections II.2.A and II.2.B).

However, it is possible to conceive an attack to argument E that is directed at its conclusion. Intuitively, one would say that there are many women that do not use the full-face veil under duress. Not allowing them to wear what they want demotes dignity. If the demotion is stronger than the promotion, then the French Law actually demotes dignity,

instead of promoting it. The argument attacks the conclusion, not the premises. The explanation for the existence of such a rebuttal is that the conclusion is taken to be the promotion of dignity "to some extent", and not only promotion, full stop. Propositions could be amended to reflect the scalable nature of the conclusion. Assume a scale of low, medium and high promotion or demotion:

Argument E.2 – Wearing the full-face veil under duress harms dignity to a medium extent

P_{10}. If some people are forced to do something under duress, then Dignity is demoted to a medium extent.

P_{11}. Some women are forced to use the full-face veil under duress.

P_5. The French Law bans the full-face veil.

C_5. The French Law promotes Dignity to a medium extent.

Now, the rebuttal could be represented as the argument F below:

Argument F – Not being allowed to wear the full-face willingly harms dignity to a high extent

P_{12}. If many people are not allowed to wear the full-face veil willingly, then Dignity is demoted to a high extent.

P_{13}. The French Law forbids many women to wear the full-face veil willingly.

C_6. The French Law demotes Dignity to a high extent.

There is a rebuttal because C_5 and C_6 are contraries, they cannot both be true at the same time. But one would not want to choose between them. The intuitive description would consider that the French Law has both positive and negative effects on dignity and, by comparing them, one is able to reach the overall conclusion: that the French Law demotes dignity, since it demotes more than it promotes.

The arguments E and F are connected to discussions about determining the values' weight. P_{10} and P_{12} establish the intensity of interference to dignity, and could be further supported by arguments. The overall conclusion is obvious enough, but if one were to define

an extent of promotion, or a weight, then a clear formula would be needed, stating, for example, that the difference of promoting to a medium extent and demoting to a high extent equals to demoting to a low extent. Tools other than argument schemes, more similar to Alexy's 'Weight Formula', could be developed to help in this regard.

An alternative legal theoretical account could simply consider there are no attacks to argument E, for the other effects of the French Law do not demote dignity, but the values of "private life" and "freedom of religion". Argument E would be successful, and the French Law would be suitable with regard to dignity. But it all depends on a material account of what constitutes each value, especially if dignity can be conceived as something separate from freedom of religion and private life. For the next steps of balancing such a knowledge is critical to avoid double weighing.

The argument map for dignity, excluding the arguments about wearing the full-face veil under duress (arguments E and F), is as follows:

Majority Vote – Suitability (Dignity)
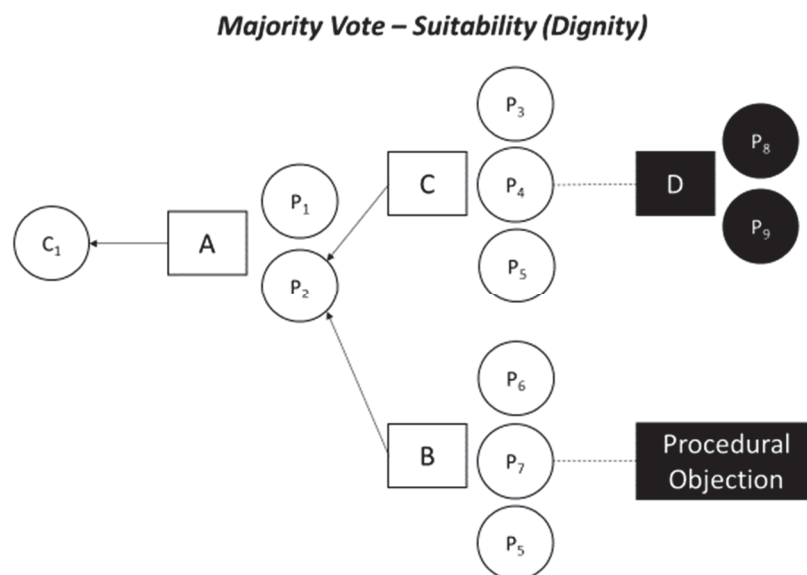
Despite C_1 being painted white, the Court's conclusion is that dignity is not suitable. The color just identifies the sides of the debate, not the winning argument. C_1 is white in this case just because the map was initiated with the State's argument (Argument A), and not with the majority's argument.

The map also reveals that either the burden of proof allocation of the Scheme for Suitability is not upheld by the ECHR, or that its reasoning is flawed. This is because the majority attacked the arguments that supported P_2, but not the premise directly. If P_2 is a relative presumption, as defined in the scheme, it must be considered true, since there are no arguments attacking it. Since, still according to the scheme, P_1 is another relative presumption which received no attacks, the evaluation of the map would lead C_1 to be considered true. Therefore, maybe a scheme endorsed by the practice of the ECHR would consider that effectiveness is an assumption or an ordinary proposition, that must be supported by the State (a possibility entertained in Section IV.2.4).

Finally, the ECHR evaluated living together and concluded that the French Law is suitable with regard to it. Permissibility was left implicit, including the instantiation, and only one straightforward argument for effectiveness was offered. It should be remembered that "living together" is a short version of "*living in a space of socialisation which makes living together easier*" (§122).

Argument A - The French Law is suitable with regard to Living Together

P_1. Living Together is legally permissible. (implicit)

P_2. The French Law promotes Living Together.

C_1. The French Law is suitable with regard to Living Together.

The argument supporting P_2 may be represented as an application of a definitional rule:

Argument B – The French Law promotes living together

P_3. If someone conceals their faces, then Living Together is demoted.

P_4. The women wearing the full-face veil conceal their faces.

P_5. The French Law bans the full-face veil.

$C_2=P_2$. The French Law promotes Living Together.

The reconstruction simplifies the language of the Court, which does not explicitly say that living together is demoted, but says it is "*able to accept that the barrier raised against others by a veil concealing the face is perceived by the respondent State*" as demoting the value of living together (§122). The wording could be interpreted as conceding the State some freedom to define what it believes to be a demotion of a value. The precise nature or consequences of this deference, however, are not defined, reason why it is ignored in the reconstruction.

The argument map of this part is quite simple:

Majority Vote – Suitability (Living Together)
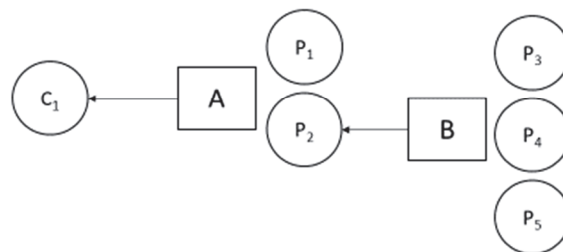
Now, we should step back and see how everything is connected to the bigger discussion about the validity of the French Law. Take the argument A below, based on the general Argument Scheme from Proportionality Analysis.

Argument A - The French Law is legally valid (Proportionality Analysis)
P_1. The French Law is suitable.
P_2. The French Law is minimally intrusive.
P_3. The French Law is strictly proportional
C_1. The French Law is legally valid.

The argument maps of this subsection reveal that the Court concludes that the French Law is suitable with regard to public safety and living together. This leads to the two arguments below, based on the Argument Scheme From Suitability with regard to one value to General Suitability, sustaining P_1:

Argument B – From Suitability with regard to Public Safety to General Suitability

P_4. The French Law is suitable with regard to Public Safety.

$C_2=P_1$. The French Law is suitable.

Argument C – From Suitability with regard to Living Together to General Suitability

P_5. The French Law is suitable with regard to Living Together.

$C_3=P_1$. The French Law is suitable.

The propositions P_4 and P_5, by their turn, are the ultimate conclusions of the maps for public safety and living together. The map below represents arguments A, B and C and also uses a rectangle to represent the other submaps that lead to P_4 and P_5:

Majority Vote – Proportionality Analysis (Suitability)
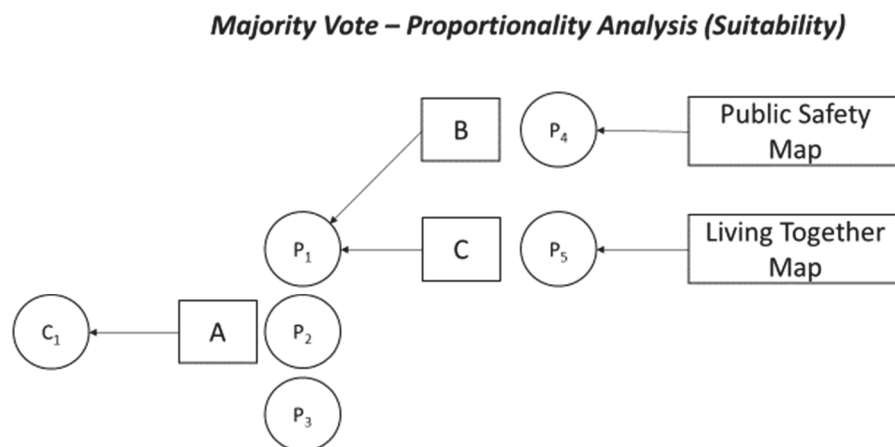
And what about the maps for public order, gender equality and dignity? They all could lead to the arguments D, E and F below, but their argument maps resulted in the rejection of the premises P_6, P_7 and P_8:

Argument D – From Suitability with regard to Public Order to General Suitability

P_6. The French Law is suitable with regard to Public Order.

$C_2=P_1$. The French Law is suitable.

Argument E – From Suitability with regard to Gender Equality to General Suitability

P_7. The French Law is suitable with regard to Gender Equality.

$C_3=P_1$. The French Law is suitable.

Argument F – From Suitability with regard to Dignity to General Suitability

P_8. The French Law is suitable with regard to Dignity.

$C_3=P_1$. The French Law is suitable.

A new diagram represents everything together. The maps which concluded against P_6, P_7 and P_8, are painted black, as if they were arguments against those propositions:

Majority Vote – Proportionality Analysis (Suitability)
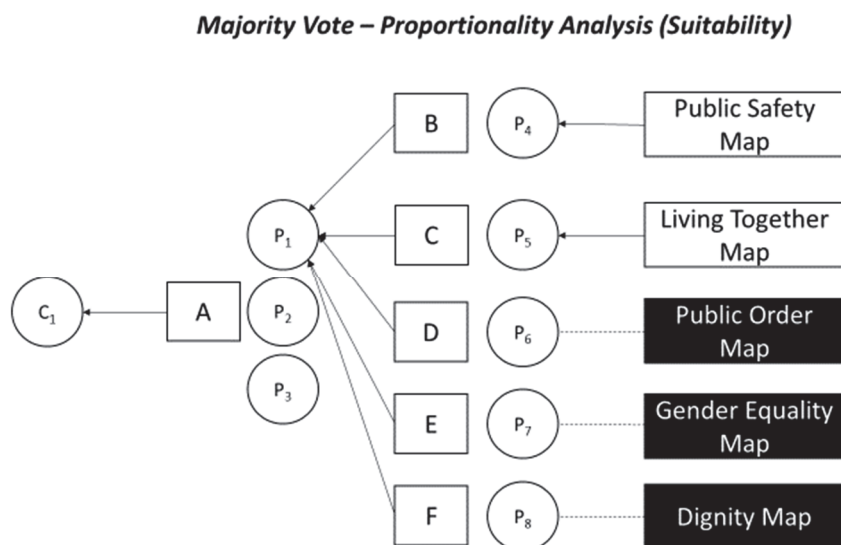
iii. Partial Conclusions

After such detailed analysis, I shall draw some partial conclusions and indicate interesting findings. The first, second and third partial conclusions only briefly discuss how the map supports some of my claims about proportionality analysis and the argument scheme contextual approach. The fourth, fifth, sixth and seventh conclusions reveal new knowledge obtained by the analysis of a real case (which reinforces my Fourth Claim of Chapter I).

1) Argument Scheme for Proportionality Analysis - Backbone of the Argument Map

The last diagrams reveal exactly how the Argument Scheme from Proportionality Analysis is the backbone of the argument map (as claimed in the beginning of this Chapter IV and of the Section IV.2.4). The ultimate proposition being discussed is whether the law is legally valid or not, and this is the conclusion of the scheme. Every discussion revolves around establishing the truth of the premises of such a scheme.

2) Proportionality Analysis and Other Types of Arguments

Suitability analysis actually requires many other types of arguments. For instance, many arguments of rule application have been used, as well as arguments for the application of legal norms, strict use of precedent and even an argument from consequences. The theoretical account of proportionality analysis only clarifies the reasoning's core. Most difficulties, however, remain beyond it. Therefore, one needs a wider conceptual framework to evaluate legal argumentation in these cases, such as the one presented herein (as claimed in the beginning of this Chapter IV and of the Section IV.2.4). In particular, the argument schemes built in section IV.2.4 enable the connection of proportionality analysis to other types of arguments within a unified framework.

3) Argument Schemes for Clarifying Arguments

Argument schemes may clarify the structure and meaning of some arguments. In general, they make arguments very clear and straightforward, as the map shows. Their

importance is most prominent when the type of argument advanced by the reasoner is not plain. For instance, when I have presented alternate versions of certain arguments, based on different argument schemes. If the Court used the tools discussed herein, their line of reasoning could be more easily described and evaluated (as per the Third Claim of Chapter I).

4) Limitations of the Argumentation Conceptual Framework

Although the utility of the tools has been shown, some difficulties and limitations were also exposed. First, during the analysis of dignity, the need for tools to deal with scalable conclusions was revealed. In the context of proportionality analysis, this depends on further theoretical elaboration on how to determine values' weights and extents. Second, also in the analysis of dignity, the lack of argument schemes for procedural objections and of guidelines to diagram meta-argumentation were displayed. Finally, various difficulties of reconstruction have been discussed. Although my options were always justified, a more precise account of what details may be ignored, the desired final form of the wording, and the limitations of transformation constitute an important agenda for research.

5) Permissibility – Theoretical Findings

Besides contributing for the investigation of the argumentation tools, the exercise of real case analysis was fruitful to the theoretical account of permissibility. It was shown that some types of norms may impose *material* limits on the demotion of a value. The mere fact of promoting a value is not enough to allow the demotion of another value. The Paragraph 2 of Articles 8 and 9 of the Convention stated that only certain values could be used as justification to demote private life and freedom of religion.

Inspired by the illustration, one could think of a classification on different ways that a legal norm may regulate values and their collision[345]. A sketch is provided below, distinguishing between *relevance* norms, which establish whether values should be taken into account in decisions, and *ordering* norms, that offer direction about how to evaluate

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[345] The classification is also inspired by SARTOR, 2010, item 9.

them in the event of collision. Legal decisions may be either taken by the lawmaker or by the Judiciary:

Relevance Norms

Relevance – *Determines that a value (or set of values) X should be taken into account in a legal decision.*

Irrelevance – *Determines that a value (or a set of values) X should not be taken into account in a legal decision.*

Contextual Definition – *Determines the context of application of a Relevance or Irrelevance norm.*

Threshold of Relevance – *Determines a threshold in order for the promotion or demotion of a value (or set of values) X to be considered in a legal decision.*

Ordering Norms

Weighing input – *Gives orientation towards the importance of the value (allowing for ordering).*

Exception type input – *Determines what is the value (or set of values) X that may justify the demotion of value Y (ordering Y with respect to any other value Z).*

Minimum Threshold - *Determines the extent to which a value (or set of values) X may be limited, creating a threshold (beyond this point, the demotion of value X is weightier than any other).*

Maximum Threshold – *Determines the extent to which a value (or set of values) X may be increased, beyond the threshold any increase in the value is legally irrelevant (beyond this point, the promotion of any value Z is weightier).*

According to this classification, Articles 8 and 9 contain relevance norms, establishing that private life and freedom of religion should be taken into account. On the other hand, Paragraphs 2 of Articles 8 and 9 of the Convention are "exception type input" norms, providing some ordering between private life, freedom of religion and other values. Public order, for instance, is allowed to demote freedom of religion, but not private life.

It should be stressed that, in spite of being seemingly simple, the problem of identifying values is a very difficult topic, due to the lack of a systematic account of what are the set of existing values and the relation between them (e.g. a gender-species relation), as well as because of their inherent vagueness. For instance, an important problem in the case is to define what may be considered the "rights or freedoms of others". So, there are arguments in favor of the instantiation of gender equality, and debate about what would amount to a demotion of dignity. As it will be seen in the analysis of the dissenting vote, to consider "living together" a value is also disputed.

Furthermore, permissibility may depend on legal *procedural* limits, such as the requirement of being cited in reasoning during the legislative process or during the judicial proceedings. This requirement could be discussed in light of theories about the deliberative qualities of an institution[346], as an incentive for the activity of teleological reasoning by the lawmaker to be taken seriously, since the arguments may be critically examined by a Court of Law.

6) Demotion Analysis and Revising the Steps

Before the suitability analysis, the ECHR started by examining the existence of "limitation" or "interferences" in rights protected by the Convention. In other words, it first verified which values were demoted, and only then evaluated what values were being promoted. This order was important, because of the limits to the demotion of some values.

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[346] MENDES, 2013 and SILVA, 2013 are particularly concerned with the deliberative performance of constitutional courts, but in the debate about judicial review, the comparison of Judiciary and Legislative is crucial. Thus, it is important to evaluate the reasoning of both institutions and the incentives one gives to the other.

For instance, it would be irrelevant if public order was promoted, because it cannot justify a demotion to private life.

The ECHR's conduct brings attention to the need to revise the steps of Alexy's proportionality test. Suitability analysis could have been impaired by the lack of verification of the demoted values. But the problem goes deeper. One can only properly perform the nondominance evaluation of the necessity step and the balancing of the strict proportionality step if all relevant values, demoted or promoted, as well as the extent of their promotion, are considered. This will be taken into consideration in the analysis of the next steps and in the revision of the proportionality test of Section IV.4.

7) <u>Effectiveness and Burden of Proof</u>

As briefly discussed whilst building the argument map for dignity, the ECHR practice seems to endorse a modification in the Argument Scheme for Suitability. Instead of a relative presumption, the actual promotion of some value is a proposition that should be treated either as an assumption or as an ordinary proposition. Given that the practice of argumentation must be observed to evaluate a rule of argumentation acceptance (as argued in Chapter II, Section II.3.A), the model presented in Section IV.2.4 might need to be reviewed in this point.

IV.3.1.B Necessity – Whether the measure is necessary in a democratic society

i. General Discussion

The necessity and strict proportionality steps of Alexy's proportionality test are both carried out by the ECHR during the analysis of the question – whether the measure is necessary in a democratic society. Therefore, the "necessity" mentioned by the Court[347] has a different meaning than Alexy's "necessity" step. To improve the exposition's clarity and continue to follow Alexy's structure, I will deal with each step in separate sections.

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[347] The "*necessary in a democratic society*" is a parameter set forth in the Convention, Articles 8 and 9, justifying the Court's vocabulary.

ECHR first considered public safety (§139):

> "*As regards the question of necessity in relation to public safety, within the meaning of Articles 8 and 9 (see paragraph 115 above), the Court understands that a State may find it essential to be able to identify individuals in order to prevent danger for the safety of persons and property and to combat identity fraud. It has thus found no violation of Article 9 of the Convention in cases concerning the obligation to remove clothing with a religious connotation in the context of security checks and the obligation to appear bareheaded on identity photos for use on official documents (see paragraph 133 above). **However, in view of its impact on the rights of women who wish to wear the full-face veil for religious reasons, a blanket ban on the wearing in public places of clothing designed to conceal the face can be regarded as proportionate only in a context where there is a general threat to public safety. The Government have not shown that the ban introduced by the Law of 11 October 2010 falls into such a context**. As to the women concerned, they are thus obliged to give up completely an element of their identity that they consider important, together with their chosen manner of manifesting their religion or beliefs, whereas **the objective alluded to by the Government could be attained by a mere obligation to show their face and to identify themselves where a risk for the safety of persons and property has been established, or where particular circumstances entail a suspicion of identity fraud**. It cannot therefore be found that the blanket ban imposed by the Law of 11 October 2010 is necessary, in a democratic society, for public safety, within the meaning of Articles 8 and 9 of the Convention.*" (emphasis added)

The Court first acknowledges that it is possible to restrict the freedom of religion enshrined in Article 9 of the Convention, for reasons of public safety, as in the cases of removing religious clothing for security checks (§133, *Phull v. France* (dec.), no. 35753/03, ECHR 2005-I, and *El Morsli v. France* (dec.), no. 15585/06, 4 March 2008) or appearing bareheaded on identity photos (*Mann Singh v. France* (dec.), no. 24479/07, 11 June 2007). This reaffirms there is no automatic preference in favour of freedom of religion when conflicted with public safety.

Right after, the Court considers that the blanket ban on wearing the full-face veil would only be proportionate in the context of a general threat to public safety, which is not the case. Finally, it argues that the Government's objective could be attained by a mere obligation to show the face in particular circumstances.

When the Court describes the hypothesis in which the blanket ban would be justified, it is neither performing a minimal intrusion test, nor a nondominance test of any kind. The statement is relevant because the Court declines its view that the "context of general threat" is a necessary condition for the validity of the blanket ban. However, this part of the reasoning amounts to the description of some rule, which is the result of solving a conflict of values and not a step of it (as argued in the beginning of Section IV.2). Moreover, the "context of general threat" is a factor that would play a relevant role in the strict proportionality step, significantly increasing the concrete weight of "public safety", as a result of magnifying its abstract weight. Thus, worst case scenario, the Court is arguing based on the result of a proportionality test without making it, and in its best, the Court is anticipating some of the discussion of strict proportionality.

Nevertheless, the last part of the reasoning is a minimal intrusion test, since the Court argues there is an alternative that promotes the value "public safety" to the same level, whilst demoting less the value "freedom of religion". The alternative is the less intrusive obligation to show the face only in particular circumstances, with established risks to persons, property or suspicion of identity fraud. Thus, the Court concludes that the lawmaker's decision is not necessary (minimally intrusive) with regard to public safety.

Nonetheless, the Court's reasoning is susceptible to criticism. First, I will show that the premise "the alternative promotes the value "public safety" to the same level" may be attacked, and the idea of *rough equality* or *parity* may be used to counter attack and support the premise. Second, I will argue that the reasoning fails for not taking into consideration the plurality of values at stake.

One could argue that such an alternative does not promote "public safety" to the same extent, for there might be unanticipated circumstances in which concealing the face may be used to endanger "public safety". The likelihood of the blanket ban actually being useful in a hypothetical and unspecified circumstance is very low, which means that we may consider the concrete weight added by this improvement to be very small. However, even though the difference is arguably small, it exists, so the blanket ban would promote "public safety" more

than the alternative. If this argument is sound, should we conclude that the Court's reasoning is flawed? Not necessarily, for the Court may disregard as irrelevant such small differences in the concrete weight, considering that both alternatives are *roughly equal* or on *par*. Following the literature[348], I will call this property *rough equality* or *parity*. It means that only improvements of concrete weight that supersede a certain threshold are relevant.

It must be stressed that the nondominance tests compare the *concrete weight* of the same value in two alternatives. In order to make such evaluation, one may consider all the variables that determine concrete weight: intensity of interference, abstract weight, and degree of reliability. Usually, intensity of interference is enough to show the difference between alternatives, what may lead to the inaccurate impression that the other variables are not relevant. But the discussion about rough equality above exemplifies that all variables might play their part. When it comes to the promotion of public safety, it is difficult to compare the intensity of interference between the alternatives, because the argument is based on hypothetical unanticipated circumstances. However, the degree of reliability is used to show that the likelihood of such an event is very low, and, consequently, the concrete weight is very low. The abstract weight could also be discussed. Although it remains arguably unchanged between alternatives, it is relevant if we consider that the ban in specific circumstances already promotes "public safety" to a great extent. Given that the abstract weight decreases as the overall promotion of a value increases, it means that more promotion of "public safety" adds little concrete weight. The combination of low degree of reliability and low abstract weight allows us to conclude for a very small improvement. And a very small improvement leads to rough equality.

Therefore, there is some sort of balancing (a comparison) between the concrete weights of a value in different alternatives. It is adequate to speak of balancing because one verifies if the promotion of a value in some alternative outweighs the promotion of the same value in the actual measure chosen by the lawmaker. Even if it is found that the alternative outweighs the measure, the difference in weight itself must be evaluated in order to determine if it is a case of rough equality. The threshold of rough equality may be assessed

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[348] SILVA, 2011, p. 293-297. Virgílio Afonso da Silva notes that some authors (Ruth Chang) make distinctions between rough equality and parity, and that there are discussions about the causes of roughness (ontic, epistemic or methodological). None of them were useful to his argument and nor to mine.

by using an ordinal scale (e.g. *small*, *medium*, *large*) and determining that a *small* difference falls into the case of rough equality. Given there are ordinal scales both for the concrete weight and for the difference in concrete weights, it is possible to refer to a *composite scale* (Section IV.1.3).

Notwithstanding the overcoming of the first criticism, the Court's reasoning fails for not taking into account that multiple values are at stake. As I will show, the Court cannot conclude that the blanket ban is dominated by the alternative obligation of showing the face only in specific circumstances. Let's recall the definition of minimal intrusion for multiple values (Section IV.2.2):

Minimal Intrusion: A choice C_1, which promotes a set of principles X_1 and demotes a set of principles Y_1, is minimally intrusive if there is no choice C_2 that satisfies all the following requirements:

(a) X_1 is a subset of X_2 and C_2 promotes each principle of X_1 at least to the same extent as C_1;
(b) Y_2 is a subset of Y_1 and C_2 demotes at least one principle of Y_1 to a lesser extent than C_1; and
(c) C_2 demotes all other principles of Y_1 at maximum to the same extent as C_1.

In the present case, the choice C_1 is the blanket ban of clothes that conceal the face, and the choice C_2 is the obligation to show the face in specific circumstances. The set of values (or principles) X_1 promoted by C_1 are "public safety" and "living together", as established by the ECHR in the suitability analysis. The set of values (or principles) Y_1 demoted by C_1 are "freedom of religion" and "private life", set forth in the Articles 8 and 9 of the Convention (§106/109). The choice C_2 promotes (X_2) and demotes (Y_2) the same values as C_1. The difference rests on whether it promotes or demotes more, less, or to the same extent.

The Court is arguing that C_1 is not necessary (is not minimally intrusive) because C_2 demotes "freedom of religion" and "private life" less, and promotes "public safety" to the same extent. The problem is that this is not enough to avert the minimal intrusion of C_1. As

stated in the definition above, C_2 must promote "*each principle of X_1 at least to the same extent as C_1*", but the Court has not showed that the obligation to show the face in specific circumstances (C_2) promotes "living together" to the same extent as the blanket ban (C_1). Given that, whenever one conceals the face, "living together" is taken to be demoted, and that the obligation to show the face only in specific circumstances allows for more concealment of the face than the blanket ban, the only sensible interpretation is that C_2 promotes "living together" to a lesser extent than C_1. The scheme below helps to visualize where the reasoning problem lies:

C_1   **Blanket ban**

X_1   *Promoted values*

    public safety

    living together

Y1   *Demoted values*

    freedom of religion

    private life

C_2   **Specific circumstances ban**

X_2   *Promoted Values*

    public safety: to the same extent

    living together: <u>less</u>

Y_2   *Demoted Values*

    freedom of religion: less

    private life: less

If there are multiple values at stake, it is not possible to verify them independently in the nondominance test (necessity step). It is the *alternative that is being evaluated*, and it must be considered as a whole. Thus, dominance analysis with multiple values requires that all of them are jointly considered.

The Court fails to analyse whether the obligation to show the face only in specific circumstances promotes "living together" more or less than the blanket ban. Actually, it does

not perform any kind of nondominance test related to it. The Court only states that the French authorities have given much weight to "living together" (§141) and concludes that "*the impugned ban can be regarded as justified in its principle solely in so far as it seeks to guarantee the conditions of "living together""* (§142). In other words, the Court announces that it will disregard public safety for the strict proportionality test. But the necessity step does not allow values to be excluded from analysis, only alternatives. If public safety is permissible and effectively promoted, then it should be considered.

Hence, the Court's reasoning is flawed. It has been shown that the nondominance test should have jointly considered both "public safety" and "living together". In addition, the ban could be justified by both values together and the following strict proportionality analysis should have been conducted accordingly.

ii. Argument Map

The reconstruction of the Court's main argument about necessity is challenging, for it does not follow accepted argument schemes. It is not only that the ECHR disregarded how the nondominance test should be performed considering multiple values, but the very conclusion does not fit into the relevant argument schemes. Not even those dealing with a single value. The majority writes that "*It cannot therefore be found that the blanket ban imposed by the Law of 11 October 2010 is necessary, in a democratic society, for public safety, within the meaning of Articles 8 and 9 of the Convention*". But, according to the theory, if a choice is dominated, it should be considered invalid as a whole, not with regard to one value.

In any event, it is possible to reconstruct the argument as follows:

Argument A - The French Law is not necessary (nondominated) with regard to Public Safety

P₁. The French Law promotes Public Safety.

P₂. The French Law demotes Freedom of Religion.

P₃. There is an alternative that promotes Public Safety to the same extent while demoting Freedom of Religion to a lesser extent.

C₁. The French Law is not necessary (nondominated) with regard to Public Safety.

On the risk of being repetitive, I stress that the argument is not based on any accepted argument scheme. The mere fact of being represented structured in propositions does not make an argument sound. In fact, one could advance a procedural objection to argument A, stating that it is not sound, as I did above. However, due to the tools' current limitations already pointed in the last Section (IV.3.1.A), this objection will be represented in the map in an unconventional way, by a rectangle with an arrow directed at argument A.

It is possible to establish an argument supporting P₃. I will call "particular circumstances alternative" the one in which there is an obligation to show the face only in particular circumstances, with established risks to persons, property or suspicion of identity fraud.

Argument B – Less Intrusive Alternative

P₄. If an alternative promotes a value X to the same extent than a choice, and demotes a value Y to a lesser extent, then there is alternative that promotes X to the same extent and demotes Y to a lesser extent.

P₅. The Particular Circumstances Alternative promotes Public Safety to the same extent than the French Law.

P₆. The Particular Circumstances Alternative demotes Freedom of Religion less than the French Law.

C₂=P₃. There is an alternative that promotes Public Safety to the same extent while demoting Freedom of Religion to a lesser extent.

The rule established in P_4 says that, if P_5 and P_6 are true, then its conjunction is true, for C_2 is nothing more than that. Although not very informative, since it does not detail how the extent evaluations are carried out, Argument B allows more precise criticism. For instance, I have entertained the possibility of attacking the proposition that public safety is

promoted to the same extent. Such an attack would lead to the denial of P_3, but is more accurately depicted as an attack to P_5. It can be represented as Argument C:

Argument C – Particular Circumstances Alternative promotes Public Safety to a lesser extent

P_7. If a choice ensures the protection of a value in more circumstances than the alternative, then the alternative promotes such a value to a lesser extent.

P_8. The Particular Circumstances Alternative establishes the obligation to show the face in particular circumstances, but is unable to ensure Public Safety in unanticipated circumstances.

P_9. The French Law's blanket ban is able to ensure Public Safety in particular circumstances and in unanticipated circumstances.

P_{10}. The French Law ensures the protection of Public Safety in more circumstances than the Particular Circumstances Alternative.

C_3*P_5. The Particular Circumstances Alternative promotes Public Safety to a lesser extent than the French Law.

Argument C could be divided in two arguments: one containing P_7, P_{10} and C_3, and another containing a rule linking P_8 and P_9 to a conclusion identical to P_{10}. They were merged for simplification. C_3 is not the exact opposite of P_5, but its contrary, for both propositions cannot be true at the same time[349].

The answer offered to argument C is based on the idea of rough equality, that the extent of the difference in promotion is not significant. This could be represented by an undercutting attack to argument C, in the form of Argument D:

Argument D – Differences in Public Safety promotion are not significant

P_{11}. If a choice ensures the protection of a value in more circumstances than the alternative, but the increased protection is not significant, then the alternative promotes such a value to the same extent.

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[349] But both could be false, if "The Particular Circumstance Alternative promotes Public Safety to a higher extent than the French Law" was true.

P₁₂. Although the French Law ensures the protection of Public Safety in more circumstances than the Particular Circumstances Alternative, the increased protection is not significant.

C₄=P₅*C₃. The Particular Circumstances Alternative promotes Public Safety to the same extent than the French Law.

As one can see, P_{11} is contrary to P_7, for it adds an exception to the rule in P_7, a condition in which the consequent of P_7 does not obtain. According to the convention set forth in Section II.2.C, when there is no clear argument leading to the amended rule and to the conclusion, instead of presenting two arguments, one against P_7 and other against C_3, the map will only show an attack directed to the arrow representing the inferential link. Arguments to support P_{11} and P_{12} will not be provided in this simplified map.

It is worth noting that the map would be different if P_7 already considered the need for a significant increased protection. Take a look at a second version of Argument C, considering an amended P_7:

Argument C.2 – Particular Circumstances Alternative promotes Public Safety to a lesser extent

P₇. If a choice ensures the protection of a value in more circumstances than the alternative, and the increased protection is significant, then the alternative promotes such a value to a lesser extent.

P₈. The Particular Circumstances Alternative establishes the obligation to show the face in particular circumstances, but is unable to ensure Public Safety in unanticipated circumstances.

P₉. The French Law's blanket ban is able to ensure Public Safety in particular circumstances and in unanticipated circumstances.

P₁₀. The French Law ensures the protection of Public Safety in more circumstances than the Particular Circumstances Alternative.

P₁₁. The French Law increased protection of Public Safety is significant.

C₃*P₅. The Particular Circumstances Alternative promotes Public Safety to a lesser extent than the French Law.

Instead of an undercutting, one would need to attack the new P_{11}, with some argument showing that the increased protection is not significant.

One can find below the map that represents the reasoning of the Court, pursuant to the first version of the arguments, containing my attack to the proposition that public safety is promoted to the same extent and the subsequent undercutting attack to it. My procedural objection is represented non-systematically, and the Court's argument related to the "context of general threat" is not represented at all:

Majority Vote – Necessity
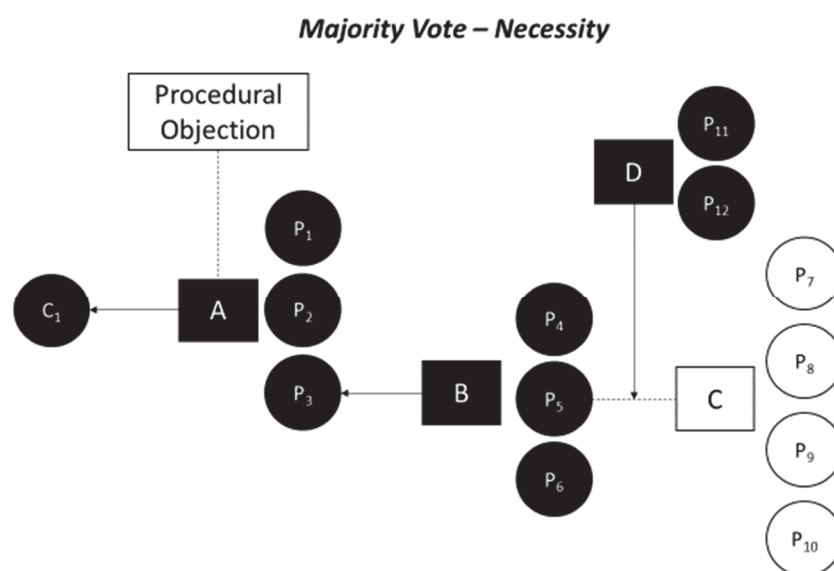
This map does not connect to the argument scheme for proportionality analysis, because of the conclusion of Argument A. One could easily overcome such an obstacle, if the argument schemes for necessity of Section IV.2.4 were followed. He would conclude that the French Law is nondominated, as I did above, and the second premise of the argument scheme for proportionality analysis would have been supported.

iii. Partial Conclusions

Again, some partial conclusions may be drawn. The first three refer to the argumentation tools, the last two to improve the theoretical account of proportionality analysis. The conclusions of Section IV.3.1.A - that argument schemes clarify the reasoning, there are no tools designed to represent procedural objections (not sound argument), the argument scheme for proportionality analysis is the backbone of the map and there is a need for a wider framework of types of arguments - are all reinforced by the exercise above, but will not be detailed here, to avoid repetition.

1) Representing Not Sound Arguments

It is possible to build a map representing arguments that are not sound. A procedural objection can be used in this situation, but an argument scheme and a diagramming convention to represent it are yet to be developed.

2) Alternative Reconstructions

The tools are flexible enough to deal with alternative reconstructions. The two versions of Argument C show one scenario in which a rule explicitly states an exception (the threshold of relevance) and another in which the opposing party argues for the existence of an exception. This shows that a discussion may be represented closely to how it has occurred, limiting the need for idealizations and amends.

3) Flawed Reasoning of the ECHR

The theoretical account of necessity adapted to multiple values and the argument schemes of Section IV.2.4 allowed to identify a flaw in the Court's reasoning. This shows how the tools may be successfully used to evaluate arguments.

4) <u>Rough Equality</u>

The idea of rough equality, found in the literature about proportionality analysis, has been modeled as a scale of the differences between levels of promotion and demotion of values. Such a scale may be ordinal, just as the scales for concrete weight and its variables. The difficulties in determining the scale, however, are the same.

5) <u>Comparison of Concrete Weights</u>

Finally, it has been shown that the necessity step actually compares the concrete weight of the values being promoted or demoted, not only the intensity of interference. In my original discussion about the necessity step (Section IV.2.2), it was not possible to bring this point forward, because the Weight Formula had not been presented yet.

IV.3.1.C Strict Proportionality – Whether the measure is necessary in a democratic society

The Court asks whether the blanket ban is proportionate to the aim of promoting "living together" (§143). Yet, the reasoning it develops in this regard holds little resemblance to the application of Alexy's proportionality test. As it will be detailed below, the Court lists a series of factors against the ban, magnifying or qualifying their importance. Immediately thereafter, in spite of all remarks, the ECHR argues that the State had a wide margin of appreciation (a space of deference), and abruptly concludes that the ban is proportionate.

The factors provided may be summarized in the following list:

A) Important factors against the ban
A.1) Just a small number of women (1,900 women, in the end of 2009) wear the full-face veil in relation to the French population (65 million people) and to the number of Muslims living in France, which makes the blanket ban seem excessive (§145).

A.2) The ban has a significant negative impact on women who wear the full-face veil, restricting their freedom of belief and private life, possibly causing social isolation, and may be perceived by these women as a threat to their identity (§146).

A.3) A large number of international and national actors in the field of fundamental rights protection found the ban to be disproportionate, for example the French National Advisory Commission on Human Rights, the Parliamentary Assembly of the Council of Europe, the Commissioner for Human Rights of the Council of Europe, non-governmental organizations as the third-party interveners (§147).

A.4) The Law may have upset the Muslim Community, even some members who are not in favour of the full-face veil being worn (§148).

A.5) The third-party interveners indicated that some Islamophobic remarks marked the debate which preceded the adoption of the ban. A legislative process of the kind analysed here risks reinforcement of stereotypes and encouragement of intolerance (§149).

B) Qualified factors against the ban

B.1) Although the ban mainly affects Muslim women who wear the full-face veil, it is not expressly based on the religious connotation of the clothing in question, but solely on the fact that it conceals the face (§151).

B.2) Despite criminal sanctions being attached to the ban, they are very light, consisting of a fine (maximum of 150 euros) and the possibility of imposing, in addition to or in instead of the fine, an obligation to follow a citizenship course (§152).

B.3) In spite of the restriction to pluralism as a consequence of the ban, the State is aiming to guarantee "living together", a value important to pluralism, tolerance and broadmindedness (§153).

As a result of the consideration B.3, the Court concludes that "*the question whether or not it should be permitted to wear the full-face veil in public places constitutes a choice of society*" (§153). It then argues that the circumstances of the case require it to acknowledge a "*wide margin of appreciation*" to the State (§154/155), whose doctrine the Court had previously summarized in §129:

> "*129. It is also important to emphasise the fundamentally subsidiary role of the Convention mechanism. **The national authorities have direct democratic legitimation and are, as the***

Court has held on many occasions, in principle better placed than an international court to evaluate local needs and conditions. In matters of general policy, on which opinions within a democratic society may reasonably differ widely, the role of the domestic policy-maker should be given special weight (see, for example, Maurice v. France [GC], no. 11810/03, § 117, ECHR 2005-IX). This is the case, in particular, where questions concerning the relationship between State and religions are at stake (see, mutatis mutandis, Cha'are Shalom Ve Tsedek, cited above, § 84, and Wingrove v. the United Kingdom, 25 November 1996, § 58, Reports 1996-V; see also Leyla Şahin, cited above, § 109). As regards Article 9 of the Convention, the State should thus, in principle, be afforded a wide margin of appreciation in deciding whether and to what extent a limitation of the right to manifest one's religion or beliefs is "necessary". That being said, in delimiting the extent of the margin of appreciation in a given case, the Court must also have regard to what is at stake therein (see, among other authorities, Manoussakis and Others, cited above, § 44, and Leyla Şahin, cited above, § 110). It may also, if appropriate, have regard to any consensus and common values emerging from the practices of the States parties to the Convention (see, for example, Bayatyan v. Armenia [GC], no. 23459/03, § 122, ECHR 2011)." (emphasis added)

According to the Court, there are two main reasons for the margin of appreciation: national authorities have direct democratic legitimation, and are, in principle, better suited than an international court to evaluate local needs and conditions. Moreover, it seems to recognize that the margin of appreciation is related to the existence of disagreement, both in national and international level. First, it refers to a "*special weight*" for the lawmaker's decision in matters in which "*opinions within a democratic society may reasonably differ widely*". Second, it states that the interpreter may take into consideration "*any consensus and common values emerging from practices of the States parties to the Convention*". Finally, it argues that issues about the relationship between State and religion usually generate wide disagreement, and as consequence, in principle, allow for a wide margin of appreciation.

The Court's explanation is full of holes: Is disagreement the only requirement for affording a State a margin of appreciation? What does it mean to "reasonably differ widely"? Should one consider that only "reasonable disagreements" are to be considered? If so, how can one identify a "reasonable disagreement"? How are the national disagreement (within a democratic society) and the international disagreement related? If there is international agreement, then should one disregard the national choice and decide there is no margin of

appreciation? What is, precisely, the margin of appreciation conceded to evaluate? Even if we are talking only about the strict proportionality test, there are many concepts to be considered: intensity of interference, abstract weight, degree of reliability, concrete weight. How can one verify if the State's decision remained within its margin of appreciation or not? Are there wider and narrower margins of appreciation, or is the distinction between a margin or none at all? If there are different kinds of margins, how does one differ between a wide margin and a narrow margin of appreciation?

The lack of accuracy made evident by the unanswered questions above is matched by how the Court continued its argumentation after establishing that the State had a wide margin of appreciation. The only piece of reasoning is carried out to argue that there is no European consensus against the ban (§156). After this, the Court only mentions the breadth of the margin of appreciation and rules that the ban is proportionate, concluding there is no violation of Articles 8 and 9 of the Convention (§157). The list of factors against the ban listed by the Court plays no role at all.

Given this line of reasoning, how could we describe more precisely the function of the margin of appreciation in the argumentation? I find that the best interpretation is that *the acknowledgement of a wide margin of appreciation leads to exclude the strict proportionality analysis from judicial review*. France found that living together outweighed private life and freedom of religion. And the ECHR has just deferred to the evaluation of the State. Beautiful words aside, this is what happened.

Another argument scheme may be developed to represent the reasoning, which is able to connect to the Argument Scheme of Proportionality Analysis (critical questions omitted):

Strict Proportionality (Wide Margin of Appreciation) – Core	
Warrant (strict)	If and only if the State has a wide margin of appreciation and the State has found that Law L is strictly proportional, then Law L is strictly proportional.
P$_1$ (wide margin)	The State has a wide margin of appreciation.

P2 (State's Evaluation)	The State has found that the Law L is strictly proportional.
Conclusion	Law L is strictly proportional.

The proposition P_2 is there just to make the idea of deference clear, but is an obvious statement. If Law L is in force, then the State has found it strictly proportional. This goes by definition, since we assume a rational lawmaker who only promulgates laws whose marginal gains outweigh its marginal losses. The difficulties lie in establishing the truth of P_1.

In spite of the shortcomings of the Court's explanation of the margin of appreciation, it can be interpreted that the ECHR puts forth at least one condition to a wide margin of appreciation, and thus, to support P_1. It says that "*In matters of general policy, on which opinions within a democratic society may reasonably differ widely, the role of the domestic policy-maker should be given special weight*". The "*special weight*" is the wide margin of appreciation, and the existence of opinions that "*reasonably differ widely*" is the condition to concede a wide margin of appreciation, which could be called *widespread reasonable disagreement*. The argument map below will structure the Court's argumentation.

ii. Argument Map

The first argument is based on the new argument scheme just developed.:

Argument A - The French Law is Strictly Proportional (Wide Margin of Appreciation)

P_1. The State has a wide margin of appreciation.

P_2. The State has found that the French Law is strictly proportional.

C_1. The French Law is strictly proportional.

P_1 is supported by Argument B:

Argument B – Wide Margin of Appreciation

P_3. If there is widespread reasonable disagreement with regard to the object of Law L, then the State has a wide margin of appreciation.

P₄. There is widespread reasonable disagreement with regard to the blanket ban of the clothes that conceal the face.

C₂=P₁. The State has a wide margin of appreciation.

The ECHR supports the existence of a widespread reasonable disagreement by referring to matters of relation between State and religion, and also by denying the existence of a European consensus on the subject. One can interpret it as the rule found in P_5 of the argument C below:

Argument C – Widespread reasonable disagreement

P₅. If something is a matter about the relation between State and religion, and there is no European consensus about it, then there is widespread reasonable disagreement regarding it.

P₆. The blanket ban of the clothes that conceal the face is a matter about the relation between State and religion.

P₇. There is no European consensus about the blanket ban of the clothes that conceal the face.

C₃=P₄. There is widespread reasonable disagreement with regard to the blanket ban of the clothes that conceal the face.

The map could be expanded to include the arguments that support P_7, and arguments by other parties, upholding the opposite, the existence of a European consensus. But, for the purposes of discussing the tool and proportionality, the arguments above are sufficient. The map can be represented as follows:

Majority Vote – Strict Proportionality
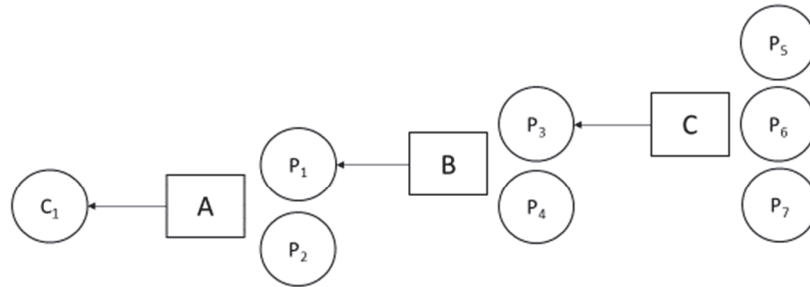
Once more, it can be connected to the Argument Scheme for Proportionality Analysis, resulting in the map below, with other diagrams summarized in rectangles. It has been concluded that the French Law is suitable (P_1) and that the French Law is strictly proportional (P_3). The map about the necessity step is not represented for its wrongly formulated conclusion cannot affect P_2, by which the French Law is nondominated:

Majority Vote – Proportionality Analysis
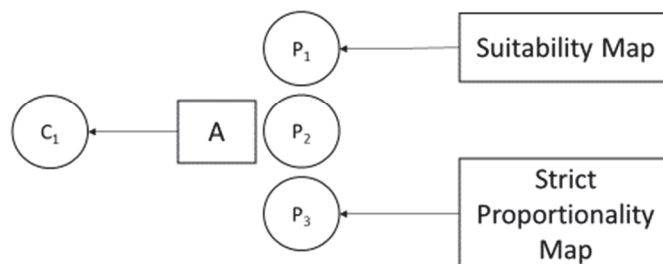
iii. Partial Conclusions

The most important conclusion of the discussion is the existence of a different argument scheme to support strict proportionality, based on the margin of appreciation and the deference to the State's evaluation. It does not render the other scheme useless, but leads to a revision of that scheme to account for a procedural objection: the original scheme cannot be used in judicial review if there is a wide margin of appreciation.

The conclusions repeated in Sections IV.3.1.A and IV.3.1.B are also reinforced by the analysis performed in this section.

In the next section, the dissenting vote will be examined, and I will incorporate the attacks to the majority's reasoning in the argument maps above.

IV.3.2 The Dissenting Vote - Nußberger and Jäderblom

The decision on the violation of Articles 8 and 9 was not unanimous. Dissenting judges Nußberger and Jäderblom jointly delivered their opinion. Their considerations comprehend all steps of the proportionality test. I will present them organized as attacks to each step of the majority's reasoning. The paragraphs referred to in this section are those of the dissenting vote, except if indicated otherwise.

IV.3.2.A Suitability Step - Whether there is a legitimate aim

i. General Discussion

The Court's majority decided that "living together" is an instance of "protection of rights and freedoms of others". They used the expression "*right of others to live in a space of socialisation which makes living together easier*" to better characterize it and I argued that this should be technically considered a value, for the purposes of proportionality analysis.

The dissenters argue that such instantiation is not valid and, as a consequence, that "living together" cannot be considered a legitimate aim under Articles 8 and 9 of the Convention. The instantiation is claimed to be invalid because there is no basis for recognizing "*right of others to live in a space of socialisation which makes living together easier*" as a legally protected value. To use the concepts discussed in the sections above, "living together" is not legally permissible.

The dissenters write that "*The Court's case-law is not clear as to what may constitute "the rights and freedoms of others" outside the scope of rights protected by the Convention*" (§5). This sentence claims that "rights and freedoms of others" could either mean rights and freedoms protected by the Convention or not, but the case-law is not clear about what could be considered a right or freedom not protected by the Convention. Their next moves show that, no matter the case, the French Law is not permissible.

First, they argue that "living together" is not a right or freedom protected by the Convention (§5):

> "*(…) The very general concept of "living together" does not fall directly under any of the rights and freedoms guaranteed within the Convention. Even if it could arguably be regarded as touching upon several rights, such as the right to respect for private life (Article 8) and the right not to be discriminated against (Article 14), the concept seems far-fetched and vague.*"

According to them, one could not justify "living together" as a value protected by the Convention, even with different forms of statutory interpretation. It is neither a clear case of any provision ("*does not fall directly under*"), nor could it be construed as an overarching value abducted from recognized rights ("*Even if it could arguably be regarded as touching upon several rights… the concept seems far-fetched and vague*"). The reasoning could be made more precise if the forms of interpretation denied and the reason for denying them were made clearer, but this would require an elaborate conceptual framework, such as the one mentioned in Chapter III above (arguments for statutory interpretation).

As an exercise, the argument of the minority could be developed further to say that, when some value is not clearly protected by the Convention, then the party has the burden of proof to show where it comes from. Intuitively, that is to say one cannot simply grab values out of his hat. Since there is no argument grounding the recognition of "living together" as a value, then the burden has not been discharged of. This would eliminate the need for elaborating on the statutory interpretation of the Convention according to which "living together" is not acknowledged as a value.

The dissenters, then, move to uphold that "living together" cannot be considered a right or freedom worthy of protection even outside the Convention, because what the lawmaker is actually trying to protect is against the rights and values recognized by the Convention. Two arguments are advanced in this direction. First, the judges contend that the prohibition of the veil, rather than assuring social interaction, is trying to protect people from the shock of making contact with a different culture, symbolized by its peculiar *dress code* (§6). The condemnation of the full-face veil, as a symbol, is present both in the legislative process (§§17 and 25 of the Majority Decision) and in the Government's submission to the Court (§82 of the Majority Decision). However, there is no right not to be shocked. To the contrary, the ECHR's case law in the context of freedom of expression protects shocking opinions, and, analogically, it should also protect shocking dress codes (§7). Second, there is no right to enter into contact with other people, in public spaces, against their will. In contrast, the right to private life comprises the right not to enter into contact with others, in public spaces – the right to be an *outsider* (§8).

These arguments raise a discussion about permissibility. Values are abstract concepts that comprise many factual situations. Freedom of religion, for example, is promoted by enabling people to build churches, wear kippahs in the streets, and take their time during work to pray towards Mecca. The Law demotes certain values in given situations to promote others. But even if an action that promotes a value is considered illegal, the value itself remains legal. In order to define a value as illegal, not only one action, but all the possible factual situations promoting it need to be illegal. If "living together" is to be considered against the Convention, then all its instances must be only a disguise for the protection of

those used to a traditional "*European life-style*" (§7) from a culture shock, or all of them must conflict with the right to be an outsider.

However, the dissenters do not argue that all possible instances of living together are illegal. Rather, they focus on the specific action of forbidding the full-face veil as being an unacceptable protection from shock or violation of the right to be an outsider. Is their argument flawed? I believe not. The point is that the discussion has moved from the value "living together" to its instance, to the *action* that supposedly promotes living together. The dissenters are arguing that such action is illegal according to the Convention, because it amounts to protection from shock (§7) or violates the right to be an outsider (§8).

Therefore, *permissibility should not be only about verifying an abstract value, but also the specific action*. Suppose that, in a given country, a law is enacted allowing the interception of e-mail communications. The government justifies it by the promotion of the value "protection from crime", provided for in the constitution, for it will increase the success of criminal investigations. Now, consider that the constitution states that "there shall be no interception of internet communications". The discussion will end quickly. Regardless of "protection from crime" being recognized as a value, there is a constitutional rule forbidding the specific action. The value, abstractly conceived, is permissible, but the specific action promoting it is not. The same happens in the full-face veil case. Even if "living together" were accepted as a value, the prohibition of wearing clothes that conceal the face may still be illegal. The difference from the example is only that the dissenters base their evaluation in precedents about the Convention instead of its text.

The possibility of striking down a law for conflicting with a hierarchically superior norm may be obvious, but was not integrated into the argument schemes from proportionality analysis. The description of permissibility analysis should be revised to include this hypothesis.

Even with the interpretation that the specific action conflicts with the Convention, the argument about protection from shock still faces challenges. Is the case really similar to the precedents? How to define that an action amounts to protection from shock? Is it a matter

of intention? If so, how to determine the lawmaker's intent which has not been declared? If not, what characteristics of an action make it an unacceptable protection from shock? All these correspond to critical questions of the argument schemes from the strict use of precedent or from norm application. I will not answer them, just point to a direction of debate development.

The argument based on the right to be an outsider also may be criticized. It indicates an incompatibility between such a right and the prohibition of the full-face veil, but not an unsurmountable inconsistency. It is possible to regard true at the same time both a "right not to enter into contact with others" and a prohibition to wear clothes that conceal the face. One may argue that the prohibition does not oblige a person to enter into contact with others, only restricts the means of avoiding other people. The vague "right not to enter into contact with others" does not necessarily comprise the "right to avoid contacting others by means of concealing the face". Thus, the "right to be an outsider" may fail to deny legal permissibility of the French Law.

The dissenting judges, then, move to what I consider effectiveness analysis. They argue that concealing the face does not prevent social interaction, as it is made evident by the examples of wearing a full-face helmet or carnival masks. Even the lawmaker would have recognized that this is true to some extent, since there are exceptions to the ban accepting such types of face concealment (§9). Section 2, II of the French Law states, *in verbis* (§28 of the Majority Decision):

> "*Section 2*
>
> *II. - The prohibition provided for in section 1 hereof shall not apply if the clothing is prescribed or authorised by primary or secondary legislation, if it is justified for health or occupational reasons, or if it is worn in the context of sports, festivities or artistic or traditional events.*"

If the argument is true, then wearing the full-face veil does not demote "living together" and, as a consequence, the ban cannot promote such value. The law would be ineffective and, therefore, unsuitable.

The examples show that concealing the face does not necessarily prevent social interaction. But it is not enough to take them as exceptions to a rule which says that "If the face is concealed, then social interaction is prevented (and Living Together is demoted)". The general rule persists, even with exceptions. Therefore, the examples should be understood as sustaining a different rule, according to which "If the face is concealed, then social interaction is *not* prevented". The dissenter's conclusion is supportive of this interpretation, since they write that "*People can socialize without necessarily looking into each other's eyes*" (§9).

The defenders of the ban could argue that the concept of living together is not about whether interaction is possible, but assuring "*a space of socialisation which makes living together easier*". Even if interaction with the veil is possible, it symbolizes a desire not to interact with others. The aspired environment of socialisation would be harmed by this statement against social interaction. Nonetheless, said interpretation of the veil as a symbol is debatable. I shall not develop more such discussion, since my objective is not to exhaust it, but to show how it could be analysed and advanced by using an argumentation framework.

ii. Argument Map

The arguments of the minority conclude that living together is not legally permissible and has not been promoted by the French Law. Hence, they are attacks to P_1 and P_2 of the argument A below, reconstructed in the section about suitability of the majority, that I repeat now for the sake of convenience:

Argument A - The French Law is suitable with regard to Living Together

P_1. Living Together is legally permissible. (implicit)

P_2. The French Law promotes Living Together.

C_1. The French Law is suitable with regard to Living Together.

The first attack may be represented as Argument C. I start with the letter "C" and P_6 because the map for suitability already has an argument B, that will be recovered in due time:

Argument C.1 – Living Together is not legally permissible

P_6. If a value is neither clearly provided for in the Convention, nor abducted from the Convention, then it is not legally permissible. (implicit)

P_7. Living Together is not clearly provided for in the Convention.

P_8. Living Together is not abducted from the Convention.

C_3*P_1. Living Together is not legally permissible.

P_7 and P_8 respectively represent the affirmations that the value "*does not fall directly under*" the Convention and that even "*if it could arguably be regarded as touching upon several rights… the concept seems far-fetched and vague*".

I suggested that the dissenters could have rendered P_1 false with an argument based in the burden of proof. However, it is not so simple as to argue that there is no argument supporting P_1. One must remember that, in the designed argument schemes, P_1 is a relative presumption. Given this complication, it is interesting to show how it can be modeled.

I argued that there should be a shift in the burden of proof if it was shown that a value is not clearly provided for in the Convention. Thus, first there must be a different version of argument C:

Argument C.2 – Living Together is not legally permissible

P_6. If a value is not clearly provided for in the Convention, then it is not legally permissible.

P_7. Living Together is not clearly provided for in the Convention.

C_3*P_1. Living Together is not legally permissible.

In order for the shift to occur, it must be considered that the support provided by C.2 is sufficient to meet the standard of proof to render P_1 false. To reinstate P_1 one would then need to attack C.2. Nevertheless, for the purposes of the map, I will stick to C.1, the argument actually advanced by the minority.

There is another attack to P_1, based on the understanding that the specific action of prohibiting the veil is illegal according to the Convention:

Argument D – The prohibition of the full-face veil is not legally permissible

P_9. If there is an action promoting a value, and this action is illegal according to the Convention, then, such a value is not legally permissible.

P_{10}. Prohibiting the full-face veil promotes Living Together.

P_{11}. Prohibiting the full-face veil is illegal according to the Convention.

C_4*P_1. Living Together is not legally permissible.

The reconstruction is understandable, but it may sound strange to say that the value is not legally permissible because the action is illegal. That happens because the argument scheme which gave rise to argument A did not take into consideration the possibility of an illegal action originally. So, in order to direct the attack to P_1, a relationship between the value and the action was made. If the argument scheme is amended, by including the premises that "Action A is legally permissible" and "Law L prescribes A", such a trick will not be necessary. This will be considered in the revision of the schemes of Section IV.4.3.

P_{11} is supported by the arguments about protection from shock and the right to be an outsider:

Argument E – Protection from cultural shock

P_{12}. Mouvement raëlien suisse v. Switzerland [GC], no. 16354/06, § 48, ECHR 2012, decided that protection from cultural shock is illegal according to the Convention.

P_{13}. The present case, prohibiting the full-face veil, is essentially similar to Mouvement raëlien suisse.

$C_5=P_{11}$. Prohibiting the full-face veil is illegal according to the Convention.

Argument F – Right to be an outsider

P_{14}. If a legal rule violates the right to be an outsider, then it is illegal according to the Convention.

P_{15}. Prohibiting the full-face veil violates the right to be an outsider.

$C_6=P_{11}$. Prohibiting the full-face veil is illegal according to the Convention.

Argument E cites only one precedent, but the judges also referred *Stoll v. Switzerland [GC], no. 69698/01, § 101, ECHR 2007-V*. Therefore, it is possible to advance one more argument in favor of P_{11}, based on another case. I decided not to present it, because the structure would be exactly the same. The precedents are about freedom of expression, but it is argued that the treatment should be the same for "*dress-codes demonstrating radical opinions*". The fact that both cases are about opinions could provide an argument supporting P_{13}. I will not reconstruct it, because I do not intend for the map to be exhaustive.

The right to be an outsider is an abbreviation, found in the text of the decision, from the expression "*right not to communicate and not to enter into contact with others in public places*". My criticism that the right to be an outsider is compatible with the prohibition of the full face-veil would generate an argument attacking P_{15}. Again, I will not reconstruct it.

Now, I may proceed to examine the arguments about effectiveness. The majority had presented argument B to support P_2:

Argument B – The French Law promotes living together

P_3. If someone conceals their faces, then Living Together is demoted.

P_4. The women wearing the full-face veil conceals their faces.

P_5. The French Law bans the full-face veil.

$C_2=P_2$. The French Law promotes Living Together.

The judges that do not agree with the ban engage in an attack to P_2. And they do so by saying the exact opposite of P_3, that concealing the face does not prevent social interaction and, consequently, does not demote "living together". I argued that their examples supported this opposite rule. Thus, a possible reconstruction is to use a rule to reach the opposite of P_2, and an argument from examples to support the opposite of P_3.

Argument G – The French Law does not promote living together

P_{16}. If someone conceals their face, then Living Together is not demoted.

P₄. The women wearing the full-face veil conceal their faces.

P₅. The French Law bans the full-face veil.

C₇*P₂. The French Law does not promote Living Together.

Argument H – Social interaction and Living Together (hypothetical syllogism)

P₁₇. If someone conceals their face, social interaction is not prevented.

P₁₈. If social interaction is not prevented, Living Together is not demoted.

C₈=P₁₆*P₃. If someone conceals their face, then Living Together is not demoted.

Argument I – Concealment of the face does not prevent social interaction (argument from example)

W. If the context "c" has property "p" and property "q", then, it must be the rule if property "p" is present, then property "q" is present.

P₁₉. In the context of sports (skiing and motorcycling with full-face helmets), the concealment of the face does not prevent social interaction.

P₂₀. In the context of festivities or traditional events (wearing costumes in carnivals), the concealment of the face does not prevent social interaction.

C₉=P₁₇. If someone conceals their face, social interaction is not prevented.

Argument G is based on the new rule to reach the conclusion that the French Law does not promote living together, hence, it is not effective and not suitable. The novelty is in how P_{16} is upheld. First, I used Argument H, a hypothetical syllogism (If "A then B", and "B then C", then "A then C", see Chapter II, Section II.1.A) to link the possibility of social interaction to the value of living together. Then, I used an argument from example[350] that uses specific situations to support the existence of a rule. Since I have not discussed this type of argument in this work, I included the warrant for better understanding. A single example is enough to advance the argument, but I used all those mentioned in the minority vote together, in parenthesis, to simplify the map with just one argument.

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[350] An argument scheme from example may be found in WALTON, REED, MACAGNO, 2008, p. 314. The wording has been adapted to this situation.

The conclusion of Argument H not only supports the premise P_{16} of Argument G, but also attacks the premise P_3 of argument B. This happens because P_{16} and P_3 are contraries. They represent rules with the same conditions and opposite consequences.

In the general discussion, I pointed out the possibility of an argument stating that living together is not only about the possibility of social interaction, but about an aspired environment, which is harmed by the veil, taken to be a symbol against human interaction. This could lead to an attack to P_{18} and also to a reformulation of P_3 into "If someone conceals their face and the concealment symbolizes the desire not to interact with others, then Living Together is demoted". However, I will not develop the map further.

Considering the arguments by the majority and minority, the diagram may be represented as follows. I excluded the propositions from arguments C, E, F, G, H, I due to space. Argument H has two arrows coming out of it, because it both supports P_{16} and attacks P_3, which are contraries:

Majority Vote – Suitability (Living Together)
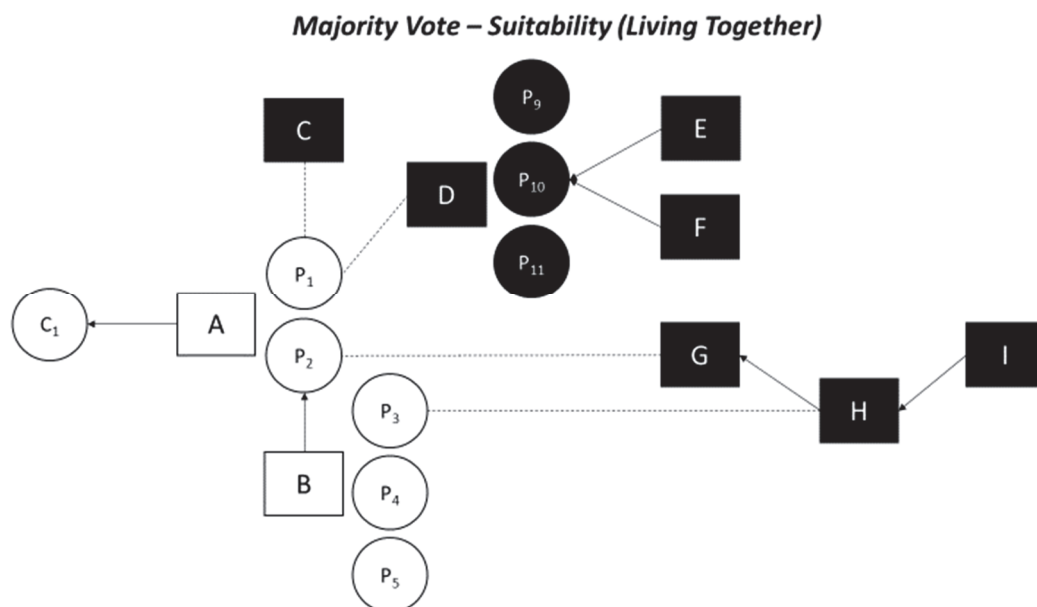
iii. Partial Conclusions

The analysis of the dissenting votes further reinforces the argument schemes of proportionality analysis as the backbone of an argument map and the need for other types of

arguments: strict use of precedent, argument from example, hypothetical syllogism. But it also leads to new contributions. The discussion of the permissibility of the specific action prescribed by the legislation brought the revision of the argument scheme for suitability. And the argument map revealed the possibility of fixing a standard of proof of a proposition as met by a certain argument scheme, instead of depending on evaluating the support based on scales. This can be useful to avoid complicated discussions on support evaluation. For example, it may consider that some arguments based in certain types of evidence are enough to prove the presence of a legal factor in a case.

IV.3.2.B Necessity – Less restrictive measures

The minority criticizes the fact that the State has not properly analysed and evaluated alternative measures discussed during the legislative process, namely, a program for awareness-raising, education and protection of women using the veil under duress (§24). It is important to stress that the vote does not say that such an alternative would be dominant, but it emphasizes the need for considering alternatives. One may wonder if the reason for this limited criticism is due to some deference to the State's policy evaluation, but there is too little information to reach a conclusion.

Despite its limitation, the criticism consequences could be controverted. The designed argument schemes (Section IV.2.4) consider the premise that there is no dominant alternative to be a relative presumption, so, in principle, the lack of an argument affirming the existence of a dominant alternative would mean that the French Law is nondominated. But I mentioned a possible concurrent model (Section IV.2.4.B), in which such premise is an ordinary proposition, and the State has the burden to show it has considered the relevant alternatives. In the latter model, one could say that the relevant alternatives were not duly considered, for it lacks an evaluation indicating why the blanket ban is preferable. This would result in the State failing to show the French Law is nondominated.

I will not draw a map of this discussion, since, in the current model the criticism of the dissenters has no effect. But it has served well to discuss other modelling possibilities, that would have to be grounded in considerations of institutional design.

IV.3.2.C Strict Proportionality - Other Relevant Values – Pluralism and tolerance

At the outset of the strict proportionality analysis (topic "*C. Proportionality of a blanket ban on the full-face veil*" of the opinion), the dissenters elaborate on the "*different approaches to pluralism, tolerance and broadmindedness*" (§§ 13/14) between them and the Court's majority.

As discussed above, the Court's majority claimed that "living together" is important to pluralism, tolerance and broadmindedness, deeming all of them essential requirements for a democratic society (§153, item B.3 of the list of arguments made in the strict proportionality analysis). The dissenters agree that those are relevant values, but argue that the ban may be interpreted as actually demoting them:

> "*14. However, **all those values could be regarded as justifying not only a blanket ban on wearing a full-face veil, but also, on the contrary, the acceptance of such a religious dress-code and the adoption of an integrationist approach**. In our view, the applicant is right to claim that the French legislature has restricted pluralism, since the measure prevents certain women from expressing their personality and their beliefs by wearing the full-face veil in public (see paragraph 153). Therefore **the blanket ban could be interpreted as a sign of selective pluralism and restricted tolerance**. In its jurisprudence the Court has clearly elaborated on the State's duty to ensure mutual tolerance between opposing groups and has stated that "the role of the authorities ... is not to remove the cause of tension by eliminating pluralism, but to ensure that the competing groups tolerate each other" (see Serif v. Greece, no. 38178/97, § 53, ECHR 1999-IX, cited by the majority in paragraph 127). **By banning the full-face veil, the French legislature has done the opposite. It has not sought to ensure tolerance between the vast majority and the small minority, but has prohibited what is seen as a cause of tension**.*" (emphasis added)

It is noteworthy that both in the reasoning of the Court's majority and of the dissenters, "pluralism" and "tolerance" were not discussed from the beginning. They are neither part of suitability analysis, nor dominance verification tests, but only appear as considerations of strict proportionality. However, if one is to balance a decision by verifying whether the values it promotes outweigh the values it demotes, all relevant values need to be considered. Assuming that "pluralism" and "tolerance" are relevant, their consideration

in the last step is mandatory. But, if they appear in this moment, they should have also been considered in the previous steps of the proportionality analysis (suitability and necessity).

On the one hand, for the Law L to be suitable, it requires that at least one value is permissible and effectively advanced by it. Thus, suitability concerns itself only with the values being promoted. But, if a supposed demoted value is to be considered, it also needs some sort of permissibility and effectiveness analysis. Just as a promoted value needs to be legally permissible, a demoted value needs to be legally relevant. Not all possible values are relevant for a legal decision, but only those recognized as such by the Law. The concepts of "relevance" and "permissibility" are, actually, the same; I have only used "relevant" because a "permissible demoted value" would wrongly convey the idea that the demotion is permitted by the legal system. Moreover, a value needs to be effectively demoted by the Law L to be considered in proportionality analysis.

On the other hand, for the Law L to be a minimally intrusive, maximally promotional or nondominated choice, the set of relevant values needs to be defined, otherwise the result of the test may be compromised, as shown in Section IV.2.2 above. Therefore, any relevant values always need to be considered in such a step of the analysis.

I interpret that, in the piece of reasoning transcribed above, the dissenters actually argued that "tolerance" is a relevant value, and that it has been effectively demoted by the ban. It is claimed that, according to the Court's precedent (*Serif v. Greece, no. 38178/97, § 53, ECHR 1999-IX*), the State has a duty to "*ensure mutual tolerance between opposing groups*". This means the State has the goal of promoting the relevant value of "tolerance". So, the dissenters are using a precedent to establish the legal relevance of "tolerance". They also claim that the ban "*prevents certain women from expressing their personality and their beliefs by wearing the full-face veil in public*" what can be interpreted as "*a sign of selective pluralism and restricted tolerance*". This amounts to say that "tolerance" has been effectively demoted.

In this subsection, I have made remarks about the need to consider all relevant values in all the steps of proportionality analysis, and illustrated that it was actually done somehow,

with new relevant values which were introduced late in the discussion. This will reinforce the need for some refinements of the test in Section IV.4.2 below. I will not draw a map, though, for the minority does not consider the value of "tolerance" in the last step of the analysis.

IV.3.2.D Strict Proportionality - Margin of Appreciation

i. General Discussion

Another preliminary to the strict proportionality analysis is the dissenter's discussion about whether the State should be accorded a broad margin of appreciation. Even though they accept the majority's view that a broad margin should be conceded "*in matters of general policy on which opinions within a democratic society may differ widely*", they claim that this is not the case in this particular situation (§16).

The judges advance three arguments in favour of their claim. First, that the ban affects a right intimately related to one's personality (§17). Second, that one cannot convincingly draw a parallel between the present case and other ones concerning the relationship between State and religion. This would be so because the wording of the French Law is very broad and does not have an expressly religious connotation (§18). Third, that there is a European consensus on the question of banning the full-face veil. Pursuant to precedent (*Marckx v. Belgium, 13 June 1979, § 41, Series A no. 31*), they mention as relevant factors to determine the existence of consensus the comparative law, international soft law, and international treaty law. A strong indicative of the consensus, given by comparative law, would be that 45 out of 47 member States of the Council of Europe have not deemed necessary to legislate in this area. The position of some international authorities and non-governmental organisations (international soft law), as well as the contents of the International Covenant on Civil and Political Rights and of the Convention on the Elimination of All Form of Discrimination against Women (international treaty law), are also referred to in this regard (§19).

The relevance of the first argument for the discussion is not clear, but it is possible that it was introduced to stress the importance of the affected rights. The second argument aims to undermine the majority's argument that there should be a broad margin of appreciation in this case, because it poses an issue about the relationship between State and religion, and such matters in principle generates wide disagreement. If the issue in this case is not about the relationship between State and religion, then the majority's argument is defeated. However, the dissenter's position may be criticized as contradictory. They have argued before (and committed to the proposition) that the real aim of the French Law was to protect people from the culture shock arising out of the full-veil, a dress code with religious connotations. So, they seem to imply the French Law is related to religion in order to deny its suitability, but argue that it is not related to religion when it is no longer convenient. One could try arguing, in their defense that protection from culture shock is not something religious, but even if the two concepts are not necessarily related, in the present case they undeniably are, since the shock is due to a religious dress-code whose use the State aims to prohibit. Finally, the third argument is directly opposed to the majority's thesis, according to which there is no European consensus on the subject matter (Majority Decision, §156).

The argument about the existence of a European consensus is critical. Since the dissenter's first argument appears to have no direct relevance and the second is inconsistent with their previous commitments, it seems the only argument standing to support there should be no broad margin of appreciation in the case.

The consequences of the results of this discussion to the proportionality analysis are unclear, due to the obscurity in the margin of appreciation doctrine. It is not possible to know, according to the doctrine as presented by the majority, whether the existence of a broad margin of appreciation excludes the possibility of a strict proportionality assessment by the Court or only constrains it. Albeit the doctrine is unclear, the position of the majority seems to corroborate the former thesis, as argued above in Section IV.3.1.C. If one embraces this doctrinal interpretation, and finds that there is a broad margin of appreciation, then the arguments provided by the dissenters in the next section are useless, since they are a strict proportionality assessment. On the other hand, if one assumes that the existence of a wide margin of appreciation only constrains the assessment, then the dissenters' analysis will still

be relevant and useful regardless of the existence of a wide margin of appreciation. Therefore, the impact of the dissenter's arguments about strict proportionality hinges not only on the existence of a wide margin of appreciation, but also on the definition of the margin's scope. This leads to question the doctrinal position of the dissenters, concerning the consequences of recognizing the existence of a broad margin of appreciation.

The position of the dissenters is not evident. The very expression "wide (or broad) margin of appreciation", used both by the majority and the dissenters, leaves room to question whether the alternative is a "narrow margin of appreciation" or no margin at all. The acknowledgment of a "narrow margin" alongside a "broad margin" suggests that it is a matter of degree and, thus, that the Court's revision of the strict proportionality assessment is also a matter of degree. The dissenter's conclusion that their arguments "*militate against the acceptance of a broad margin of appreciation and in favour of close supervision by the Court*" does not help to cast light on the issue, since "*close supervision*" is a dubious expression. It is not clear if "close supervision" means "no margin" or "narrow margin".

Although the wording used by the dissenters does not help, the way they argue about strict proportionality does. As I will show in the next section, they make no claim about how the existence of a margin of appreciation would affect their assessment, nor argue that the French Law would be disproportional even if a broad margin of appreciation were conceded. I conclude that the dissenters endorse the thesis that the existence of a "broad margin of appreciation" excludes the possibility of a strict proportionality assessment by the Court, following the majority in this regard (according to my interpretation of their position).

ii. Argument Map

The map of this section is focused on the minority's attacks on the existence of a broad margin of appreciation. From the three arguments they have advanced, I will not reconstruct the first one, since its purpose is unclear. The other two are attacks to the propositions P_6 and P_7 of the majority's Argument C (Section IV.3.1.C), reproduced here for convenience:

Argument C – Widespread reasonable disagreement

P5. If something is a matter about the relation between State and religion and there is no European consensus about it, then there is widespread reasonable disagreement regarding it.

P6. The blanket ban of the clothes that conceal the face is a matter about the relation between State and religion.

P7. There is no European consensus about the blanket ban of the clothes that conceal the face.

C3=P4. There is widespread reasonable disagreement with regard to the blanket ban of the clothes that conceal the face.

The first attack can be reconstructed as follows:

Argument D – The blanket ban is not a religious matter

P8. If a legal provision does not focus on religion, then it is not a matter about the relation between State and religion.

P9. The blanket ban of the clothes that conceal the face has broad wording and, consequently, does not focus on religion.

*C4*P6. The blanket ban of the clothes that conceal the face is not a matter about the relation between State and religion.*

P_9 of argument D could have been dismembered in more propositions forming an argument whose conclusion is simply "The blanket ban of the clothes that conceal the face does not focus on religion". As a reconstruction experiment, however, I have made the map simpler by assembling it all together into P_9. In principle, this does not seem to meaningfully affect the representation. But, if there were an attack, for example, to the rule establishing the relation between having a broad wording and not focusing on religion, it would be convenient to have a more extensive reconstruction, that would allow a more precise representation of the attack.

It should be stressed that the map reconstruction of argument D makes a clear point of how the minority's observation may constitute an attack to the majority's argument. But

this is not at all immediately perceptive while reading the vote. My interpretation, thus, is debatable.

I have commented on the argument, stating that it could be deemed inconsistent with an earlier appraisal of the French Law by the minority. My observations could be modeled by using the schemes of the Argument from Commitment and Argument from Inconsistent Commitment[351]. I use "F" and "G" because of the second attack to Argument C, directed at P_8, which will be presented in short:

Argument F – Minority's inconsistency about religious matter

W. If someone argues P_x, P_x is contrary to P_y, and someone is committed to P_y because of having argued P_z, then someone must either retract P_x or P_z.

P_{14}. The minority argued that "The blanket ban of the clothes that conceal the face is not a matter about the relation between State and religion.".

P_{15}. "The blanket ban of the clothes that conceal the face is not a matter about the relation between State and religion." is contrary to "The blanket ban of clothes that conceal the face focus on religion.".

P_{16}. The minority is committed to "The blanket ban of the clothes that conceal the face focus on religion." because of "Prohibiting the full-face veil is illegal according to the Convention.".

C_6. The minority must either retract "The blanket ban of the clothes that conceal the face is not a matter about the relation between State and religion." or "Prohibiting the full-face veil is illegal according to the Convention.".

Argument G – Minority's commitment to religious matter

W. If someone argues P_x and P_x implies P_y, then someone is committed to P_y.

P_{17}. The minority argued that "Prohibiting the full-face veil is illegal according to the Convention.".

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[351] A version of these argument schemes is found in WALTON, REED, MACAGNO, 2008, p. 335 and 337. I have been inspired by these schemes, but they have been adapted, as a comparison with them immediately reveals.

P_{18}. Arguing that "Prohibiting the full-face veil is illegal according to the Convention." implies that "The blanket ban of clothes that conceal the face focus on religion.".

$C_7=P_{16}$. The minority is committed to "The blanket ban of the clothes that conceal the face focus on religion."

I have changed P_{16}'s wording between Argument F and Argument G. The "*because…*" could have been used in argument G, but it would make the presentation more confusing.

The argument about what implies the commitment, here represented by Argument G, could have been much more developed. But my aim is only to briefly show the possibility of discussing the subject, and it was interesting to use a proposition which is already part of the argument map (of suitability, Section IV.3.2.A), showing how it is possible to argue about commitment using the *commitment store*, the list of propositions to which one has already committed[352].

The requirement of commitment consistency is a procedural rule, and the arguments from commitment and inconsistency commitment are procedural objections which lead to meta-argumentation. This is clear by the fact that the propositions internally refer to other propositions and their relationship, as well as by the peculiar conclusion that one must retract one of the propositions that lead to the inconsistency.

The applicability of the warrants themselves to legal argumentation, as they have been represented, could be debated. In the Law, it is not hard to find subsidiary arguments of the kind "even if my first argument is wrong and we assume P_x is true, one cannot conclude C_x". Such subsidiary argumentation may lead to the tolerance of inconsistent commitments throughout a piece of reasoning. The precise situations in which such argumentation is or should be authorized amounts to intriguing research.

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[352] WALTON, KRABBE, 1995, p. 6.

Finally, although the arguments have been represented by argument schemes, it is unclear how they would be integrated in the argument map, a problem of procedural objections already noted above (Sections IV.3.1.A and IV.3.1.B). Considering yet that the argument is mine, and not found on the vote, it will not be part of the diagram.

The second relevant attack of the minority to Argument C is based on the existence of a European consensus:

Argument E – European Consensus against the prohibition of the full-face veil

P₁₀. If European comparative law, international soft law and international treaty law shows consensus about some subject, then there is a European consensus on the subject.

P₁₁. Comparative law shows that 45 out of 47 member States of the Council of Europe did not prohibit the full-face veil.

P₁₂. The position of many international authorities and non-governmental organisations is against the prohibition of the full-face veil.

P₁₃. The international treaties, International Covenant on Civil and Political Rights and the Convention on the Elimination of All Form of Discrimination against Women, are construed as against the prohibition of the full-face veil.

C₅*P₇. There is a European consensus against the blanket ban of the clothes that conceal the face.

I made a jump from "the prohibition of the full-face veil" to the "blanket ban of the clothes that conceal the face", regarding the subject of consensus. Since one implies the other, however, there is no problem. This was made to let the propositions P_{11}, P_{12} and P_{13} resemble more closely the original text, and avoid an additional argument showing the implication I have just mentioned.

Each premise of the argument is based on one of the relevant factors to determine the existence of European consensus. In spite of the factors being based on precedent, the precise relationship between their presence and the existence of consensus is not made clear. How many factors are needed to conclude for consensus? How to evaluate the factors, in a binary

or scalable fashion? These difficulties shall be taken into account if one is to further evaluate and discuss the argument.

It is worth reminding that I simplified the map of the majority's vote, with regard to the arguments that ground their affirmation there is no European consensus on the subject. A more thorough analysis would require the joint reconstruction of the arguments on both sides, which I will not pursue here. The level of detail is enough for my purposes. The extended map about the broad margin of appreciation is found in the diagram below:

Minority Vote – Strict Proportionality (margin of appreciation)
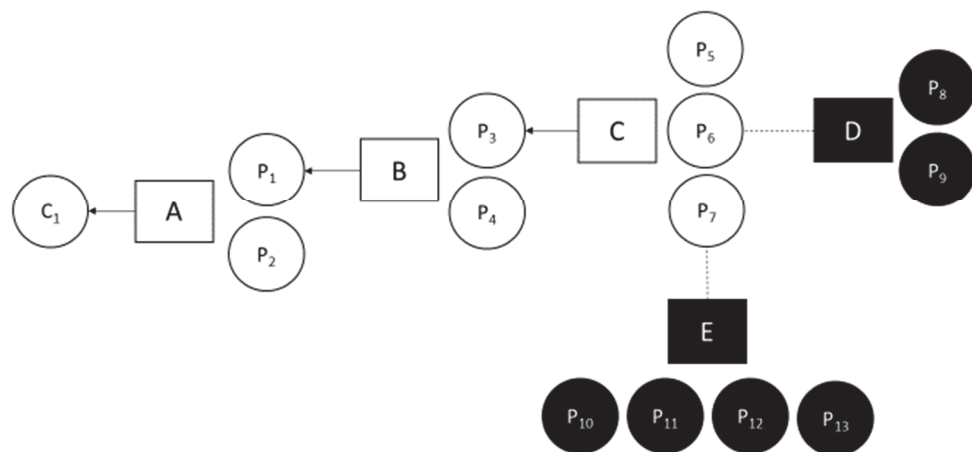
iii. Partial conclusions

As peculiar conclusions of this part of the map, it is worth highlighting the possibility of using schemes to represent procedural objections and the presence of new arguments that may influence a dialogue (from commitment and inconsistency commitment). The problem of representing subsidiary argumentation in legal reasoning is also raised. As to proportionality analysis, the discussion of the European consensus illustrates the development of a discussion about the existence of a wide margin of appreciation.

IV.3.2.E Strict Proportionality - Consequences for the women concerned

i. General Discussion

The dissenters reflect on the consequences of the ban to the women concerned by one side (freedom of religion, private life), and on its consequences to the rest of people on the other side (living together). Their reasoning may be interpreted as an assessment of the concrete weight according to the Weight Formula variables, even though they do not explicitly use the theoretical expressions of Alexy's model.

They reiterate the majority's conclusion that the women face a dilemma, and argue that the ban will worsen the situation of women presumed to be oppressed (§21). Next, they criticize the majority's observation (§152, item B.2 in the list of arguments above) that the criminal punishment is mild, for one should consider the multiple effect of successive penalties, given that wearing the full-face veil is a recurring practice (§22). Finally, they argue that only on rare occasions would the average person encounter a woman in a full-face veil, since only a small number wear it (§23).

The values on the balance, according to the majority's suitability analysis, are "freedom of religion" and "private life" on one side, and "living together" on the other side. The dissenter's arguments about the dilemma, the aggravation of oppressed women's situation, and the cumulative effect of penalties may be interpreted as emphasizing the intensity of interference in "freedom of religion" and "private life". The argument about the rare encounters of average persons with women wearing the full-face veil downplays the concrete weight of "living together" according to the low probability of the interference happening (degree of reliability). The dissenters make no reference to ordinal scales, but since they conclude that the ban is disproportional, one should interpret they decided that "freedom of religion" and "private life" outweigh "living together".

It should be noted that pluralism and tolerance have not been considered in the balancing performed, despite their arguments concerning these values (§§13/14). They also did not consider explicitly a margin of appreciation in any way, which strengthens the thesis

that it is only relevant if it is a "broad margin", and that the existence of a "broad margin" prevents the Court from undertaking strict proportionality analysis.

ii. Argument Map

The argument scheme for strict proportionality could be used to reconstruct the dissenter's argument as follows:

Argument A.1 – The French Law is not strictly proportional

P_1. *The French Law only promotes Living Together.*

P_2. *The French Law only demotes Private Life and Freedom of Religion.*

P_3. *The weight of the demoted values is greater than the weight of the promoted values.*

C_1. *The French Law is not strictly proportional.*

Since they have not assigned values for the concrete weight, I suppressed the two premises from the argument scheme that indicated it for the promoted and demoted values. It also should be noted that the "*only*" in P_2 ignores the value of tolerance as the minority did.

The great problem is how to support the proposition P_3. I have reconstructed a simplified version of the argument of the dissenters, without considering the discussion about cumulative penalties:

Argument B – Demoted values outweigh the promoted values

P_4. *The French Law poses a dilemma to the women wearing the full-face veil, aggravating the demotion of Private Life and Freedom of Religion.*

P_5. *Given only a small number of women wear the full-face veil, it will be rare for someone to encounter them, attenuating the promotion of Living Together.*

$C_2=P_3$. *The weight of the demoted values is greater than the weight of the promoted values.*

I decided not to introduce a rule linking P_4 and P_5 to the conclusion, because either it would only repeat the content of P_4 and P_5, or it would be a questionable abstraction. Although the theory explained the factors taken into consideration, it is not sufficiently clear about the weighing (as argued in Section IV.2.3). Unfortunately, the actual case did not help in this regard. This subject will be addressed again in Section IV.4.4.

Incorporating these arguments in the overall map brings a difficulty, because the conclusion of Argument A is contrary to the majority's argument based on the existence of a wide margin of appreciation, but the dissenters also agree that the margin of appreciation excludes strict proportionality analysis. One possible solution that comes to mind is to let the arguments attack each other and consider that the arguments based on a wide margin of appreciation are stronger. But this does not represent correctly the fact that the margin of appreciation completely removes support from the argument of strict proportionality. Therefore, it would be necessary to amend the argument scheme to include a premise stating there is no margin of appreciation, excluding its applicability:

Argument A.2 – The French Law is not strictly proportional

P_1. There is no wide margin of appreciation.

P_2. The French Law only promotes Living Together.

P_3. The French Law only demotes Private Life and Freedom of Religion.

P_4. The weight of the demoted values is greater than the weight of the promoted values.

C_1. The French Law is not strictly proportional.

The second version of argument A solves the problem by the inclusion of the new premise P_1. All the discussion about the wide margin of appreciation that impacted the argument of the majority also affects the minority's argument. The argument map below represents the Argument A.2, Argument B and the discussion about the wide margin (last section) in a simplified fashion. The rectangle representing the map of last section is painted black for its result is taken to be that there is no wide margin of appreciation, for the purposes of the map below. Nevertheless, the actual result would depend on a proper evaluation:

Minority Vote – Strict Proportionality
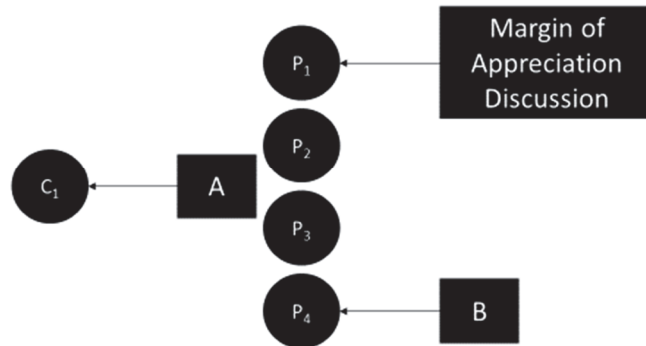
IV.3.3 Conclusions

The analysis of the case has been long and it has most likely bored the reader. Unfortunately, I find no better way of discussing the application of the argumentation tools and the conceptual framework presented herein. I insisted during the whole endeavor that:

(i) proportionality analysis depends on a wider argumentation framework;

(ii) the argument schemes modeling the core of proportionality analysis constitute the backbone of the argument map;

(iii) argumentation tools are useful to investigate legal argumentation (Third Claim of Chapter I) and real cases are important to develop the tools (Fourth Claim of Chapter I).

Technical details and improvements for argumentation tools and proportionality analysis will not be listed here. They may be found at the partial conclusions and will be considered during section IV.4 below. Just some closing remarks are in order.

By comparing the texts written in natural language to the argument maps, it can be seen that real reasoning frequently depends on implicit propositions, involves many details

whose function is not made clear, and comprises steps that are cheerfully jumped. The experiments in reconstruction show this distance. On the one hand, to make the reconstruction closer to an argumentative ideal, I have standardized words, advanced implicit propositions, elucidated relations between propositions or arguments, and even added entire arguments. On the other hand, to preserve the resemblance to the actual reasoning, I have sometimes used a less than optimal wording, omitted propositions or deliberately condensed information in a single premise. The reconstruction allows flexibility between a normative ideal and an accurate description. More structured guidelines for the activity are required, but the justifications show that reconstruction is far from arbitrary.

Whenever there were contextual argument schemes, the level of standardization and clarity was superior. This can be seen in the backbone of the argument map, the first arguments of each section, modeled after the schemes designed in Section IV.2.4. They were critical to organize the map, as well as to identify, analyze and evaluate arguments. Despite not being complete, the map offers knowledge about the direction the discussion should take. In several occasions, I have pointed out possible attacks and further developments. There was both static analysis and dynamic criticism, given that I introduced arguments of my own.

Although the map is not complete and even if some of my interpretations of the Court's reasoning are wrong, I believe each of my general theses were sufficiently supported. It is important to add that my text was not necessarily presented in the order that I performed the analysis. Frequently, the attempt to draw the map was critical to review the general discussion. Thus, the argumentation tools are yet more helpful than they seem.

I have not made a final evaluation of the maps to establish a winner in each discussion. Partly because such an evaluation would be only provisory, since the map is not complete, and partly because this would require clear rules to define the preferred extension, which I have not presented. This should be the object of future research. Nonetheless, a quick look at the maps let one realize that the majority's reasoning does not attack many of the arguments by the dissenters, especially those related to the suitability of "living together". This is a clear indication that the grounds for the majority's decision are not sufficient.

IV.4 Refinements of the Model

IV.4.1 Institutional Deference

As argued in the beginning of this Chapter, proportionality analysis is a method used in the context of judicial review to evaluate whether a decision's outcome is appropriate. Against a background of teleological reasoning, it is only one possibility of conceiving an appropriate outcome. In addition, it may be conceived in different ways, as indicated by remarks in the last sections. These ideas show that any precise model of the proportionality test depends on debatable theoretical assumptions about our legal institutions. In this section, I intend to briefly discuss the concept of institutional deference, which is at the core of the literature that may influence the building of a proportionality analysis model.

Preliminarily, it should be stressed that there is much debate about certain generalizations involving proportionality analysis. According to one thesis, if there are norms establishing optimization requirements of certain values, then proportionality analysis needs to be performed. Another will say that constitutional rights must be conceived as establishing optimization requirements[353]. Further complications can be obtained, if one considers that the theses may be empirical, conceptual or normative[354]. Finally, some claim that proportionality analysis is omnipresent in legal systems, for it tries to address a universal legal problem[355].

Regardless of my comments in the first paragraph of this section, I do not intend to engage in these debates. When I say that there are other ways of conceiving an appropriate outcome, I only mean there is a wider discussion about teleological reasoning. I am not making any statement about the convenience of their applicability to the precise context of judicial review. When I argue there are different ways of conceiving proportionality analysis, there is an initial difficulty of harmonizing the vocabulary found in the literature with the

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[353] Robert Alexy calls them the first and second necessity thesis respectively. ALEXY, 2014.
[354] ANDRADE NETO, 2016.
[355] SCHLINK, 2012

technical conceptual framework I have been using. It is possible that some of my alternative models would make no difference to the argument of some authors. And it should be stressed that I am, again, referring to modelling possibilities, but not subscribing to them. The existence of theoretical controversy that affects models actually only reinforce my claim that rules of legal argumentation depend on theoretical assumptions and institutional design (Chapter I, Second Claim).

It has been repeated that proportionality analysis takes place into the context of judicial review, but it should be clear that the State's legal teleological reasoning and its review goes beyond the Judiciary. The Executive and the Legislative Powers may evaluate each other's works. In Brazil, for instance, the President may veto the legislation coming from the National Congress, and the Congress may strike down Provisional Measures issued by the President. The same happens inside the legislative branch of the government, usually split into two organs. The Brazilian Federal Senate and the Chamber of Deputies must both approve of a law before its promulgation. It is all part of the system of "checks and balances" embedded in the separation of powers.

The spectrum of situations in which judicial review of government's decisions takes place is also worth mentioning. It has its most obvious example in Constitutional Law, but there are many more. The S.A.S x France is a case of International Human Rights Law. The origins of proportionality analysis are traced back to Administrative Law[356], and important problems may be found in the review of the decisions by Regulatory Agencies.

Whenever there is the possibility of reviewing an authority's decision, there is a crucial problem of *institutional deference*: *Should one give special weight to a decision due to the qualities of the authority that issued it?* Any serious answer to such a question demands specification: what is this special weight? What aspects of the decision deserve this distinction? The final conclusion? The reasoning? What sort of qualities must be considered? How to evaluate them? To what aspects of the decision might they be related? Should there be a verification of the actual exercise of these virtues in a case, or are they presumed? Are

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[356] SCHLINK, 2012.

there other contextually relevant information to embrace deference? The literature on judicial review may be organized as attempts to answer these questions.

There is no institutional deference if a decision is upheld because the reviewer finds it to be the right answer. In this case, the arguments alone are sustaining the decision, not the institution that provided them. If one would speak of deference in such a context, it would be a deference to reason, not to an institution. A simplified example, with people instead of institutions, might elucidate the idea. Suppose a mathematics teacher solves a differential equation and states the result to be "X = 2". If I check his calculations and find he was right, I have not attained any special weight to what he said. I did not believe him, I believed the numbers. However, suppose I had thought "He must be right, he has two PhDs, and has taught a course on calculus for over a decade" and took his word for it. Then, I would be deferring to his qualities as a mathematician. Likewise, there is institutional deference if, in a constitutional lawsuit, the government argues that tanning beds has a high risk of causing skin cancer, and the Judiciary accepts it because the Congress is presumptively good at fact-finding.

The contexts in which institutional deference should play a part in argumentation depends on a comparison between the original authority and the reviewer. Suppose a judge has to render a sentence and, instead of examining the relevant evidence, grants the request of a party because his lawyer has impressive qualifications and expertise in the area. Intuitively, the decision is absurd, because the judge is not allowed to simply defer to the personal qualities of lawyers. Why not? Because it is presumed that judges and lawyers have equal expertise in Law. But if some technical engineering evidence were needed, judges would less likely be criticized for accepting the conclusions of an expert witness. They are not supposed to know about engineering. This discussion attests that institutional deference is connected to a wider problem of argumentation theory, about when it is pertinent to use an argument from authority.

There are different qualities that can ground an institutional deference, qualifying an institution as an authority. Technical expertise is the most obvious of them, but there are more. The simple idea of being in a *position to know* something might suffice. For example,

higher courts of Law may defer to the fact findings of lower courts. It is not that the lower courts are better at dealing with facts - the judges of the higher courts usually have much more overall experience - but they are responsible for presiding over the procedure of evidence gathering and conducting hearings. They have experienced it firsthand. The democratic quality of an institution is also important. Congress is composed of elected officials, which are assumed to represent the will of the people. Judges do not have such credentials. Yet, other qualities might be considered, such as the institutions capacity of engaging in deliberation[357].

The comparison between the Judiciary and other institutions, especially those pertaining to the Legislative power, are the main theme of the literature on judicial review. The subject is challenging. The relevant qualities to be appraised and how to do it are debated. Not only theoretical capabilities, but their effective use is also in question[358]. The outcomes of the decisions are hard to measure. And the comparison between legal systems is tainted by differences that extend beyond the Law and arrive at politics, economics and culture. Hence, there are many positions, ranging from a more expansive to a narrowly reduced scope of judicial review, each with their own caveats, upholding different conceptions of institutional deference.

In spite of all the debate, there is usually a lack of accurate description of how a conception of institutional deference impact legal argumentation. Here, both proportionality analysis and the argumentation tools comes into play. Together, they allow a precise indication of the meaning and extent of institutional deference. The proportionality test modeled above is nothing but a quite complex model of how judicial review may be carried out.

It is against the background of judicial review, institutional deference and institutional design that adjustments to the model of proportionality analysis or wholly new alternative models should be considered. For instance, in the argument schemes of Section IV.2.4, I have considered the premise that "Law L promotes value X" of the Suitability

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[357] MENDES, 2013, SILVA, 2013.
[358] BERGER, 2013.

Argument Scheme to be a relative presumption. This implies a certain conception of deference. But another model could consider that "Law L promotes value X" is an ordinary proposition, an alternative that seems to be adopted by the ECHR in the full-face veil ban case (see Section IV.3.1.A). In such a model, the State has to provide evidence supporting the premise. Part of the discussion will be about the factual consequences of Law L, and part about the evaluation of said consequences as situations that promote the value X. The factual consequences may be taken as relative presumptions, if they have empirical evidence supporting it, but their evaluation as promoters of X may not. This is a different level of deference. One could consider the factual consequences based in empirical studies absolute presumptions, raising the deference. The standard of proof to reject a factual conclusion could be high, such as beyond reasonable doubt. Or the Judiciary could examine the empirical evidence in more detail, decreasing the deference. The possibilities are many.

The ECHR in S.A.S x France, for example, seems to focus its deference in the strict proportionality test, the weight comparison between promoted and demoted values, in the cases of wide reasonable disagreement. Such a position may be justified by the democratic quality of the lawmaker. If there is no clear right answer, then the decision should be taken by the most representative institution. It is a certain conception of deference, that is modeled in a high level of detail, that could still be improved. Moreover, the position could be theoretically criticized. The legislative bodies may be biased against minorities, and if they are free to weight values as they please, their interests and rights could be harmed.

Both argumentation tools and a theoretical account should be considered together. One can try to model the actual practice using argumentation tools, and find that it is contradictory, obscure and will only lead to an inchoate theoretical account. One can try to provide a theoretical account without argumentation tools, and falls shortly in describing accurately its impacts on argumentation.

Besides being useful to describe models, the argumentation tools may be yet more relevant to evaluate them. The mentioned literature revolves around deciding which institution provides better decisions, and what traces of institutional design contribute to improving outcomes. If one wants to get practical and take into account the actual

performance of institutions, he will need a method to evaluate decisions and compare them. An important aspect to be considered is the reasoning that motivates the decision. And the argumentation framework allows a precise evaluation of such reasoning. The argument maps may show, for example, that certain arguments have not been defended from attacks, as in the ECHR case (Section IV.3.3). One can use maps to compare how the same issue was addressed by different institutions. The effects of a modification in institutional design may be verified by comparing argument maps before and after the change.

In a nutshell, argumentation tools may be used to improve the discussions of institutional deference and institutional design, contributing to build models and evaluate practice.

IV.4.2 Two closed world assumptions: A set of principles and a set of alternatives

In Section IV.2.2, I argued that there were two relevant closed world assumptions, not explicitly discussed by Alexy, that played an important role: there is a closed set of values and a closed set of alternatives. Without such assumptions, I argued, one would not be able to conclude that some alternative is minimally intrusive, maximally promotional or nondominated. I also argued that, if one does not assume a closed set of values, it is also not possible to conclude that the values promoted by some Law L outweigh the values demoted by the same Law L. If there is an open possibility of some new value coming into the equation, then, in principle, the result of our balancing could be reversed.

Although I used the term "assumptions", the discussion of the ECHR case showed that, in practice, they are not taken for granted. The dissenters, for example, argued that pluralism and tolerance were demoted values not considered by the majority (according to my interpretation of their reasoning), challenging the latter views on the set of relevant values of the case (Section IV.3.2.C). If the dissenters were to explore the consequences of their argument, they could have used it to strengthen their position that the demoted values outweighed the promoted values in the concrete case.

Although seemingly innocent, the argumentative move of introducing a new value to the discussion prompts many questions: Should judges evaluate the case based solely on values considered by the lawmakers? Or should they be allowed to evaluate the case by other values? Any kind of value could be added to the relevant set by judges, irrespective of the factual analysis that their satisfaction may demand? Ought there to be some kind of limit for judicially adding relevant values to the debate? Could those limits be related to the institutional arrangement of a given legal system and to the capabilities of the Judiciary Power?

Similar questions arise from the introduction of alternatives in the dialogue. In the ECHR case, the majority argued that there was an alternative to the full-face veil ban that would equally promote public safety and demote freedom of religion less: the obligation to show the face only in specific circumstances (Section IV.3.1.B). Apart from the problems with their reasoning, discussed above, other questions could be asked: When assessing the existence of a dominant solution, where can judges look for alternatives? Should they be allowed to evaluate alternatives created and discarded by the lawmakers? Should they be allowed to create their own alternatives? Ought there to be some kind of limit for judicial devising of alternatives? Could those limits be related to the institutional arrangement of a given legal system and to the capabilities of the Judiciary Power?

All the aforementioned issues about the closed world assumptions in proportionality analysis could be summarized in two questions: *How should the set of relevant values be obtained? How should the set of relevant alternatives be obtained?* In order to achieve more control over proportionality analysis, one needs to define rules for the introduction of values and alternatives in the discussion. Such rules could be embedded in a procedure to determine the sets of relevant values and relevant alternatives, which would enhance the reasoning quality, letting the assumptions be confidently endorsed by the dialogue participants. Such a procedure should be designed to identify all relevant values and alternatives, respecting eventual limitations justified by considerations of institutional arrangement and the need to decide in a reasonable time. These rules and procedure could consciously enforce some institutional arrangement that regulates judicial review and minimize dynamic criticism (see Chapter I for the concept).

An exhaustive discussion of what would be the appropriate rules and procedure for establishing the set of relevant values and the set of relevant alternatives is no easy task. It would require a thorough answer to all questions above, which is beyond the scope of this work. However, I may present in broad strokes, the outline of the rules and procedures for both closed world assumptions. As I will show, this discussion implies a revision of the suitability and necessity steps of proportionality analysis, by adding some layers of detail that may reflect choices of institutional arrangement.

I shall start by discussing the design of rules and a procedure to obtain a set of relevant values, which may be defined as those effectively promoted or demoted by the lawmaker's measure. In order to do this, one needs to account for three elements: a *description of the factual consequences* of the measure, a *superset of legal values*, from which the relevant values are taken, and the existence of a *threshold* for effective promotion or demotion.

The *description of the factual consequences* is necessary to obtain a closed set of relevant values, for one subsumes facts into values: different consequences mean different values being promoted or demoted. Two discussions may arise from factual descriptions. First, there may be a disagreement between the scenario envisioned by the lawmaker and the one imagined by the Judiciary. It is challenging to establish factual consequences and some difficulties have been presented above in the discussion concerning the degree of reliability as a component of the concrete weight of a value (Section IV.2.3). Second, there might be discordance as to whether some fact amounts to the promotion or demotion of some value. The issue here is not only that people may disagree about the legal evaluation of some fact, but that facts may not be described by the lawmaker or the Judiciary if they find them not valuable (not relevant). Usually, one describes only the facts he considers legally relevant, which means that the description itself somehow depends on legal values. In other words, one may refrain from describing some fact if he finds that there is no legal value affected by it. This appraisal may be criticized if another reasoner disagrees about such legal evaluation. Given that one aim of designing the institutional arrangement is to minimize dynamic criticism, this issue must be dealt with.

The first problem, of competing views about facts, prompts questions about limiting judicial analysis of facts. Given judiciary capabilities, it may be the case of limiting their possible arguments, according to their type or required non-legal technical knowledge. A wide array of arrangements may be conceived, strongly connected to the problem of institutional deference. For my purposes, the acknowledgment of the issue is sufficient. The second problem, disagreement about fact evaluations, has been exemplified by the ECHR case, in the discussions of "gender equality" and "dignity" suitability (Section IV.3.1.A). It is difficult to devise an arrangement limiting such arguments from the Judiciary unless one wants a radical revision of proportionality analysis. It must be highlighted that the legal proceedings minimize the risk of a potentially relevant fact not being described, since it allows different parties with opposing views to present their arguments, all of them duly described in the decision. The importance of the due process law (and, notably, of the adversarial principle) becomes clear, as well as the practice of reporting all arguments.

Finally, the *superset of legal values* ideally comprises all legal values, since they are all potentially relevant for an actual case. The reasoner would test one by one to verify whether they are promoted or demoted, considering the facts. A complication seems to arise from this ideal procedure: there is no clear list of legal values. They are often a result of interpreting legal rules and practices of various sources, and they might have some gender and species relations (e.g. equality and gender equality, no pun intended). If one were to draft a tentative list of legal values, it would be extremely long and cumbersome to analyse, given the spectrum of legal experience. Nonetheless, in legal practice, experienced lawyers know where to look at, finding relevant values without scanning through all existent statutes and decisions. I will not be able to investigate all the reasoning operations hidden in this ability, but it is worth noting that many times the work is made easier by looking at values of the same hierarchy laid down by the same statute. For example, in ECHR cases, one looks for relevant values in the articles of the European Convention of Human Rights, while, in Brazil, one uses the Federal Constitution. In both cases, the respective Court's jurisprudence is also an important source.

For the purposes of designing institutional arrangements, one may think of explicitly limiting the possible sources of legally relevant values or the arguments that may lead to the recognition of some value. The dissenting vote in the ECHR case above provides an example of the problem when it was argued that one could not accept "living together" as a value protected by the European Convention of Human Rights (Section IV.3.2.A). The lack of clarity regarding the possible sources and arguments to obtain legally relevant values allowed the disagreement to take place.

Finally, the idea of a *threshold* is critical to establish the set of relevant values. It is possible to consider relevant any value which has suffered a marginal change in its level of promotion or demotion. However, this policy tends to complicate the reasoning in all steps of proportionality analysis by increasing the number of values taken into account, and might also result in more laws being considered invalid, as slightly different alternatives could be considered dominant (necessity step) by some small marginal gain. A sufficiently high threshold, as expected, would have the opposite effects.

This problem has appeared in the literature in the discussion of rough equality and parity, already explained above (Section IV.3.1.B). When it comes to the design of an institutional arrangement, one needs to clearly establish a rule that states whether there is a threshold and what it is. If there is a threshold, one step of the reasoning must be to test whether the promotion or demotion surpasses it. I have already suggested (Section IV.3.1.B) that one may use an ordinal scale to describe the change in promotion or demotion.

Before moving onto the next assumption, a crucial remark must be made, which shows that the set of values and the set of alternatives are somehow entangled. Alternatives may lead to different factual consequences which, by its turn, may affect different legal values. For example, Law L may lead to facts F_1, resulting in the promotion of X and the demotion of Y to some extent. Alternative A may lead to facts F_2, resulting in the same level of promotion for X and demotion for Y, but also promoting Z. Should one allow judges to devise alternatives which affects a different set of relevant values than the original legal measure? Should those different values be considered relevant in proportionality analysis? Both questions must be answered to define the arrangement satisfactorily.

The following scheme summarizes the variables discussed herein to design a procedure for establishing the set of values to be considered in proportionality analysis:

Factual consequences
- *Description of the facts*
- *Evaluation of the facts*

Superset of legal values
- *All legal values / Limited sources of legal values*
- *Different values affected by alternatives*

Threshold for effective promotion or demotion
- *No threshold / Some definite threshold*

Now, I shall examine the rules and procedure that leads to a closed set of alternatives. Just like with the values, one needs a list of alternatives, to be evaluated one by one in comparison to the lawmaker's measure. The core problem is how to obtain such a list of alternatives. Where might judges look for them? The *status quo ante* is always relevant for comparison and will not be considered an alternative for these purposes.

The first group of alternatives to be taken into consideration could be those already *discussed by the lawmaker* before the legislation enactment. Since the task of proportionality analysis is to review the lawmaker's decision and its justification, it is only natural to start there. The second place to look for alternatives could be *comparative law*. The experience of other countries that have addressed the same issue is invaluable. Of course, much care is needed when one intends to proceed like this. Not only the fact situation might be different somehow, but the legal systems are themselves distinct. There is always some degree of analogical reasoning embedded in such a comparison. In addition, the very legal system in which the measure is being adopted may offer examples of similar situations, but, again, some analogy would be necessary. Finally, one can appeal to *legal history* (of any legal system), although an even more careful analysis would be needed in order to compare situations and draw the adapted alternative.

Besides those alternatives entertained by the lawmaker, all of my suggestions are based on legal experience and demand an exercise of comparison. Although the idea of experience may provide some constraint, one can be dangerously creative in drawing analogies. Being mindful, I have ordered the possible sources of alternatives according to the degree of similarities between the original experience and the actual case, from the most to the least similar. It should be highlighted that the sources of alternatives above may as well serve the lawmaker.

While designing the procedure, one must bear in mind not only the inclusion of alternatives in the list, but also the exclusion of alternatives whose evaluation by judges might not be desirable. It may be the case that the alternative needs to be devised in great detail, or that its evaluation demands a lot of factual and technical knowledge. Judges in general are not prepared to deal with these situations. Therefore, their capabilities fall short of the task at hand. For such events, one may create a rule to exclude these alternatives from judicial scrutiny. Another possible reason for exclusion is that an alternative affects a different set of values than the existing measure, as already commented.

The procedure's control of judicial review will be determined by the conjugation of rules for including and excluding alternatives. For example, one may limit judicial review by allowing as the only possible source of alternative for proportionality analysis those already discussed by the lawmaker. On the other hand, one could expand judge's powers by allowing the inclusion of any alternative, even beyond the sources above.

The procedure can be designed in even greater detail if one considers permissions, obligations and prohibitions. One may permit, obligate or prohibit the inclusion of alternatives in the list. For instance, the judges may be obliged to include the alternatives discussed by the lawmaker, allowed to include alternatives from comparative law and forbidden to include any other alternative. The rules of exclusion can be modeled as exceptions to the rules of inclusion. The evaluation of one of the alternatives discarded by the lawmaker, for example, may demand factual knowledge out of the scope of Judiciary capabilities. Thus, an exclusion rule may be applied as an exception to the obligation to include.

The following scheme summarizes the variables discussed herein to design a procedure for establishing the set of alternatives to be considered in proportionality analysis:

Inclusion of Alternatives (rules)
- *Possible sources (lawmaker's discussion, comparative law, national law, legal history)*
- *Permission, Obligation or Prohibition to include*

Exclusion of Alternatives (exceptions)
- *Judiciary capabilities*
- *Alternatives that affects different values*

These procedures will be incorporated in a revision of the proportionality analysis model.

IV.4.3 A refined model of proportionality analysis and its argument schemes

After the discussion of the ECHR case in Section IV.3, and the discussions of Sections IV.4.1 and IV.4.2, I may revise the proportionality analysis model and the argument schemes presented in Section IV.2.4. The refined model I am about to present intertwines unspecified procedures with revised argument schemes.

IV.4.3.A Legal Possibility and Suitability

The investigation of the suitability step revealed that the test must undergo many changes. First of all, there is the need to deal explicitly with the possibility of an *illegal action* being prescribed, even if the value is permissible, as discussed in Section IV.3.2.A. Second, not only the promoted values, but the *demoted values* have to be considered. This is crucial to verify the need of continuing the analysis (Section IV.2.1), whether the promoted values are legally permissible (Section IV.3.1.A), and establish the set of relevant values (Sections IV.2.2 and IV.4.2). Although a measure that promotes at least one value is still suitable, it is not possible to carry out the necessity step analysis without a clear set of the

demoted and promoted values. Lastly, it is not proper to speak of balancing unless there is at least one promoted and one demoted value. Another issue to be considered in suitability is that there might be a *threshold of relevance* to the promotion or demotion of some principle (Sections IV.3.1.A and IV.4.2).

The problems will be solved by revising existing schemes and providing new ones. Let us start with the revision of the Argument Scheme for Proportionality Analysis:

Proportionality Analysis – Core	
Warrant (strict)	If Law L is legally possible, suitable, necessary, and strictly proportional, then, Law L is legally valid.
P₁ (Legal Possibility)	Law L is legally possible.
P₂ (Suitability)	Law L is suitable.
P₃ (Necessity)	Law L is minimally intrusive/maximally promotional/ nondominated
P₄ (Strict Proportionality)	Law L is strictly proportional.
Conclusion	Law L is legally valid.

Proportionality Analysis – Critical Questions	
Q₁ (Legal Possibility)	Is Law L legally possible?
Q₂ (Suitability)	Is Law L suitable?
Q₃ (Necessity)	Is Law L minimally intrusive/maximally promotional/ nondominated?
Q₄ (Strict Proportionality)	Is Law L strictly proportional?

This time I have not defined a burden of proof for each proposition, as a way to acknowledge the different modelling possibilities. More importantly, I added a new premise to the scheme concerning the *legal possibility* of Law L. This is supposed to account for the cases in which Law L is invalid, for instance, because the action it prescribes is illegal, like argued by the minority in Section IV.3.2.A. In such a case, there is no need to evaluate the promoted or demoted values, it is just a matter of verifying whether Law L violates some hierarchically superior legal norm. A simple example is illuminating. Suppose the Brazilian

National Congress enacts a law authorizing the use of "*pau de arara*" (a form of torture used in Brazilian Military Regime) in criminal investigations to obtain confessions. One does not need to verify the promotion or demotion of any value to arrive at the conclusion that this law is invalid. It is clearly against a norm which can be interpreted from Article 5, III of the Brazilian Constitution.

Some law may also be invalid for its enactment does not abide by procedural rules of legislative proceedings. It may have been approved without the necessary *quorum* or by the wrong authority. For practical heuristic purposes, it is worth distinguishing these procedural reasons for invalidity from the material ones. The Argument Scheme for Legal Possibility will be used to establish the truth of P_1:

Legal Possibility– Core	
Warrant (strict)	If Law L has been duly enacted, prescribes action A, and action A is legally permissible, then, law L is legally possible.
P_1 (Enactment Procedure)	Law L has been duly enacted.
P_2 (Prescribed Action)	Law L prescribes action A.
P_3 (Action Permissibility)	Action A is legally permissible.
Conclusion	Law L is legally possible.

Legal Possibility – Critical Questions	
Q_1 (Enactment Procedure)	Has law L been duly enacted?
Q_2 (Prescribed Action)	Does law L prescribe action A?
Q_3 (Action Permissibility)	Is action A legally permissible?

Law L does not correspond necessarily to an entire statute, but possibly to a single article or paragraph. Eventual adjustments may have to be made to the scheme, to account for the differences between the declaration of invalidity of certain provisions and of a whole statute, but I will let them to upcoming research.

This all leads to the creation of a new step in the analysis that is not directly related to the promotion or demotion of values. However, since the conclusion of the original Proportionality Analysis scheme is the validity of Law L, such a discussion is necessary. The legal possibility is a presupposition of proportionality analysis. If one dislikes such configuration of the schemes, he may change the conclusion of the Proportionality Analysis scheme to "Law L is proportional", and create another one according to which if "Law L is proportional" and "Law L is legally possible", then "Law L is legally valid". But this is only a matter of preferred organization, without conceptual differences.

It should be highlighted that, in some contexts, the proposition about the enactment procedure may be discarded. A court of human rights, for example, might only consider the legal proceedings insofar as they are relevant to find justifications for the law, but will not be concerned with constitutional rules about the procedure to promulgate statutes.

Now, before evaluating suitability, one needs to identify all relevant values being promoted or demoted. As argued in Section IV.4.2, this depends on establishing the factual consequences of the debated legal measure. I will not describe the details of this reasoning step, for it is well beyond the scope of this work, but a complete model will depend on answering questions such as: should judges engage in fact finding activities? Should there be an institutional deference to the facts claimed by the lawmaker or other authorities? How will this deference impact the argumentation? What are the argument schemes for reasoning about facts?

It is not my concern where to look for potentially relevant values, although such a procedure would be important to confidently ensure the closed world assumption about values (Section IV.4.2). But I need to provide new argument schemes to structure arguments whose conclusion is that a value is actually relevant, promoted or demoted. Hence, the Argument Scheme for Value Relevance:

Value Relevance – Core	
Warrant (strict)	If and only if value X is legally permissible and Law L affects value X beyond threshold α, then Law L is suitable.

P₁ (Permissibility)	Value X is legally permissible.
P₂ (Effectiveness)	Law L affects (promotes or demotes) value X.
P₃ (Threshold)	Value X is affected beyond threshold α.
Conclusion	Value X is relevant.

Value Relevance – Critical Questions	
Q₁ (Permissibility)	Is Value X legally permissible?
Q₂ (Effectiveness)	Does Law L really promote value X?
Q₃ (Threshold)	Is value X really affected beyond threshold α?

The new scheme is very similar to the original one about suitability. The few differences are that the conclusion is not about suitability, in P₂ the value may be promoted or demoted, and I have added P₃ to account for an eventual threshold of relevance. The truth of P₃ obviously presupposes P₂, and the propositions could be merged. I have decided to maintain the premises separated for two reasons. If there is no threshold, P₃ may be dispensable. And the discussion about the threshold is about weight, which may involve different arguments than those merely arguing that the value has been affected.

The sets of relevant values - promoted, demoted or both - may be easily obtained by the union the conclusions of various arguments of value relevance (warrants and critical questions omitted).

Set of Relevant Values Promoted by Law L – Core	
P₁	Value X_1 is relevant and has been promoted by Law L.
P₂	Value X_2 is relevant and has been promoted by Law L.
(…)	(…)
Pₙ	Value X_n is relevant and has been promoted by Law L.
Conclusion	The set of relevant promoted values is $(X_1, X_2, \ldots X_n)$.

Set of Relevant Values Demoted by Law L – Core	
P₁	Value Y_1 is relevant and has been demoted by Law L.

P$_2$	Value Y$_2$ is relevant and has been demoted by Law L.
(…)	(…)
P$_n$	Value Y$_n$ is relevant and has been demoted by Law L.
Conclusion	The set of relevant demoted values is (Y$_1$, Y$_2$, … Y$_n$).

Set of Relevant Values Affected by Law L – Core	
P$_1$	The set of relevant promoted values is (X$_1$, X$_2$, … X$_n$).
P$_2$	The set of relevant demoted values is (Y$_1$, Y$_2$, … Y$_n$).
Conclusion	The set of relevant values is (X$_1$, X$_2$, … X$_n$, Y$_1$, Y$_2$, … Y$_n$).

The original Argument Scheme about Suitability is still applicable, for it is some sort of species of the Argument Scheme for Value Relevance, focused in promoted values. The only amendments are the eventual addition of a premise to account for a threshold of relevance, and the change of the burden of proof of P$_2$ to an assumption, following the partial conclusions of Section IV.3.1.A. Given the doubt between an ordinary proposition and an assumption, I preferred the latter, for it is less demanding for the State, being closer to the relative presumption of the original scheme:

Suitability – Core	
Warrant (strict)	If and only if value X is legally permissible and Law L promotes value X, then Law L is suitable.
P$_1$ (Permissibility)	Value X is legally permissible.
P$_2$ (Effectiveness)	Law L promotes value X.
P$_3$ (Threshold)	Value X is affected beyond threshold α.
Conclusion	Law L is suitable.

Suitability – Critical Questions	
Q$_1$ (Permissibility)	Is Value X legally permissible? (*relative presumption*)
Q$_2$ (Effectiveness)	Does Law L really promote value X? (*assumption*)
Q$_3$ (Threshold)	Is value X really affected beyond threshold α?

After obtaining the sets of relevant values and ascertaining Law L's suitability, it is time to determine whether the analysis should continue. This expanded suitability step may have the outcomes detailed in the following table (inspired in the one found in Section IV.2.1), given the interpretation that if "Promote X" is true, then there is at least one relevant promoted value and that if "Demote Y" is true, then at least one relevant value is demoted:

Promote X	Demote Y	Result
T	T	Suitable
T	F	Proportional
F	T	Unsuitable / Not proportional
F	F	Irrelevant

In the first case, the Law L is suitable, and the analysis must proceed. In the second and third cases, the proportionality analysis ends in this very step. One must remember that a decision is proportional if its marginal gains outweigh its marginal losses. In the second case, the proportionality is clear, since there are marginal gains without marginal losses. In the third case, the lack of proportionality is clear, since there are marginal losses without marginal gains. The fourth case is the highly unlikely irrelevant case.

I will consider that describing the factual consequences of Law L, establishing the set of relevant values affected by Law L and determining whether Law L is suitable, are three stages of the suitability step. Indeed, the description of factual consequences and the verification of relevant demoted values are necessary to conclude for or against suitability, and whether the proportionality analysis should continue.

IV.4.3.B Necessity (or Nondominance)

The next step of the reasoning is to establish the potential alternatives to Law L. I will not describe any procedure to find them, but I shall call valid an alternative that has been obtained by following the rules of inclusion and exclusion of alternatives (discussed in Section IV.4.2 above) of a given institutional arrangement.

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Alternatives will lead to different factual consequences, and, as discussed above, depending on institutional arrangement, some of them may affect other values than Law L. Hence, one shall repeat the steps of clearly establishing the factual consequences for each alternative, and then verify the relevant values, by applying the Argument Scheme for Value Relevance. As a remark, institutional arrangement may consider the factual consequences or the relevant values affected as criteria to deem the alternative invalid for comparison. Therefore, in practice, this order of analysis may vary.

After defining the valid alternatives, their factual consequences and values affected, one shall compare each alternative with Law L. The comparisons shall be done by using the Argument Schemes for Minimal Intrusion, Maximal Promotion and Nondominance, presented in Section IV.2.4 above.

It should be noted that the assessment of dominance depends on knowledge about how much the relevant values were promoted or demoted, in other words, their concrete weight (as discussed in Section IV.3.1.B). It is not possible to affirm that alternative A promotes X more than Law L or demotes Y less than Law L without some scale of comparison. Hence, although the weight is associated with the strict proportionality step, it should be first assessed here. Maybe this is not clear in the literature on the subject because the alternatives are discussed in a simplistic way, which may lead an unwary analyst to believe there is no weight assessment.

The determination of the valid alternatives to Law L, their factual consequences, relevant values, concrete weight of values affected, and the comparison of the alternatives to Law L in order to verify dominance are all stages of the necessity step. I have just made each stage explicit, as different and necessary reasoning operations. The definitions of Section IV.2.2 and the argument schemes of Section IV.2.4 remain sound and must be used in the comparison stage.

IV.4.3.C Strict Proportionality

Finally, the last step is the strict proportionality analysis. Here, the concrete weight of the promoted values will be balanced against the concrete weight of the demoted values. If the promoted values outweigh the demoted ones, then Law L is strictly proportional. As already argued in Section IV.2.3, there are many difficulties arising from weight assessment, which are going to be emphasised in the next section.

The only, but very important, review of the step, is to consider the existence of a discussion about a margin of appreciation which may exclude proportionality analysis (as shown in Sections IV.3.1.C and IV.3.2.D). The "wide margin of appreciation" may be a particular doctrine of the ECHR, but in general, it represents the recognition that *some conditions may lead to institutional deference and the exclusion of the strict proportionality analysis from judicial review*. Of course, these conditions may vary according to different jurisdictions, so, the argument scheme should account for this general exception, and not be attached to the particular ECHR doctrine.

Thus, I have incorporated a new critical question to the Argument Scheme for Strict Proportionality (warrant omitted), based on this general exception of institutional deference:

Strict Proportionality (two values) – Core	
P₁ (promoted values)	Law L only promotes value X.
P₂ (demoted values)	Law L only demotes value Y.
P₃ (promoted weight)	Value X, as promoted by Law Y, has the concrete weight W_x.
P₄ (demoted weight)	Value Y, as demoted by Law L, has the concrete weight W_y.
P₅ (outweighing)	W_x is greater than W_y.
Conclusion	Law L is strictly proportional.

Strict Proportionality (two values) – Critical Questions	
Q₁ (promoted values)	Does the Law L promote other values than X?
Q₂ (demoted values)	Does the Law L demote other values than Y?
Q₃ (promoted weight)	Does value X really have the concrete weight W_x?
Q₄ (demoted weight)	Does value Y really have the concrete weight W_y?
Q₅ (outweighing)	Is W_x really greater than W_y?
Q₆ (institutional deference)	Are there any conditions of institutional deference to be taken into account?

If Q_6 answer is positive, the scheme is rendered inapplicable, and all the arguments about the premises become useless. The idea is that, if the conditions for institutional deference are present, then Law L is strictly proportional; otherwise, it is open to discussion. The decision to model it as a critical question instead of a premise is debatable and only provisory, since the burden of proof for the proposition is not clear. I have decided to model it as Q_6 to make minimal changes to the existing scheme.

IV.4.3.D Proportionality Analysis Revisited

After having suggested changes in each of the steps of proportionality analysis, as a consequence of the discussions carried out in this Chapter IV, I now present an overview of the issues involved in the revisited proportionality analysis test, with four steps:

Legal Possibility
  - *Lawmaking proceedings leading to Law L*
  - *Validity of the actions prescribed by Law L, according to hierarchically superior norms*

Suitability
  - *Factual consequences of Law L*
  - *Relevant values affected by Law L*
    - *Weight assessment to verify threshold*
  - *Suitability (at least one relevant promoted value)*

*- If there are no relevant promoted values or relevant demoted values,
the analysis ends*

Necessity

    - Valid alternatives to Law L

    - Factual consequences of each alternative

    - Relevant values affected by each alternative

      - Weight assessment to prepare for comparison

    - Necessity (minimal intrusion, maximal promotion or nondominance)

Strict Proportionality

    - Institutional Deference (excludes strict proportionality)

    - Relevant values affected by Law L

    - Weight assessment to prepare for balancing

    - Strict Proportionality (do promoted values outweigh the demoted values?)

There is still much research to be done regarding each issue, argumentation tools and procedures to be developed, tests to be carried out, and precise models to be built. The next section briefly addresses two important challenges, one of which has not been considered until now.

IV.4.4 Further Challenges for Proportionality Analysis

IV.4.4.A Weight Assessment

The most evident challenges arise from the weight assessment in strict proportionality analysis. Although the notions of an ordinal scale and of parity certainly contribute to make it seem more plausible, there is much still left to intuition. The issues raised in the end of Section IV.2.3 persist: How to determine the value of a variable within an ordinal scale? How are the variables of the 'Weight Formula' combined to determine the concrete weight? How does the accrual of weights work?

A possible line of research that would be interesting to start addressing these problems is to consider that the value within an ordinal scale is determined by a series of *factors*, which may be binary or scalar. Such factors are to be found in concrete cases, and are related to particular values. For example, the majority of the ECHR discussed some factors (Section IV.2.3.C), although they have not performed strict proportionality analysis due to the recognition of a margin of appreciation. They considered, for example, that just a few people would encounter someone wearing a full-face veil, and that the women affected could be troubled by social isolation. Thus, the quantity of people affected by "living together" seems to be important somehow, while the risk of minorities being further excluded from community life is relevant to "freedom of religion" and "private life".

A consistent study of the relevant factors that affect some value may lead to a more systematic treatment of the ordinal scales. Maybe, it would be possible to create a list of factors and indicate what combinations of them lead to certain levels of demotion of promotion of a principle. To be sure, the thorough investigation of actual cases and detailed factors will be of the essence, if one aims at building a useful list.

A systematic treatment of factors could lead to rationally controlled *a fortiori* arguments from precedent[359]. For example, if in a case a low risk of minority exclusion was sufficient to strike down a Law based on "private life", in a future case about the same value in which there is a great risk of minority exclusion, the case should be decided likewise. Of course, the reasoning with precedents will be more precise as the knowledge about the relevant factors grew more accurate.

IV.4.4.B Omission, Social Rights and Effects Modulation

Not only does the recognition of the existence of legal values leads to consider certain actions from the Government illegal, but the omission also does. For example, if the constitution of a hypothetical country has a provision regarding a generic "right to health", then "health" will be interpreted as a relevant value to be promoted. In addition, it is possible to interpret that there is a minimum threshold of the value's promotion. If the Government's

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[359] SARTOR, 2013, Section 13 "*Consistency in Balancing*".

actions are not able to surpass said threshold, then, they are insufficient and, consequently, illegal. This is known as the *prohibition of insufficiency*[360].

The argument schemes presented above are not designed to deal with this problem. They are all based on the evaluation of a certain Law that does not exist. It is not possible to verify whether it is effective, neither to compare it to alternatives, nor to evaluate if its marginal gains outweigh its marginal losses. The problem will be easier to solve if the State should have carried out some specific action, for it is just some norm application. But the discussion about the parameters of sufficiency is bound to be difficult. Thus, new argument schemes may be required.

Social rights offer extra challenges for a judicial review based on proportionality analysis. These are the rights of an individual to a peculiar positive state action: the provision of a good or service that the individual could obtain on the market from private parties, if only he had sufficient financial means, and if only there were sufficient offers[361]. Notable instances are the rights to healthcare, housing and education. Such rights all may be treated as values, since they may be promoted to a higher or lesser extent.

The problem is that social rights do not conflict in the same way as values like "freedom of expression" and "privacy". If the Government chooses to invest in schools to promote education, it is not directly demoting healthcare, housing or any other social right. However, since resources are scarce, and the money could be used differently, in some sense it is forfeiting every other imaginable social right. Thus, it is possible to speak of a *global indirect conflict* between social rights, in opposition to a *local direct conflict* of other values, which are related to specific actions[362]. These considerations must be taken into account when discussing the limits of judicial review, and may lead to further exceptions to the application of the argument schemes for proportionality analysis.

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[360] SILVA, 2002.
[361] The definition of social rights is taken from Robert Alexy. ALEXY, 2008, p. 499.
[362] The ideas of this paragraph have been taken from the unpublished paper "*All Rights Cost, but Some are Priceless*" by Luís Fernando Matricardi Rodrigues, submitted to me by the author.

Finally, the Brazilian Supreme Court has engaged into the practice of *modulating the effects* of its decisions. For example, to avoid massive expenses for the Federal Government, the Court may rule that some tax is unconstitutional, but only from the moment of the decision onwards (*ex nunc*). Otherwise, there would be the need to return great amounts of money to taxpayers, which could harm the Government's financial equilibrium. Such discussions would also require new argument schemes or adaptations in the existing ones.

IV.5 Is Proportionality Analysis Rationally Controllable?

At the beginning of this Chapter, I said that proportionality analysis was subject to criticism, because it was too vague and empowered judges too much. Without entering into details, there is an important question that seems to be on the basis of much criticism: is proportionality analysis rationally controllable? Or are the decisions arbitrary? After the extended discussions of this Chapter, I want to spare a few words in defense of proportionality analysis.

Most concerns are directed to the activity of weight assessment, especially in the last step, but proportionality analysis is not circumscribed to it. Actually, this is just a small part of the story. The case of Section IV.3 shows that. Amidst the many discussions, even the strict proportionality step was solved without resorting to weight assessment, but by discussing the conditions in which it may take place.

The weight assessment is still problematic if one wants a rigorous standard, but there are possible ways of developing the method further, as I have briefly commented on Section IV.4.4.A. Besides, difficulty should not be a reason to throw the problem of weight assessment out the window. If it is not a problem for the Judiciary, it is a problem for the lawmaker. Although academics have an obsession with the activity of judges, the enterprise of Law is much more than that.

The lawmaker's decisions are supposed to be grounded in reasons and a model to evaluate these decisions is required. Teleological reasoning is about finding an appropriate outcome, and we need a model able to compare alternatives while balancing values

(compensatory model, Section IV.1.2) without using numbers. The notions of ordinal scale and parity in the literature of proportionality analysis are a good start on how this can be done. The unacceptable alternative is to admit whatever decisions the lawmakers make, just because they are 'political'. This would be much more arbitrary than any flawed attempt to deal with weight assessment. Instead of criticism, everyone would benefit much more from a 'how to do it' approach.

To be clear, I am not stating that the Judiciary should be allowed to perform weight assessment, nor the contrary. I simply consider that, despite its shortcomings, its investigation is still promising and as important as ever. And even if weight assessment is limited or excluded, there are still a wide range of possible proportionality analysis models to be designed.

Back to the general defense, proportionality analysis offers a model of judicial review which tries to accurately trace its limits. Therefore, there is notable concern with its *rational control* and, consequently, legal certainty. Concomitantly, it also allows dynamic criticism of the teleological reasoning of the lawmaker, which seems quite important if a society wants to be sure of the quality of their laws. I would say that the analysis provides a limited critical review, a *teleological reasoning double check*.

In this double check activity, proportionality analysis depends on a wider framework for legal reasoning. As the case of Section IV.3 has shown, many types of arguments were used, while the schemes of proportionality analysis provided only the backbone, with the discussions branching from it. If one is to take the question of rational control seriously, he must be reminded that proportionality analysis is just a tool, not the toolbox. Thus, the relevance of a precise argumentation framework.

CONCLUSIONS
THE REASONABLE ANSWER

This work intended to advance an *in-depth study of proportionality analysis* grounded in the *argument scheme approach to investigate rules of legal argumentation*, that was meant to provide a detailed description of legal argumentation involving values (principles, in Alexy's terminology). Such an approach is based on the combination of tools of argumentation theory (not only argument schemes, in spite of the name) with accounts of legal theory, and their application to real, preferably hard, cases. This investigation followed the seven-step methodology detailed in Chapter II, Section II.2.B. Indirectly, it also provided, by the means of illustration, a support of the four claims stated in Chapter I, Section I.5, related to the argument scheme approach. It is time to retrace the path, highlight some key remarks, and indicate what I believe to be the humble contributions of this work.

In Chapter I, I started distinguishing between a static and a dynamic perspective on the right answer, and defined the concepts of best answer available and ultimate answer, respectively, the results of an analysis of the existing arguments and of every conceivable argument. A model of argumentation could help us find these answers, so, I introduced its basic elements: a knowledge base, inference structures, preferred extensions (related to attacks and burdens of proof), and a dialogue protocol containing rules of argumentation, including procedural rules and those related to all other elements. The notion of an audience emphasised the importance of context in building a model, and the Latin aphorism "*quod non est in actis non est in mundus*" balanced it with the need to consider every contextual aspect according to the aforementioned elements. The description clarified the dialogical setting in which argumentation may occur.

Still in Chapter I, I first presented the concept of argument scheme and also limited the object of investigation to arguments about legal rules in the context of a judicial lawsuit, reinforcing the emphasis on those related to proportionality analysis. Further advantages and delimitations of the argument scheme approach were introduced. The argument scheme's flexibility to deal with lower levels of abstraction rather than traditional formal logical accounts, possible applications to artificial intelligence, and the fact that other tools must

complement the approach, were regarded as especially important. The Chapter ended with four claims whose support are a side-effect of the work, and which I repeat here for the sake of convenience:

First Claim (Legal Theory): It is possible to decide which legal argument is stronger and, consequently, whether there is a best answer (a right answer from a static perspective), in the context of judicial adjudication.

Second Claim (Legal Theory): Legal argumentation and institutional design are intrinsically connected.

Third Claim (Approach to Legal Theory): Argumentation tools, in general, and argument schemes, in particular, are useful to investigate legal argumentation, institutional design and legal theory.

Fourth Claim (Approach to Legal Theory): Real cases are important to develop argumentation tools, in general, and argument schemes, in particular.

I began Chapter II discussing in detail fundamental concepts for a proper understanding of argument schemes: rules of inference, burden of proof and attacks. Some minor technical contributions were introduced. Preliminarily, a tentative distinction between the rules in the premises of an argument and the rules of inference. Regarding burden of proof, I proposed a twofold classification of propositions, related to the act of assertion, on the one side, and the acts of contest and support, on the other. The classification of the restrictions to the act of assertion was wholly novel, as far as I am concerned, while the other was strongly built on previous work. A classification of the propositions status was also created based on antecedent studies. With respect to attacks, I also introduced a new twofold classification of attacks (structural and functional), and a distinction from procedural objections, drawing on previous attempts. The descriptions of the different ways in which an exception may be used as an attack, and the potential acts involved, are worth highlighting. In all cases, the explicit comparison to existing literature was left to footnotes, due to the presentation style assumed in the Introduction. Nevertheless, further discussions

on each technical contribution might be made in future opportunities, by the submission of papers and articles to the appropriate conferences and journals.

Chapter II continued with a structured presentation of the definition of a scheme and, most importantly, of a seven-step methodology for their investigation and refinement, which also expanded previous work. On the one hand, it emphasised the importance of context, especially domain theoretical accounts and the activity of testing a scheme with real cases. On the other hand, it detailed the construction of the argument scheme as a representation device. A simplified convention for argument maps was introduced, with the peculiar features of using a list of propositions, as well as a collapse and expand dynamics, which aids in dealing with extended argument maps.

After the definition of argument schemes and a methodology for their investigation, relevant issues concerning argument schemes were debated. I explained that rules of argumentation are accepted by a collectivity, which uses them in practice as a pattern to evaluate argumentation. These rules are inscribed in argument schemes. Next, I discussed in what sense an argument scheme and the rules of argumentation may be considered binding, given a dialogical setting of arguments that attack each other and the lack of a deductive demonstration. I argued for the existence of a dialectical cogency, in which one identifies the best answer available by applying the rules of argumentation of a dialogue protocol: in the absence of deductive arguments, this is all the cogency one can expect. It was also shown how argument schemes can handle different degrees of abstraction. Finally, I introduced some difficulties in argument reconstruction, and the relevance of an argument scheme classification.

An interesting point about these discussions, only mentioned in passing in Chapter II, is that they may be related to discussions of legal theory. First, if there are rules of legal argumentation, maybe we will need to review our picture of the Law as a system of rules arising from authoritative sources (legal positivism source's thesis). Legal norms, and propositions of Law in general, in some way derived from rules of legal argumentation, should also be included as part of the Law. Second, the debates about the existence of a legal right answer in hard cases (legal positivism discretionary thesis) benefit from the concept of

dialectical cogency, which specifies in what sense one may speak of a right answer. At last, by showing how legal argument schemes relate to more general argument schemes, one may describe more accurately the relation between practical reason and legal reasoning, its coincidences and differences.

In the last section of Chapter II, I sustained why would it be important to develop legal argument schemes, focusing on the advantages of an enhanced precision in argumentation for hard cases, teaching and artificial intelligence. The limitations of current literature using a similar conceptual framework to address legal reasoning were also mentioned.

Chapter III offered a very brief overview of discussions about the application of rules and use of precedent, the cornerstones of legal certainty. I presented an argument scheme for applying legal norms that allows for the discussions of facts and evidence, legal qualification of facts, interpretation and validity of legal norms, aiming to cover all possible legal discussions. I also commented on the difficulties of using a precedent, which is a complex piece of reasoning that applies rules to solve legal issues, presented an argument scheme for a particular use of it (strict use of precedent), and indicated lines of inquiry for future research.

In Chapter IV, I applied the seven-step methodology for the investigation of argument schemes. I informally described proportionality analysis, framing it against a background of teleological reasoning. Then, I resorted to the literature of Multiple Criteria Decision Making and Measurement Theory to describe some basilar useful concepts for teleological reasoning. In the next section, I discussed in detail Robert Alexy's theoretical account of proportionality analysis, having as a main reference the 2002 Afterword of the book "*Theorie der Grundrechte*" (*A Theory of Constitutional Rights* in the English translation, *Teoria dos Direitos Fundamentais* in the Portuguese translation). In this way, domain theoretical literature was used to identify the relevant propositions. Thus, after discussing Alexy's theory, I built a first version of the argument schemes for proportionality analysis, highlighting possible discussions about the burden of proof of the propositions.

Subsequently, the argument schemes were tested in a long discussion of the case S.A.S. x France (Application 43835/2011, decision 1st July 2014), adjudicated by the European Court of Human Rights, a hard case of proportionality analysis. An incomplete, but extensive, argument map was developed, and several conclusions concerning the adaptation of the schemes and the performance of proportionality analysis were drawn. The following section (IV.3) incorporated the findings of the case analysis and of the previous theoretical discussions in a refined model of proportionality test, with reviewed argument schemes. Before introducing it, however, a background of debates about institutional deference and judicial review was presented, which connected the rules of legal argumentation to choices of institutional design. The presentation of the refined model was followed by listing important problems for future research. Chapter IV ended with a brief defense of proportionality analysis, as a promising model of judicial review which allows for rational control and double check of the lawmaker's teleological reasoning, given its integration into a wider conceptual framework for legal argumentation.

An indirect defense of the four claims of Chapter I, and of an argument scheme approach to legal argumentation, have been scattered throughout the work, as a consequence of applying the method. The First Claim is more of a presupposition than the others, but the argument maps of Chapter IV indicate how it is possible to structure argumentation analysis in order to evaluate the best answer, using a map of the dialogue coupled with argument schemes. The support of the Second Claim was made clear by the discussions in Chapter IV, in which it was made explicit that a model of proportionality analysis should be theoretically grounded in certain conceptions of the role of judicial review and institutional deference. The whole investigation of Chapters III and IV, but especially the latter, are supposed to support the Third Claim, and I have insisted on it during the case analysis, which also upholds the Fourth Claim. Further potential uses of argumentation tools for institutional design are indicated in Chapter IV's section on institutional deference (IV.4.4.1). The relevance of argumentation theory to legal theory is also shown in the brief analysis of Chapter II above, about issues related to argument schemes and legal theory.

The whole work has been a search for precise descriptions and evaluations of legal argumentation, which attempted to show how the appraisal of argumentation cannot be set

apart of studying the particular problems of legal theory. Legal argumentation is as much about the Law as it is about argumentation. Only an integrated conceptual framework will be able to offer a satisfyingly accurate account. In addition, rather than presenting a model of legal argumentation, the work was about the activity of building a model, according to a particular approach.

The outcomes of this work are not meant to be only theoretical. The image of the Talos judge, presented in the Introduction, should be recovered. With the right argument schemes, it can help us in creating new arguments, with argument mining; and structuring those we already have, with argument mapping. Although it was not stressed often, concepts and tools used here are being discussed in the context of artificial intelligence. This work should also offer some contribution to these studies.

Ultimately, however, as I stated in the Introduction, this work is a contribution to the quest for the right answer. In such a quest, lawyers often stumble in an elusive concept: *reasonable*. I have tried to refrain from using this infamous expression as much as possible. Everyone agrees that an answer must be reasonable, but no one accurately describes what it is exactly. Intuitively, it seems that it has something to do with static analysis and the best answer available, for if one knows for a fact that there is a better answer, he cannot say that choosing the subpar alternative is reasonable. It also seems to be related to dynamic criticism, for not any answer will suffice just because it is the best available, some minimum quality is required. Very informally, a reasonable answer could be described as a 'good enough' answer.

I propose a concept of reasonable answer that fits into our intuitive use and might be useful to describe models of argumentation: *a reasonable answer is the best answer available, obtained after a procedure designed to ensure an adequate level of dynamic criticism*. With this concept, the outcome of a dispute, obtained by following rules of argumentation in a dialogue protocol, becomes an accepted legal proposition[363]. Of course, there is much to debate about how to decide which is the best answer available, and what

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[363] The concept may be connected to Juliano Maranhão's discussion of *underdetermined* cases. As a possible definition of what is undisputable, it may distinguish *determined* from *underdetermined* cases. MARANHÃO, 2012, p. 100-113.

would be a proper procedure that reaches an adequate level of dynamic criticism. But, with the appropriate conceptual framework, one can make these discussions precise. Furthermore, the concept embodies the notion of dialectical cogency, that is the most we can strive for. The concept redefines our search. In the quest for the right answer, the ultimate answer may be beyond our reach, but the reasonable answer is already good enough.

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