



Universiteit
Leiden
The Netherlands

The Use of Diagrams in Argumentation: Logical, Argumentative and Rhetorical Approach

Guerrini, Jean-Claude; Boogaart, Ronny; Garssen, Bart; Jansen, Henrike; Van Leeuwen, Maarten; Pilgram, Roosmaryn; Reuneker, Alex

Citation

Guerrini, J. -C. (2024). The Use of Diagrams in Argumentation: Logical, Argumentative and Rhetorical Approach. *Proceedings Of The Tenth Conference Of The International Society For The Study Of Argumentation*, 297-312. Retrieved from <https://hdl.handle.net/1887/4107793>

Version: Publisher's Version

License: [Creative Commons CC BY 4.0 license](https://creativecommons.org/licenses/by/4.0/)

Downloaded from: <https://hdl.handle.net/1887/4107793>

Note: To cite this publication please use the final published version (if applicable).

The Use of Diagrams in Argumentation

Logical, Argumentative and Rhetorical Approach

JEAN-CLAUDE GUERRINI

ICAR (Université de Lyon)
France, 42000
Jean-Claude.Guerrini@ens-lyon.fr

ABSTRACT: The study of rhetoric and argumentation mainly concentrates on how people use verbal language. However, diagrams have been used since ancient times in Western culture to clarify and simplify the cognitive procedures involved in discourse. This paper aims to shed light on this diagrammatic practice. An original diagram, the argumentative tetrahedron, will be presented on this occasion, the corpus of examples consisting of media positions on Covid-19 vaccination.

KEYWORDS: complexity, COVID-19, diagram, Toulmin, values, warrants

1. INTRODUCTION

The study of rhetoric and argumentation mainly concentrates on how people use verbal language. However, diagrams have been used since ancient times in Western culture to clarify and simplify the cognitive procedures involved in discourse. But while they do elicit comments on the content of the concepts used, it is rare for the iconic choices themselves to be taken into account as a decisive factor. This is what I have chosen to emphasize in this paper. First, I will look at a few well-known and lesser-known examples, and then present an original diagram that I have used in my teaching of argumentation and that I apply here to the arguments about the vaccination in the recent pandemic. I will pay particular attention to the nature of the iconic signs selected, insofar as they convey conventional meanings of a logical nature, but also take on, more or less deliberately, a symbolic significance due to the metaphors generated by their combination.

2. DIAGRAMS IN ARGUMENTATION: ELEMENTS FOR AN OVERVIEW

Let us begin briefly with basic diagrams, taking into account the notions of *direction* and *force* and mentioning the iconic devices used.

Direction is the most commonly used element: an argument supports (indicated by an arrow) a conclusion thanks to the existence of a *topos* (which acts as a warrant). This is both a logical and visual reformulation of the syllogism. The *topos* corresponds to the major premise which is generally written on the first line, the argument corresponds to the minor on the second line, and leads to the conclusion on the third line. The major premise can either remain implicit or be made explicit.

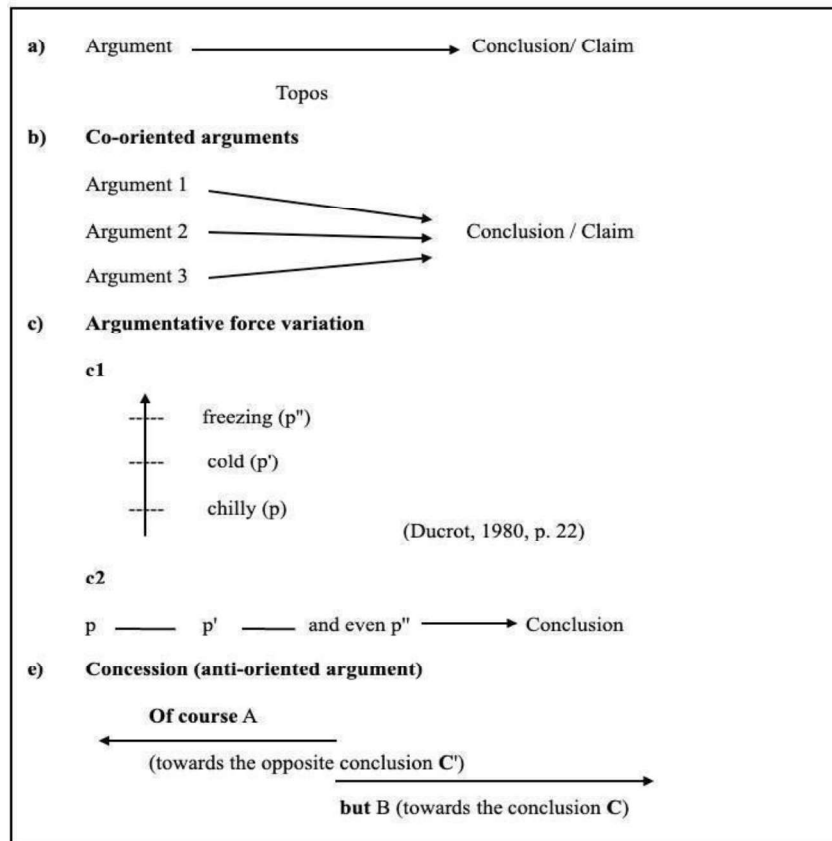


FIG.1

Force is also an essential aspect of the argument. Two or more converging arguments *reinforce* the conclusion and the gradation of force of the arguments can be represented on a scale specific to an argumentative class (for a given speaker in a given situation). This is demonstrated by the use of the adverb "even". For example, using the temperature paradigm: "it's chilly, it's cold, it's even freezing". Conclusion => "It's impossible for me to stay in this room". This argumentative "scale" is presented vertically by Ducrot (1980), but it can be switched to a horizontal line which corresponds to the linear deployment of the discourse.

A few words about the *concessive construction*. It "co-ordinates two statements having opposed argumentative orientations, while retaining the overarching orientation determined by the first proposition (Plantin, 2017, p. 147). We can represent this movement, which is the anti-orientated discourse through an *arrow pointing to the left*. The claim being defended, confirmed by 'but', is unfolding with a new argument to the right leading towards the conclusion.

When we progress from simple argumentative sequences to more complex developments, we have to mobilize and articulate general concepts, abstract propositions whose nature and relationships have been represented by various diagrams since Antiquity. In dialectical jousting, numerous diagrams have been drawn up to bring greater clarity to exchanges between interlocutors. Some of them have been particularly popular with scholars.

1.1 Logic diagrams

To find one's way through the thicket of abstract notions, scholars have used Porphyry's Tree to memorize the scale of beings and the succession of divisions caused by differences in Aristotle's ontology, giving a visual representation of conceptual operations.

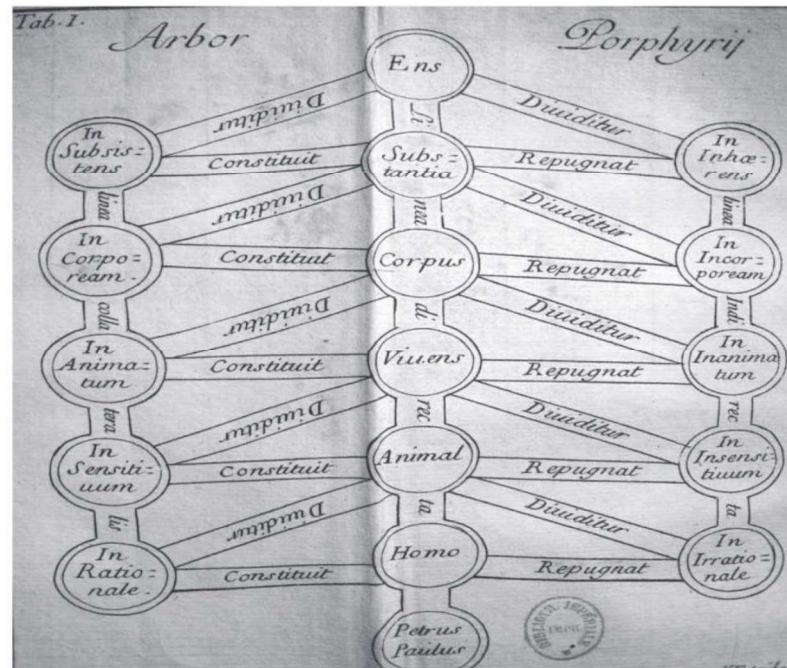


FIG.2

The choice of the tree as an analogical figure should not be underestimated: Porphyry's Tree is made up of three rows or columns of words: the genera and species are at the centre, forming the trunk, and the differences on either side serving as the branches. The tree conveys the idea of an ordered constitution (Verboon, 2014).

The Apulean Square was used to navigate through the various types of propositions mentioned in Aristotle's *Peri Hermeneias*, according to their quantitative or qualitative content: universal and particular propositions, affirmative and negative propositions (Verboon, 2014, p. 97; Parsons, 2021). The semiotic square of a logical-semantic nature, which is inspired by it (Greimas 1970, pp. 135-155), is still used to account for relations of contrariety and contradiction in narratology. Some have questioned its strict logical value, but it continues to play a heuristic and topological role in many fields of semiotics.

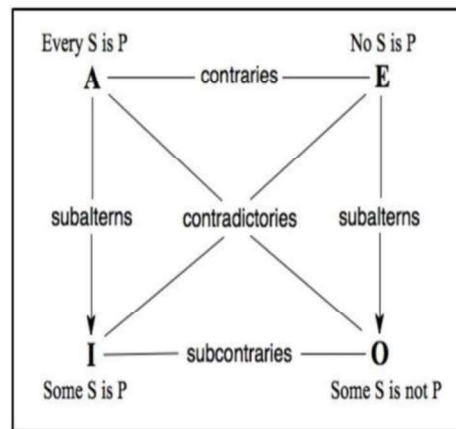


FIG. 3

1.2 Argumentation trees and maps

But other types of diagrams have become increasingly popular in argumentation studies, breaking more or less from the traditional logical constraint that leads to monological and binary discourse.

We should start by mentioning the English logician, Richard Whately. In the *Elements of Logic*, (1831, Appendix III, p. 374), he presents a method of logical analysis called "Praxis of Logical Analysis" illustrated by a diagram (p. 376) with a deliberately didactic aim. This diagram is intended to help his students to present logical analysis in a "clear and appropriate mode". It should also be noted that Whately takes up the idea of the logical *Division* of the figure of the Porphyrian *Tree*.

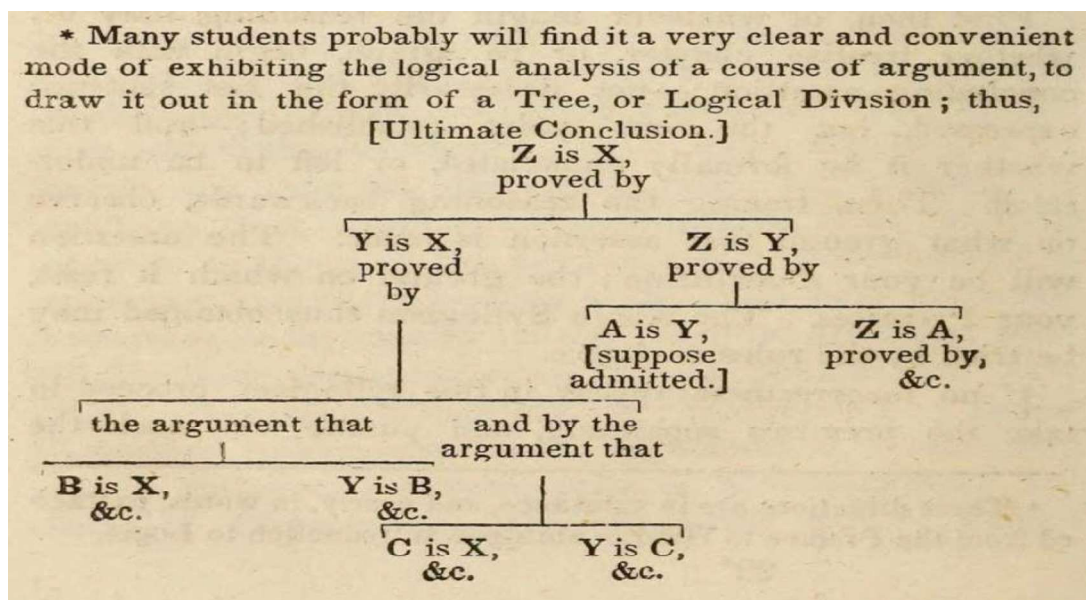


FIG. 4

The method consists of indicating at the top the conclusion you want to reach, and showing the reasoning by which you reach it, making appear the reasons you use (grounds). Once the initial premises have been established, you can once again search what justifies them.

Whately's approach was largely ignored or forgotten over time¹. Other attempts were made in the 20th century: Wigmore proposed a diagrammatic Chart Method for the field of law "capturing the structure of the proof of facts at trial" (Goodwin, 2001, p. 223). Beardsley, for his part, proposed in *Practical Logic* (1950) the first example of an argument map: "He represented the statements as nodes, using circled numbers, and he represented the links between the premises and the conclusion as arrows joining the nodes. He drew what he defined as the 'skeletal pattern' of the argument, representing its structure" (Reed, Walton, Macagno, 2007, p. 7). But it is at the beginning of the 21st century that the use of argumentative maps really took off, particularly thanks to the work of scholars such as Chris Reed, Glenn Rowe, Douglas Walton, Trevor Bench Capon, Martin Davies, Tim van Gelder. The diagramming activity is included as a pedagogical tool in Walton's textbook (2006) in a chapter entitled "Argument diagramming", which uses the chain metaphor: "Identifying the structure of such a chain of argumentation can be extremely useful prior to criticizing the argument by finding gaps or problems in it and evaluating the argumentation as weak or strong" (p. 136). The book, which leaves little room for complex arguments, studies in detail the case of the diagrammatization of convergent, divergent, serial, linked arguments, unstated premises and conclusions. In an article published in 2008, Macagno and Walton examine different types of conflict, based on dialogue situations: What does it mean to be cultured? What is true temperance? For or against abortion? For or against euthanasia?

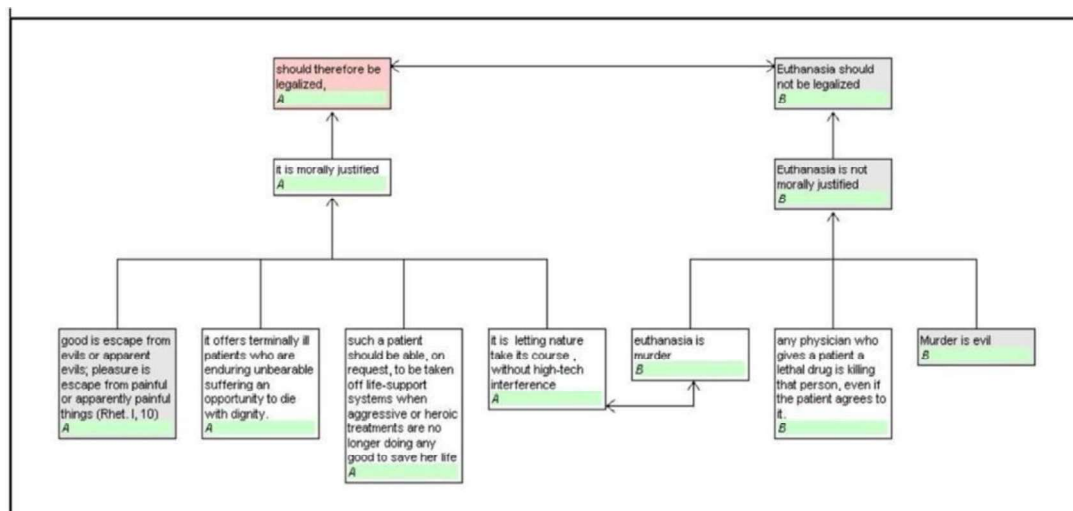


FIG. 5

¹ Almost at the same period, Schopenhauer used Euler's and Venn's diagrams in a rhetorical and, more specifically, eristic context, with the aim of uncovering the opponent's stratagems and learning how to turn his own weapons against him. Recent researches have established that this dialectical use of diagrams, as evidenced by the *Berlin Lectures* written in the 1820, was part of a heuristic approach (akin to *inventio*), which anticipates the use of argumentative maps for the study of dialogues (Lemanski, 2022).

Converging arguments lead to a conclusion: the tree structure is maintained. The boxes at the lower level juxtapose arguments of a different nature (knowledge, principles) without ranking them, and at the upper level are reduced to a dominant argument of a moral nature: euthanasia is morally justified, euthanasia is morally unjustified. Note that the structuring of the conflict is based on different definitions of euthanasia, which are shown in contact with the two trees (see the arrows between B and A).

These diagrams, these argument maps, which may include objections, counter-arguments, rebuttals, refutations, are designed for computer applications that are now widely used: *Rationale*, *Reasoninglab*, *Araucaria*, etc.² These arborescent diagrams are sometimes difficult to read in the academic articles, but they can lead to collaborative work thanks to large digital screen such as The Analysis Wall that has been designed and constructed by the *Argumentation Research* Group (School of Computing, University of Dundee). Note that the pre-eminence of the tree in the construction of argument maps has even been justified by Reed and Rowe, who questioned Toulmin's horizontal diagram and suggested a vertical translation of it in an issue devoted to the American researcher (*Argumentation* n° 19, 2005).

1.3 Toulmin's lay out

Let us move now to the Toulmin's diagram. The fact that it was so widely distributed shows a great demand for it. The canonical example is too well known to be explained in detail. I will insist on its diagrammatical construction.

First, in constructing his diagram (he calls it *lay out*), Toulmin justifies the use of arrows and dashes according to the status of the elements they connect: "We may symbolize the relation between the data and the claim in support of which they are produced by an arrow and indicate the authority for taking the step from one to the other by writing the warrant immediately below the arrow" (Toulmin 1958, p. 92). The relationship between data and claim is explicit, while the warrant is linked to them *implicitly*: this is why it is located "just below the arrow".

Second, the diagram's orientation is *horizontal* and follows that of the discourse: we therefore break with the vertical arrangement ascending towards the conclusion in Whately's diagram.

Third, in the traditional syllogism presentation, the major (the *topos*) is at the top of the series of three propositions. The Toulminian diagram shows the topical guarantees as a *vertical paradigm pointing down under the arrow* between data and claim.

Finally, Toulmin wishes to clarify the different status of premises depending on whether they are facts, information (*data*) or rules or principles (*warrants and backings*). It distinguishes between two levels of guarantees: the warrant and the backing, the backing having a higher level of generalization within the epistemological or legal field presupposed by the warrant.

² Araucaria is a "box-and-arrow representation of the premises and conclusions of an argument, showing how one argument can be chained together with others to form a sequence of reasoning. [...] One of our goals in the book is to show how argumentation schemes are in the process of being modeled by argument technology in the field of artificial intelligence (AI)." (Walton, Reed and Macagno, 2008, p. 7)

The interest of this proposal lies in the emphasis it places on the argumentative orientation and on the process of generalization at work as a result of taking into account more or less general guarantors.

Of course, argumentative exchanges are not limited to stating conclusions and premises. These are the product of an abstraction and extraction operation. The diagram merely allows us to 'visualize' the abstract pattern that structures an argument, to provide its skeleton. To understand the richness and substance of the argumentative movement, it will be necessary to go back to the text or the dialogue, to the actual interactions between participants. On this point, I refer to Ruth Amossy's excellent paper (2023).

This very often used Toulmin's lay out has been criticized, among others, by Baruch Schwartz and Michael B. Baker in *Dialogue, Argumentation and Education* (2017). I will focus on three points: orientation, nature of the guarantors and the generalization. In their view, this diagram provides a monological, mono-oriented image of the argumentative movement. Instead of the canonical example of Harry, a British subject, they analyze an argument about a tenant's rent increase (They borrow this example from Plantin, 1996):

Repairs have been done in your building => So, your rent will be increased next month.

First observation: for the authors, Toulmin's lay out which starts with the data and goes to the conclusion is appropriate to describing scientific reasoning or demonstration (they call it "*direction of reasoning*"), but argumentation generally moves backwards to find justifications, and even often moves backwards and forwards to reinforce its argumentative force (they call it "*direction of argumentation*", subject to generalization movement).

According to them, the psychological movement consists of seeking information (data, which is a form of factual argument) and other arguments that go beyond the present situation (warrants, rules, principles). They call this movement the "rhetorical phase of seeking out arguments": which is actually known as *inventio*.

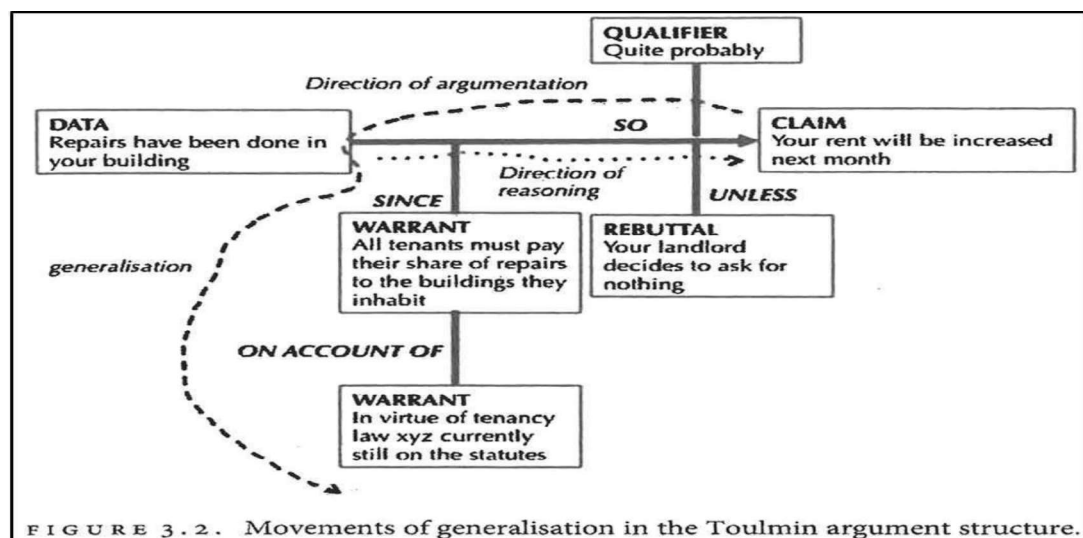


FIG. 6

Second, Baker and Schwartz no longer distinguish between two types of guarantors. They use the same term twice (the word 'warrant'). They do not wish to divide the movement of generalization into two clearly distinct phases (warrant and backing). So, in this new version of the diagram, the generalization movement tends to extend beyond the series of guarantors invoked, towards a guarantor with greater authority and greater weight, coming, perhaps, from another field.

However, it's worth noting, that, in another book which Toulmin published with Allan Janik and Richard Rieke (*An Introduction to reasoning*, 1979), the original model is used in various other fields of reasoning (artistic, ethical, managerial), with a number of changes to the vocabulary and form of the diagram. Above all, when the diagram is complete, it undergoes a significant visual change: warrants and backing linked by a vertical arrow (not a dash) are placed *above* the horizontal arrow going from the Grounds to the Claim.

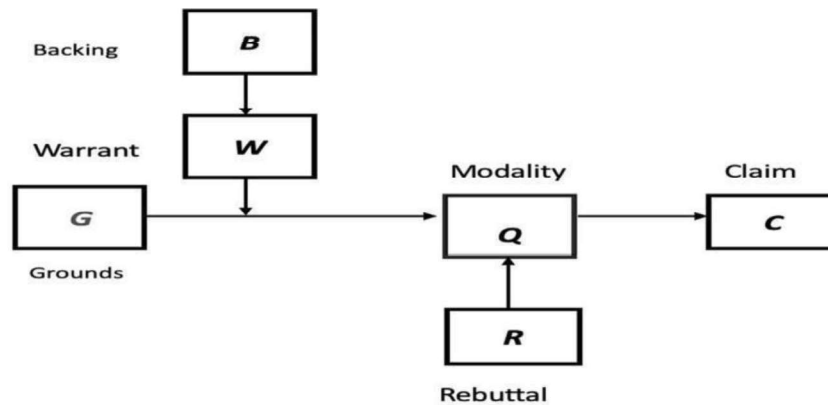


Fig. 6-5

"Given grounds G, we may appeal to warrant, W (which rests on backings B, to justify the claim that C — or at any rate, the presumption (M) that C — in the absence of some specific rebuttal or disqualification (R)"

FIG. 7

This arrangement results from a difference in the status of warrants and backings. While they were supposed to remain presupposed and implicit in the 1958 book, they are now presented as imposing their explicit authority ("we may appeal to..."). But this presentation continues to consider each argument within the limits of its own particular field, without taking account of the variety of the principles involved in communicative interactions or individual deliberations. Situations of crisis, dilemmas, and perplexity such as we encounter in practical decisions, cannot be satisfied with such a segmentation of experience.

3. A DIAGRAMMATIC PROPOSAL: THE ARGUMENTATIVE TETRAHEDRON

I would now like to introduce the tetrahedron, making it clear that it is not intended to compete with the other diagrams but to complement them.

3.1 Why this tetrahedon?

First of all, this diagram brings a major change in how this type of visual tool is used. It is a 3-dimensional diagram. The use of the tetrahedron arose from a pedagogical concern about *inventio*, the search for ideas in compound developments.

The idea was to help undergraduate students who were faced with exercises in which they were asked to express a personal point of view on social issues, based on a synthesis of documents coming from various disciplines: literature, history, philosophy, anthropology, psychology, sociology, economics, among others.

Let us take the example of a recent exam (2020). The corpus brought together the following documents about urban loneliness: a sociological article from *Courrier international*, an extract from a survey conducted by psychotherapist and psychoanalyst Monique de Kermadec, *Un sentiment de solitude*, an extract from Romain Gary's novel *Gros câlin*, and a poster calling for Neighbours' Day. Of course, it would obviously be an illusion to claim, in the name of "general culture", to provide genuine training in such a wide range of disciplines. What is required is a *cross-disciplinary approach* that would give access to the commonplaces of judgement that recur in this type of situation.

The tetrahedron is based on the simple idea that any individual confronted with the need to choose must necessarily take into account three dimensions of experience: knowledge and transformation of the non-human world (point 3), the interaction between human subjects (point 2) and the demands of subjectivity (point 1). This determines the specific knowledge and domain of evaluation on which we can base our judgments. For instance (pt. 1 self) concerning the person in his/her singularity: dietetics, body hygiene, psychology (introspection), psychoanalysis, practices of the self, meditation, spiritual exercises, etc.

Besides, this division is based on distributions that have become widespread in our culture over the last few decades: Charles Taylor's *Sources of the Self*, Ricœur's *Oneself as Another*, latest Foucault's *The Care of the Self* and *The Government of Self and Others*, but also Georges H. Mead's *The Mind, the Self and Society*. Sartre comes to the mind with *pour-soi* ("for oneself"), *pour-autrui* ("for the other"), and *en-soi* ("in itself"), as does Levinas with the figure of "the Other" (human and divine). Finally, for the "non-human others", it is hard not to mention Bruno Latour, whose recent death has had a worldwide impact.

Each of these 3 poles gives rise to judgements of fact, knowledge or judgments of value (and consequently to rules, standards, and principles), in other words to more or less valid and general data and justifications.

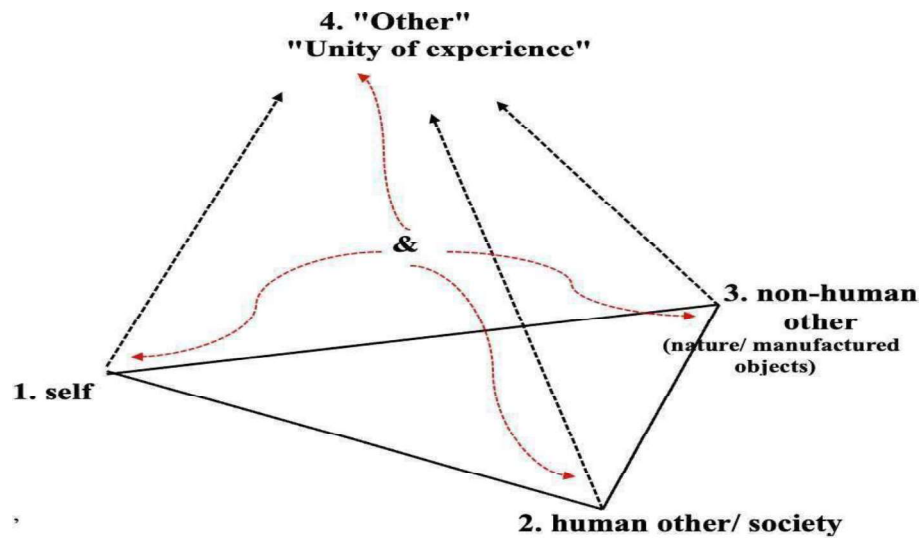


FIG. 8

In addition, each of these poles which focuses on many questions, indicates a direction of action towards the search for solutions with a view to improvement (symbolized by the *upward direction of the arrows*). Moreover, every individual is confronted to the challenge of *unifying* and *harmonizing* these different (but always interacting) aspects of experience. Bending these lines towards their position is always an ordeal for him or her. This is why I choose a torn typographic symbol, the ampersand, to represent it. Point 4 (Other, with a capital letter), indicates the ideal or hypothetic resolution of our contradictions. Projecting our desire on a supposedly powerful entity is a frequent way to remedy our powerlessness. It may be provided by a religion, a worldview, an ideology, a value system, or, at least, almost imperceptively, by a large set of commonplaces, a *doxa* of which the individuals are more or less aware, but which is useful in the face of difficulties.

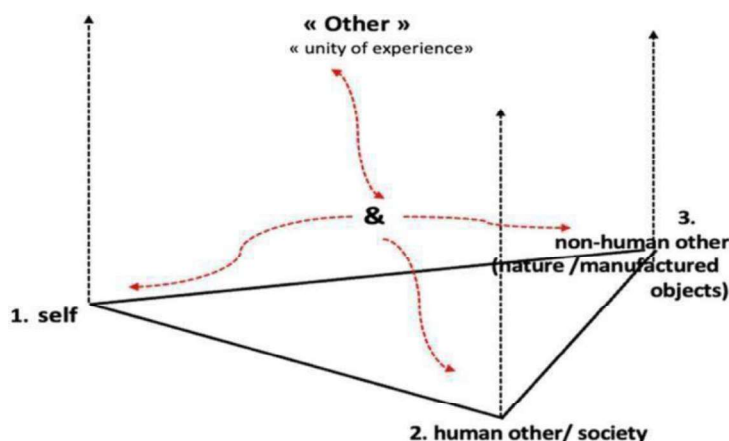


FIG. 9

Human beings have gradually discovered countless resources for their own development (agriculture, craftsmanship, medicine, science, technology). But, at first, they found themselves rather powerless in the face of death, diseases and the difficulties of simple survival. This is why, beyond the visible world that they perceived and sought to master, they turned to invisible powers capable of bringing them protection and consolation. This is the origin of religions, philosophies, and ideologies which were destined to introduce intelligibility, coherence and overall meaning into the chaos of experience. Depending on the culture and the time, these "powers" have taken the form of spirits, gods, a single God (the god of monotheism), a specific kind of spirituality, or a secular religion advocated by a charismatic leader or a party. In secularized societies of the liberal type, the unifying pole most often remains in the background, presupposed and implicit (in the "it goes without saying" mode). It corresponds to the dominant *doxa*, to generally accepted opinions. The evidence of common sense (commonplaces) ensures the optimal adaptation of the subject to the world in which he or she lives. This *doxa* may be vehemently denied, but it is likely to be activated and to manifest itself forcefully in the event of conflict with a competing *doxa*.

In diagrammatic terms, a necessary structure of experience is represented by a thick, continuous line in the basic triangle from which there is no escape. The lines running from each of the poles are dotted and indicate the directions of desire, will and practice on which will be grafted more or less strong argumentative guarantees that can be mobilized to support a conclusion or a claim. As in Toulmin's diagram, modified by Schwartz and Baker, the argumentative movement, constantly outstrips the ultimate guarantors, but here not downwards, but upwards.

3.2 A case study: arguments about vaccination during the Covid epidemic

After establishing this framework, I suggest using this diagram to analyze a critical moment and a decision to be taken.

I had the opportunity to study the positions expressed during the COVID-19 epidemic in France as part of an article (Guerrini, 2023). I didn't use the tetrahedron in that occasion, but I thought it would be useful for this presentation. In the context of the Covid epidemic, everyone was faced with the question "I wonder if I'm going to get vaccinated". The tetrahedron can be used to group the recurring arguments according to its 4 poles. I have only included a few concepts or brief statements to aid in understanding the process, rather than presenting a complete inventory.

The question of whether you want to be vaccinated is raised by the existence of a virus that is dangerous for humans. So, (pt. 3, non-human other) knowledge about the virus and the epidemic gave rise to varying descriptions, diagnoses, remedies, and prescriptions. For instance, judgments about their dangerousness range from "It's just the flu" to the most alarming predictions and measures.

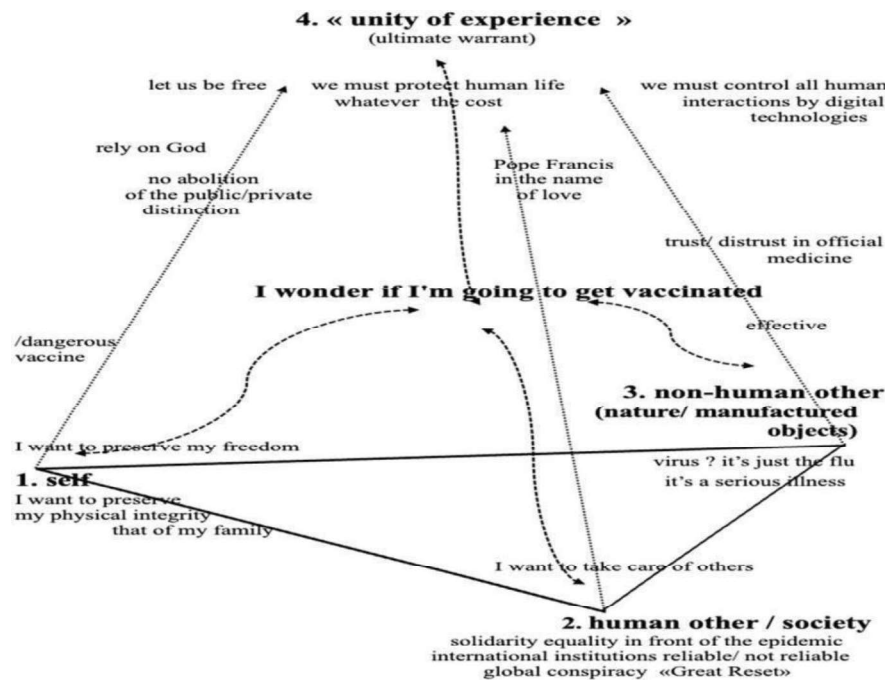


FIG. 10

Of course, the decision whether or not to be vaccinated is based on the individual's desire (pt. 1) to escape illness, to preserve his/ her life and health. The argument can serve both conclusions, for each pole gives rise to different, even opposing, arguments.

Communication campaigns in favor of barrier measures and vaccination emphasize concern and respect for others and solidarity (pt. 2). The decision-makers involved at various levels (borough, state, European union, World Health Organization, for instance) are subject to highly contrasting assessments, in the name of principles and values.

At last, decisions about vaccination may be justified by a variety of ultimate beliefs about the relationship between human beings and the world in which they live (pt. 4). Faith in God may lead people to minimize a risk from which they believe they are protected (ultra-Orthodox Jewish in Israel, for instance). On the other hand, the obligation to be vaccinated may stem from a revived religious dogma: Pope Francis called for vaccination in the name of love, another name for charity, one of the three theological virtues. From a non-religious point of view, it may stem from the invocation of absolute respect for human life and its physical integrity. Other absolute attitudes can also be found: the refusal of any control, or on the contrary the desire for total control of society, absolute political subordination, eliminating any distinction between the individual and society.

This type of diagram is not intended to be presented all at once and to be exhaustive as a “solution” to the question posed, but to identify tensions or convergences between arguments, or even areas of ambiguity or ambivalence. When presented in a relatively rich form, it allows to have an overview of the problems encountered by an individual when wondering: “Am I going to get vaccinated, or not?”

Therefore, the tetrahedron enables us to visualize different argumentative movements we can mention.

Several arguments can be put forward in favor of vaccination (case of convergent arguments, indicated by green arrows): "I want to get vaccinated to defend my physical integrity, because it is a serious disease, because I have confidence in medicine and vaccines, and in the name of solidarity, to take care of others, etc."

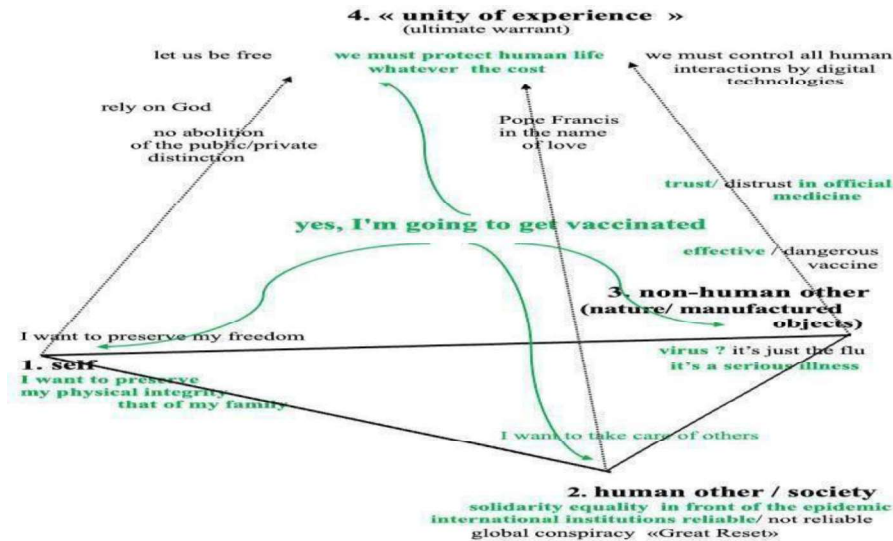


FIG. 11

On the other hand, arguments may converge against vaccination: "I want to preserve my integrity, the vaccines are experimental, not safe, international organizations are manipulated by Big Pharma, etc." (red arrows).

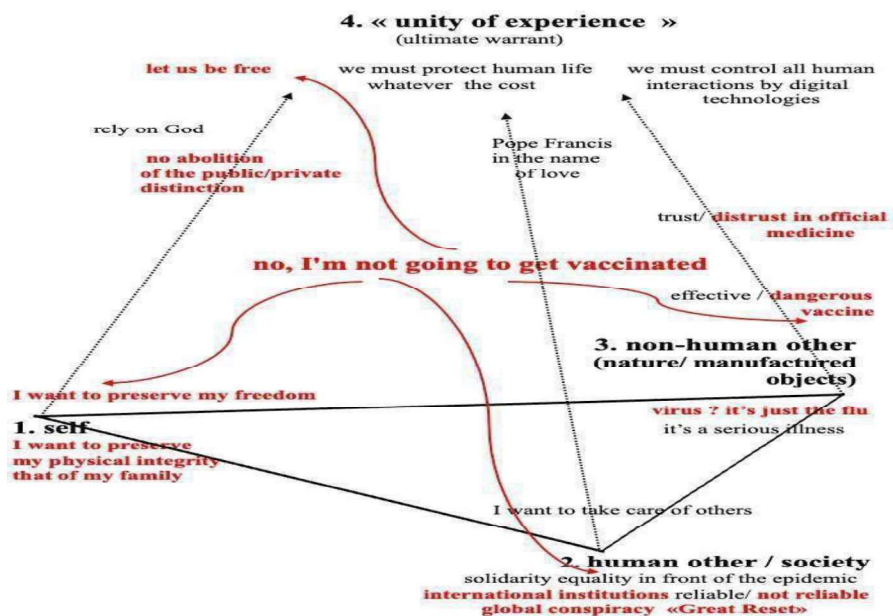


FIG. 12

At a higher level of complexity, we can formulate a concessive judgment taking into account possible objections: "OF COURSE I want to preserve my individual freedom (red arrows), BUT this disease is serious and we have an effective vaccine, we must take care of others, etc." (green arrows).

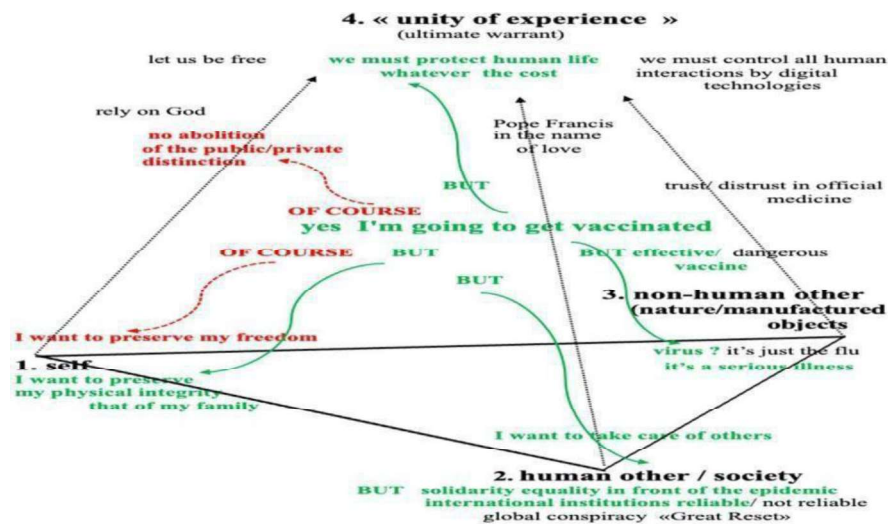


FIG. 13

And, to refuse vaccination: "OF COURSE I want to take care of others, BUT this pseudo-vaccine is dangerous, international organizations are manipulated, and above all I want to preserve my freedom to ensure my family's health".

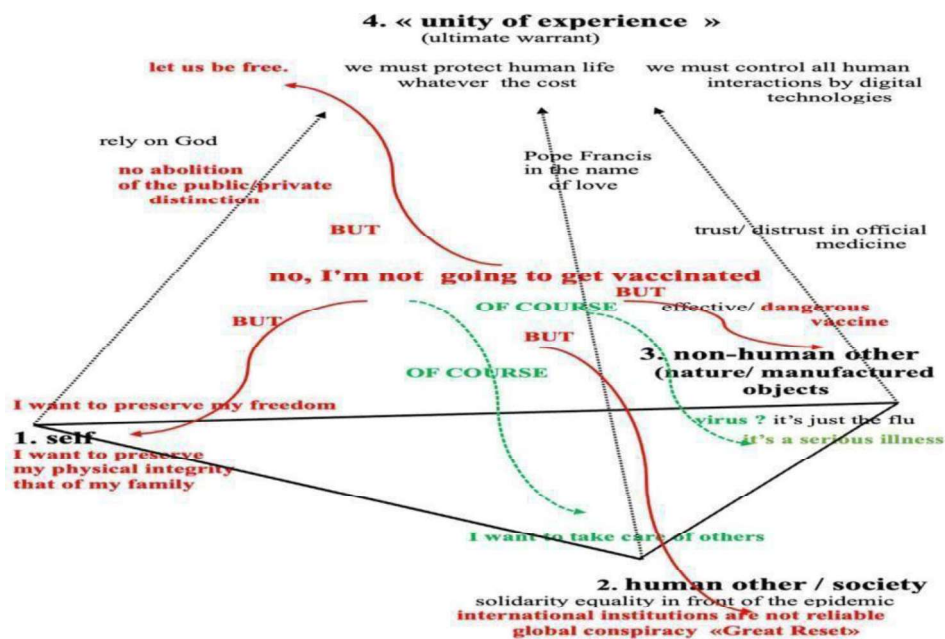


FIG. 14

This diagram, which seeks not only to select valid statements, but to account for the various arguments of people involved in an interaction or a deliberation, is in some ways in the tradition of Schopenhauer's diagrams which, beyond the strictly logical uses of Venn's curves, sought to account for the speakers' actual arguments, as Lemanski points out.

The tetrahedron does not offer a logical procedure, a critical tool against errors, but rather a heuristic way of expanding the range of possible arguments, stimulating self-deliberation or collective discussion. Other procedures (and other diagrams, like those we have mentioned) can then be applied to assess the quality of the identified arguments.

Of course, the tetrahedron presents a static image of a moment of choice. But we can imagine a succession of tetrahedrons, or a movement within a single tetrahedron, showing the stages of a personal evolution on an issue during a deliberation, or a life experience. The tetrahedron, while emphasizing the vital need to take these three poles into account, indicates the human effort to overcome our own survival conditions and our aspiration to give direction to the improvement of our existence.

However, the absolutization of a pole can give rise to various forms of radicalization which jeopardize argumentative autonomy. If all knowledge and all power are attributed to a great "Other" whose will is imposed on beings who have no other choice than to submit to the duties established by a revealed Law or Text, the idea of human choice is considerably diminished, and the argumentation is limited to commenting on the Truth of the Dogma. On the other hand, the over-determination of the "other human", in communitarian or collectivist forms which sacrifice the point of view of the "self", makes argumentative discourse inaudible or impossible due to group pressure or censorship. When only science, economics or "good nature" are taken into account, the "non-human" of biological, technical or commercial determinations replaces any form of deliberation and choice. And, finally, if the "self" becomes the measure of all things and claims to be its own guarantor, free from any dependence or attention to the "human other" or "non-human other", we arrive at the most radical forms of individualism, which make any common deliberation and any responsible speaking in any way impossible.

If each of these paths has been explored historically, it is partly because the effort to establish a certain balance between them is such a challenge that it seems easier to renounce complexity and adopt a form of simplifying radicality.

4. CONCLUSION

Denying the importance of the overall form of the diagram adopted would be vain. When we started, we noticed the symbolic role of the tree in medieval symbolism. Reed and Rowe present their work as serving a more pluralistic orientation in the use of diagrams. And, certainly, argumentation maps increasingly integrate critical elements into their design in order to test the claim supported. However, we cannot help thinking that this vertical orientation towards the chosen claim contributes to a confirmation bias. In any case, it hardly encourages openness to the unexpected. On the other hand, Toulmin's diagram corresponds to the imaginary 'path' which leads from a given fact to a conclusion, unless one or more obstacles (rebuttals) arise, the arguer being led to strengthen his position with

the support of better guarantors. As we have seen, this 'path' is located in a single field and does not encompass the whole experience.

Despite its limitations (only 4 matrix positions and its inability to flush out fallacious arguments), the tetrahedron makes it possible to capture a wide range of aspects of a problem to which an individual is exposed as a responsible agent. It is a rhetorical tool for persuasion, but also a tool for critical thinking and for considering complexity.

REFERENCES

- Amossy, R. (2021). Le raisonnement donné en partage : schèmes argumentatifs et matérialité discursive. *Semen* 50/1. p. 145-159.
- Baker, M., Quignard, M., Lund, K. & Amelsvoort, M. van (2002). Designing a computer-supported collaborative learning situation for broadening and deepening understanding of the space of debate. *Proceedings of the Fifth International Conference of the International Society for the Study of Argumentation*. Amsterdam.
- Bench-Capon, T.J.M. (2002). Agreeing to Differ: Modelling Persuasive Dialogue Between Parties with Different Values. *Informal Logic* Vol. 22 No. 3 pp. 231-245.
- Bench-Capon, T.J.M. (2003). Persuasion in Practical Arguments Value-Based Argumentation Framework. *Journal of Logic and Computation*. Vol. 13 N° 3 Oxford University Press.
- Davies, M., Barnett, A., Gelder, van T. Using Computer-Aided Argument Mapping to Teach Reasoning. *Studies in Critical Thinking*.
- Ducrot, O. (1980). *Les Échelles argumentatives*. Paris. Minuit.
- Goodwin J. Wigmore's Chart Method. *Informal Logic* 20 (3). pp. 223-243.
- Greimas, Algirdas J. (1970). Les jeux des contraintes sémiotiques en collaboration avec François Rastier. *Du sens. Essais sémiotiques*. Paris. Éditions du Seuil. pp. 134-155.
- Guerrini, J.-C. (2023). Conflitos de valores durante a pandemia. Estudo de tribunais, apelos coletivos e entrevistas na imprensa escrita francesa (fevereiro 20020-janeiro 2022). Wander Emediato (org.) *Interações polêmicas e violência verbal em temas sociais sensíveis*. Campinas, Pontes, 2023.
- Lemanski, J. (2022). Logic Diagrams as Argument Maps in Eristic Dialectics. *Argumentation* 37. pp. 69 - 89.
- Macagno, F. & Walton, D. (2008). Persuasive Definitions: Values, Meanings and Implicit Disagreements. *Informal Logic*. Vol. 28. n° 3. pp. 203-228.
- Parsons, Terence (2021). The Traditional Square of Opposition. *The Stanford Encyclopedia of Philosophy*.
- Plantin, C. (1996) Le trilogie argumentatif. Présentation du modèle, analyse de cas. L'argumentation en dialogues. *Langue française*. n° 112.
- Reed, C. & Rowe, G. (2005). Translating Toulmin's Diagrams. Theory Neutrality in Argument Representation, *Argumentation* 19/ 3. pp. 267-286.
- Reed, C., Walton, D. & Macagno, F. (2007). Argument Diagramming in Logic, Artificial Intelligence, and Law. *Knowledge Engineering Review* 22 (1). 87-109.
- Schwarz, B. B., Baker, M. (2017). *Dialogue, Argumentation and Education. History, Theory and Practice*. Cambridge University Press.
- Toulmin, S. E. (1958). *The Uses of argumentation*. Cambridge University Press.
- Toulmin, S. E., RIEKE, R. D., JANIK, A. (1979). *An Introduction to reasoning*. Macmillan.
- Verboon, A.R. (2014). The Medieval Tree of Porhyry: An Organic Structure of Logic. In Saloni P. & Worm A. (Eds.) *The Tree: Symbol, Allegory, and Structural Device in Medieval Art and Thought*. International Medieval Research, 20 (Turnhout: Brepols). p. 97.
- Walton, D. (2006), Argument diagramming. *Fundamentals of Critical Argumentation*. Critical Reasoning and Argumentation. Cambridge University Press. pp. 138-171.
- Walton, D., Reed, C. & Macagno, F. (2008). *Argument Schemes*, Cambridge University Press.
- Whately, R. (1831). *Elements of Logic*. New York, W. Jackson; Boston, J. Munroe & co. Library of Congress.
- Wigmore, J. T (1913) *The principles of Judicial Proof*. Boston: Little Brown and Company.