Research

Ceteris Paribus Laws and Argumentation Schemes*

[English Version]

Leyes *ceteris paribus* y esquemas de argumentación

Leis *ceteris paribus* e esquemas de argumentação

Received on 27/02/2024. Accepted on 13/02/2025

› *How to cite:*
Fonseca, M. (2026). Ceteris Paribus Laws and Argumentation Schemes. *Ánfora*, *33*(60), 248-264. https://doi.org/10.30854/cnmq5v77
Universidad Autónoma de Manizales. L-ISSN 0121-6538. E-ISSN 2248-6941.

Miguel Antonio Fonseca Martínez**
https://orcid.org/0000-0003-4398-7346
CvLAC https://scienti.minciencias.gov.co/cvlac/visualizador/generarCurriculoCv.do?cod_rh=0000774758
Colombia

Abstract

Objective: The present paper discusses an account on the epistemological foundation of argumentation schemes through the defeasible reasoning theory of ranking beliefs and the ceteris paribus defeasible approach of Wolfgang Spohn (2012). Hence, the purpose is to model a general scheme of reasoning for any argumentation scheme given Spohn's ceteris paribus conditions model. **Methodology:** Spohn's proposal of a general form of normality ceteris paribus laws is capable of being used as an a priori model to every kind of defeasible reasoning normativity, including argumentation schemes in the field of the informal logic. **Results:** The main result is the structure of a general scheme of reasoning for any argumentation scheme: 1. A is a necessary and sufficient reason to believe in B, iff given that believe in (B/A)>0≥ believe in (B/-A) and believe in (B/A)≥0>believe in (B/-A), that is to say, Ceteris paribus. 2. A is the case. 3. Therefore, B must be believed. **Conclusions:** Normality of conditions is related to a centered epistemic agent in a given background. We believe defeasible a priori the ceteris paribus hypothesis and then we start the use of the mechanism of argumentation scheme. Argumentation schemes are either stereotypical pattern of defeasible reasoning, when the premises

* Universidad La Gran Colombia, Education and Pedagogy research group, Code: COL0041239. Funding: Universidad La Gran Colombia. Declaration of Interest: The author declares that there is no conflict of interest. Availability of Data: All relevant data are included in the article.

** PhD in Philosophy. Universidad Santo Tomás. Email: miguel.fonseca@ugc.edu.co

only support with likelihood and other things being normal, the acceptance of the conclusion. Practical reasoning is, then, defeasible in essence.

Key words: Ceteris paribus laws; argumentation schemes; ranking theory; defeasible reasoning; informal logic; epistemic normativity; normality of conditions (obtained from the UNESCO Thesaurus).

Resumen

Objetivo: el presente artículo examina la base epistemológica de los esquemas de argumentación a través de la teoría del razonamiento refutable. El objetivo es modelar un esquema general de razonamiento aplicable a cualquier esquema de argumentación, fundamentado en el modelo de condiciones *ceteris paribus*. **Metodología:** la propuesta de Spohn sobre una forma general de leyes de normalidad *ceteris paribus* puede ser utilizada como modelo *a priori* para diversos tipos de normatividad del razonamiento refutable, incluyendo esquemas de argumentación en el ámbito de la lógica informal. **Resultados:** el hallazgo principal consiste en la estructura de un esquema general de razonamiento aplicable a cualquier esquema de argumentación: 1. A constituye una razón necesaria y suficiente para creer en B si y solo si, bajo la condición de que creer en (B/A) > 0 ≥ creer en (B/-A) y creer en (B/A) ≥ 0 > creer en (B/-A), cumpliendo con el *ceteris paribus*. 2. A es el caso. 3. Por lo tanto, B debe ser creído. **Conclusiones:** la normalidad de las condiciones se encuentra vinculada a un agente epistémico en un contexto específico. Se considera refutable *a priori* la hipótesis *ceteris paribus* y, a partir de ello, se usa el mecanismo del esquema de argumentación.

Palabras clave: leyes ceteris paribus; esquemas de argumentación; teoría de la clasificación; razonamiento refutable; lógica informal; normatividad epistémica; normalidad de las condiciones (obtenidos del tesauro de la UNESCO).

Resumo

Objetivo: este artigo discute os fundamentos epistemológicos dos esquemas de argumentação por meio da teoria do raciocínio defeasible baseada no ranqueamento de crenças e na abordagem ceteris paribus defeasible de Wolfgang Spohn (2012). O objetivo é, portanto, modelar um esquema geral de raciocínio aplicável a qualquer esquema de argumentação, com base no modelo de condições ceteris paribus de Spohn. **Metodologia:** a proposta de Spohn sobre uma forma geral de leis de normalidade ceteris paribus pode ser utilizada como um modelo a priori para todo tipo de normatividade do raciocínio defeasible, incluindo os esquemas de argumentação no campo da lógica informal. **Resultados:** o principal resultado é a estrutura de um esquema geral de raciocínio para qualquer esquema de argumentação: 1. A é uma razão necessária e suficiente para acreditar em B, se, e somente se, dada a crença de que (B/A) > 0 ≥ crença em (B/–A) e crença em (B/A) ≥ 0 > crença em (B/–A), ou seja, ceteris paribus. 2. A é o caso. 3.Portanto, deve-se acreditar em B. **Conclusões:** a normalidade das condições está relacionada a um agente epistêmico centrado em um determinado contexto de fundo. Acreditamos defeasivelmente, a priori, na hipótese ceteris paribus, e a partir daí utilizamos o mecanismo do esquema de argumentação. Esquemas de argumentação são padrões estereotipados de raciocínio defeasible, nos quais as premissas sustentam a conclusão apenas com probabilidade e sob condições normais. O raciocínio prático é, portanto, defeasible por essência.

Palavras chaves: leis ceteris paribus; esquemas de argumentação; teoria do ranqueamento; raciocínio defeasible; lógica informal; normatividade epistêmica; normalidade das condições (obtidos do tesauro da UNESCO).

Introduction

The so-called laws of nature are taken as universal truth assertions supporting relationships of phenomena. This paradigm linked to natural sciences draws the standard meaning of law in science. However, in other fields, like social sciences, there are several generalizations or models that differ from this definition. Some examples are:

1. The Law of Demand

2. Mendel's laws

These generalizations are not universal, truth supporting claims but, in fact, are useful laws in social sciences, for instance (Fonseca, 2023). These kinds of generalizations need a ceteris paribus clause, which means "other things being equal". Thus, ceteris paribus laws are universal statements with certain exceptions. John Stuart Mill used this concept properly, in this sense, in his account of economic disturbing factors (Mill, 1843). Mill's account asserts that there are exceptions or disturbing factors in theories that often override the meaning of laws, because laws do not fit with phenomena.

Another definition that brings light to the meaning of the ceteris paribus clause is Cairnes's description of political economy. Regarding political economic theories, Cairnes (1888) states: "The doctrines of political economy are to be understood as asserting, not what will take place, but what would or what tends to take place; and in this sense only are they true" (p. 103). Ceteris paribus clauses on Cairnes view are tendencies of what probably takes place.

In the contemporary philosophy of science, from logical positivism to present, definitions of this issue are related to the exclusion of disturbing factors in theories and scientific procedures. Only through this exclusion —the ceteris paribus clause— could sciences assert necessity and sufficient relation of phenomena (Nagel, 1961; Hempel, 1965). This argument is very problematic when applied to social sciences and other specific scientific disciplines. Certain neighbor phenomena in certain theories and models of such disciplines are not irrelevant or fixed. Therefore, ceteris paribus laws require a strong analytical approach to define its nature and function.

First of all, following Reutlinger's *et al* (2015) approach, we can differentiate comparative and exclusive ceteris paribus laws. Comparative ceteris paribus laws show that if the value of a variable increases, then the increase of another is directly proportional and equal, that is, all other things being equal. For instance, an increase in gas temperature leads to an increase of volume. On the other hand,

exclusive ceteris paribus laws need that the value of variables stays fixed and also require the exclusion of disturbing factors.

Comparative should be restrictive when it is instantiated into a specific class of circumstances or unrestricted when asserting a probabilistic cause for all circumstances (Reutlinger *et al.*, 2015).

Similarly, we can distinguish definite and indefinite exclusive ceteris paribus laws. Definite specifies the disturbing factors excluded from the law. Indefinite, consist of a "universal second order condition, which excludes all kinds of disturbing factors from the law, whatever they are" (Reutlinger *et al.*, 2015). The problem with exclusive ceteris paribus laws is that they may fall in trivialization because it is so difficult to reach an accounting of all the excluded factors.

The key to resolving the exclusive perspective problems is, in the so called semantic conception, adding the missing conditions to the laws (Fodor, 1991). This leads to the following schema of plausible solution:

- A factor C is a completer relative to a realizer R of A and a consequent predicate B if:

1. R and C are strictly sufficient for B.

2. R on its own is not strictly sufficient for B.

3. C on its own is not strictly sufficient for B. (p. 23).

Also, to resolve the problem in relation to multiple mental states Fodor (1991) adds that:

> Cp (A then B) is true iff either (1) for every realizer R of A there is a completer C such that A and C then B or (2) if there is no such a completer for realization R1 of A there must be many other laws in the network for A for which R1 has completers. (p. 27).

Another perspective to solve the problem is called epistemic. Completion is explanatory and only required post factual. This proposal answers the question: why was the law not instantiated? It is necessary to bring evidence for the existence of the disturbing factor (Pietroski & Rey, 1995). This is the schema for the thesis:

> Cp (A then B) is non-vacuously true iff:

1.A and B are otherwise nomological.

2.For all x if Ax then (either Bx or there exists an independently confirmable factor that explains why –Bx).

3.Cp (A then B) explains at least something as assumed in 2. (p. 92).

An alternative theory to solve the problem is called normality theory. And for this case Spohn's (2012) reading on ceteris paribus laws is highly relevant and plausible. In this theory we can say that ceteris paribus clause means "other things being normal". In this sense, Spohn (2012) claims:

> The goal here will be rather to explain how the notion of a ceteris paribus condition flows directly from the logic of non-probabilistic defeasible reasoning as explicated by ranking theory. If defeasible reasoning really is the basis of the phenomenon, it is no wonder that it is ubiquitous in the sciences, including physics. (p. 305).

Ceteris paribus laws are the case when we can obtain normal conditions in our ontological region, that is, that conditions are highly probable in such ontological region. Another way to think about it is using the notion of high probable conditions in a certain possible world.

I had emphasized that normality is an indexical or egocentric notion that refers to what is normal to us in our environment. Detached from such a context, normality is not meaningful. Thus detached, we could only say that everything in our environment is extremely exceptional, since the earth is such an extraordinary place in our universe (Spohn, 2012, p. 335).

Thus, in Spohn's reading, normal conditions are an epistemic issue because an epistemic agent believes something about the normality of conditions. Epistemic dimension is linked with ontological dimension if a doxastic agent might believe in certain a priori defeasible relations of phenomena, given certain fixed backgrounds.

Doxastic subjects expect normal conditions. Therefore, normal conditions are subject relative and require an epistemic reading. In contrast with the existential reading of conditions, linked with a strong concept of clauses as true hypothesis, or the account of ceteris paribus proviso as a list of conditions for a given hypothesis, Spohn's approach leads to a counterfactual perspective based on belief's normativity. The definition of such a priori defeasible condition is the following: "The belief in the reduction sentence H=S then, (D iff R) is defeasible

a priori, or, equivalently, it is defeasible a priori that given S, D is a necessary and sufficient reason for R" (Spohn, 2012, p. 323).

Normal conditions are therefore epistemic conditions as a result of a fixed background. Spohn remarks on this that background normality is a learning process and our experience makes a confirming belief revision process and not the expectations with respect to that background. Nevertheless, what remains fixed is the belief in the proviso.

We cannot clear up all the conditions as the application requires certifying its satisfaction in a wide ontological and metaphysical point of view, as exclusive ceteris paribus theories want to achieve, that is impossible, and that is why we need to explain this through defeasible reasoning. Ceteris paribus laws, in an epistemological way, as hypothesis or a priori defeasible clauses of reasoning, are powerful tools for human knowledge that have fixed laws through the belief in certain a priori defeasible normativity on the knowledge of phenomena.

Ceteris Paribus Laws and Non-Monotonic Reasoning

As seen in the previous section, ceteris paribus laws are indeed kinds of normative defeasible reasoning beliefs. Hence, they are non-monotonic due to new information that should affect their validity. The ceteris paribus laws used to be formulated with a non-strict conditional, or with a default non-monotonic Modus Ponens. Following Reutlinger *et al.* (2015) we can find two semantic criteria to non-monotonic laws:

1. High probability semantics: An inference of a conclusion conditional from a set of premise conditionals is regarded as valid in this semantics iff the uncertainty of the conclusion conditional is not greater than the sum of the uncertainties of the premises.

2. Normality semantics: A conditional is considered as true in a ranked-world model iff all lowest-rank A-worlds are B-worlds. An inference is considered as valid in this semantics iff all ranked-worlds-models that verify all premise conditionals verify the conclusion conditional (Reutlinger *et al.*, 2015).

The Spohn's reading is addressed to the normality semantics. The general schema of Spohn's normative structures is the clearest with the following explanation:

> We believe defeasible a priori the hypothesis or ceteris paribus law, as we believe that: given variable S, then D is a necessary and sufficient reason for R and vice versa, or, for instance, we believe Ceteris Paribus that, if x is put into water, then x is soluble if and only if x dissolves.

Necessary and sufficient reasons are ranked-world-models with certain properties as Spohn (2012, p. 109) clarifies:

A is a:

Supererogatory	Reason for B iff	$t(\text{belief in})\,(B/A) > t(B/\text{-}A) > 0$
Sufficient	Reason for B iff	$t(B/A) > 0 \geq T(B/\text{-}A)$
Necessary	Reason for B iff	$t(B/A) \geq 0 > t(B/\text{-}A)$
Insufficient	Reason for B iff	$0 > t(B/A) > t(B/\text{-}A)$

As we see, sufficient and necessary conditions are not monotonic nor deductive reasons. Therefore, sufficient and necessary conditions are not fixed notions. All are relative to certain calculus of probabilities and facts in a given possible world.

The sufficient and necessary conditions fixed the background linking the probability to the first ranking 0. That is why they are laws and that is why they are defeasible laws.

Moreover, as Schurtz shows, we can fix the formulation of a law with a default modus ponens with the ceteris paribus clause and with the other aspects of the semantics.

In consequence, the Spohn's proposal of a general form of normality ceteris paribus laws is capable of being used as a priori model to every kind of defeasible reasoning normativity, including argumentation schemes in the field of informal logic.

Ceteris Paribus Conditions and Argumentation Schemes

As human beings we are inevitably forced to dwell in language. Sometimes this involves the everyday tasks and concerns, as well as the professional and scientific demand of revising the nature of language as a social practice that

reveals us as doxastic beings who know, act, and justify our agencies through the inferential exchange of reasons. This exchange results in the construction of theories and logical models that allow us to analyze the form of language. These tools promote the understanding of argumentation, that is, the inferential exchange of reasons explicit in logic. Argumentation models are used in different types of speeches and texts to persuade certain audiences in favor of certain claims, given different epistemic agencies. Such developments are understood as an attempt to create systems for evaluating and analyzing arguments and researching their impact in different backgrounds. The realms of action of these argumentation models are related with non-verbal personal exchange and visual communications, matters such as oral and written discussions, debates in the mass media, interpretation of legal matters, corporate communications, advertising, intercultural dialogue, and the exercise of science as research, justification, normalization, and dissemination of disciplinary knowledge. Therefore, argumentation constitutes a normative element for the construction of social reality.

According to Blair (2009), "informal logic" is the name given to the criticism related to the relevance and application of the principles and methods of formal logic in the field of natural language and practical reasoning (p. 50). What follows from this is the need to build new methods and tools for the analysis and evaluation of arguments; deductive validity is not the only criteria to say that an argument is logically well established.

This problem arises when the consequence relationship is non-monotonic. When the premises only support with likelihood, and other things being normal, the acceptance of the conclusion. Nevertheless, there are well-supported arguments that offer good reasons for its acceptance.

This is evident in everyday reasoning and practical reasoning. In everyday reasoning, in the context of dialogue, the goal of an arguer is to support and justify the acceptability of a claim linked with certain intentionality. In the same sense, practical reasoning is relative to context, dialogue, agents, and institutions, and therefore, this kind of reasoning is dynamic and non-monotonic. Practical reasoning is defeasible in essence.

How such arguments are related with different kinds of reasoning derives in the notion of an argumentation scheme. An argumentation scheme can be instantiated infinitely and with different content due to the nature of its form, which is to say, the way of relationship between claims and argument. Thus, under "certain theoretical conception of the kingdom of reason" (Van Eemeren & Kruiger, 2015, p. 37) arguments can be categorized into types.

In Walton's reading, argumentation schemes are stereotypical patterns of defeasible reasoning that are the case mainly in everyday arguments. When they

are well used, they create presumption in favor of their claims, shifting the burden of proof to the objector. Associated with each argument scheme there is a set of critical questions that are used to evaluate each corresponding argumentative type. Critical questions behave as fuses of the default character (ceteris paribus) of the schemes (Walton *et al.*, 2008).

Argumentation schemes for most authors of the informal logic movement have a normative status. The normative status shows that certain sets of types of common places in the argumentation or topoi (Aristotle, 2005), binds the reason with the possibility of a plausible claim if a scheme is well fulfilled in ceteris paribus conditions (Kienpointner, 1992; Van Eemeren, 2015; Walton, 1996; Walton *et al.*, 2008; Govier, 2000; Blair, 2012).

The epistemological approach of argumentation schemes moves on to give a better account of the notion, and differentiates the schemes given an account of the relation between reasoning and argumentation. We need to infer claims based on the concept of justified belief or knowledge, and then we can communicate knowledge to others, not just in a rhetorical way, but through arguments grounded in inferring patterns related to knowledge and truth preserving conclusions. Argumentation schemes, therefore, are not just dialogical structures but also reasoning normative structures (Blair, 2012; Lumer, 2011).

With this state of affairs, the big problem with argumentation schemes is their theoretical nature, structure, and classification criteria (Lumer, 2011, p. 2). There are a lot of accounts on argumentation schemes. The main accounts and classifications are Walton (1996); Walton *et al.* (2008); Kienpointner (1992); Van Eemeren and Grootendorst (2004); and Lumer (2011); and a lot of critics on the topic like the strong criticism of Pinto (2001). The topic remains open and unresolved. In consequence, several blurred, different, paradoxical, unclear, and contradictory theories do not lead to accepting that argumentative schemes are normative models of reasoning and arguing. Therefore, this recent theory of argumentation schemes requires a meta-normative discourse that could base an ulterior development and perhaps an evaluation of the earlier accounts on argumentation schemes.

A New Foundation for Argumentation Schemes

The following proposal consists of to set up an epistemological foundation for every attempt to fix an argumentation scheme, trough the defeasible reasoning theory of ranking beliefs and ceteris paribus defeasible laws approach of Spohn (2012).

First, we must remember the definitions and explanations achieved from sections 1 and 2.

1. The belief in the reduction sentence H= S then, (D iff R) is defeasibly a priori, or, equivalently, it is defeasible a priori that given S, D is a necessary and sufficient reason for R (p. 323).

2. A is a:

Supererogatory	Reason for B iff *t*(believe in) (B/A) >t(B/-A)>0
Sufficient	Reason for B iff t(B/A)>0≥T(B/-A)
Necessary	Reason for B iff t(B/A) ≥0>t(B/-A)
Insufficient	Reason for B iff 0>t(B/A)>t(B/-A). (Spohn, 2012, p. 109).

3. Normality semantics: A conditional is considered as true in a ranked-world model iff all lowest-rank A-worlds are B-worlds. An inference is considered as valid in this semantics iff all ranked-worlds-models, which verify all premise conditionals, verify the conclusion conditional (Reutlinger *et al.*, 2015).

4. (Therefore), we believe Ceteris Paribus that, for instance, if x is put into water, then x is soluble if and only if x dissolves.

Therefore, the general scheme for an argumentation scheme is:

General Scheme:

1. A is a necessary and sufficient reason to believe in B, iff given that believe in (B/A)>0≥ believe in (B/-A) and believe in (B/A)≥0>believe in (B/-A), that is to say, Ceteris paribus.
2. A is the case.
3. Therefore, B must be believed.

We must remark:

1. This is not a Standard Modus Ponens, this is a priori defeasible conditional statement.

2. This general scheme does not rule a particular instantiation but rules the model of every normative ceteris paribus statement as a defeasible one.

Therefore, each argumentation scheme must be made given this general scheme.

The following step is to use and prove such a priori defeasible conditional ceteris paribus statement with respect to the practical use of arguments. And of course, this kind of phenomena is full of exceptions of such a ceteris paribus clause. The possibility of fixing the background or context of dialogue seems to be extremely hard work. The critical questions account is the widest used mechanism as a tester or fuse of the ceteris paribus character of the model.

However, the general schema shows the key to establishing a fuse to the ceteris paribus. We can state the probability of a particular argument fitting into the model or schema. In other words, it is possible to state if A is a necessary and sufficient reason to believe in B. But, as has been said, this is a defeasible condition and there is a degree or ranking of belief in the fulfillment of such conditions. Let me use the Spohn's (2012) figure again:

A is a:

Supererogatory	Reason for B iff	t(believe in) (B/A) >t(B/-A)>0
Sufficient	Reason for B iff	t(B/A)>0≥T(B/-A)
Necessary	Reason for B iff	t(B/A) ≥0>t(B/-A)
Insufficient	Reason for B iff	0>t(B/A)>t(B/-A). (p. 109)

As a defeasible kind of reasoning the grade of fitting into the model, or the plausibility to accept a claim depends on the criteria of probability between II and III. If we found a reason in IV, we can say that there is a bad argument.

At this point it is important to say that the probability is not just a formal system, it depends on the semantics of propositions of a determinate possible world. That meaning corresponds to kinds of facts, for instance, physical or institutional.

Hence, the roll of critical questions is heuristic and related to the possibility of establishing the likelihood of sufficient and necessary reasons to accepting a claim.

Finally, argumentation is a communication process. Argumentation is ruled not just for this epistemological component. The acceptability of a claim is related for instance to Grice maxims (Grice, 1975). Grice maxims are part of the background or not ruled ceteris paribus conditions.

The work to make a compendium of schemes and to prove the schemes with argumentation phenomena is an ulterior task and this work could lead to prove this hypothesis on the nature of argumentation schemes.

Conclusions

The main claim of this paper was that setting a general scheme of argumentation schemes in informal logic is possible, given the epistemological foundation of ceteris paribus laws.

Ceteris paribus laws are a priori defeasible stereotypes (Putnam, 1975). Ceteris paribus clauses are generalizations when we obtain high probable conditions in certain ontological realms, that is, what is normal in certain environment or background.

The defeasible approach of Spohn (2012) is an account on ceteris paribus laws useful for the goal of obtaining a general scheme on argumentation theory. Spohn's normality theory, which means other things being normal, allows solving the problem.

Normality of conditions is related to a centered epistemic agent in a given background. We believe defeasible a priori the ceteris paribus hypothesis and then we start the use of the mechanism of argumentation scheme. For instance, Grice maxims (1975) are certain special kinds of ceteris paribus conditions. Therefore, Spohn's account is capable of being used as a normative for the inductive reasoning of argumentation schemes.

Argumentation schemes are either stereotypical pattern of defeasible reasoning, when the premises only support with likelihood and other things being normal, the acceptance of the conclusion. Practical reasoning is, then, defeasible in essence.

Inferences and arguments are truth-evaluable, but not always truth-preserving or deductive. Most of our arguments are inductive or defeasible. If we go beyond deductive logic, to give an argument is to provide reasons to a rational belief change. We need to infer claims based on the concept of knowledge, that is, normative, not just dialogical ones.

Hence, an argument is a kind of conditional that is accepted in an epistemic state iff AB is more plausible or probable than its falsification, that is, provides a relevant reason to the conclusion, as the general scheme in this proposal shows.

Therefore, this is the structure of a general scheme of reasoning for any argumentation scheme:

1. A is a necessary and sufficient reason to believe in B, iff given that believe in (B/A)>0≥ believe in (B/-A) and believe in (B/A)≥0>believe in (B/-A), that is to say, Ceteris paribus.
2. A is the case.
3. Therefore, B must be believed.

For future work, proving particular argumentation schemes given this epistemic approach of a general scheme based on ceteris paribus conditions is necessary.

References

Aristóteles. (2005). *Topics*. New Vision Press.

Blair, A. (2009). Informal Logic and Logic. *Studies in Logic, Grammar and Rhetoric, 16*(29), 47-67. https://yadda.icm.edu.pl/cejsh/element/bwmeta1.element.b7c07f5a-d2fd-371a-bd96-8a3f07215b80

Blair, A. (2012). A Theory of Normative Reasoning Schemes. In Tindale, C. (Ed.), *Groundwork in the Theory of Argumentation*, (pp. 147-169). Springer.

Cairnes, J. (1888). *The Character and Logical Method of Political Economy*. Harper & Brothers.

Fodor, J. (1991). You Can Fool Some People All of the Time, Everything Else Being Equal, Hedged Laws and Psychological Explanations. *Mind, 100*(397), 19-34. https://doi.org/10.1093/mind/C.397.19

Fonseca, M. (2023). *Belief & Society*. UGC.

Govier, T. (2000). *A Practical Study of Argument*. Wadsworth.

Grice, P. (1975). Meaning. *Philosophical Review, 66*(3), 377-388. https://semantics.uchicago.edu/kennedy/classes/f07/pragmatics/grice57.pdf

Hempel, C. (1965). *Aspects of Scientific Explanation and other Essays*. The Free Press.

Kienpointner, M. (1992). *Alltagslogik. Struktur & Funktion von Argumentationsmustern*. Frommann-Holzboog.

Lumer, Ch. (2011). *Arguments Schemes. An Epistemological Approach*. Proceedings of the 7th International ISSA Conference on Argumentation.

Mill, J. (1843). *A System of Logic*. J. W. Parker.

Nagel, T. (1961). *The Structure of Science. Problems in the Logic of Explanation*. Harcourt, Brace & World, Inc.

Pietroski, P., &. Rey, R. (1995). When Other Things aren't Equal: Saving Ceteris Paribus Laws from Vacuity. *British Journal for the Philosophy of Science*, *46*(1), 81-110. https://www.journals.uchicago.edu/doi/abs/10.1093/bjps/46.1.81

Pinto, R. (2001). Argument Schemes and the Evaluation of Presumptive Reasoning. In *Argument, Inference and Dialectic*, (pp. 98-104). Kluwer.

Putnam, H. (1975). The Meaning of "Meaning." In Gunderson, K. (Ed.). *Language, Mind and Knowledge*, (pp. 131-193). University of Minnesota Press.

Reutlinger, A., Schurz, G., Hüttemann, A., & Jaag, S. (2015). *Ceteris Paribus Laws*. The Stanford Encyclopedia of Philosophy

Spohn, W. (2012). *The Laws of Belief*. Oxford University Press.

van Eemeren, F. & Grootendorst, R. (2004). *A Systematic Theory of Argumentation*. Cambridge University Press.

van Eemeren, F. (2015). *Reasonableness and Effectiveness. In Argumentative Discourse. Fifty Contributions to the Development of Pragma-Dialectics*. Springer.

van Eemeren, F. & Kruiger, T. (2015). Identifying Argumentation Schemes. In van Eemeren, F., *Reasonableness and Effectiveness. In Argumentative*

Discourse. Fifty Contributions to the Development of Pragma-Dialectics (pp. 703-712). Springer.

Walton, D. (1996). *Argumentation Schemes for Presumptive Reasoning*. Erlbaum.

Walton, D., Reed, Ch., & Macagno, F. (2008). *Argumentation Schemes*. Cambridge University Press.