ARGUMENTATIVE REASONING PATTERNS

This paper is aimed at presenting a preliminary study on argument schemes. Argumentation theory has provided several sets of forms such as deductive, inductive and presumptive patterns of reasoning. The earliest accounts of argument schemes were advanced in Arthur Hastings' Ph.D. thesis at Northwestern University (1963), and in Perelman and Obrechts-Tyteca's work on the classification of *loci* in 1969. Other scheme sets have been developed by Toulmin, Rieke, Janik (1984), Schellens (1985),van Eemeren and Kruiger (1987), Kienpointner (1992) and Grennan (1997). Each scheme set put forward by these authors presupposes a particular theory of argument. Each theory, in turn, implies a particular perspective regarding the relation between logic and pragmatic aspects of argumentation, and notions of plausibility and defeasibility. The history of argument schemes begins with the concepts of *topos* and *locus*.

Loci and argumentation schemes

In the field of argumentation there are conflicting views about what an argument is and what must be present for something to be regarded as an argument. Arguments may be thought of as complex speech acts or as propositional complexes (the result of speech acts, namely a speech act's propositional product). These two perspectives follow from two different approaches to argument schemes. Both perspectives, though, have in common a fundamental feature; namely, they both identify recurrent patterns or argument schemes from arguments. This common feature distinguishes the modern theories on argumentation from traditional dialectical and rhetorical studies. In the ancient tradition, the focus of the studies was limited to the *locus*. The locus of an argument is the proposition upon which the argument is based and is the proposition that is accepted by everyone (*maxima propositio*). Modern theories, in their study on argument schemes, comprehend not only what was traditionally thought of as *topoi* or *loci*, but also the use of *topoi* or *loci* in actual argumentation.

1. Aristotelian *Topoi*

The whole occidental tradition on dialectics stems from Aristotle's *Topics*. The first translation of the Topics by Cicero was later commented and conceptually reorganised by Boethius in *De Differentiis Topicis*. This later treatise was the primary source for most of medieval commentaries and dialectical works on what is nowadays called argumentation. In Aristotle, *topoi* have the twofold function of proof and invention, that is, they are regarded as points of view under which a conclusion can be proved true or false, and as places where arguments can be found (De Pater, 1965, p. 116). Their logical structure has been studied by (Kienpointner 1987, p. 281).

2. Loci in the Ancient Tradition

In the middle ages, the Aristotelian topics were completely reinterpreted and their function and role substantially changed. Two main developments in the treatment of the topics can be recognized (Stump, 1989, p. 287). First, all syllogisms were regarded as dependent upon topics and, secondly, later on, all topical arguments were considered necessary. In order to understand these two developments, it is useful to analyse Boethius' *De Differentiis Topics* and their interpretation in Abelard and in the following theories in the 12th and 13th century, until the works Burley in the 14th century. The roots of medieval dialectics can be found in Boethius' work *De differentiis topicis*. Some of the *topoi* (Boethius, 1185C, 1185D) are necessary connections, while others (for instance, from the more and the less) represent only frequent connections. Dialectical *loci* are distinct from rhetorical *loci* because, the former are relative to abstract concepts (the things, such as "robbery"), the latter stem from things having the qualities (the concrete cases, such as a particular case of

robbery) (1215C)[1].
During the middle ages, the focal point of the study of argument was the connection between dialectics and demonstration. Beginning with the XIth century, Garlandus Compotista conceived all the topics under the logical forms of topics from antecedent and consequent, whose differentiae (the genera of *maximae propositiones*) are the syllogistic rules (Stump, 1982, p. 277). In the XIIth century, Abelard in his *Dialectica* examined for the first time [2] the structure of dialectical consequence in its components. In this work, the *maxima propositio*, expressing a necessary truth, is structurally connected to the *endoxon*. The relation between contingent and necessary truth is considered to be an assumption.
Burley and Ockham organised the consequences into classes, according to the type of medium, which can be extrinsic (such as the rule of conversion) or intrinsic (for instance, the topic from genus), formal (holding by means of an extrinsic topics) or material (supported by an intrinsic topic, dependent on the meaning of the terms) (Boh, 1984, p. 310). The doctrine of loci was then taken over in the Renaissance by Rudulphus Agricola. Topics were deemed to be the means by which arguments are discovered and knowledge is obtained. In this treatise, the difference between dialectical and rhetorical *loci*, a distinction maintained throughout the whole Middle Age is blurred. While Logic is related to the abstract, i.e. formal relationships between concepts, the topics pertain to the discussion and to the matter treated in the dialogue (Agricola, 1976, p.12-13). In the Port Royal logic, in 17th Century, topics were regarded as part of the *inventio* and were classified according to criteria that differed from that of Aristotle and that were maintained throughout the Middle Age. The focus of this work is on the different kinds of argument and the division is based on the fields of human knowledge the premises of the argument belong to (Arnauld, 1964, p. 237).

3. *Topoi* and their development into argumentation schemes

The ancient dialectical tradition of topics is the predecessor to and the origin of the modern theories of argument schemes. In this section, the most important and relevant approaches of modern theories of argument schemes are outlined.

3.1 Hastings

Hastings described nine modes of reasoning, grouped into three classes: verbal and semantic procedure (argument from example, from verbal classification and from definition), causal connections (arguments from sign, from cause and from circumstantial evidence) and arguments supporting either verbal or causal conclusions (arguments from comparison, analogy and testimony). In his work, Hastings analysed the necessary conditions for the correct use of each scheme. The critical questions matching a scheme provide criteria for evaluation of the type of argument (Hastings 1963, p. 55).

3.2. Perelman

In Perleman and Olbrecht-Tyteca's theory, *loci* are seen as general strategies or rather"catalogs of the habits of mind endemic to a given culture"[3]. About 100 argument patterns are described in their work and are classified into two main categories: arguments by association[4] and arguments by dissociation[5]. Arguments from association are divided into three main classes: Quasi-logical

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[1] Rhetorical loci do not proceed from relations between concepts, but from stereotypes and are relative to what is implied or presupposed by a particular fact. For instance, given a murder and a person accused of homicide, the rhetorical reasoning can proceed from the place and time of the plaintiff (he was seen close to the scene of the murder, therefore he may have committed the murder). See Boethius 1215b.
[2] M. Kienpointer, 1987, p. 283.
[3] Warnick, 2000, p. 111.
[4] For example, two different concepts might be associated into a unity, such as in the example: "I have accused; you have condemned," is the famous reply of Domitius Afer. (Perelman, Olbrechts-Tyteca, 1969, p. 223)
[5] For example, the concept of religion is divided into *apparent religion* vs. *true religion*: "What religion do I profess?

Arguments, Relations Establishing the Structure of Reality and Arguments based on the Structure of Reality. In arguments from dissociation, concepts conceived as a whole are separated into two new concepts, introducing polisemy.

3.3. Schellens
Schellens' argument schemes (Schellens 1985) are primarily drawn from Hastings' and are classified into four classes according to their pragmatic function (Kienpointner, 1992, pp. 201-215). The first group is comprised of pragmatic arguments and is normative and descriptive. The second group is comprised of unbound arguments and is either normative or descriptive. Every scheme is associated to a set of evaluation questions, similar to Hastings' critical questions.

3.4. Kienpointner
In "Alltagslogik", Kienpointner classifies roughly 60 context-independent argument schemes in three main groups according to their relation with the rule or generalization (*endoxon*). Argument schemes may be based on rules taken for granted, establish them by means of induction, or illustrate or confirm them. Argument schemes, in turn, may have descriptive or normative variants and different logical forms (*Modus Ponens*, *Modus Tollens*, Disjunctive Syllogism, etc.).

3.5. Grennan
In Grennan's (1997, p. 163-165) typology all the structurally valid inductive inference patterns are classified according to 8 warrant types (effect to cause, cause to effect, sign, sample to population, parallel case, analogy, population to sample, authority, ends-means), combined with the types of claims the warrant connects (utterance-types expressing the minor premise and the conclusion of an argument, such as obligation). In this perspective, both the abstract form of the inference and the pragmatic role of the utterances expressing the sentences are taken into consideration

The main patterns of reasoning found in modern argumentation theories primarily stem from the Aristotelian and medieval dialectical *topoi*. Many arguments can be traced back to these patterns. The theory presented in the following section is focused on the treatment of real arguments and is aimed at individuating the possible patterns of reasoning they are based on.

Argumentation schemes in a pragmatic approach

The innovation that Walton's approach brings to this topic is the adoption of a more descriptive perspective. From this perspective, argument schemes are analysed in relation to fallacies. Many sophisms are patterns of inference that can be valid in certain contexts of argumentation. Hamblin (1970) first pointed out the necessary connection between fallacies and inferences. He attacked the standard treatment of fallacies for its lack of an explanatory theory regarding the inferences underlying the sophisms. In Walton's approach, most of the traditional fallacies are regarded as kinds of errors or failure in particular argumentation schemes, infractions of the necessary conditions required for the correct deployment of a *topos* in a type of dialogue.

1. Walton's pragmatic approach: Structure of an argument scheme

In Walton's perspective, arguments are analysed in a specific conversational context. The propositional content of the argument is considered in relation to its use in a type of dialogue and arguments are evaluated also by means of the rules of the dialogue game the interlocutors are involved in. Arguments usually considered as fallacious, for instance the *ad hominem* argument, can be acceptable if certain dialogical conditions are respected. Each argument scheme provides not

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None of all those that you mention. –And why none? –For religion's sake!" (Perelman, Olbrechts-Tyteca ,1969, p. 442)

only the general structure of the propositions constituting the argument, but also the necessary conditions by which its acceptability is determined. Argument schemes are presumptive and defeasible. Since each argument scheme is not only regarded to be an abstract propositional form but also a pattern instantiated in real dialogues, it cannot be said to be always valid in a discussion. It is subject to defeasibility when new information is added and either contradicts the argument's premises or conclusion, or weakens its force by making it irrelevant to support the position. For this reason, arguments can be presumptively accepted by the other party, but their relevance and role in the dialogue depend upon the fulfilment of the critical questions. Examples are argument from expert opinion (Walton 2002, pp. 49-50) and *argumentum ad hominem* (Walton 1998, pp. 199-215)

2. Types of argument schemes

Argumentation schemes include many patterns of reasoning in dialogue. Arguments can have deductive, inductive or abductive logical forms. They can proceed from causal connections between things, from the meaning of terms, from the relationship between the interlocutors, or from the status of the speaker. The premises can be rules, dialogical norms, or accepted opinions. A distinct classification is difficult to find, but, at the same time, is necessary in order to organize analytical tools reconstructing arguments. In the diagram below, the first scheme has a constructive aim, while the second can be used only to rebut the first. The refutation scheme stems from the third critical question of the constructive argument (Walton, 1996, p. 92).

Argument from established rule	*Argument from exceptional case*
M.p.: If carrying out types of actions including the state of affairs *A* is the established rule for *x*, then (unless the case is an exception), *x* must carry out *A*. m.p.: Carrying out types of actions including state of affairs *A* is the established rule for *a* Concl.: Therefore *a* must carry out *A*. CQ_1 : Does the rule require carrying out types of actions that include *A* as an instance? CQ_2 : Are there other established rules that might conflict with, or override this one? CQ_3 : Is this case an exceptional one, that is, could there be extenuating circumstances or an excuse for noncompliance ?	M.p.: Generally, according to the established rule, if *x* has property *F*, then *x* also has property *G*. m.p.: In this legitimate case, *a* has *F* but does not have *G*. Concl.: Therefore an exception to the rule must be recognized, and the rule appropriately modified or qualified.

Along with this distinction in levels of dialogue, argument schemes can be classified according to the components of the argumentative process. In addition to patterns aimed at the subject of the discussion, schemes can also involve the emotions of the interlocutor, or the *ethos* of the speaker, or the common ground between the interlocutors. An example can be given of the three classes of scheme in the patterns below, respectively argument from distress (Walton 1997, p. 105), argument from popularity (Walton 1999, p. 223) and Ethotic Argument (Walton 1995, p. 152):

Hearer	**Common Ground**	**Speaker**
Argument from Distress	*Argument from Popularity*	*Ethotic Argument*
M.p.: Individual *x* is in distress (is suffering). m.p.: If y brings about *A*, it will relieve or help to relieve this distress. Concl: Therefore, *y* ought to bring about *A*.	P.: Everybody (in a particular reference group, *G*) accepts *A* Concl: Therefore, *A* is true (or you should accept *A*).	M.P: If *x* is a person of good (bad) moral character, then what *x* says should be accepted as more plausible (rejected as less plausible). m.p.: *a* is a person of good (bad) moral character. Concl.: Therefore what *x* says should be

		accepted as more plausible (rejected as less plausible).

Almost all the arguments taken into consideration in most of the theories are related to the topic of the discussion itself and they can be divided according to both their content and their logical form.

3. Argument schemes and missing premises: the reconstruction of real arguments

Argument schemes are an extremely useful tool for argument reconstruction. Arguments in real conversational situations almost always proceed from premises that are taken for granted. This is the case because these premises are shared by the community of speakers or presumed to be commonly accepted. When a difference occurs between those premises which are actually granted by the interlocutor and those assumptions upon which the argument is based, a fallacy often results. For instance, the speaker may take for granted a premise that the hearer does not accept, or a proposition is assumed as necessary or highly plausible while the interlocutor consider it only slightly possible. The argument scheme is fundamental for the reconstruction of the implicit premises because the missing logical step can be found by considering the structure of the inference.

Conclusions

The aim of the paper has been to offer a prolegomenon to the project of constructing a typology of argument schemes. Since many argument schemes found in contemporary theories stem from the ancient tradition, we took into consideration classical and medieval dialectical studies and their relation with argumentation theory. This overview on the main works on topics and schemes provides a basis for approaching main principles of classification.

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