Argumentation Schemes for Statutory Interpretation

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Abstract. In this paper it is shown how defeasible argumentation schemes can be used to represent the logical structure of the thirteen types of arguments recognized as important for statutory interpretation by (Tarello 1980). It is shown that the process of statutory interpretation has a distinctive argumentative structure where the conclusion, namely, the meaning attributed to a legal source, is a claim that needs to be supported by pro and contra defeasible arguments. This transformation of the arguments of interpretation into the argumentation schemes framework is applied to the psychological and the *a contrario* arguments, as leading examples to follow. The defeasible nature of each scheme is shown by means of critical questions, which identify the default conditions for the accepting interpretative arguments and provide a method for evaluating a given argument as weak or strong.

Keywords. Argumentation, interpretation, argumentation schemes, a contrario, defeasible arguments, legal reasoning.

Legal reasoning is based on authoritative sources, such as legislative texts, regulations, judicial opinions. Interpretation "is a particular form of practical argumentation in law, in which one argues for a particular understanding of authoritative texts or materials as a special kind of (justifying) reason for legal decisions." (MacCormick 1995, p. 467). In order to use an authoritative source to support a specific conclusion, one needs to retrieve its meaning. We interpret a legal source, when the understanding of the source is controversial, but interpretation in order to be justified needs to be supported by arguments. Interpretive argumentation plays a crucial role in the law and can indeed be described as the "nerve of law" (Patterson 2004, p. 247). As we will show in this paper, the process of meaning retrieval and

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justification is based on a kind of reasoning that is subject to defeat, and which is evaluated by considering relevant counter-arguments.

The purpose of this study is to investigate certain types of defeasible arguments traditionally called topics (in the "weak" sense, Kreuzbauer 2008, p. 81) used in statutory interpretation. The theoretical framework is based on two different dimensions: legal theories on the arguments of interpretation, and tools provided by argumentation theory for formalizing and describing them. These tools were provided by the list of arguments set out by Tarello (Tarello 1980; see Feteris 1999) useful for statutory interpretation in civil law. There are comparable to the ones used in common law (MacCormick 1995; Summers 1991; Greenawalt 2002). The structure of such arguments will be reconstructed and modeled, by identifying the inferential relationship between premises and conclusion, and identifying the semantic principle that characterizes the inference (for the local connection between the terms (see Stump 1989, p. 6; Abaelardus 1970, p. 264). For this purpose the starting points are the argumentation schemes, abstract patterns of reasoning that specify a particular type of inference from a distinctive set of premises to a distinctive conclusion (Walton, Reed, and Macagno 2008).

1 Interpretation as Argumentation

The term "interpretation" is used in two ways in legal theory. In a broader sense it includes all activities consisting in determining the meaning of a legal source, as well as the result of such activity, namely, the rule which is attributed to the source as its proper meaning (see for instance Tarello 1980 and Guastini 2011). In a more restricted sense (which is assumed by the traditional brocardo *"in claris non fit interpretatio"*, in clear things no interpretation takes place), it only concerns cases where a (reasonable) doubt is raised concerning the meaning of a text (Patterson 2004).

Here we adopt the second view, assuming that the activity of interpretation *stricto sensu*, as mentioned in the introduction, presupposes a doubt, namely an implicit or explicit conflict of opinions, concerning the meaning of a word, a sentence or a text (ibid.), which induces the interpreter to question his/her prima-facie understanding. Embracing the account of Tarello and Guastini, we refer to the rule, namely the result an interpretative process, the "meaning" of a statement of law.[1] We can then distinguish the following objects we are dealing with:

- Source-statements: sentences contained in legal sources, meant to express legal rules;
- Prima facie understanding of a source-statement: the rule, if any, that in a certain socio-linguistic context is attributed by default to the source statement (and the activity of grasping such a rule);

[1] Interpretation reduces the vagueness of the statements of law, identifying the specific cases that are governed by such statements of law (Guastini 2011, p. 18). On this view, the "meaning" corresponds to both *Sinn* and *Bedeutung* (ibid., p. 6).

- Interpretative statements: statement affirming that a source-statement has a certain meaning (expresses a certain rule), made to overcome a doubt on its understanding (to select this one, among other possible meanings of the same source);
- Interpretation: the rule, which is attributed to a source-statement, which amounts to an answer to a doubt on its understanding (and the activity of making and supporting such statement);
- Interpretive argumentation: the arguments provided to support a particular interpretation of a source-statement.

Thus, from an argumentative perspective, interpretation can be distinguished from prima-facie understanding based on the processes of reasoning involved. In prima-facie understanding, the passage from a statement of law to the rule it expresses (Tarello 1980) is grounded on unchallenged presumptive meaning (Macagno 2011), the default explanation of the meaning of a word or sentence according to shared linguistic-cultural conventions/practices. For instance, we can consider the following source-statement, which we may find in a sign in front of Lincoln Park (Horn 1995, p. 1146):

> All vehicles are prohibited from Lincoln Park.

The presumptive meaning, leading to the default explanation of meaning, is that "entities having wheels and used for the transportation of people are prohibited from Lincoln Park." However, sometimes the passage from the statement of law to the corresponding rule is more complex, as the statement may be vague or ambiguous (so that prima-facie understanding delivers alternative clues), or it needs to be applied to a specific case with regard to which there are grounds for nor applying the presumptive meaning. In such cases the default explanation is controversial, as it may be contested and challenged by contrasting ones. For example "vehicles" can be interpreted as unauthorized transportation means, or as the transportation means with an engine, etc.

As shown in figure 1, interpretations can be supported by certain types of argument to be described in the following section. In this case a more complex process of reasoning intervenes, aimed at establishing the best possible explanation. The distinct interpretations are supported by alternative explanations, which need to be supported by arguments in order to be proven to be better (more adequate, more suitable) than the others. The arguments that support the various explanations of meaning and/or reject the other possible interpretations are the so-called interpretative arguments. Even though there are many types of interpretative arguments, we will focus our analysis on the set of the most common ones, which have been acknowledged and discussed in legal studies.

2 The Arguments of Interpretation

The arguments used in the interpretative process have been analyzed by (Tarello 1980) in his work on legal interpretation. He identifies the structure and the uses of

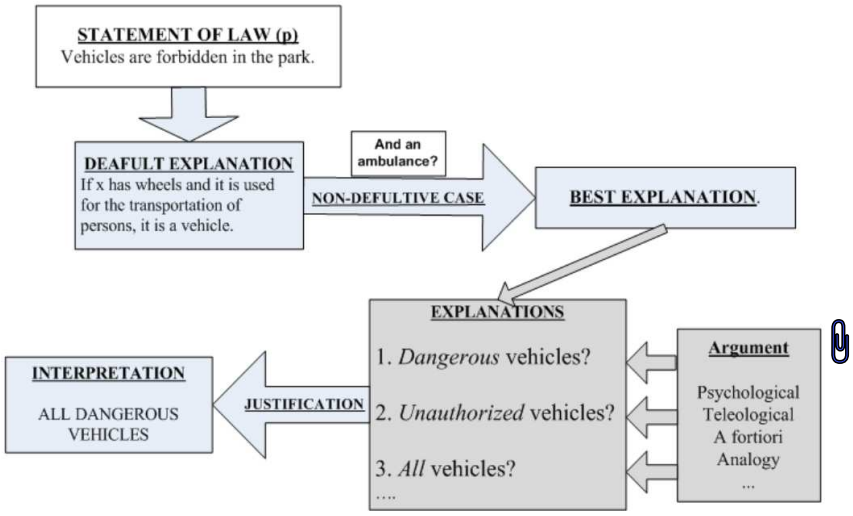

Figure 1: The argumentation process of interpretation.

thirteen types of argument, of which two (the argument from the coherence of the law and the argument from the completeness of the law) are ancillary, in that they exclude a possible explanation and support the need for a different interpretation of a statement of law. These arguments can be divided into five groups based on the semantic and logical relationship between premises and conclusion:

The first type of argument is the *"a contrario"*, which can be summarized by the Latin principle *Ubi lex voluit, dixit; ubi noluit, tacuit* (what the law wishes, it states, what the law does not want, it keeps silent upon). According to this maxim, if a rule attributes any normative qualification (such as a power, an obligation or a status) to an individual or a category of individuals, in lack of any other explicit rules it shall be excluded that any additional rule is in force (exists, is valid) attributing the same quality to any other individual or category of individuals. This type of argument, analyzed below, is grounded on a default type of reasoning called reasoning from lack of evidence.

The argument from similarity and the *a fortiori* argument both proceed from a comparison between two rules (Guastini 2011, pp. 282–283). In both cases, the interpreter aims at supporting an unexpressed rule and presupposes a *ratio iuris*, which is applied to the case not expressly regulated yet. In case of analogy, if a rule attributes any normative qualification (such as a power, an obligation or a status) to an individual or a category of individuals, it can be concluded that there is an additional rule that attributes the same quality to another individual or category of individuals connected with the former class by a similarity or an analogy relation. In the *a fortiori* argument, there is an asymmetry in favor of the case not expressly regulated: if a rule attributes any normative qualification (such as a power, an obligation or a status) to an individual or a category of individuals, it can be concluded

1. Argumentum a contrario	**Argument in lack of evidence**
2. Argumentum a simili	**Analogical arguments**
3. Argumentum a fortiori	
4. The psychological argument	**Arguments proceeding from the authority of the source**
5. The historical argument	
6. The naturalistic argument	
7. Argumentum ab exemplo	
8. The teleological argument	**Arguments proceeding from consequences**
9. The apagogical argument	
10. Argumentum a coherentia	
11. The economic argument	**Abductive arguments**
12. The systematic argument	
13. Argumentum a completitudine	

Figure 2: The arguments of interpretation.

that there is a different rule (or a different rule exists, is valid) that attributes the same quality to another individual or category of individuals in a situation in which such a normative qualification shall be even more needed or justified (Tarello 1980, p. 355).

Four arguments are based on authority: the psychological, the historical, the naturalistic and the *ab exemplo* arguments. In these arguments, the acceptability of the interpretation depends on the authority of the legislator, previous interpreters or popular opinion. According to the psychological argument, to a statement of law shall be attributed the meaning that corresponds to the intention of its drafter or author, that is, the historical legislator. In the historical argument the authority is not the actual legislator but the traditional interpretation of a previous statement of law that governed the same case in the same legal system. The argument *ab exemplo* (or authoritative) is based on the authority of a previous interpretation, or rather on the authority of the product of a previous interpretation. Finally, the naturalistic argument is grounded on the commonly accepted "nature" of the things, namely on the commonly shared values that characterize a specific culture.

The arguments from consequences proceed from the acceptability or unacceptability of a consequence of the application of a rule to the reasonableness or unacceptability of what leads to it, the interpretation leading to that rule. Through the apagogic argument it is possible to reject the possible interpretations of a statement of law leading to an unreasonable or "absurd" rule. According to the teleological argument a statement of law shall be given the interpretation that corresponds to the purpose which the legislator (or the law) aims to achieve through that statement.

Finally, abductive arguments lead from a fact to its best possible explanation. According to the economic argument, an interpretation of a statement of law that

corresponds to the meaning of another, older or hierarchically superior, statement of law, shall be excluded, as the best explanation for the existence of two identical statements of law is that the legislator intended them as having different meanings. The systematic argument is based on the authority of the legal system (the other provisions of law) and the explanatory principle that the legislator intended a unitary and coherent system of laws. Accordingly, the best explanation for the meaning of a statement of law is the meaning corresponding to the one imposed (and not excluded) by the legal system.

This analysis and categorization of the arguments of interpretation highlights a relationship between the legal interpretative reasoning and argumentation theory, and in particular the modern approach to the abstract patterns of arguments, called argumentation schemes.

3 Argumentation Schemes

Argumentation schemes represent the structure of defeasible arguments, namely arguments not proceeding from the meaning of quantifiers or connectors only, but from the semantic relations (*habitudo*) between the concepts involved. This account is rooted in Toulmin's notion of warrant, which he defines as "general, hypothetical statements, which can act as bridges, and authorize the sort of step to which our particular argument commits us" (Toulmin 1958, p. 91). These warrants can be different in nature: they can be grounded on laws, principles of classification, statistics, authority causal relations or ethical principles (ibid.). Such warrants became the principle of classification of arguments (Toulmin, Rieke, and Janik 1984, p. 199). Building on this approach, the idea of argumentation schemes was developed, representing the combination between a semantic principle (such as classification, cause, consequence, authority) and a type of reasoning, such as deductive, inductive or abductive reasoning. Their main purpose as regards legal argumentation is to provide abstract patterns representing types of arguments that carry probative weight for supporting or attacking a conclusion, but in the most typical instances are defeasible. Such arguments do not lead to necessarily true conclusions and are not based on necessarily true premises.

Most of the argumentation schemes listed in (Walton, Reed, and Macagno 2008) have a defeasible *modus ponens* structure, grounded on a conditional defeasible generalization. A standard example is the expanded scheme for argument from expert opinion (ibid., p. 19) shown in table 1.

It is readily visible that version of the scheme for argument from expert opinion has a *modus ponens* structure as an inference. Since experts are generally not omniscient, and since in law it would be a great error to take what an expert says uncritically, this inference must be viewed as being defeasible.

Subsequent work on argumentation schemes has followed this general way of representing the logical structure of many defeasible argumentation schemes. Bench-Capon and Prakken (Bench-Capon and Prakken 2010) view the application of defeasible rules (such as legal or moral norms) as a particular instance of defeasible *modus ponens*. They represent through a semicolon connective (;) representing any

Minor premise 1:	Source E is an expert in subject domain S containing proposition A.
Minor premise 2:	E asserts that proposition A (in domain S) is true (false).
Conditional premise:	If source E is an expert in a subject domain S containing proposition A, and E asserts that proposition A is true (false), then A may plausibly be taken to be true (false).
Conclusion:	A may plausibly be taken to be true (false).

Table 1: Argumentation scheme: *Argument from expert opinion.*

inference warranted by a defeasible rule. The basic argument scheme for applying defeasible rules called the Rule Application Scheme (ibid., p. 159) is shown in table 2.

r: P_1, ...,P_n ; Q
P_1, ...,P_n
Q

Table 2: Rule Application Scheme.

The letter r indicates the name of the rule. The following two critical questions match this scheme (ibid., p. 159):

CQ_1: Is r valid?

CQ_2: Is r applicable to the current case?

Critical questions concerning an inference scheme indicate situations which can be presumptively assumed when reasoning with the scheme, but whose non-existence would put into question the application of the scheme. Negative answers to critical questions can be reformulated as counterarguments that undercut (make inapplicable) the concerned scheme or contradict (rebut) its premises (see "Justification of argumentation schemes").

Now we can see, in general, that our conditional rule for framing interpretive arguments in a general pattern for defeasible rules or argument schemes can also be cast into this format. In table 3 this rule has been expanded into a DMP form of inference.

If a sentence/term X has the property P, then X should (not) be given meaning M.
This sentence/term X has the property P.
Therefore X should (not) be given meaning M.

Table 3: DMP form of inference.

This abstract structure of inference represents the most generic pattern that the interpretative arguments have. On this perspective, the different argumentation

schemes that want to capture the logical and semantic characteristics of an argument can be adapted to the specific field of interpretation by replacing the generic DMP form with the aforementioned one. This form of inference can be used to "translate" the aforementioned arguments described by Tarello into argumentation schemes. In particular, we will analyze two arguments, the psychological and the *a contrario* arguments.

4 Psychological Argument (Intention of the Actual Legislator)

This argument is grounded on the intention of the actual, real drafter of the statement of law that needs to be interpreted. According to this line of reasoning, the meaning that corresponds to the intention of the drafter or author (the historical legislator) should be ascribed to a statement of law (Tarello 1980, p. 364). This type of argument is based on the idea that a statement of law is the expression of a command from a superior authority. Therefore, the interpretation of a statement of law corresponds to the reconstruction of the command of the authority. However, if the legislator is not a single authority, such as a king or an imperator, but a plurality of people (an assembly such as the Senate or the House of Representatives), this argument amounts to attributing a unique intention to a community of people, who may have voted the statement of law for different reasons and different intentions.

This type of argument can be illustrated using an example from the common law (*United States v. California*, 381 U.S. 139, at 150-151, 1965). This controversy concerning the possession of the submerged lands of California was based on the definition of "submerged water", which in its turn amounted to the definition of "inland water". The Court grounded its argument on the fact that the only way of recovering the definition was the legislative history, or rather the intention of the legislator. Since the Senate Committee excluded the definition set out in the proposed bill, their intention was not to define it, leaving its meaning to be determined by the Courts:

> The focal point of this case is the interpretation to be placed on "inland waters" as used in the Act. Since the Act does not define the term, we look to the legislative history. [...]
>
> Two changes relevant for our purposes were made in the bill which became the Submerged Lands Act between the time it was sent to the Senate Committee on Interior and Insular Affairs and the time of its passage.
>
> (1) As first written, the bill defined inland waters to include "all estuaries, ports, harbors, bays, channels, straits, historic bays, and sounds, and all other bodies of water which join the open sea." This definition was removed by the Senate Committee. [...]
>
> Removal of the definition for inland waters and the addition of the three-mile limitation in the Pacific, when taken together, unmistakably show that California cannot prevail in its contention that "as used in the Act,

> Congress intended inland waters to identify those areas which the states always thought were inland waters." By deleting the original definition of "inland waters" Congress made plain its intent to leave the meaning of the term to be elaborated by the courts, independently of the Submerged Lands Act.

The intention of the legislator can be used also for statutory interpretation, analyzing the context in which the act was enacted. For instance, in *Samantar v. Yousuf* (176 L. Ed. 2d 1047, at 1066, 2010), concerning the jurisdiction over a foreign official, the petitioner claimed that the United States have no jurisdiction over the case as it was governed by the Foreign Sovereign Immunities Act, which provided that "foreign state shall be immune from the jurisdiction" of federal and court state. In order to analyze the force and the characteristics of this type of argument, it is useful to distinguish between two kinds of authority. One is the classic form of argument from authority, corresponding to the authority of the expert represented in argumentation scheme shown in table 1. Obviously, the legislator cannot be considered an expert. However, this argument can be generalized by considering expertise only a specific form of authority. In another species of argument from authority, the force of the argument lies in the kind of authority based on the power deriving from a superior role or standing of some official who is entitled to make rulings that are binding within a legislative framework (Ciceronis *Topica*, 24). This second type of argument from authority, which can be called the *de jure* argument from authority, has the argumentation scheme as shown in table 4.

Minor premises:	L is an authority involved in (passing, drafting, amending) the source-statement A.
Major premise:	L (passed, drafted, amended) source-statement A intending M.
Conditional premise:	If L is an authority involved in (passing, drafting, amending) the source-statement A, and L intended the meaning (interpretation) M, then M may plausibly be taken to be right meaning (interpretation).
Conclusion:	M may plausibly be taken to be the right meaning (interpretation).

Table 4: Argumentation scheme: *De jure argument from authority.*

The structure of this argument highlights the critical dimensions of this scheme. Building on the critical questions of the argument from expert opinion, Tarello's analysis (ibid., pp. 366–367) and the aforementioned refutation of the psychological argument can be summarized in the following crucial defeasible dimensions:

1. *Role Question*: Whose opinion, in the case, effectively represents *L's* opinion (the majority, the most influential, the most representative)?

2. *Opinion Question*: Did L intend to express M by asserting A?

3. *Consistency Question*: Is M consistent with the intention of other Ls that passed the same law?

4. *Coherence Question*: Does M lead to any antinomy or incoherence in the legal system?

One of the crucial and most controversial problems is how to determine a collective intention, especially if the statement of law has been voted by different political groups for different purposes. As Scalia put it, "There is no escaping the point: Legislative history that does not represent the intent of the whole Congress is non-probative; and legislative history that does represent the intent of the whole Congress is fanciful" (516 U.S. 264, at 281, 1996). Another crucial problem is to understand the intention. The *travaux preparatoires*, or legislative history, are used for this purpose, in order to analyze the reasons given by the legislative bodies to support a statement of law. Obviously the reconstruction of the intention needs to be supported by further arguments, one of which is the appeal to further authorities.

5 *Argumentum a contrario*

The *a contrario* argument has been analyzed by Tarello (Tarello 1980, p. 346) as the passage from the attribution of a normative qualification D (an interpretation of a statement of law) to a specific category of individuals to the exclusion of the existence additional rules (or rather, other interpretations) attributing the same qualification D to other categories. This argument excludes an interpretation wider than the literal one, and it rebuts any analogical or extensive interpretation (Guastini 2011, p. 271). For instance, art. 17, 1 paragraph of the Italian constitution provides that:

> All citizens have the right to assemble ~~peaceably~~ and unarmed.

Is the legal predicate "to have the right of assembly" (A) also attributable to foreigners and stateless people? If we use the argument *a contrario*, we proceed from the principle that if the law wished to vest such a right D in foreigners and stateless people, it would have stated it (ibid., p. 272). Since there are no legal provisions relative to the foreigners' right to assemble, it shall be concluded that such a predicate is attributed only to citizens. As a consequence, foreigners and stateless people will be excluded from such a right.

The argument *a contrario* concerns what a law does not provide for. At common law, prior cases constitute only possible grounds on which a decision and rule is justified, and cannot have the pretense of completeness. For this reason, in case law this type of argument is not used. However, common law courts use such an argument to interpret civil codes within their own jurisdiction. For instance, the Supreme Court of Canada shall interpret the civil code of Quebec, while in the United States the federal court needs to interpret the civil codes of Louisiana and Puerto Rico (Friesen 1996, p. 4). For instance, we can consider the argument used by the Court of Appeal of Louisiana in *Southwestern Electric Power Co. v. Parker* (419 So. 2d 134, at 141, 1982). In a case in which the extent of the right of servitude on a

land was disputed (petitioner wanted to conduct well drilling activities on portions of his land that a power company contended were within its right of way across the property) even though governed by a contract, the Court cited the Articles 705 and 749 of the Civil Code of Louisiana:

> Art. 705. The servitude of passage is the right for the benefit of the dominant estate whereby persons, animals, or vehicles are permitted to pass through the servient estate. Unless the title provides otherwise, the extent of the right and the mode of its exercise shall be suitable for the kind of traffic necessary for the reasonable use of the dominant estate.
>
> Art. 749. If the title is silent as to the extent and manner of use of the servitude, the intention of the parties is to be determined in the light of its purpose.

The court then reasoned a contrario: "when the title provides the exact dimensions of the area affected by the servitude, that contract must be given full effect."

In order to analyze the logic and the structure of this argument, it is useful to first investigate the defeasible principle on which it is based. The reasoning supporting the conclusion proceeds from the lack of contrary evidence in the so-called "closed-world assumption." The negation of a proposition (A is not true) is borne out by the lack of contrary evidence (A is not known to be true) (Walton, Reed, and Macagno 2008, p. 327). The argumentation scheme of argument from ignorance is shown in table 5.

Major premises:	If A were true, then A would be known to be true.
Minor premise:	It is not the case that A is known to be true.
Conclusion:	Therefore A is not true.

Table 5: Argumentation scheme: *Argument from ignorance.*

In the case of *a contrario argument*, the world taken into consideration is the paradigm of the provisions interpreted according to their literal meanings. If a rule (or meaning) cannot be found in the literal interpretations, it shall be excluded. This type of reasoning can be analyzed as a specific instance of the argument from ignorance (as shown in table 6).

Major premises:	If a sentence x has the meaning N, then rule D applies.
Closed world premise:	If a sentence x has a literal meaning M_x, x cannot have other meanings (other literal meanings $M_{y...n}$; other non-literal meanings $N_{1...n}$).
Minor premise:	Sentence a has the literal meaning M_1.
Conclusion:	Therefore, sentence x has not the meaning N (rule D does not apply).

Table 6: Argumentation scheme: *A contrario argument 1.*

The force of this type of reasoning is grounded on the acceptability of the closed world premise, which constitutes the basis of the incompatibility between the literal

meaning and other interpretations. This premise excludes all non-literal interpretations, closing the world of meaning reconstruction to the ordinary (legal) meaning of the words.

The defeasibility of the argument can be evaluated using the structure of the argument from ignorance, which shows in detail the logical form of the reasoning. However, in order to reconstruct the premises and simplify the abstract pattern of argument, it is possible to incorporate the deep structure of the reasoning into a rule-based structure, where the closed-world assumption using negation as failure is factored in. This form of argument can be represented by using the following defeasible rule.

> If a sentence X has the property of having meaning M, but is not stated to have the property of having meaning N, where M has a different meaning from N, X should be not given meaning N.

Given this rule, we can now construct the full argumentation scheme for the *a contrario* argument. The defeasible rule plays the role of the major premise.

Major premises:	If a sentence X has the property of having meaning M, but is not stated to have the property of having meaning N, where M has a different meaning from N, X should be not given meaning N.
Positive minor premise:	Sentence X has the property of having meaning M.
Negative minor premise:	Sentence X is not stated to have the property of having meaning N, where M has a different meaning from N.
Conclusion:	X should be not given meaning N.

Table 7: Argumentation scheme: *A contrario argument 2*.

On this perspective, the structure of the *a contrario* argumentation scheme is a special instance of the defeasible *modus ponens* type of inference. The major premise has the form of a conditional statement where the antecedent of the conditional is a conjunction of two propositions. Each of the two minor premises is one of the propositions making up the conjunction. Using the connective $\Rightarrow$ for defeasible implication, the argument can be represented as having the following DMP form:

$$[(p \ \& \ q) \ \Rightarrow \ r, \ p \ q] \ \Rightarrow \ r.$$

Notice that the passage from the major premise and the negative minor premise to the conclusion is grounded on a type of reasoning that embeds the deep argument from ignorance into a DMP form of argument by contraposition of the major premise (as shown in table 8).

This type of conversion is only a simplification (there are grounds for thinking that contraposition does hold (in general) for defeasible reasoning; see Caminada 2008) in order to outline a pattern of argument that is easier to apply to cases, leaving the analysis of the defeasibility conditions of the closed-world assumption of the reasoning from ignorance to the following critical questions.

Major premises:	If A were not known to be true, then A would not be true.
Minor premise:	It is not the case that A is known to be true.
Conclusion:	Therefore A is not true.

Table 8: DMP form of argument by contraposition of the major premise.

CQ_1: Does the *a contrario* rule apply to this case?

CQ_2: If there are meanings other than M could be attributed to X, why is M better?

The application of this argumentation scheme to a case can be rendered through an argument map, where premises and possible rebuttals or backings are shown as boxes, and the plus sign indicates that it is a pro argument supporting the conclusion shown in the text box at the top left. The crucial problem is to decide whether the first critical question (the possibility of applying the argument to the case) should be treated as an assumption or an exception. If it is treated as an assumption, the *a contrario* argument is defeated by the mere asking the question. If it is an exception, it has to be backed up by further evidence to defeat the *a contrario* argument. In figure 3, the statement that the *a contrario* rule, which is the major premise of the argument, is shown as an exception, an additional premise of the argument such that if that premise fails to be backed up by evidence the argument fails.

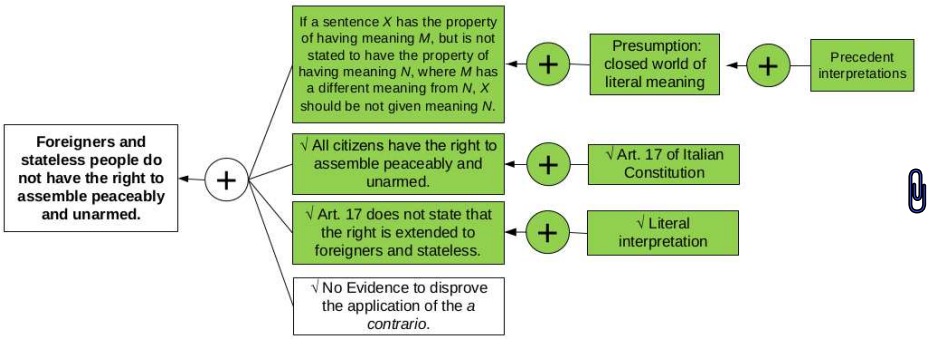

Figure 3: A Contrario scheme applied to the right to assemble example.

We can now see how this argument would be evaluated in the Carneades Argumentation System (Gordon 2010), a formal system that is capable of handling the distinction between assumptions and exceptions when mapping arguments based on defeasible argumentation schemes. Let's say that the second and third premises colored in green in the middle of figure 3 are accepted. Assuming that the *a contrario* argument is applicable, the conclusion that foreigners and stateless people do not have the right to assemble ~~peaceably,~~ and unarmed is acceptable.

6 Conclusion

It has been shown in this paper how the process of statutory interpretation can be formally modeled using argumentation tools available from artificial intelligence like the Carneades Argumentation System. According to this way of representing the structure of reasoning in this process the conclusion, the possible explanation of meaning, is a claim that needs to be supported by defeasible pro arguments, and that can also be undermined by defeasible contra arguments. Argumentation schemes when structured with variables and constants, and embedded in computational argumentation systems, can be used to represent the logical and semantic relation of the interpretative arguments analyzed by Tarello. This transformation of the arguments of interpretation into the argumentation schemes framework has been applied to the psychological and the *a contrario* arguments. These examples show how the procedure can be extended to the other kinds of interpretative arguments recognized by Tarello. The investigation on these arguments shows how they can be reconstructed according to a multi-logical criterion, which underscores the defeasible nature of the reasoning. The conclusion is drawn from the premises based on a defeasible *modus ponens* rule that makes computational structure of the argumentation scheme explicit, enabling the scheme is to be used to model the process of drawing conclusions based on statutory interpretation in law. The defeasible nature of the scheme is shown by means of critical questions, which identify the default conditions of the reasoning. It has been shown how schemes used for interpretation arguments in law of the structure that makes them compatible with the rule-based systems for legal reasoning characteristic of research in the field of artificial intelligence and law.

References

Abaelardus, Petrus (1970). *Dialectica*. Assen.

Bench-Capon, Trevor J. M. and Henry Prakken (2010). "Using Argument Schemes for Hypothetical Reasoning in Law". In: *Arrtificial Intelligence and Law* 18, pp. 153–174.

Caminada, Martin (2008). "On the Issue of Contraposition of Defeasible Rules". In: *Computational Models of Argument: Proceedings of COMMA 2008*. IOS Press, pp. 109–115.

Feteris, Eveline T. (1999). *Fundamentals of Legal Argumentation: A Survey on the Justification of Judicial Decisions*. Kluwer Academic Publisher.

Gordon, Thomas F. (2010). "The Carneades Argumentation Support System". In: *Dialectics, Dialogue and Argumentation*. Ed. by Chris Reed and C. W. Tindale. College Publications.

Greenawalt, Kent (2002). "Constitutional and Statutory interpretation". In: *Jurisprudence and Philosophy of Law*, pp. 289–310.

Guastini, Riccardo (2011). *Interpretare e argomentare*. Giuffrè.

Horn, Laurence R. (1995). "Vehicles of meaning: Unconventional semantics and unbearable interpretation". In: *Washington University Law Quarterly* 73, pp. 1145–1152.

Kreuzbauer, Günther (2008). "Topics in Contemporary Legal Argumentation: Some Remarks on the Topical Nature of Legal Argumentation in the Continental Law Tradition". In: *Informal Logic* 28, pp. 71–85.

Macagno, Fabrizio (2011). "The presumptions of meaning. Hamblin and equivocation". In: *Informal Logic* 31, pp. 367–393.

MacCormick, Neil (1995). "Argumentation and Interpretation in Law". In: *Argumentation* 9, pp. 467–480.

Patterson, Dennis (2004). "Interpretation in law". In: *Diritto e questioni pubbliche* 4, pp. 241–259.

Stump, Eleonore (1989). *Dialectic and its place in the development of medieval logic*. Cornell University Press.

Summers, Robert S. (1991). "Statutory interpretation in the United States". In: *Interpreting Statutes: A Comparative Study*. Aldershot.

Tarello, Giovanni (1980). *L'interpretazione della legge*. Giuffré.

Toulmin, Stephen E. (1958). *The uses of argument*. Cambridge University Press.

Toulmin, Stephen E., Richard Rieke, and Allan Janik (1984). *An introduction to reasoning*. Macmillan.

Walton, Douglas, Chris Reed, and Fabrizio Macagno (2008). *Argumentation Schemes*. Cambridge University Press.

Walton, Douglas and Giovanni Sartor. "Justification of argumentation schemes". To be published in Argumentation.