Logical tools for legal argument: a practical assessment in the domain of tort

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Abstract

In recent years, impressive progress has been made in the development of logical tools for the modeling of legal argument. The focus has been primarily on the technical development of these tools, and only in the second place on their practical adequacy for modeling legal argument.

Presently a convergence of opinions on the necessary logical tools takes shape, and a systematic practical assessment of the logical tools becomes essential. It has to be shown that the newly developed logical tools improve the logical modeling of legal argument. In this paper we analyze aspects of informal legal arguments as they actually occur in handbooks and cases on Dutch tort law, and show the connections with the modern logical tools.

1 Logic and law

In theory, there is a natural affinity between logic[1] and law: lawyers can use logic to analyze and evaluate their reasoning; logicians can be inspired by legal argument and practically assess their theoretical models. In practice, however, the relationship between logicians and lawyers has for long remained immature.

There are several reasons for this. Lawyers, although impressed by the technical sophistication of logic and recognizing the value of formal argument, are not convinced of its practical usefulness. Logicians, although admitting the complexity of legal argument, are put off by its apparent unfoundedness and involved jargon. As a result, most lawyers do not use formal logic in assessing legal arguments, and most logicians readily dispose of legal argument as a real-world application of standard theoretical models.

The situation is strongly improving due to the recent flowering of the logic-and-law research by logically interested lawyers and legally interested logicians. Examples of this research are the work of amongst others Freeman and Farley (1996), Gordon (1995), Hage (1996, 1997), Lodder and Herczog (1995), Loui and Norman (1995), Prakken and Sartor (1996), Verheij (1996), and Yoshino (1995). Logical tools have been developed that deal with the defeasible and dialectical nature of legal argument.

The recent research on logic and law has focused on the technical development of logical tools required for the adequate modeling of legal argument. Legal examples were adduced to show how the new logical tools could be used. However, the emphasis was on the logic, not on the law.

In this paper, we look at the recent progress in logic from the legal point of view. We do not contribute to the development of logical tools. Instead we start with a piece of law, and consider which of the available tools should be used in its modeling. We have chosen the domain of Dutch tort law. Our purpose is to show lawyers and legal knowledge engineers that the new logical tools are useful and closely related to legal argument in an actual legal domain.

First, we give a brief overview of the recently developed logical tools for the modeling of legal argument (section 2). Second, we analyze Dutch tort law with emphasis on the usefulness of these tools (section 3). We finish with a summary (section 4).

2 Logical tools

The logical tools that have recently been developed can be categorized under three headings: defeasibility, integration of logical levels, and argument as a process. Our description is biased by Reason-Based Logic (see, e.g., Hage, 1996, 1997; Verheij, 1996) and CumulA (Verheij,

[1] The term 'logic' is used here in the broad sense of 'the study of formal models of argument'.

1996). Similar tools are available in other logical systems under different names.

2.1 Defeasibility

Defeasibility is a characteristic of arguments and, in a derived sense, of conclusions. A conclusion is defeasible if it is the conclusion of a defeasible argument. Defeat occurs if a conclusion is no longer justified by an argument because of new information. For instance, the conclusion that a thief should be punished is no longer justified if it turns out that there was a legal justification for the theft, such as an authorized command.

Arguments based on the application of rules and principles[2] are defeasible for two reasons. First, it is possible that the application of the rule or principle on which the argument is based is blocked by new information. In that case, the conclusion of the argument can no longer be based on the application of this rule or principle. Technically, a reason why the application of some rule is blocked is called an *undercutter* (Pollock, 1987).

Second, it is possible that there are arguments with incompatible conclusions. For instance, there may be an argument that some act was unlawful, because it violated a property right, and another argument that the act was not unlawful, because it served the public interest. If one of the arguments defeats the other, it is called a *rebutter* (Pollock, 1987).

If there are both arguments (or reasons) for and against a conclusion, such as in the case of rebutters, weighing can be necessary. Technically, this requires *weighing information*.

Undercutters, rebutters and weighing information are incorporated in, amongst others, the logics of Prakken and Sartor (1996), Hage (1996, 1997), and Verheij (1996).

2.2 Integration of logical levels

If arguments lead to incompatible conclusions, and weighing is necessary to determine which conclusion follows, additional information is necessary to determine the outcome of the weighing process. In some views, this information is on a higher logical level than the facts of cases, and the rules of law.

However, there can also be arguments about the weighing of reasons. The weighing information does not have to be on a level separate from the other data. Presently there are means to deal with weighing information as ordinary data (e.g., Prakken and Sartor, 1996; Hage, 1996, 1997; Verheij, 1996). As a result, it is possible to *reason about weighing information* in the same way as about other information.

[2] Verheij, Hage and Van den Herik (1997) give an integrated view on rules and principles, arguing against the strict logical distinction between rules and principles as put forward by Dworkin (1978).

In the law it is both customary to reason with rules and to *reason about rules*. For instance, an argument can be about the purpose of a rule. Again, this seems to involve different logical levels. However, an integration of these levels is required and possible (e.g., Hage, 1996, 1997; Verheij, 1996).

2.3 Argument as a process

Argument does not only involve the question which conclusions are justified by certain premises, but also must be considered as a process. For instance, the defeasibility of arguments cannot be separated from the process of taking new information into account. Traditional logical models that only focus on the relation between sets of premises and conclusions cannot deal with this dynamic aspect of legal reasoning.

During the process of argumentation conclusions are drawn, reasons are adduced, counterarguments are raised, and new premises are introduced. In traditional models, only the end products of the process are modeled.

Recently, several logical systems have been proposed that deal with argument as a process (e.g., Hage *et al.*, 1994; Gordon, 1995; Lodder and Herczog, 1995; Loui and Norman, 1995; Verheij, 1996). The process of argumentation is modeled in the form of *lines of argumentation* or *dialogues*. The dialogical systems use explicit *procedural rules* that guide the process in which arguments are exchanged, and explicit *commitment rules* that govern the commitments of the parties involved. In this way, it also becomes possible to deal with the division of the *burden of proof*, which is especially important for law (e.g., Gordon, 1996; Freeman and Farley, 1996).

2.4 Overview

Summarizing, we find that the recently developed logical tools for the modeling of legal argument can deal with:

1. undercutters
2. rebutters
3. weighing information
4. reasoning about weighing information
5. reasoning about rules
6. lines of argumentation and dialogues
7. procedural rules
8. commitment rules
9. burden of proof

In the next section, we see how these tools are useful for the analysis of Dutch tort law.

3 Tort law in the Netherlands

In civil law systems, the liability for damages is amongst others related to the notion of a tort, or wrongful act. For instance, if someone clumsily parks his car, thereby damaging another already parked car, he commits a tort against the owner of that car and has to compensate for the damages.

As an actual example of tort in a civil law system, we focus on the situation in the Netherlands. In Dutch civil law, the essence of the relation between the liability for damages and a tort is regulated in the articles 6:162 and 6:163 of the civil code (referred to as art. 6:162 and 6:163 BW). Asser-Hartkamp (1994), Hartlief and Van Maanen (1995), and Schut (1990) give overviews of tort law in the Netherlands in Dutch, Betlem (1993) gives an overview in English.

In the analysis, we refer to the overview of logical tools of section 2.4.

3.1 Article 6:162 BW

Article 6:162 BW reads, as translated by Betlem (1993, p. 291):

> **Art. 6:162 BW.** 1. A person who commits an unlawful act toward another which can be imputed to him, must repair the damage which the other person suffers as a consequence thereof.
> 2. Except where there is a ground of justification, the following acts are deemed to be unlawful: the violation of a right, an act or omission violating a statutory duty or a rule of unwritten law pertaining to proper social conduct.
> 3. An unlawful act can be imputed to its author if it results from his fault or from a cause for which he is answerable according to law or common opinion.

The first section of art. 6:162 BW (art. 6:162.1 BW) gives four conditions for someone's duty to repair certain damages:

1. Some person has committed an *unlawful act* against another person.
2. The act can be *imputed* to that person.
3. Some other person has suffered *damages*.
4. The unlawful act has *caused* these damages.

Art. 6:162.2 BW elaborates on the first condition, and gives the three forms of unlawful acts in Dutch law:

1. A violation of a right.
2. An act or omission violating a statutory duty.
3. An act or omission violating a rule of unwritten law pertaining to proper social conduct.

Logically, this can be analyzed as three rules or principles, each with the conclusion that some act is unlawful. In section 3.2, we discuss the grounds of justification mentioned in art. 6:162.2 BW. In section 3.5, we will see that there are differing opinions about the relations of the three forms of tort.

Art. 6:162.3 BW mentions three cases in which an unlawful act can be imputed to its author:

1. The act results from its author's fault.
2. The act results from a cause for which he is answerable according to statutory law.
3. The act results from a cause for which he is answerable according to common opinion.

A logical analysis results in three rules or principles, each with the conclusion that some unlawful act can be imputed to its author.

3.2 Explicit exceptions

Art. 6:162.2 not only gives the three forms of an unlawful act, but also makes an explicit exception for grounds of justification (henceforth: justifications). The main justifications that have been recognized in case law and legal doctrine are force majeure, self-defense, legal obligation, and authorized command. For instance, if someone breaks the front door of a house in order to save someone else from a fire, no tort is committed because of force majeure (Asser-Hartkamp 1994, nr. 60).

Traditionally, this exception is regarded as an additional negative condition to the general rule of art. 6:162.2 BW, as mentioned in section 3.1. For instance, the general rule 'If a right is violated, an unlawful act is committed' with a justification as an exception becomes 'If a right is violated *and there is no justification*, an unlawful act is committed'.

If an article contains an *explicit* exception, as in the present example, this approach is satisfactory to the extent that making an explicit exception is in conformity with the wordings of the section. Moreover, from a static point of view, assuming that all information regarding the presence of justifications is available, it is also satisfactory.

From a dynamic point of view, however, where the information regarding justifications is subject to change, the negative rule condition behaves unsatisfactorily. This becomes clear when at some point in time it is undetermined whether there is a justification. Then it is not possible to establish whether the conditions of the rule are satisfied, because the demand that there is no justification is part of the rule conditions. At that point in time, the rule cannot be applied, and it cannot be concluded that an unlawful act was committed.

From this dynamic point of view, which is in agreement with legal practice, it is desirable that the conclusion can be drawn that an unlawful act is committed, but only

defeasibly: if new information shows that there was a ground of justification after all, the conclusion that an unlawful act was committed should be withdrawn.

Legal procedures are subject to strict rules: the exchange of arguments and the introduction of new information is only allowed at a fixed point in time or a fixed span of time. Only in exceptional circumstances the process can, after its completion, be re-opened.

Logically, the tools 1, 2, 6, 7, and 8 (as numbered in section 2.4) are needed.

The defeasibility of arguments based on the rule of art. 6:162.2 BW does not only reflect that it is sometimes possible to conclude that an act was unlawful in the absence of information about justifications, but it also indicates a division in *the burden of proof* (tool 9). The claimant, who seeks reparation of damages, must prove that the behavior of the defendant satisfies one of the (positive) conditions of art. 6:162.2 BW. If the claimant succeeds, the defendant's behavior counts defeasibly as unlawful. To defeat this conclusion, the defendant has the burden to prove that there is a justification.

The effect of the explicit exception clause in art. 6:162.2 BW is that the three factors mentioned there do not provide sufficient conditions for the unlawfulness of an act. The presence of a justification blocks the application of the rule of art. 6:162.2 BW (tool 1), and does not guarantee that an act is not unlawful. It is possible that a justification (e.g., consent of the owner) blocks application of the rule that violation of a right is unlawful, while the act in question is nevertheless unlawful because it violates some other legal duty.

Despite the text of art. 6:162.2 BW, which mentions grounds of justification without making distinctions, not all justifications operate in the same way. For instance, if a statutory duty is violated under an authorized command, the command cancels the statutory duty. There is no need to weigh the command on the one hand against the statutory duty on the other hand. The duty is canceled, and the command provides the only legal reason for acting. From the logical point of view, the presence of an authorized command blocks application of the norm underlying the legal duty that was allegedly violated.

Matters are quite different in the case of force majeure, where there are so to speak conflicting obligations (tool 2). For instance, in a case of emergency, such as a fire, there can be a conflict of the obligation to save someone from the fire and the obligation not to break someone's front door. The obligation not to commit an act because it would be unlawful is annulled by another, more important obligation (Asser-Hartkamp, 1994, nr. 60). Each of the obligations provides a reason for acting, and a reason why violating this particular obligation would be unlawful. The obligations must be weighed (tool 3), and if the strongest obligation was violated, this violation was unlawful. Notice that in this case, unlike in that of the authorized command, additional weighing information is necessary to cut the knot.

Still another case is when the justification only blocks the application of a norm, without providing a reason for action itself. Take for instance the case where somebody destroys somebody else's property, after receiving permission to do so. The approval blocks application of the norm that forbids destroying another person's property and takes away the reason why destroying the property would be unlawful (tool 1). However, it is no reason for destroying the property. In this respect the present example differs from the case of the authorized command, where the command not only blocked application of a legal norm, but also provided a reason for acting itself.

3.3 Implicit exceptions

Art. 6:163 BW contains an exception to the rule of art. 6:162.1 BW. It reads, as translated by Betlem (1993, p. 356):

> **Art. 6:163 BW.** There is no obligation to repair damage when the violated norm does not have as its purpose the protection from damage such as that suffered by the victim.

For instance, assume that someone obstructs the arrival of an ambulance, thereby interfering with the help at an emergency, and some startled passer-by drops his newly bought television set. In this case, no duty to repair the damage to the passer-by arises since the violation of the obligation not to interfere with the help at an emergency does not serve to protect against the consequences of being startled. This requires tools 1 and 5.

As another example of the application of this rule we discuss the case of the Spitfire (HR 14-3-1958; NJ 1961, 570). A military airplane damaged a power line by doing nose dives. The State of the Netherlands acknowledged to have committed an unlawful act against the electricity company since the State had clearly violated the right of property of the company. However, the claimant was a textile factory seeking compensation for the damage due to power failure. Because the right of property of the electricity company did not protect the interests of electricity consumers, the State did not have the obligation to compensate for the damages of the textile factory because of the violation of the property right (tool 1).

However, the State still had to compensate for the damages of the factory because of another violation. The Supreme Court decided that the State acted unlawfully against the textile factory due to a violation of unwritten norms of proper social conduct since the State had created an exceptionally dangerous situation that could and should have been prevented considering the interests of the textile factory.

This is an example of the fact that art. 6:163 can block the obligation to compensate for one violated norm, while it does not for another violated norm (Asser-Hartkamp, 1994, nr. 102).

Art. 6:163 BW formulates an *implicit* exception to art. 6:162.1 BW. This exception can logically be made explicit by the negative condition approach. However, this would require an integral analysis of the articles 6:162.1 and 6:163 BW, which is often considered to be unsatisfactory (e.g., Bench-Capon and Coenen, 1992). Another, by now widely accepted approach is to refer to art. 6:162.1 BW when making the exception explicit (tools 1 and 5). This is in agreement with common practice in law: explicit references to articles often occur, not only with respect to exceptions. An example is the reference to 6:162 BW in 5:37 BW on nuisance.

Interestingly, art. 6:163 is not equally used for all three forms of unlawful acts of art. 6:162.2 BW. Especially, art. 6:163 is not required for the violation of a right (Asser-Hartkamp, 1994, nr. 100). It has been argued that it is also not required for violations of unwritten norms. This is however disputed by Hartkamp (Asser-Hartkamp, 1994, nr. 99).

One of the legal principles that guide the application of rules is the principle that rules should not be used against their purpose. Art. 6:163 BW can be seen as a particular instance of this principle. The rule of art. 6:162.1 BW should not be applied if the violated norm does not protect the claimant against the damages she seeks to be repaired.

Notice that this principle is a principle about (the application of) legal rules. Logically, reasoning about the application of rules requires that it is possible to refer to rules (tool 5).

3.4 Weighing of interests

The third form of an unlawful act of art. 6:162.2 BW is an act or omission violating a rule of unwritten law pertaining to proper social conduct. The nature of 'unwritten law pertaining to proper social conduct' is determined in case law. The formulation of norms of proper social conduct often involves a weighing of interests. For instance, the Dutch Supreme Court considers the following four factors in cases of accidents caused by potentially unlawful behavior (Asser-Hartkamp, 1994, nr. 51*g*, referring to Van Dam):

1. The nature and scale of the feared damages.
2. The probability that these damages occur because of certain behavior.
3. The nature and the benefits of the activity or the goal striven for.
4. The difficulty of taking precautionary measures.

There is a tension between the first two factors concerning the aggrieved party and the second two factors concerning the aggrieving party. An example is the trapdoor case (HR 5-11-1965; NJ 1966, 136). Someone fell through a trapdoor on his way to the restrooms of a bar. An employee of a soda company had opened the trapdoor without taking the necessary precautionary measures. Weighing the conflicting interests, the Dutch Supreme Court decided that the employee should have considered the possibility of careless bar guests and taken measures accordingly (tool 3).

The logical treatment of this type of weighing interests is rather complex. The interests of the party who causes danger in pursuing his goals form a reason why this danger-creating behavior should be allowed, and therefore not be considered unlawful. The interest of the harmed party not to be harmed forms a reason why this behavior should not be allowed.

The probable size of the damage, and the probability with which the damage will occur are factors that are not additional reasons, but rather reasons why the reason that somebody could be harmed becomes stronger, i.e., relatively weightier (tool 4). The difficulty of taking precautionary measures is a factor that influences the relative weight of the reason based on the interests of the person who creates the danger. The easier it is to take precautionary measures, the less weighty are the interests of that person.

An additional complication is that all four factors are not Boolean, i.e., present or absent, but have a dimension of degree.[3] The higher the degree in which they are present, the stronger will be their influence on the final outcome of the case (see also Hage, 1997, pp. 210-211).

3.5 Differing opinions

In the literature on Dutch tort law, there are differing opinions on the three forms of unlawful acts, as mentioned in art. 6:162 BW: it is disputed whether the three forms are separate categories (cf. Asser-Hartkamp 1994, nrs. 52-54). There seem to be three major opinions:

1. There are three different forms of unlawful acts, that may overlap (e.g., Hartkamp).
2. There is one form of unlawful acts, namely violations of a norm of proper social conduct. Violations of a right and of a statutory duty are special cases (e.g., Van Dam).
3. There is one form of unlawful acts, namely violations of a norm of proper social conduct. Violations of a right and of a statutory duty are only unlawful if they are also violations of a norm of proper social conduct (e.g., Smits, Schut, Van Maanen).

[3] The use of the expressions 'factor' and 'dimension' echoes the terminology of Ashley (1990).

Clearly, each of these opinions leads to a different logical analysis. From a logical point of view these different opinions are different formulations of the kernel of Dutch tort law, i.e., different sets of rules. It becomes apparent that the rules of Dutch tort law, even though they are stated in the civil code, are not determined by statutes. Statutory law needs to be interpreted, and this interpretation deals not only with the meanings of the words of the statute, but also with the nature of the rules itself.

The authors who defend different interpretations are (or were) authorities in Dutch tort law. Their opinions as to the correct interpretation of the statutory text are reasons why their formulation of the rules is correct. The arguments with which they defend their interpretations can be considered as arguments why particular rules, rather than other ones based on the same statute, are the rules of Dutch tort law. In other words, their arguments are arguments about the validity of legal rules (tool 5) (see also Hage, 1997, p. 95f.; Hage 1996, pp. 214-5).

4 Summary

We believe that after the recent flowering of the research on logic and law the practical assessment of new logical tools is now essential. The starting point for this assessment should be law, and not logic. In this paper, we chose the domain of tort law in the Netherlands to show the practical usefulness of the new logical tools.

In section 2, we have given a brief overview of logical tools that have been newly developed or adapted for legal argument. Especially, the defeasibility of legal argument, the required integration of logical levels, and the nature of argument as a process have led to the development of these tools.

In section 3, we have discussed Dutch tort law, and analyzed aspects of argument from handbooks and case law. In the analysis, we referred to our overview of recent logical tools, and have shown their usefulness in an actual legal domain.

The connections between the newly developed tools and practical legal argument are close. We believe that the analysis of legal argument can be greatly improved by the systematic use of these tools. This will however require a critical evaluation of the logical tools and the development of an explicit methodology for the analysis of legal argument.

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