

Teleological Networks in Normative Systems

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Abstract: The representation of legal knowledge in legal informatics, besides the dimension of a language, deserves the methods of normative logic. This comprises normative notations and deontic logic. Such a core of a formal legal theory can be expanded with teleological structures. An early attempt to analyse legal teleological structures was Jhering's *Interessensprudenzen*. Contrary to action-oriented models (see Kelsen) we propose to supplement norms and even structural parts of a whole legal system with teleological relations. This will form a separate structural layer of legal knowledge representation. Such a layer can contribute to the metadata of legal documents. This is important in the search of legal documents and information retrieval. The teleological structure we propose contains three elements: first, the basic element A, second, the target element B, and, third, the teleological relation te . The proposed notation is $A\ te\ B$.

1. Introduction

Legal order as a societal instrument is characterised by mostly implicit and rarely explicit teleological structures. A currently dominant normative thinking is not enough to solve specific problems of law. Here a new concept of legal teleology is required. It concerns not only a single norm but also the whole legal system. An early attempt to analyse legal teleological structures was "*Interessensprudenzen*" [von Jhering 1924]. But nowadays the challenges of e-Government ([Traunmüller 2004], [Wimmer 2006]) require a new concept.

There are different methodological paradigms of law, informatics and artificial intelligence (AI). One direction is via natural language, another via formal notation. This contribution focuses on the approach of a special

notation. Why AI? Because humans successfully cope with tacit knowledge about the teleology of law, but representing it explicitly in computers is a problem. The concept of “goal” deserves to be placed in a top legal ontology. We treat the goal as a generalisation of terms “objective”, “purpose”, “aim”, “result”, “value”, “end”, etc.

We see several reasons to consider goal concepts. First, teleology is innate in (normative) legal systems. Therefore the representation of teleological structures should be an inherent task of legal knowledge management. Second, legal reasoning, especially by non-experts in law, is driven primarily by goals then by norms. Third, teleological structures are mostly implicit and rarely explicit. Therefore their representation is a true challenge in knowledge management. Fourth, teleological statements are extensively used in legal drafting. Listing the purposes of a statute in its preamble is not enough.

[Kelsen 2000] in “Reine Rechtslehre” focuses on the model of action within a norm. We think that an action-oriented model has to be supplemented with teleological relations.

[Sartor 2006, 107] places the goal among fundamental legal concepts. After introducing a notation for obligations and permissions he notes:

“More articulate normative notions and, in particular, the idea of a right, cannot be built on the basis of obligations and permissions alone. Such notions embed a teleological perspective, namely, a focus on purposes or interests (final or intermediate values, ends, objectives) which a normative proposition is meant to serve. . . .”

[Sartor 2006, 108] proposes a notation $A \hat{\uparrow}^G$ “to mean that the adoption of a proposition A advances the goal (or the set of goals G)”. [Artosi et al. 2007] while proposing elements for a formalisation of the theory of norms, treat a propositional assertion and an action as constituent elements of a norm. We propose to assign goals to other structural elements of the law apart from the norms. The teleology concerns a whole legal system.

Since the teleology was presented to AI and law community [Berman, Hafner 1993], the formalisation has been much discussed a decade later (see Hafner and Berman, Bench-Capon, Sartor, etc. in *Artificial Intelligence and Law*, vol. 10(1–3) September 2002).

There are more theoretical beginnings. Teleological relations enter a broad field of relations, e.g. [Kaufmann 2004] examines ontology of relations (*Relationenontologie*). Many subterms of different relations exist ([Radbruch 1987], [Tammelo 1978], [Kaufmann, Hassemer, Neumann 2004]). The comparison, symbolisation and translation into a logical notation are our

future research. Knowledge representation and knowledge visualisation are distinguished.

Normative teleological structures and institutional ones can be compared. A viewpoint “not rules, but roles” leads to analysis of Jhering’s *Interessensprudenzen* [von Jhering 1924; 1970], then [MacCormick, Weinberger 1986], etc. Also a teleological method is widely used in EU law. Purposive interpretation is by far the most used method by the European Court of Justice [Van Hoecke 2002, 140]. [Summers 2006, 42–47] while speaking about a form and function says that “the overall form of a functional legal unit as a whole must be designed to serve purposes”. He distinguishes four types of purposes of a functional legal unit.

These works show possible methods to tackle a problem. Thus, teleological structures in law can be approached on methodological basis. Therefore these works are very significant.

2. Structure of Teleological Notation

The teleological structure we propose contains three elements: first, the basic element A , second, the target-element B , and, third, the teleological relation $te \rightarrow$. The proposed notation is $A te \rightarrow B$. Within a legal taxonomy there are different semantic kinds of legal teleology, depending on the different teleological order like time horizon, e.g. $A te^{short\ term} \rightarrow B$, $A te^{medium\ term} \rightarrow B$ or $A te^{long\ term} \rightarrow B$.

Pragmatically, the teleological structure is embedded within a speech act. Besides, it is necessary to represent the speech act by a separate notation, e.g. $te\text{-statement}(\dots)$. Also the speech act can be qualified in different ways, e.g. legal, political, scientific: $te\text{-statement}^{legal}(A te \rightarrow B)$, $te\text{-statement}^{political}(A te \rightarrow B)$, or $te\text{-statement}^{scientific}(A te \rightarrow B)$. Consequently, the notation can lead to a “theory of relations” in law.

Teleological statements are found abundant in the legislative workflow (from governmental drafting via parliamentary decisions towards publication of the valid laws). A formal notation can contribute to textual analysis (both human and electronic), legal drafting processes and the interpretation of valid laws.

3. Teleological Phrases in Legislation

Legislation is a kind of a societal practice and, therefore, can be approached from the teleological point of view. However, two forms of teleology have to be distinguished: explicit and implicit. Firstly, explicit teleological formulations are in the focus. They can be provided in the texts of legislative materials, both in the texts of laws and in accompanying texts. Implicit teleological formulations are next. However, implicit teleology constitutes a contextual dimension which frames the legislation. Within this analytical frame one can try to cut teleological phrases and then formalise them as newly discovered structures.

Legislative practice often uses teleological phrases. Teleological statements extracted from such phrases can be represented by the proposed notation $Act\ te \rightarrow Goal$. Multiple teleology is feasible too. The goal may be formed of subgoals: $Act\ te \rightarrow \{g_1, g_2, \dots, g_m\}$. Here a column can denote And, Or, Xor, etc. The decomposition leads to graph-like structures used in *goal-oriented requirements engineering* [Letier, van Lamsweerde 2004] where goals are associated with actions (similarly to the actions within the norms in the law).

4. Norm and Goals

Substitution of a norm N for A leads to $N\ te \rightarrow B$. Our focus is on immanent teleology of the norm (which is treated as an obligation). Here the norm is a teleological instrument to realise a certain action. The norm being a technical instrument leads to social techniques of normativity. Our starting axiom is that every norm has such a “teleological shadow”. We will try to build this automatically.

Making the immanent teleology of a norm observable requires a paradigmatic change in legal theory. For a long time efforts are being made to translate a textually formulated norm into a formal language. The purpose of these efforts in theory was to develop the logic of norms. The advantage of this logic is the formalisation and, consequently, the operationalisation of norms. Deontic logic helps to express the prohibition with the demand and the right with the permission. Deontic logic is presumed in legal expert systems, hence putting different variations of normative consequences on sound logical basis.

Our starting point is within the conception of deontic logic. We propose to include the teleological surrounding of norms into theoretical analysis. Thus a kind of teleological network occurs. Teleological relations point to a variety of types and suit to better networking than isolated norms which indicate actions. The norms may also constitute internal structures, e.g. grouping according to a common condition. But the teleological structures are unevenly better suited to networking than separate norms. Hence, our aim is, first, to extract teleology from the norms and, second, to connect the norms with teleological networks.

Legal teleology is also important in the public awareness of law. We hold that public consciousness takes better teleological dependencies than separate norms. Citizens find themselves in certain roles and even more or less unaffected by legal rules. On the other hand, the citizens, who usually think teleologically in practical situations, are separated from the legal teleology. For a citizen the teleology of law is more important than the textuality of law.

Still another aspect of application is found in the development of databases and search strategies. We hope that a teleological component will bring creative impulse for the development of legal databases in the future.

Finally, the systematisation of law involves teleological structures, too. Up to now at least three methodological instruments serve to build legal systems. First are the legal norms which can be arranged into a hierarchy. Second are the legal terms which describe a dimension of the legal system in modally indifferent legal taxonomies. Third are the patterns of thinking of legal institutions, especially performance and service in return, which can contribute to internal building of the system of law. Further we consider the fourth instrument in legal systematics – the teleological structures.

5. External Teleology and Internal Teleology

We distinguish between *external* and *internal teleology* of a norm. The *external teleology* G is defined to satisfy $norm(A) te \rightarrow G$, e.g. $A = open_door$ and $G = fresh_air$; $A = close_door$ and $G = security$. The *internal teleology* G is defined to appear within the statement (text) of a norm. Formally it satisfies $norm(A te \rightarrow G)$, e.g. “open the door for fresh air”.

This internal teleology is of a special interest when an action is open (denoted X) and only the goal G is given. Formally it is denoted $norm(X te \rightarrow G)$.

Considering the content of the norm, a classical dual structure of the norm is obtained. The classical structure consists of a *condition* and an *action*. We add the third element – *finality*. Thus we assume that the norm consists of three elements: condition, action and finality:

norm(**if condition A then shall be behaviour or action B** $te \rightarrow G$)

Here we note that [Luhmann 1984] distinguishes between conditional programming (*konditionale Programmierung*) and finality programming (*Finalprogrammierung*).

The teleology can also appear in the condition: *norm*(**if A** $te \rightarrow$ *Goal then action*). Consequently, the variations of teleology within the content of the norm may be present in each of the three elements of the norm. Thus we focus on two kinds of notation. The first is like $te \rightarrow$. Such a notation is “symbolisation”; it is easier. The second is a correct logical notation, namely, a formalisation. A link between them is expressed by the following formula: $norm(A\ te \rightarrow\ G) \neq N\ te \rightarrow\ G$, where N stands for a norm. Here the left hand side indicates that the norm itself is the statement containing the goal G . The right hand side shows that the norm N needs a statement, *te-statement*($N\ te \rightarrow\ G$), to make the goal G explicit.

6. Case-Based versus Statute-Based Reasoning

In legal theory there are several mainstreams which bring about specific results. These mainstreams are not opposites but emphasize different positions of the same system: *statute-based reasoning* and *case-based reasoning*. They deal with different dimensions of legal reasoning, therefore *statute-based reasoning* \neq *case-based reasoning*. However, there is no contradiction in this formula, but different aspects of reasoning are revealed.

In our opinion, the argumentative acts of parties are covered by facts or norms which are relevant to assess the facts. “Attack vs. defence” involves not only facts, but also rules. For example, *Attack* “ $r1, r2, r3, fact1, fact2$ ” vs. *defendant* “ $no\ r1, but\ r7$ ”. Legal arguments are based not solely on the decisions of cases, but also on the legislation of general rules.

We can even say that a trend arises to automate the production of individual legal norms so that the argumentation steps back. If the process is ruled by forms the parties fill in the forms and no additional argumentation takes place. Therefore it is possible that in future the legal argumentation in routine cases will step back because of massive computer applications.

Respectively, legislative workflow and argumentation in frame of legislation will gain more interest. This is true for both the professional argumentation of disputing parties and the argumentation of citizens in e-Participation. The arguments will be confronted in synopsis. Therefore the arguments should be evaluated and represented in the system of content.

We believe that a two-state status of an argument is not enough to accept it. This corresponds to practical needs where different forms of asserting, disputing, supporting, etc. in explicit modes of argumentation are considered. There are different statuses of qualifications of elements within a case, not only the two, e.g.:

Case “r1 attacked-defended, r2 con, fact1 attacked-defended, fact2 con”

Facts can be confirmed by testimonies, proved (official version of a decision), etc.

From the viewpoint of the teleological method different forms of argumentation are interesting in both the decisions of individual cases and in the legislative workflow of the creation of general norms. Besides the norms, the arguments concerning the norms may also be the subject of goal analysis. In legislation the goal-based argumentation is more frequent than in the decisions of individual cases.

7. Legal Speech Act, Legal Content and the Container of Legal Documentation

We think that three layers are important in teleological analysis. First is a concept of “speech act” in general and a “legal act” specifically. The law is a legal act, so is a decision. While writing about legal acts, [Kelsen 2000] says that “Is” is transformed through the interpretation to “Ought”. Legal hierarchy consists of such legal acts. They have their external teleology and also goals for which they have been created.

The second concept is “legal content”, i.e. the content of legal texts. The language structure of a text does not depend on what legal act it appears in. If a draft is created by a ministry and presented for examination the draft has a particular text. Let us assume that the text is presented unchanged to the government and the government formally passes it as a governmental bill. And finally the parliament passes the unchanged text as a statute. Then the text is the same but three different legal acts are presented. The concept of legal content refers to this text. From the teleological point of

view, the same formulation of the text is handled and different teleological structures may be derived from it.

The third concept is a “container of legal documentation”. It consists neither of statutes nor paragraphs, but of a variety of other documents. These documents consist mostly of a text as the content of the container and thereupon metadata. The teleological structures come up to the legal documentation from different places; similarly they come up to the metadata.

Legal taxonomies and ontologies emerged in connection with legal informatics. They serve to produce the containers of legal documentation better and contribute to more efficient search. Here *ex ante* and *ex post* views are distinguished. This is also true for the definition of teleological elements.

The presented concept of the analysis of teleological structures in law emerged from the field of legal informatics and not from the dogmatics of interpretation of legal acts and their content. We defend a methodological approach which rests on the following statement. Formal analysis of teleological structures in law is feasible on a condition that we find structures in the text which lead – as a bridge – to a formalisation. Such intermediate structures require creating a notation. In fact, the aim of the paper is to draw reader’s attention to an intermediate method that underlies a strictly formal treatment.

8. Conclusions

The notation $A \text{ te} \rightarrow B$ for teleology leads to a theory of relations in law. Different types of the teleological relation $\text{te} \rightarrow$ can be distinguished. The teleology concerns the whole legal architecture. Apart from norms, concepts and institutions, the teleology offers an independent base for systematic development in law. The intermediate notation is a contribution to formal methods of knowledge representation in legal informatics.

Teleological relations will form a separate structural layer of legal knowledge representation. Such a layer can contribute to metadata of legal documents. This is important for users who are involved in the search of legal documents and information retrieval. The expectations are also to supplement legislative drafting with teleological statements.

9. References

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