THE FRAME OF PRIVACY

Michał Araszkiewicz

Assistant Professor (adiunkt), Jagiellonian University in Kraków, Faculty of Law and Administration, Department of Legal Theory
Bracka 12, 31-005 Kraków, PL
michal.araszkiewicz@uj.edu.pl

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Abstract: *The issues concerning protection of privacy are one of the most pressing challenges of the contemporary legal cultures. Privacy remains one of the most elusive concepts used in legal discourse. Apparently it is not possible to define what privacy is , but it is reasonable to indicate situations which are rationally classified as privacy-relevant. In this paper we refine this view by introducing the notion of the frame – a complex knowledge representation structure that integrates the issues of relevance and the issues of classification . We discuss how this proposal may link the classical knowledge-based representation approach with the more recent, quantitative methods for legal text analysis.*

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1. Introduction

Privacy is an elusive concept. Having been introduced to the legal discourse in a landmark paper more than one hundred years ago [Warren and Brandeis 1890], it has attracted the attention of legal scholarship and has become influential in numerous domains of statutory law, constitutional law, international law and case law, in different jurisdictions. The issues of privacy protection arise in vertical relations (natural person – public authority), in particular in connection with the enforcement of law and the operations of other public institutions, as well as in horizontal relations (between the entities recognized by private law), such as the relation between natural persons and private media. According to a common view, it is not a purposeful idea to attempt to define privacy: any such definition would be either arbitrary, or overly general, or inherently controversial, and therefore of limited usefulness in legal discourse. Apparently, the issues of privacy have to be carefully considered on case-by-case basis, taking into account the particularities of the legal domain in which a given issue of privacy is considered. However, this contention does not mean that legal scholarship does not have, or should not develop the tools that could enable the description of the concept in question on a sufficient level of generality – enabling a minimal level of rational argumentation and successful prediction of authorities' decisions.

This paper discusses a frame-based tool for representation of concepts that possess the features that are characteristic for the concepts like privacy. The structure of investigations is as follows. In Section 2 we discuss general issues concerning the structure of concepts as it is presented in legal theory and in AI and Law research. In Section 3 we investigate what type of concept privacy is, against the previously developed background. In Section 4 we discuss the particular elements of the tool and case annotation scheme resulting therefrom. The final Section concludes and indicates the directions of further research.

2. The Structure of Concepts in the Theories and Models of Legal Reasoning

Investigation of the representation of the concept of privacy involves an inquiry into the classification of concepts and theories of their structure. The very concept of concept is subject to dispute in cognitive psychology, where the theories of concepts such as prototypes, exemplars, theories or frames are discussed [Margolis

2019]. However, this discussion does not have a decisive impact on the legal discourse, because the latter is not focused on empirical investigation into the mental representations the lawyers have and operate on. Theories of legal reasoning are interested rather in the description and reconstruction of the usage of certain types of structures by lawyers (in particular judges) and in the consequences that follow from that usage for legal argumentation. Moreover, equally importantly, legal scholars are interested in how the statements concerning the content of the structures are, or rationally can be, justified.

The contemporary discussion of structure of legal concepts in English-spoken literature has been influenced by H.L.A. Harts' account of an entity consisting of core and penumbra [Hart 1994, 123]. The core of a legal term (in this context, expressing a condition of a legal rule) indicates the scope of states of affairs to which the term applies with a significant degree of certainty, while the doubtful, borderline cases belong to the region of penumbra. This view preceded the development of the prototypical theory of concepts and the associated view that a given terms, expressing a concept, may have more or less typical referents. Since then, the notion of vagueness and other types of indeterminacy in legal language have been the subject of numerous theoretical works [Endicott 2001; Bix 1993]. Among them, the model of vagueness based on the linguistic-pragmatic notion of a native speaker has become prominent. According to this model, a term in question is vague if its fringe is non-empty, and the fringe of a term is a set of objects according to which a native speaker of the language has doubts whether they belong to the extension of the term or not [Gizbert-Studnicki 2000, 137]. The notion of vagueness, construed as such, should be distinguished from open texture. The latter term was introduced to the literature by Waismann and indicates the impossibility of «complete determination» of the meaning of any empirical term [Waismann 1945]. We state that the meaning of a term cannot be determined completely if it is possible to exist for such a state of affairs which will require either (i) modification of the meaning of the term in question used so far or (ii) the development of a new term to cover the state of affairs in question. Open texture is sometimes referred to as «potential vagueness». The difference between the notions of vagueness and open texture may be expressed in the following part of formulas:

Vagueness. A term T in language L is vague if and only if there exists a non-empty set of objects O such that for any $\in$ O, a native speaker of the language has doubts whether o is a designate of T or of non-T (O is referred to as the fringe of T).

Open texture. A term T in language L is open-textured if and only if there may exist an object o such that (i) o will be included in O (the fringe of T) and (ii) deciding that o is a designate of T or non-T will be assessed as a modification of the previous meaning of T.

The notion of open texture is particularly important for the development of theories of legal reasoning because it points the attention to the blurred boundaries between the knowledge of the language and the knowledge of the world (in case of legal reasoning of open texture, this area may concern both the knowledge about the subject matter of the regulation and about the knowledge about the legal system and institutions). The phenomenon of open texture indicates that the determination of the scope of application is not exhausted by the knowledge of language, but it is rather an epistemological issue. This turn has been reflected in legal theory in focus on the notion of (rational) legal justification, elaborated in the theories of legal argumentation [Alexy 2010a; MacCormick 1978]. Among the proposals in this area, the theories based on the notion of coherence have to be highlighted for the level of their generality and degree of sophistication [Alexy and Peczenik 1990; Hage 2013] as far as for integration of this research with constraint satisfaction notion of coherence [Thagard 2001; Araszkiewicz 2013; Šavelka 2013]. As far as the structural considerations are concerned, the theory of legal principles gained particular popularity, spawning different models of balancing grounded in the idea of proportionality [Alexy 2010b]. The latter context of investigations emphasized the role of value-based considerations in determining the answers of questions of law, including the questions of the scope of legal terms. The general idea of balancing of all relevant reasons led to the development of holistic models of legal reasoning based on the notion of theory construction.

A parallel thread of legal-theoretical investigations on legal concepts was initiated by Ross's theory of legal concepts as representations of sets of rules [Ross 1957]. According to Ross's analysis, legal terms' meaning is exhausted by the set of entrance rules (expressing the conditions of the term's application) and consequence rules (outlining what consequences the legal systems attaches to finding that a certain object is an instance of the term). Ross's thesis on meaningless character of legal terms have been soundly criticized [Hage 2009, Brożek 2015], but the important contribution of his work was the focus on the sets of entrance and consequence links that are attached to legal terms. Apparently, however, this approach is not fit for analyzing legal concepts that have a sphere of penumbra (which might be potentially expressed as the set of doubtful entrance links)

The investigations concerning the structure of legal concepts in AI and Law research undergone a similar evolution, partly inspired by legal-theoretical considerations, but often consisting in original research motivated by the goal of development of the knowledge-based systems and argumentation systems. Importantly, the first well-developed contributions to the field were explicitly concerned with the issues of legal indeterminacy and prototype theory of legal concepts [McCarty 1977]. A significant part of the work in AI and Law during the 1980s was devoted to modeling of legal concepts that are not expressible by means of classical theory of concepts, i.e. sets of necessary and sufficient conditions. The HYPO system established a paradigm for the development of Case-based reasoning models [Ashley 1991]. In this paradigm, the content of legal concepts is represented via knowledge representation structures such as gradable dimensions or binary (or unary) factors [for an overview see Bench-Capon 2017]. This approach is being developed to this day, recently by means of a more complex approach including factors with magnitudes [Horty 2019]. Following the seminal paper [Berman and Hafner 1993], the legal CBR research has recognized the importance of teleological considerations, which eventually resulted in the development of sophisticated theory construction models incorporating rules, values, preferences and factors [Bench-Capon and Sartor 2003]. The constructs referred to as theories were subject to the assessment in terms of the assumed coherence criteria. In parallel, the research on legal concepts in AI and law has been conducted in the field of knowledge systems and ontologies development [Casellas 2011]. In particular, the frame-based approach has been applied to the problem of representation of statutory knowledge [Van Kralingen 1995]. The recent literature on the subject continues to focus on frame-based representation of legal norms rather than particular concepts [van Doesburg and van Engers 2019]. Recently also frames were used to described the development of case law, which is an important step towards align frame-based knowledge representation and CBR systems [Henderson and Bench-Capon 2019].

In the field of analytical theory of law, different theories of concepts and conceptual analysis have been adapted and investigated. From the enormous literature on the subject let us point out to the following categories the applicability thereof is debated in legal theory: the Wittgensteinian account of family resemblance and the distinction between natural and hermeneutic concepts. The notion of family resemblance has been famously introduced to the philosophical discourse by Wittgenstein who argued that many of categories used in natural language do not designate a well-defined set of objects, or even prototypes, but rather a class of objects related by a network of similarity relations [Wittgenstein 1986]. The distinction between the natural and hermeneutic concepts may be defined as follows: while the former ones aim at referring to natural kinds and allow for a global error, the latter ones help the people better understand themselves and their actions – therefore, a global error is not impossible, because the understanding of these concepts by the relevant community is what, at least in significant part, constitutes these concepts [Gizbert-Studnicki, Dyrda and Grabowski 2016, 82–83].

3. What Type of Concept Privacy Is?

Having outlined the theoretical background for the analysis of legal concepts, the question arises how the legal concept of privacy should be classified with regard to the distinctions made above.

First, as underlined above, the notion of privacy is used in different domains of law, using different mechanisms of legal protection and methods of regulation. In consequence, it is different to speak about the legal or juristic concept of privacy as such. The term «privacy» (and its derived words) is typically used in specific contexts such as «private and family life» mentioned in Article 8 par. 1 of the European Convention on Human Rights, or «reasonable expectation of privacy» in the United States Supreme Court case law related to the interpretation of the Fourth Amendment. During the recent decades the context of «information privacy» has gained prominence [Solove, Rotenberg and Schwartz 2006]. These considerations lead to the tentative conclusion that the term «privacy» has a family of meanings and therefore it is not necessary for all cases of its usage to share a common core of meaning. Even more: certain elements of the concepts of privacy used in different domains or jurisdictions may be mutually incompatible. This initial finding explains the problems legal scholars encounter when they attempt to define privacy. For instance Post claims that: «Privacy is a value so complex, so entangled in competing and contradictory dimensions, so engorged with various and distinct meanings, that I sometimes despair whether it can be usefully addressed at all.» [Post 2001, 2087].

Second, in many contexts of its use privacy is naturally construed as a gradual concept with non-empty fringe. It should be emphasized at this point that the gradual character of a concept does non necessarily imply its vagueness, but apparently in case of privacy this implication holds. The gradual character of the concept of privacy is visible in certain theoretical account of it, for instance in the theory of spheres of private life developed already in 1970s [Kopff 1972], who distinguished the sphere of intimacy, the sphere of privacy and the sphere of public access. It is right to note that the boundaries between the particular spheres of private life are actually blurred. However, even more importantly, the concept of privacy, in any selected use, manifests its open-textured character. In particular, such issues like the evolution of customs in a given societal group and society at large and the development of new technologies including the social media are constantly challenging the vague boundaries of the concept and lead to new modifications. On a more general level, these developments invoke the tension between the layer of the factual and of the normative in legal reasoning.

Third, consequently, both the relevance considerations (what features of state of affairs should be taken into account when determining whether some state of affairs generates privacy issues), classification issues (determining whether a given state of affairs does classify as relevant from the point of view of the selected criteria) and the protection considerations (if a privacy, even if recognized, should be protected in a given case, all things considered) require balancing of relevant values. Such balancing is typically performed in a concrete situation, therefore the potential generalization thereof may be problematic. The privacy issues are contextually sensitive in the sense that an apparently slight modification of the description of the state of affairs in question may change the outcome of the case diametrically.

In the light of the above considerations, the methodological questions of representing the concept (or concepts) of privacy arise. Taking into account the success of representing the content of certain open textured concepts in AI and Law (like trade secrets or possession) in terms of factors, dimensions and theories involving teleological considerations, our aim is to extend and generalize the classical CBR systems approaches to encompass the degree of complexity ascribed to legal considerations concerning privacy. At the same time, our aim is to develop a descriptive model of reasoning with issues concerning privacy, rather than normative (logical) model. Different computational models of defeasible legal reasoning may be fed with information following from the model described here.

The model itself is based on the notion of a frame – a complex knowledge representation structure encompassing a set of parameters that may assume certain values from certain range. The frame represents the knowledge taken into account and the reasoning performed by the court in a given case concerning a given legal concept (in our case: privacy, analyzed in different domains and contexts).

Therefore the proposed answer to the question posed in in this Section is as follows. Legal concepts like privacy are best represented as frames: legal knowledge representation structures that enable the representation

of values of multiple parameters. The actual frame of a given legal concept as it is currently accounted for in case law in a given jurisdiction would require the representation of appropriate values of parameters of all cases involving this concept in a given jurisdiction.

The frame is developed in accordance of the following principles:

(1) Incompleteness tolerance. The frame does not have to be filled in completely to enable reasoning. It is assumed that the totality of information stored in the frame was sufficient enough to justify the decision taken by the court. The incompleteness of the frame may be criticized from an external (for instance, doctrinal) point of view.

(2) Inconsistency tolerance. As above, the frame tolerates the information that is apparently inconsistent. It may encompass the mechanisms that aim at removal of inconsistency or at considering the inconsistency apparent only.

(3) Static character. The model represents the reasoning of the court as a result, not as an activity. However, as it indicates the patterns of reasoning that have been used in the represented case, the application of these patterns to different factual situation may lead to different results.

(4) Qualitative character. In principle, all values of the parameters of the case are expressed by means of qualitative terms. Quantitative information is only admissible if it was actually (explicitly) used in the courts' argumentation.

(5) Principle of relativity of representation. The fact that the same or similar piece of textual information is qualified in a certain manner in the representation of a given case does not imply the same treatment in the following case. The frame may encompass mechanisms providing a reason for the same or similar treatment in the following cases.

(6) Open character. The frame is open to adopt new types of parameters, values ranges, etc.

4. Outline of the Frame

The following table presents the typical set of parameters of the frame which represents the reasoning of the court deciding on a question of law.

No.	Textual Category	Represents	Commentary
1.	Legal Provision Sentence(s)	Legal norm(s)	Legal norms are entities that assign a certain state of affairs (legal consequences) to a given state of affairs (current fact situation). A certain subtype of LPS is a source of potentially applicable legal norms which contain legal terms being the subject of interpretation and qualification considerations. The determination of the eventual value of this parameter follows from the solution of validity problems.
2.	Structural Interpretation Sentence(s)	Types of knowledge representation structures that represent legal terms	The structure of the concept expressed in the term in question: it may resemble a classical concept, a prototypical concept, a dimensional concept etc.

3.	Content Interpretation Sentences	The content of legal terms	They may have different form depending on the (implicit or explicit) SIS
4.	Interpretive Argument Sentences	Premises of interpretive arguments used to justify the IS (primarily CIS)	Values: linguistic, systemic, functional
5.	Interpretive Metadirective Sentences	Preference relation, special position or the order of application of interpretive arguments	May express preference, special status predicate, procedure or all of them
6.	Value Relevance Sentences	Values important in a given legal domain / set of cases	Value understood are realized or demoted through certain states of affairs become actual
7.	Factor Relevance Sentences	Generalized states of affairs that provide reason for a decision (adopting a given solution to the problem)	Factors may be unary, binary, ordered in dimensions or not, assigned with magnitudes or not, forming a hierarchy or not – depending on the analyzed domain
8.	Factual Sentences	State of affairs description; current or other fact situation	This set is a solution to the problems related to the questions of fact
9.	Legal Factor Sentences	Generalizations of states of affairs that are satisfied in the current fact situation or in one of the referred fact situations	Commentary as in FRS
10.	Value Classificatory Sentences	Classificatory value judgments, that is, propositions stating that a given state of affairs is non-neutral with regard to a given value	If a VCS holds in a given case, it means that the solution of this case will influence (the degree of) realization of the value
11.	Value Balancing Sentences	Comparative value judgments understood as premises and conclusions of balancing arguments	VBS may adopt a form of a sentence expressing a preference relation between certain objects
12.	Decision Sentences	The decision (conventional actions) taken by the court on substantial on procedural issues	They are *inter alia* the source of information of the case outcome

Table 1: Outline of the Frame

The frame serves as the basis for the case law annotation scheme. We distinguish two main categories of annotated elements: (1) relevance sentences, that is the sentences concerning what elements are (or are not) legally relevant and (2) classification sentences, that is the sentences that deal with elements of the fact situation and thus provide a reason for deciding the particular case in a given way. It is assumed that we model the concept as it is understood under the scope of application of a certain legal norm, therefore Category no. 1 is a relevance sentence, together with Categories 2–7. The remaining Categories are classification sentences. The criterion of the distinction is, therefore, a function of a sentence. Relevance sentences are in principle compatible with any decision in the current state of affairs, while qualification sentences point out to a decision of a given type. Relevance sentences may (typically indirectly) delimit the scope of possible decisions in a given state of affairs. The sentence that are typically referred to as interpretive sentences (in particular, in continental legal culture) are a subtype of relevance sentences.

The sources of relevance sentences may vary. In particular, the relevance sentence may follow from the text of legislation, constitution, case law or doctrine. Classification sentences, if invoked, will typically follow from the pre-existing case law. A cited classification sentence will necessarily involve reasoning by analogy (because the set of facts of the current state of affairs does never match completely with the set of facts that gave grounds for the decision in the quoted case).

5. Conclusions

The knowledge representation tool described above, having the structure of the frame, enables us to find a middle ground between the quantitative representation of legal information feeding the machine learning models on the one hand, and the rigorous formalizations required by computational models of legal reasoning. As such, it may be used to inform both the models developed in the former approach (in the process of results evaluation and in connection with the explainability concerns) and in the latter approach (by providing a motivation for enriching the set of used knowledge representation structures and patterns of reasoning) [cf. Ashley 2017].

The frame as such also works as the basis for a case annotation scheme intended for wide application in training statistical models. So far, we have annotated more than 50 judgments concerning the issues of privacy: 35 judgments of the United States Supreme Court and 15 opinions of the Court of Justice of the European Union. The general scarcity of available European Union case law concerning the concept of privacy (even indirectly) confirms the tentative conclusion that the conceptual foundation of reasoning with the notion of privacy in the European law is underdeveloped which fosters the role of legal doctrine in this area.

The frame-based representation of the concept of privacy (as it is understood in different legal domains) may increase the awareness of the community of lawyers on the actual, rather than postulated, content of this concept.

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