Mixing Legal and Non-legal Norms

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Abstract. In Boer et al. (viz. [9]) we argued that evaluation of draft legislation, change from an old to a new regime, harmonization of legislation from multiple jurisdictions, and the decision to move a good, person, or service over the borders of a jurisdiction, involves a process of integration and comparison of preference structures. This paper argues that legal norms are in many contexts best understood as expressions of a ceteris paribus preference, and that this viewpoint adequately accounts for normative conflict and contrary-to-duty norms.

Keywords. Preference, Norms, Semantic Web, Decision Support Systems

1. Introduction

The interest in Legal Knowledge Representation used to be confined to small companies building legal expert systems. Customers of these companies were primarily interested in the expert system, while the accompanying knowledge representation was only used for validation purposes, if it was used at all. In recent years, however, we have seen increasing interest in the legal knowledge representation itself from large administrative organizations, and they want to use it for other purposes than building expert systems.

Knowledge representation is increasingly considered an enabling technology for complex administrative change processes driven by new legislation and policy guidelines. Our work for the Dutch Tax and Customs Administration (DTCA; cf. [9]) was clearly related to the huge change process triggered by the complete overhaul of the Dutch income tax law. DTCA knowledge representations were also expected to specify – and justify – how business processes were grounded in legislation, and provided input for the drafting process through formal verification and simulation of draft legislation. The *Juridisch Loket* (cf. [34]) project on pro bono legal assistance and the *DURP* project on spatial planning (cf. [8]) are also driven by an overhaul of legislation, and we have received inquiries from other administrative organizations involved in similar change processes.

The E-POWER project with the DTCA also involved exploratory research into using knowledge representations for comparing and harmonizing legislation (cf. [9]). This addresses a need that arises as EU agreements increasingly require public administrations to facilitate the movement of people, goods, and services over national borders. As these movements increase in frequency and importance, public administrations are increasingly confronted with the need to know about differences between legal systems in Europe. The EU INSPIRE initiative will create similar pressures in spatial planning, as

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geospatial data about spatial legal abstractions will be made available throughout Europe but the meaning of these abstractions will remain as opaque as it was before.

In [9] we argued that evaluation of draft legislation, change from an old to a new regime, harmonization of legislation from multiple jurisdictions, and the decision to move a good, person, or service over the borders of a jurisdiction, involves the same underlying process of comparison of alternative norm systems.

Evaluation of legislation involves comparing the real world effects of a preference structure imposed by legislation against an external preference structure, imposed by so-called norms of analysis (viz. [21]). This is what allows choice between alternative codifications of political goals. We also noted that – judged against the norms of analysis – two very different legislative solutions, for instance taxing and prohibiting, can achieve the same policy goals because of complex interactions between legal norms and presumed non-legal preferences of the addressee of legislation. In both cases, the solution to this problem requires using legal and non-legal preference structures in a single decision problem.

As a side-effect, this view also accounts for rational planning and design subject to legal norms. In for instance [3], the role of legal norms in planning is restricted to pruning certain illegal plans from the alternatives being assessed. Legal constraints and constraints from other sources are applied in two separate stages, and usually in a different way, in assessment of alternatives. This approach unnecessarily complicates the process: by performing two separate assessments, a legal and a non-legal one, it does not for instance allow for weighing the consequences of violating a legal norm against the benefits of complying with other non-legal preferences. Rational violation of the law is not generally perceived as a valuable functionality by public administration, but this perceived gap between decision theory and legal theory disqualifies legal knowledge representation as exotic and hard to understand.

This begs the question as to whether it is possible to account for the ontological connection between legal norms and non-legal norms. [6] Considers the ramifications of doing so in detail. This paper is a summary of part of that work. This paper argues that legal norms are in many contexts better understood as expressions of a ceteris paribus preference, and that this viewpoint adequately accounts for normative conflict and contrary-to-duty norms.

1.1. A Workbench for Legal Knowledge Engineering

Deontic concepts are not easily combined with industry standards like UML and OWL. We experienced this when in the DTCA a UML CASE tool was used, even though this created major problems for representing normative knowledge (cf. [7]). Large organizations are however not easily convinced to abandon "commercial standards" or widely used CASE tools, if only because of a, generally justifiable, perception of lack of continuity and quality of technical support of more experimental systems.

Legal knowledge representation also proves hard to sell to knowledge engineers with a more general IT background. In reality deontic representation is probably not necessary for most legal expert systems in institutional settings, as we also noted in [10]. We recently reviewed a knowledge representation of a part of social security law made by a company which was building a system for the organization that issues permits for dismissing personnel. Outcome of the review was that there were no normative conflicts in

the set, and the distinction between permissions and obligations of the organization in the relevant social security laws was immaterial because all individual discretion of civil servants was taken away by the internal guidelines of the organization.

We did establish that the knowledge representation was too specific to be reusable in another institutional setting where the *same* legislation is used from another point of view[1].

The Leibniz Center for Law is starting a new EU-funded project, ESTRELLA, to define a standard for exchange of legal knowledge in XML. In addition, we are planning to build a new knowledge engineer's workbench, informally called Newton for now, in association with a number of industrial and governmental partners. The added value of the new standard is largely determined by the potential for reuse of knowledge in different settings. Reuse is a necessary condition for business models based on content syndication: if a knowledge representation of some legal source is reusable in different institutional contexts, then legal knowledge bases can be produced and maintained by third parties and bought off the shelf. We have therefore been working on concepts of tools for automated ontology integration, integration of normative systems, and support for the comparison of normative systems (viz. [10,7,9]).

We realized that designing business processes and comparing legislation both involved the problem of mixing legal and non-legal norms in one decision problem. The law is not the only constraint on a suitable business process design. Norms however take different shapes in different domains. How they interrelate is best understood by understanding all types of norms as preferences between classes of alternatives in a decision problem.

2. The Ontological Status of Norms

From research in the past (viz. [14,11,13]), it has become clear that knowledge representations are not generally automatically reusable outside the specific context for which the knowledge representation was originally developed. Part of this problem has been attacked with ontologies. Ontologies are however only reusable if they were explicitly designed to be reusable, which is generally not the case: Breuker and Hoekstra argued in [12] that Legal Knowledge Engineering suffers from epistemological promiscuity, or indiscriminately mixing epistemological knowledge and domain knowledge in ontologies.

Knowledge about reasoning – epistemology – and knowledge about the problem domain – domain ontology – are to be separated if the knowledge representation is to be reusable. Mixing the two categories of knowledge leads to confusion in reuse (cf. [14]) because both types of knowledge are to be reused in different contexts: reasoning methods are specific for types of tasks (planning, design, diagnosis, assessment, etc.), but independent of the type of domain (cf. [11,13]), while domain knowledge is used – in different ways – in different types of tasks.

The *norm* is an epistemological concept identified by its *role* in a type of reasoning and not something that exclusively *belongs* to the vocabulary of the legal domain. A norm is a standard of performance, a measurement scale that defines what is normal or normative. It is used whenever we are assessing something, regardless of domain.

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[1]The expert system described in [34] for a legal assistance agency that i.a. assists people in appealing against an unfair dismissal.

The norm is conceptualized differently in different contexts: When assessing readings from a broken instrument – for instance some circuit board – a norm is for instance the distribution of scores obtained from a correctly functioning norm group, or some margin around the specified ideal functional mapping from input to output. In sociology, a *social norm* is a pattern of behavior expected of an agent within a particular society in a given situation. Only within this context – the behavior of a supposedly rational agent is being assessed – the norm is interpreted as reflecting some preference of the involved agent; given that an agent is aware of a number of behavioral alternatives and made a choice between them, we can infer that the agent revealed a *preference* since choice and preference are interdefinable. If we observe a pattern of agents revealing the same preference, we may infer that having the preference is *normal*.

The *legal norm* is an extension of the social norm in a specific kind of social system. Directing others to adopt preferences is the core business of legislators. Since legal norms are usually communicated by prose, the preferences that the legislator communicates to us are understood as a system of declarations and directives (obligations, permissions, and prohibitions). This is by no means the only way to direct others: teachers usually grade the work of students for instance, which is a declarative act, and in this act implicitly direct others. Note that a declaration differs considerably from an assertion in the illocutionary sense (cf. [30]). The latter expresses a belief, and is constative, while the former brings something about, i.e. is performative.

The distinction between declarative and directive acts is very similar to the distinction between constitutional and regulative norms made by Boella and Van der Torre in [5]. They observe that constitutional norms can be *likened* to beliefs, and regulative norms to goals. Epistemologically this is defensible: regulative norms are to treated as one's goals, and constitutive norms are to be adopted as if they are beliefs when reasoning about how these regulative goals apply to one's life.

We prefer to think of the directive act as an attempt to make the reader commit to a preference. The term 'goal' suggests that the preference is absolute, and not *ceteris paribus* (cf. [16]) as is normally the case with adopted social norms. Goals are better understood as the minimized set of propositions to be achieved in a certain situation according to a preference structure, which may contain conflicting preferences. Constitutive norms are supposed to *overrule* one's own beliefs, and regulative norms to overrule one's own preferences. In [10] we sketched a legislative feedback loop: the citizen evades negative consequences of legislation by refining his preferences, or by violating norms, and the legislator bases legislation on historical knowledge of, or assumptions about, what the citizen will do.

In this paper we will attempt to ground norms from the legal field in a more general epistemological concept from other fields of research that deal with assessment and planning. Representing norms as preferences has clear pragmatic benefits. Firstly, preference and utility are widely understood by knowledge engineers and computer scientists outside our field, while deontic operators are not. Secondly, grounding deontic operators in preference makes it possible to compose complex preference structures relating legal and non-legal preferences, which is a necessity in planning, design, and Comparative Law.

3. Norms as Preference Statements

An agent complies with a norm by knowing of it, adopting it, and revealing it in his choices. The agent violates a norm by making choices in contradiction with the norm. A norm is a ceteris paribus preference (cf. [16]) for some type of alternative over another type of alternative, given that one is otherwise indifferent between those alternatives.

Let β be a situation, and α an alternative in a menu[2]. The deontic operators are reduced to preference statements as follows:

$$O(\alpha|\beta) = \boxed{\beta, \alpha} \prec \boxed{\beta, \neg\alpha}$$
$$F(\alpha|\beta) = \boxed{\beta, \neg\alpha} \prec \boxed{\beta, \alpha}$$
$$P(\alpha|\beta) = \boxed{\beta, \alpha} \preceq \boxed{\beta, \neg\alpha}$$

The reduction of obligations – and prohibitions – follows the reduction applied by for instance [4]; This view is implicit in existing preference-based solutions to the contrary-to-duty problem discussed in section 3.1. The straightforward reduction of permissions is new, as far as we know.

The permission is treated as a statement of qualified indifference ($\alpha \preceq \neg\alpha$). Note that some broad permissions can be interpreted as symmetrical ($\alpha \sim \neg\alpha$), and there is evidence, i.a. from psychology (viz. [23]), that the common sense interpretation of permission is indeed symmetric. This idea is the notion of *strong indifference* of i.a. Opalek and Wolenski in [27]. In law, it is for instance generally accepted that freedom of expression includes the freedom to keep your opinion to yourself.

This view has been discarded as wrong by i.a. Alchourron and Bulygin in [1], and compatibility with existing theories of deontic reasoning demands the asymmetry. The permission only becomes meaningful if it interferes with one or more obligations or prohibitions, and is used in a reasoning system that chooses between incompatible deontic statements and for some reason prefers the permission. The asymmetric statement ($\alpha \preceq \neg\alpha$) leaves room for a prohibition or obligation ($\neg\alpha \prec \alpha$) without creating a conflict, and retains the information that the permission was about α and not $\neg\alpha$. The reduction respects $O(\alpha|\beta) \equiv F(\neg\alpha|\beta) \equiv \neg P(\alpha|\beta)$ and $P(\alpha|\beta) \equiv \neg O(\neg\alpha|\beta)$.

In the next subsections we review the consequences of the treatment of legal norms as preferences for the representation of contrary-to-duty sets of norms, and for detection of normative conflicts. Because subsumption relations play a key role in this discussion, we will introduce a graphical convention for displaying an entailment relation $\mathsf{KB}, \alpha' \vdash_s \alpha$ (e.g. a bicycle α' is a vehicle α) in deductive system S using knowledge base KB:

$$\boxed{\alpha}$$
$$\uparrow$$
$$\boxed{\alpha'}$$
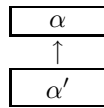
We have to introduce another notational convention to make clear that a statement $(\beta, \alpha) \prec (\beta, \neg\alpha)$ is an ordering on α and $\neg\alpha$ within the context of β (or $\beta \Rightarrow (\alpha \prec \neg\alpha)$ following [15]):

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[2]Beware of interpreting α as an action: the alternatives may concern having a bilge pump or a bilge ejector for disposing of bilge on an existing ship. Key is that the situation can be remedied by an agent.

$$\beta: \quad \boxed{\alpha} \quad \prec \quad \boxed{\neg\alpha}$$

3.1. Contrary-to-Duty Obligations

The contrary-to-duty (CTD) obligation arises in a sub-ideal situation, brought about by the violation of a primary obligation. The relation between the primary obligation and CTD-obligation can be represented according to the following schema:

$$\boxed{\alpha} \quad \prec \quad \boxed{\neg\alpha}$$
$$\boxed{\neg\alpha, \beta} \quad \prec \quad \boxed{\neg\alpha, \neg\beta}$$
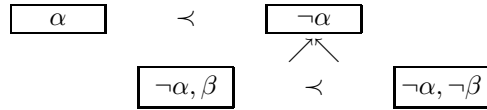
The CTD-obligation in the bottom row only distinguishes cases in which $\neg\alpha$ is already the case, in both proscribed and prohibited situations. The CTD-obligation should not suggest a permission to enter into the sub-ideal situation, although there are real world cases where they are explained that way.

This type of situation should not be considered merely theoretical. All norms regulating punishment by the legal system, contractual remedial and reparational obligations, and liabilities arising from contract violations follow the CTD-obligation pattern.

The Chisholm paradox is an instructive example of how to analyze complex sets of logical relations between primary obligations and CTD-obligations. Since we are not building a logic we are obviously not dealing with a paradox, but merely representing the situation that gives rise to it. The Chisholm set consists of the following norms:

1. $O(\alpha|\top)$
2. $O(\beta|\alpha)$
3. $O(\neg\beta|\neg\alpha)$

The paradox arises in standard deontic logic (SDL) when α is the case. α reads "a man goes to the assistance of his neighbours", and β reads "the man tells his neighbours that he will come".

Since the first preference expresses a preference for both (β, α) and $(\neg\beta, \alpha)$, the imposed ordering – from most to least ideal – is the desired one (cf. [33]):

$$\boxed{\alpha, \beta} \quad \prec \quad \boxed{\alpha, \neg\beta} \quad \prec \quad \boxed{\neg\alpha, \neg\beta} \quad \prec \quad \boxed{\neg\alpha, \beta}$$

The Reykjavic and Forrester sets are other interesting variations that have been analyzed this way. Time adds an interesting twist to the Chisholm situation; The choice for β can only be realized before the choice for α. A more straightforward and intuitive temporal example, by Prakken and Sergot in [28], admonishes one to keep one's promises, and to apologize if one doesn't. None of these present us with any problems.

Instead of viewing a CTD-obligation as an obligation arising from the sub-ideal situation in which one norm has already been violated, one could see the CTD-obligation as arising from the violation itself in some cases, as Governatori et al. (cf. [19]) seem to do. Arguably this is for instance the case in the following set:

1. One ought not to break a promise.
2. One may break a promise if one pays a 100$ fee to the government for a permit to break a promise.

3. If item 1 is violated, then one ought to apologize.

The question is whether item 1 is still violated if one pays the fee. Does one still need to apologize? Governatori et al. (cf. [19]) solve this by the introduction of an operator $O(\alpha) \otimes O(\beta)$, which is read as "$O(\beta)$ is the reparation of the violation of $O(\alpha)$". For us this is an open problem.
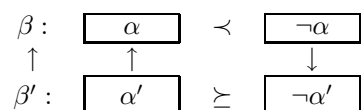
3.2. Conflicts between Norms

The legislator does not usually include pairs of directly opposite norms like $O(\alpha)$ and $P(\alpha)$, but pairs $O(\alpha)$ and $P(\alpha')$ where α' is subsumed by α, or $\alpha' \vdash \alpha$, do occur quite regularly.

An instrumental concept in explaining conflicts between norms is that of *realizability*; A norm is *realized* if the state of affairs it permits or mandates is the case. There is a conflict between a pair of norms if they are not *jointly realizable*. In terms of preferences, conflicts surface as circularities. An important point is that conflicts or circularities between norms do not depend on any case at hand (e.g. cf. [35,4]).

A distinction is usually made between so-called conflicts of disaffirmation and compliance conflicts. Lindahl (cf. [24]) defines disaffirmation as follows: "a relation between two norms of different deontic mode, one being permissive and the other mandatory".

A disaffirmation conflict is in our context a circularity between a permission and either an obligation or prohibition. One such situation – a conflict of disaffirmation between $O(\alpha|\beta)$ and $P(\neg\alpha'|\beta')$ where $\alpha' \vdash \alpha$ and $\beta' \vdash \beta$ – can be displayed as follows:

$$\begin{array}{ccccc} \beta: & \boxed{\alpha} & \prec & \boxed{\neg\alpha} & \\ \uparrow & \uparrow & & \downarrow & \\ \beta': & \boxed{\alpha'} & \succeq & \boxed{\neg\alpha'} & \end{array}$$
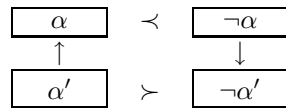
We will call this a *disaffirmation of an imperative*. Intuitively it is meant as an exception and takes precedence to the primary obligation, although this is not necessarily the case. In analogy, we have a *disaffirmation of a permission*. Disaffirmation allows the legislator to create exceptions to provisions easily.

There are two other disaffirmation conflicts that have no intuitive solution, or clear purpose. The following set of simple rules exemplifies this type of case:

1. Using the network facilities in the classrooms is prohibited.
2. Using WiFi in the university building is permitted.

It is not clear which of the two rules is an exception to the other one, granted that we share the belief that using WiFi is subsumed by using network facilities, and being in the classrooms is subsumed by being in the university building. Intuitively, the most specific description of the alternatives, in this case using WiFi, takes precedence. Arguably, these sets belong to Hill's "intersection" conflicts (cf. [17,22]).

The compliance conflict is more complicated and the length of this paper does not allow for good explanation, but the representation in terms of preference structures does distinguish the relevant types in a satisfactory way. This type of set – a *conflict of compliance* between $O(\alpha)$ and $O(\neg\alpha')$ where $\alpha' \vdash \alpha$ – can be displayed as follows:

$$\boxed{\alpha} \quad \prec \quad \boxed{\neg\alpha}$$
$$\uparrow \qquad\qquad\qquad \downarrow$$
$$\boxed{\alpha'} \quad \succ \quad \boxed{\neg\alpha'}$$

An interesting real-world example is when the Amsterdam police ordered nightclub owners to lock the emergency exits to keep drugs out, while the fire department ordered the same nightclub owners to unlock them to allow for escape in case of disaster.

Other classes of perceived conflict concern situations where a combination of norms defeats the underlying norms of analysis, as is the case in a situation involving two permissions in Elhag et al. ([17]), and situations where the realization of a norm is impossible per se or does not depend on any agent choice, as is the case when the legislator for instance prohibits fatal accidents.

4. Composition of Ceteris Paribus Preferences

Contrary to normal preference structures that are revealed by choices, ceteris paribus preference structures may turn out to contradict eachother (viz. [16]). If there is a cicularity in the ceteris paribus preference structure, then the condition that we are otherwise indifferent between the alternatives has been violated, and we compose a new norm.

Hansson ([20]) distinguishes between preferences among incompatible alternatives, which he refers to as *exclusionary* preferences, and preferences among compatible alternatives, which he refers to as *combinative* preferences. When one chooses a red car over a blue car, one is exhibiting an exclusionary preference, because the alternatives are incompatible. A preference for having a cheap car rather than a red car, by contrast, is combinative, because the alternatives are compatible.

Legal norms are all examples of a particular type of statements of exclusionary preference. The norm does not even explicitly specify the alternative: it is the logical complement of that which ought to be done, or left undone. A conflict between two norms is always solved by choosing between the offending preferences, instead of weighing them.

A non-legal preference may take all kinds of forms: it may impose an ordering with more than two places, and it may be combinative. A underspecified norm of analysis $\alpha \prec \beta$ (economic growth is better than wasting taxpayer's money, for instance) may for instance end up being realized in the form $\alpha \prec \neg\alpha$ and $\neg\beta \prec \beta$.

Conflicts between non-legal preferences may be resolved with all kinds of weighing procedures (e.g. cf. [15]). Choice is a rare solution: the most common ones are additive value function and the multiplicative utility function, even when the required preference independence between the involved preferences is doubtful, as is for instance the case in contrary-to-duty situations. Choice can be considered a weighing procedure where the value of alternative behaviors is determined solely by the most preferred preference among the conflicting ones. Because composition functions for non-legal preferences, and pairs of legal and non-legal preferences, can take any shape, it is not possible to design a single choice rule for conflict resolution that is always valid.

Choice rules for legal reasoning are possible, because there are well-established principles for choosing between legal norms. Such rules were explicitly specified in [32,35], and preference-based or defeasible deontic logics obviously also contain a choice rule even if it is not explicitly separated from the logic itself.

4.1. Composition of Legal Norms

Composition of legal norms is fairly straightforward, because the legal system uses a composition procedure that is very intuitive. It can be understood as an analogy of belief revision.

We all know that beliefs can sometimes be wrong, so intelligent beings need to be able to revise beliefs when they acquire new information that contradicts their old beliefs. Reasoning systems modeling this phenomenon are called *belief revision* systems. One common way of determining *which* beliefs should be surrendered is to use a so-called *epistemic entrenchment* ordering (cf. [25,18]). This ordering expresses the idea that some of our beliefs are more fundamental than others; It is a preference ordering on beliefs.

Makinson and Gardenförs ([18]) showed that there is a tight connection between belief revision and defeasible reasoning: belief revision models temporal nonmonotonicity, while default reasoning models logical nonmonotonicity.

Norms define an analogous preference ordering on norms, that helps us assess things. Over time we refine our norm systems. In legal theory we find the principles of Lex Posterior, the newer norm is preferred over the older one, and Lex Specialis, the more specific norm is preferred over the newer one. Any provision obviously has a history and propositional content. A Lex Specialis ordering between two provisions can be discovered by comparing the logical content of the provisions. A Lex Posterior ordering between two provisions can be discovered by comparing the history of the provisions.

The Lex Specialis and Lex Posterior principles *describe* certain phenomena of reasoning in general. They do not sanction the preference of the newer over the older, or the specific over the general, but merely observe that it *is* so. These principles work in any legal system, regardless of whether they are codified. Codification does make it harder to overrule them in lower legislation, though.

The third wellknown principle, Lex Superior, is a fundamentally different type of principle. The Lex Superior principle is also 'intuitive', but it is a design principle for complex, hierarchical legal systems. This hierarchy is not something which is discovered by application of the principle to a pair of provisions: it has been designed into the legal system. Provisions overruling the normal activity of Lex Specialis and Lex Posterior usually define some hierarchical preference ordering on legal sources that can be used for choosing between norms if they form a cyclical preference.

Principles like Lex Posterior are sometimes cancelled or amended by legislation. This is fairly rare, but Suber ([31]) collected a valuable collection of real world examples. A cancellation example of Lex Posterior is for instance the so-called 'entrenched' rule that explicitly prohibits its own amendment. The legislator has to resort to a specific prohibition because it is not possible to explicitly 'overrule' an unstated principle. These examples can be easily represented as orderings dictated by Lex Superior: the entrenched rule is in a Lex Superior category declared by itself.

The logic of the legal system dictates that Lex Superior must normally take precedence over Lex Specialis and Lex Posterior. The relative priority of the Lex Posterior and Lex Specialis principles is however in principle unsettled. The reason for this is that they are implicitly assumed to reinforce eachother: assuming that the legislator refines his expressed preferences over time, is aware of his own acts in the past, and intends it's new provisions to be compatible with the existing corpus, it is only reasonable to expect that new preference statements refine the existing system.

A special case is where the Lex Posterior ordering exists, but a Lex Specialis ordering does not. This is the case in a situation of symmetric disaffirmation. To this situation there is no satisfactory prima facie solution, because the legislator is able to directly repeal the offending older provision and yet failed to do so. This suggests that the legislator did not explicitly intend the ordering that is imposed by Lex Posterior. Still one usually favors the ordering imposed by Lex Posterior if there are no other clues, because the choice between norms must be made[3].

5. Discussion

It is surprising that the similarity between the norms in assessment and the preferences of decision theory is rarely exploited in Computer Science & Law. Computer Science & Law tends to stay close to the surface structure of legislation, and somehow wants to capture the *speech act*, instead of the expressed preference. In most applications of norms in Computer Science & Law the epistemological mechanism by which norms are adopted is however completely irrelevant, and it is usually not accounted for (but see for instance [29] for a notable exception).

It is interesting to note that this view on norms is discarded when dealing with case law. In the context of case-based reasoning it is acknowledged that many deontic norms that distinguish between only two valuations (legal–illegal) can be considered indicative of the existence of a more fundamental preference scale underlying it. In court it is often possible to argue successfully that this underlying scale represents the actual intent of the legislator and can be taken into account (e.g. cf. [2]). If the legislator for instance orders civil servants to always buy the cheapest of some good, that statement is indicative of a more general preference for cheaper goods over more expensive goods if one is otherwise indifferent between the alternatives.

The citizen and judge are supposed to solve conflicts using the rules in section 4.1. Legislation is designed so that these rules work. The legislator, on the other hand, can use more refined strategies for combining preferences during the design of legislation. If this is the case, one wonders why the legislator is not more direct in the expression of his preferences. The best explanation is that continuous scales become too complex to handle in case of a conflict between several competing values, although we have noted that this arguably happens in court rooms anyway. Little empirical research has been invested in the question which way of describing the desirable behaviour actually works best (cf. [26]). The purpose of traditions, guidelines, manuals, and computer programs is to enforce a consistent style of drafting, and consistency in style is obviously one possible way to increase interpretive clarity.

As noted in section 4.1 there are situations that *feel* like a normative conflict, but can only be explained as a conflict by involving underlying preferences. The scenario mentioned by Elhag et al. ([17]) involves two permissions:

> There seem to be other types of conflict as that between the permission for A to live in a certain house and a permission for B to destroy that same house. These conflicts need our attention and have to be embodied in a theory on normative conflicts.

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[3]Using whatever criterium. For example, one U.S. court held that when two amendments adopted at the same time are irreconcilable, the one receiving the greater number of votes in the Senate takes priority over the other (cf. [31]). This exotic principle has not been accepted in jurisprudence anywhere, as far as we know.

With our analysis on evaluation of legislation (viz. [9]) in mind, we hope to build a knowledge representation language in ESTRELLA in which this conflict can finally be expressed.

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