# Obligations, authorities, and history dependence

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## Woord vooraf[1]

Er zijn Nederlandse literatoren die beweren dat de Sarphatistraat in Amsterdam een van de mooiste plekken in Europa is. Hoewel ik deze opinie niet helemaal kan delen, herinner ik me toch goed aan de Sarphatistraat, omdat ik vlakbij op Roeterseiland het plezier had Johan van Benthem te ontmoeten en omdat bovendien de faculteit Wiskunde en Informatica van de Universiteit van Amsterdam voor mij een van de interessantste plekken in Europa bleek te zijn. Toen ik in 1988/89 als gaststudent en in 1992 als lid van deze faculteit in Amsterdam verbleef, was het vanuit mijn eigen invalshoek vooral Johan van Benthem, die zowel intellectueel en persoonlijk de sfeer in de afdeling Logica als ook mijn opvattingen over de logica bepaalde. Sinds die tijd was Johan van Benthem voor mij een uitermate inspirerende en supererogatief betrouwbare leraar en collega. Hij trad op als externe begeleider van mijn proefschrift en als rapporteur van mijn Habilitationsschrift. Ook in andere opzichten heb ik van Johan veel steun ontvangen, en het verheugt mij enorm, dat ik een gelegenheid heb Johan door een bijdrage aan het voorliggende *liber amicorum* te danken.

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Hartelijk gefeliciteerd met je verjaardag, Johan!

## 1 Introduction

Over the last decade, deontic logic has undergone quite substantial development. This advancement of deontic logic has chiefly come about through applications of deontic logic in Computer Science. Whereas previously, originating with the work of von Wright (1951), deontic logic was conceived of mainly as a branch of normal modal logic or a branch of non-normal classical modal logic (Chellas 1980), in recent years subareas like dynamic deontic logic (Meyer 1988) and defeasible deontic logic (Nute 1997) have led to new applications of deontic logic, as well as hitherto neglected complex phenomena and subleties of normative discourse being addressed. In such a development, methodology plays an important role in determining both the conceptual foundations and the formal framework(s) to be investigated and applied.

The present note deals with the methodology of deontic logic. It takes as its starting point and background a detailed discussion of various methodological issues in deontic logic by one of the leading researchers in this field, namely Mark Brown's "Conditional and Unconditional Obligation for Agents In Time" (1999).

[1] I would like to thank Elias Thijsse for correcting my Dutch.

## 2 Identification of obligations

In ordinary normative discourse, we sometimes quantify over obligations.[2] We may, for example, say that a person has fulfilled all or none of her obligations. However, from the mere fact that quantifying over obligations is grammatical, it neither follows that

(i) in order to formally represent normative discourse a first-order formal object language with individual variables ranging over obligations ought to be used, nor that

(ii) quantifying over obligations in the metalanguage is illuminating for a clear understanding of normative discourse or drawing distinctions between normative notions, nor that

(iii) parts of certain semantic structures may or ought to be regarded as semantic counterparts of obligations.

Whereas semanticists who agree with (i) will probably also agree with (ii) and (iii), endorsing (ii) and (iii) need not be accompanied by a commitment to (i). Brown (1999), for instance, suggests representing normative discourse in a multi-modal propositional language and he uses quantification over obligations in the metalanguage to motivate a distinction between two types of deontic operators. Moreover, Brown refers to sets of branches of time in certain semantic structures as obligations. Obviously, two obligations as sets of branches are identical if and only if they have the same elements. The identity conditions for obligations reified by agreeing with (ii) are more problematic. It seems to me that the obligations quantified over in ordinary discourse are always obligations under a description. We do not name these obligations but refer to them using definite descriptions of the form "the obligation to do $Q$" or "agent $\alpha$'s obligation to do $Q$". Brown seems to suggest that two obligations are identical if anf only if they have the same fulfillment conditions. The distinction Brown draws is between Type 1 unary deontic modalities [1] satisfying either the rule

$$(RM) \quad \text{If } \vdash p \supset q, \text{ then } \vdash [1]p \supset [1]q$$

or the rule

$$(RM)_c \quad \text{If } \vdash p \supset q, \text{ then } \vdash [1]q \supset [1]p$$

and Type 2 operators [2] satsfying the weaker rule

$$(RE) \quad \text{If } \vdash p \equiv q, \text{ then } \vdash [2]p \equiv [2]q$$

but defying $(RM)$ and $(RM)_c$. There is nothing wrong with the distinction between Type 1 and Type 2 operators. However, I do not agree with the motivation Brown gives for this distinction. Brown (1999, Section 1) writes:

[2] Most of what is said in this paper about obligation *mutatis mutandis* also applies to permission and prohibition.

> At least two distinct types of modal operator ... are needed to express ordinary unconditional claims of obligation, because we make (and *need* to be able to make) such claims sometimes with lesser, sometimes with greater, specifity as to the exact nature of the obligation. A deontic operator [1] of Type 1 will indicate an obligation by citing one salient consequence of its fulfillment, with $[1]p$ interpreted to mean that the (tacit) agent has some (not fully specified) obligation or other whose fulfillment will necessitate the truth of $p$. However the truth of $p$ will in general be no guarantee of the fulfillment of the obligation which underlies the claim that $[1]p$. In short, the truth of $p$ will be a necessary, but not a sufficient, condition for the fulfillment of some otherwise unspecified obligation. ... An operator of Type 2 will be used to state (up to logical equivalence) precisiely what the obligation itself is, with $[2]p$ interpreted to mean that the (tacit) agent has an obligation for whose fulfillment the truth of $p$ is not only a *necessary*, but also a *sufficient* condition.

Let us consider an example. Suppose a legislator requires every citizen to support the country's secret service, and that therefore agent $\alpha$ is obligated to support the secret service. Is this obligation to be represented by a Type 1 or by a Type 2 operator? Does the sentence "$[1]\alpha$ supports the secret service" cite one salient consequence of the fulfillment of $\alpha$'s obligation to support the secret service or one consequence of some otherwise unspecified obligation? Or should we use a Type 2 operator to state precisely what $\alpha$'s obligation is? What $\alpha$ is obligated to do is not very specific; she may support the secret service in plenty of different ways. Suppose the legislator (or rather one of the legislator's executives) is more concrete and requires $\alpha$ to provide the secret service with a certain document. Still, this does not amount to a substantially more specific obigation insofar as $\alpha$ may see to it in very many different ways that the secret service obtains the document in question.

Brown gives some further explanation:

> We do sometimes wish to be understood as expressing the precise content of an obligation. This will, ideally, be the case whenever we agree on some contractual arrangement, for example. On the other hand, it may well be that many of our obligations are too subtle and complex for us to be able to give any simple sentence which captures necessary and sufficient conditions for their fulfillment. In such cases, we are accustomed to direct attention to the obligation using sentences which merely indicate salient consequences of fulfilling the obligation, i.e. we have recourse to Type 1 operators. In short, both types are needed for a full treatment of ordinary discourse about obligations.

According to Brown, Type 1 operators "permit us to allude to an obligation without identifying it precisely". Of course we can talk about the obligation whose necessary and sufficient conditions of fulfillment consist in providing the secret service with a certain document. However, I doubt that there are recipes for identifying salient consequences of fulfilling a reified obligation that is supposed to underly an obligation report. In ordinary normative discourse, obligations come as obligations under some description. There seems to be no indication in ordinary discourse about obligations revealing whether or not $\alpha$'s obligation to support the secret service or her obligation to provide the secret service with a certain document is identified precisely by the description employed or merely alluded to without being identified precisely. Since it is unclear whether and how such a distinction can be drawn, it is everything but clear that we *really* need two types of obligation operators to properly represent normative discourse.

**Moral 1**: Refrain from quantification over obligations in order to motivate distinctions in deontic logic.

## 3 Authorities and addressees of norms

I couldn't agree more with Brown when he points out that the following considerations are important:

- obligations are obligations of agents;
- an agent's obligations can conflict with one another;
- there is more than one agent in this world;
- one agent's obligations may conflict with those of another agent;
- agents are (presumed to be) free to make choices;
- agents act in time;
- our obligations change over time, partly as the result of our actions and the actions of others.

However, there are further features of norms and normative discourse that are also important in order to obtain an accurate formal representation, namely:

1. normative operators can be iterated;
2. obligations originate from authorities;
3. obligations may depend on the future course of events.

Items 1. and 2. are closely related and will be treated in the present section. Item 3. will be taken up in the next section.

In Wansing (1998) I have argued to the effect that in representations of normative discourse one ought to specify not only the addressee of the norms under consideration but also the *authorities* who issue these norms. Such authorities are agents or groups of agents, for instance legislators or communities of moral philosophers, who happen to agree upon a certain ethical theory. Specifying the authority is appropriate not only because norms indeed depend on authorities, but also because making explicit the authorities of norms helps the realization that normative concepts can be iterated. It is grammatical and natural to say, for example, that the lawmaker ought to forbid parking on highways or that parents ought to permit that their children climb trees in the garden. The *normal form* of obligation statements is:

Agent $\alpha$ obligates agent $\beta$ to see to it that $A$.

If, like Brown (1999), one thinks of obligations as obligations to act, then the iteration of normative operators requires representing normative statements as agentive statements. In the seeing-to-it-that (stit) theory of agency put forward by Belnap, Perloff, and Xu (see, for instance, (Belnap and Perloff 1988), (Belnap 1991), (Belnap, Perloff and Xu 1996), (Xu 1998)) a sentence $A$ is agentive in agent $\alpha$ if and only if $A$ is equivalent to "$\alpha$ sees to it that $A$". There are various formal concepts of seeing to it that. One is the deliberative stit operator suggested by von Kutschera (1986) and, independently, Horty (1989). I shall not repeat here the formal semantics of $[\alpha\ \mathit{dstit}\colon A]$ ("$\alpha$ deliberatively sees to it that $A$"). For the present purpose it suffices to note that the semantics reflects the nondeterminism of agency. Models are based on trees of moments of time branching towards the future. Formulas are evaluated not at moments of time but at pairs $(m, h)$, where $m$ is a moment and $h$ is a history, a linearly ordered set of moments that is not contained in any larger linearly ordered set of moments. If for every history $h$ such that $m \in h$ a formula $A$ is true at $(m, h)$, then $A$ is said to be settled-true at $m$. If a formula $A$ is settled-true, then it is not agentive. Agentive sentences are history-dependent in the sense of not being settled-true at any moment $m$. Normative concepts *are* iterated in normative discourse, and nesting is possible only if obligation statements are agentive and are therefore not settled-true. If $\alpha$ is obligated to obligate $\beta$ to see to it that $A$, then $\alpha$ is the authority who obligates $\beta$ to see to it that $A$. Thus, iteration is a phenomenon that is there to be modelled, and making explicit the authorities who obligate, forbid or permit is a way of arriving at a formal representation of iterated deontic modalities. In (Wansing 1998) it is suggested introducing for every agent $\alpha$ an Andersonian sanction constant $S_\alpha$. $S_\alpha$ is a propositional constant that, intuitively, is true at a moment/history pair $(m, h)$ if there is wrongdoing of $\alpha$ at $(m, h)$. Obligation statements are then to be represented according to the following schema:

$[\alpha\ \mathit{dstit}\colon \neg A \supset S_\beta]$
$\alpha$ obligates $\beta$ to see to it that $A$.

$[\alpha\ \mathit{dstit}\colon \neg[\beta\ \mathit{dstit}\colon \neg A \supset S_\gamma] \supset S_\beta]$
$\alpha$ obligates $\beta$ to obligate $\gamma$ to see to it that $A$.

**Moral 2**: Take the iteration of normative concepts seriously; hence consider obligation normal forms as fundamental.

## 4 History dependence

Whether or not it is true that an authority $\alpha$ obligates an agent $\beta$ to see to it that $Q$ may depend on the history under consideration passing through a given moment. In Wansing (1998) an example of the history dependence of obligation reports is presented. Central to this particular example is an attributive use of a definite description. Obvously, the denotation of a description like "the next president" at a certain moment of time may depend on the future course of events, i.e. on the histories passing through that moment. But there are also considerations that demonstrate history dependence and do not rely on using definite descriptions attributively.

Suppose that authority $\alpha$ obligates agent $\beta$ to see to it that if at the next moment $A$ is true, $\beta$ now sees to it that $Q$ and if at the next moment $A$ is not true, $\beta$ now sees to it that not $Q$. Suppose that at the present moment, time branches into the histories $h_1$ and $h_2$ and, moreover, that at the next moment with respect to $h_1$, $A$ is true, but at the next moment with respect to $h_2$, $A$ is not true. Then, with respect to $h_1$, $\beta$ is now obligated to see to it that $Q$, and with respect to $h_2$, $\beta$ is now obligated to see to it that not $Q$.

There just seems to be no way around acknowledging that the truth of obligation reports may depend on histories. Therefore formal accounts of normative discourse ought to represent this history dependence.

Brown (1999, Section 3) emphasizes the "distinct possibility that a personal obligation can be treated as an impersonal obligation that a personal agentive proposition be true". Also Horty and Belnap (1995) suggest interpreting statements of the form "$\alpha$ ought to see to it that $A$" as "It ought to be the case that $\alpha$ sees to it that $A$". Horty and Belnap consider a type of objection to representing personal obligations in terms of impersonal obligations that is ascribed to Peter Geach. They present the following argument:

> Suppose, for example, that Fred ought to dance with Ginger, that Fred is obligated to do so. According to the suggested analysis, this should be taken to mean that it ought to be that Fred dances with Ginger. Now as it happens, the relation of dancing is symmetric. In any possible world in which Fred dances with Ginger, Ginger dances also with Fred, and vice versa; and so it seems that the two statements "Fred dances with Ginger" and "Ginger dances with Fred" are necessarily equivalent. It follows from standard deontic logic that if the statements $A$ and $B$ are necessarily equivalent, then the statement $\mathsf{O}A$ is likewise equivalent to $\mathsf{O}B$. We can thus conclude, since it ought to be that Fred dances with Ginger, that it ought to be also that Ginger dances with Fred; and then according to the suggested analysis, again, this would lead us to conclude that Ginger ought to dance with Fred. But of coures, this conclusion is incorrect: it could easily happen that, because of the customs governing some social occasion, Fred is obligated to dance with Ginger even though Ginger is not obligated to dance with Fred.

Horty and Belnap (1995, p. 625) point out that this objection can be met "simply by noting that the argument fails to consider whose agency is involved in the complement of the ought". Suppose $A$ expresses the statement that Ginger and Fred dance together.[3] $\mathsf{O}[\alpha\ dstit\colon A]$ and $\mathsf{O}[\beta\ dstit\colon A]$ fail to be logically equivalent, because $[\alpha\ dstit\colon A]$ and $[\beta\ dstit\colon A]$ fail to be logically equivalent. The ease with which Horty and Belnap can meet the Geach objection might seem to support representing statements of personal obligation in terms of history-independent statements of impersonal obligation. However, if in the above example "$\alpha$ obligates agent $\beta$ to see to it that" is replaced by "It is obligatory that $\beta$ sees to it that", the modified example still demonstrates that

[3]The symmetry of "dancing with" may be interpreted to imply that "Ginger dances with Fred" and "Fred dances with Ginger" are agentive only in the group $\{\text{Ginger}, \text{Fred}\}$.

the truth conditions of obligation reports depend on histories. Moreover, the agentive conception of normative statements also meets the Geach objection. If again $A$ expresses that Ginger and Fred dance with each other, then, assuming an authority $\alpha$, we obtain the following distinction:

(1) $\alpha$ obligates Fred to see to it that $A$.
(1′) $[\alpha\ \mathit{dstit}\colon \neg A \supset S_{\mathrm{Fred}}]$

(2) $\alpha$ obligates Ginger to see to it that $A$.
(2′) $[\alpha\ \mathit{dstit}\colon \neg A \supset S_{\mathrm{Ginger}}]$

Obviously, (1′) and (2′) are not logically equivalent.

**Moral 3**: Accept no formal representation of normative discourse, if in this representation for every moment $m$, obligation reports are either settled-true or settled-untrue at $m$.

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