DEONTIC LOGIC WITHOUT MISLEADING ALETHIC ANALOGIES – PART I

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Abstract

Deontic logic has been formed in close analogy with alethic modal logics. Some of the axioms common to alethic logic and standard deontic logic can be shown to have no sound basis in the logical structure of normative discourse. Much confusion in deontic logic has also arisen out of a lack of distinction between norms and rules about norms, and between epistemic and non-epistemic uses of normative concepts. This paper attempts to indicate how deontic logic can make adequate use of distinctions that are specific to the subject-matter of norms. The first part is devoted to the monadic ought operator.

1. Introduction

There is a striking analogy between the logical relations in the two triads necessary – impossible – possible and obligatory – forbidden – permitted. It is impossible (forbidden) that A if and only if it is necessary (obligatory) that not A. Further, it is possible (permitted) that A if and only if it is not necessary (obligatory) that not A.

This analogy was known already in the twelfth century. (Knuutila 1981, pp. 236 ff.) The modern revival of deontic logic had its major starting-point in an article by Georg Henrik von Wright (1951). As von Wright himself has reported, the formal analogy between the two triads was "the point of departure" of modern deontic logic (von Wright 1968, p. 3).

In most systems of deontic logic the parallelism with alethic modal logic has been further stretched out. The only generally admitted limit to the parallelism is the absence of a deontic principle corresponding to the alethic principle "what is necessary is true", $LA \rightarrow A$.

The history of deontic logic is the history of how paradoxes have been detected and remedied by measures that have in their turn given rise to

new paradoxes. To avoid a perpetuation of this process, more attention should be paid to the distinctions and logical structures specific to the subject-matter of norms, and less reliance be put on analogies with the logic of necessity and possibility.

2. The idealized concept of oughtness

In ordinary language, the three expressions "ought to", "is a duty that", and "is an obligation that" have different meanings (Brandt 1965). In deontic logic, they are taken to be synonymous. This idealization is useful, since there is a central element common to the three expressions. This common core of the prescriptive words will be called "elementary oughtness". It seems closer to the everyday usage of the morally prescriptive "ought" than to the everyday usage of the two other terms.

The prescriptive operator "O" of deontic logic will be taken to represent elementary oughtness. For linguistic convenience, "ought", "duty", and "obligation" will be used interchangeably for this concept.

2.1 Obligation and knowledge

An important but neglected difference in the usage of different prescriptive words lies in their epistemic connotations. Suppose that I have undertaken to demolish an old building by blowing it up. In spite of all my precautions, a person attempting suicide has managed to enter the building. I could hardly be said to have in this situation a duty or an obligation not to ignite the blasting-powder, since I do not know that I ought not to ignite it. On the other hand, it seems natural enough to say that I ought not to (or should not) ignite it. "Duty" and "obligation" have much stronger epistemic implications that "ought".

In common usage, this difference is a matter of degree, and the three words are all somewhat vague in their epistemic impact. From a philosophical point of view, however, the important conclusion is that we have here two distinguishable concepts of "oughtness". According to the first of these concepts, an action cannot be obligatory for me (relative to a specified norm or normative system) unless I have enough factual information to know that this is so. This is the sense of oughtness that is most relevant in discussions of responsibility and blameworthiness. The second concept describes what I ought to (should) do, in a sense that is independent of my knowledge.

Although this is a classical distinction in moral philosophy (Price 1787, p. 177, Ross 1939, pp. 146-191), its relevance to the logic of normative concepts has not been realized in deontic logic.

The first-mentioned of the two concepts of oughtness can be defined in terms of the second and of epistemic expressions. Since the second sense of oughtness is the more primitive, "elementary oughtness" will be assumed to be deprived of epistemic implications. Epistemic concepts should be entered into formal normative discourse only explicitly and not (as is usual) surreptitiously through the epistemic vagueness of the normative concepts of everyday language. ([1])

2.2 Obligations and actions

Deontic logic has, generally, been devoted to the logic of the prescriptive ought. In conformance with this, it will be assumed that the "O" operator refers to human actions in the terminology of Oppenheim (1961, pp. 15-23), i.e. to human will-controlled behaviour. A prescription about a state of mind can be analyzed as a prescription to perform will-controlled behaviour that influences one's state of mind in a certain way.

There is also an "ideal" ought (Robinson 1971). It refers to states of affairs that cannot be the result of human activities. ("Everybody ought to be happy.") It will not be treated here.

Some authors have included the concept of action into the ought operator. Greenspan, for instance, reads "O" as "[the agent] ought to bring it about that" (1975, p. 263). With this reading, it will not be possible to express the difference between "ought to bring about that not" and "ought not to bring about that". In order to make this essential distinction possible, the "ought" and the "do" should be formalized with separate operators. Elementary oughtness should be free from connotations of action as well as from connotations of knowledge.

The consequences of an action constitute an important factor in determining its moral status. (Ross 1930, p. 43) Therefore, the formal language

([1]) In a critical discussion of the concept of prima facie duties, Jones (1970) noted that it is logically impossible to know all the consequences of any act. Therefore, he concluded, we can never know (for certain, it should be added) our actual (over-all) duty. From this, however, he draws the conclusion that "it is logically impossible for there to be any actual duties". This does not follow. What follows is only that because of our lack of factual knowledge we can never know for certain what we ought to do (in the elementary, non-epistemic sense). Instead, we will have to act upon the (uncertain) knowledge that we have.

should contain a representation of the consequences of actions. This can be achieved by the inclusion of the do operator (praxiological operator, action operator), as developed by Kanger (1957), Pörn (1970), and others. It is written $D_i\alpha$, where i is an individual and α a state of affairs. This expression is read "i brings it about that α".

α in $D_i\alpha$ does not refer to the performed action as such, but to a state of affairs that is a result or a consequence of the action. This state of affairs can be more or less specified with respect to time, place etc. The operator represents actions in the sense of will-controlled behaviour. However, $D_i\alpha$ does not entail any intention on part of the acting individual i to achieve α. (Cf. Pörn 1970, pp. 4-5 and Lindahl 1977, pp. 69-75.) Of the various axioms proposed for the do operator (Pörn 1970, Hansson 1986), only one will be needed here, namely:

(1) $D_iA \rightarrow A$

This axiom states that only successful actions are represented by the operator. It follows from this axiom that D_iA & D_i-A is inconsistent.

The D operator does not capture all aspects of actions that are morally relevant. In a more detailed account, representations would have to be included, e.g., for intentional action and for the contributions of individuals to collective actions. (A formal representation of the latter is proposed in Hansson 1986.) For the purposes of the present paper, however, this can be dispensed with.

2.3 Prima facie and over-all obligations

The distinction between a *prima facie duty* and an *over-all duty* was introduced by W David Ross (1930) to account for the existence of conflicting duties. When I have conflicting duties "what I have to do is to study the situation as fully as I can until I form the considered opinion (it is never more) that in the circumstances one of them is more incumbent than any other; then I am bound to think that to do this *prima facie* duty is my duty *sans phrase* in the situation." (Ross 1930, p. 19)

According to one version of the distinction, a person who has a prima facie obligation does not really have an obligation, but only seems to have an obligation. This view may have some support in Ross's own text, but as Searle (1980) has demonstrated, it is not a tenable position. It would make it inexplicable why one should have any compunction about breaking an overridden promise. It would also mystify the existence of moral

conflicts, the very fact that the prima facie concept was devised to explain. Thus, overridden prima facie obligations are still obligations.

A multitude of phrases have been used for non-overridden duties: duty *sans phrase*, over-all duty, duty proper, actual duty, and absolute duty (Searle 1980). The latter two of these expressions are more confusing than informative. (See sections 2.4 and 4.1.) The phrase "over-all" appears to be the most informative, and will be used here.

Moral reasoning does not always lead directly from prima facie to over-all norms. There may be intermediate duties, derived from the immediate prima facie duties but finally overridden by other considerations. Intermediate duties will here be counted as prima facie duties, following Al-Hibri (1980), who defined prima facie obligations as such that an agent formulates "immediately or mediately, on the basis of one or more aspects of the situation under consideration" (p. 84).

There is a certain ambiguity in the philosophical usage of the phrase "prima facie". Sometimes it is used to denote overridden norms, in contrast to non-overridden norms. On other occasions it is used – often by the same authors – to denote the totality of overridden and non-overridden norms, so that a prima facie duty that turns out to be an over-all duty continues to be counted as a prima facie duty. I will follow the last-mentioned practice, and use the word "overridden" for the first, more restricted sense of "prima facie". Thus, as the terms will be used here, all duties are prima facie, and they are all either overridden or over-all.

2.4 Veritable obligations and rules about obligations

The distinction between *(veritable) obligations* and *rules about obligations* might seem quite simple, but it has been blurred in much of the literature on deontic logic. An obligation *simpliciter* is an obligation of whatever kind (over-all or only prima facie) that obtains in the present state of the world. A rule about obligations is a rule to the effect that in all states of the world of a certain kind, a certain obligation (over-all or only prima facie) is in effect.

The phrase "actual obligation" has often been used for over-all obligation, both by Ross himself (1930, p. 20) and by many other authors. However, a prima facie obligation can very naturally be said to be actual if it actually obtains (e.g. if a rule applies that gives rise to the prima facie obligation in question). Because of the wide-spread use of "actual" for "over-all". I will instead use the more awkward phrase "veritable obliga-

tion" to refer to obligations *simpliciter*, in contrast to rules about obligations.

Failure to make the distinction between obligations and rules about obligations is one of the major sources of difficulties with the distinction between prima facie obligations and over-all obligations. For instance, Searle (1980) claims that almost no obligation can be over-all since "any obligation is subject to being overridden by special considerations in particular circumstances". What this shows, however, is only that *rules* about obligations cannot refer to over-all obligations. (See further section 4.2.) It says nothing against the existence of veritable over-all obligations.

3. *The logic of the monadic ought operator*

The monadic ought operator "O" was introduced by von Wright (1951). In that article he laid the basis for the most common axiom system of deontic logic, now known as "standard deontic logic" (Føllesdal and Hilpinen 1970). Its axioms are:

(2) $OA \rightarrow -O-A$
(3) $O(A\&B) \equiv OA\&OB$
(4) $O(A \vee -A)$

In what follows, standard deontic logic will be taken as a point of departure in the search for valid principles for a logic for elementary oughtness as defined in section 2. Propositional logic and the intersubstitutivity of provenly equivalent formulas will be assumed to hold.

3.1 Consistency

It lies at the very core of the prima facie concept that the same action can be both prima facie obligatory and prima facie forbidden. Thus the axiom (2) of standard deontic logic is not valid for prima facie obligations.

However, another consistency principle for prima facie obligations is plausible. It was indicated by Brandt (1959, p. 368): "[T]here is no over-all duty to do the impossible but there can be a prima facie obligation to do *not what is inherently impossible* but what cannot be done consistently with meeting all other prima facie obligations." (My emphasis.) Thus each prima facie duty should be inherently logically consistent. This can be called the *principle of self-consistency*. It is implied by the "ought

implies can" dictum, but is much weaker than this since it does not rule out practical impossibility. In formal language it can be expressed as follows:

(5) $-O(A\&-A)$

Obviously, the principle of self-consistency is valid for over-all obligations as well. However, this is not a strong enough consistency principle for over-all obligations. The *combined* performance of the latter should be consistent.

It is not immediately clear, however, how the consistency principle for over-all duties should be formulated. There are two major alternatives. According to the *principle of agent-specific consistency*, the over-all duties of each agent should be consistent, but different agents can have conflicting duties. Thus $OD_iA \ \& \ OD_k-A$ but not $OD_iA \ \& \ OD_i-A$ is compatible with the principle of agent-specific consistency. According to the stronger *principle of universal consistency*, the performance of the over-all duties of all agents should be consistent. Thus neither $OD_iA \ \& \ OD_k-A$ nor $OD_iA \ \& \ OD_i-A$ can be accepted according to this principle.

In formal language, the principle of universal consistency can be expressed as follows:

(6) If $A_1 \ \& \ \ldots \ A_n$ is inconsistent, then it is not the case that $OA_1 \ \& \ \ldots \ OA_n$.

In order to express agent-specific consistency, the concept of an *acting individual* is needed. The following definition is sufficient for our present purposes: An acting individual in a formula A is an individual i such that for all expressions A*, if A* is logically equivalent with A, then A* contains an action operator with i in its index. (The stipulation about expressions equivalent with A is needed to avoid problems with expressions such as $(D_iA \vee -D_iA) \ \& \ D_kB$.) The principle of agent-specific consistency can then be expressed as follows:

(7) If A_1, ... and A_n all contain exactly the same acting individuals, and if $A_1 \ \& \ \ldots \ A_n$ is inconsistent, then it is not the case that $OA_1 \ \& \ \ldots \ OA_n$.

Agent-specific consistency follows immediately from the very notion of over-all prescription. If your prescriptions for one and the same agent

are inconsistent, then you have not achieved a set of over-all prescriptions. The status of universal consistency is somewhat more problematic. Counter-examples can be constructed where different individuals are recommended to achieve conflicting ends. A soldier may claim that the commanders-in-chief of two armies at war both ought to bring about the victory of their respective side. In a less belligerent context, a coach may consider himself consistent when telling each of several athletes that they ought to win a contest.

The validity of universal consistency will be different with different metaethical viewpoints. For instance, universal consistency is compatible with many brands of utilitarianism, but hardly with Kantian deontology.

3.2 Agglomeration

The axiom (3) was called by von Wright (1951) the *principle of distribution*. It has been accepted by most deontic logicians. Weinberger (1970) calls it "das kaum in Zweifel gezogene Theorem der deontischen Logiken" (p. 101), and Schlesinger (1985) claims to "know of no one who has voiced any objection to" the corresponding axiom of the conditional ought operator.

The principle of distribution is highly implausible for prima facie duties. Given the existence of conflicting duties it yields the theorem OA, "everything is an obligation".([2]) Thus, if I have promised to give my niece a drum, and also promised his parents not to give him a drum, then I am, according to this principle, obliged to kill the whole family.

Following Williams (1965, p. 118), the right-to-left direction of (3), i.e.

$$(8)\quad OA \,\&\, OB \rightarrow O(A\&B)$$

will be called the *principle of agglomeration*. It has a strong intuitive plausibility. "If one ought to do each of two things, it seems quite natural to think that one also ought to do both of them." (McConnell 1978, p. 274)

However, for prima facie obligations, the principle of agglomeration does not hold. The combination of two prima facie duties might have properties that none of the duties has by itself. This will be evident from the following example. Suppose that both my brother and my sister have

([2]) Proof: From OB & O−B follows O(B & −B). This is equivalent with O(B& − B&A), and from this follows OA.

a disease that in a few cases may lead to kidney failure and to the need for a transplantation. Suppose further that I have solemnly promised each of them that one of my kidneys will be available for transplantation if that should be medically called for. Let D_iA denote my action of making one of my kidneys available for my sister and D_iB my action of making one of my kidneys available for my brother. If both my brother and my sister turn out to need a transplantation, then both OD_iA and OD_iB apply as prima facie duties, but I cannot reasonably be said to have a prima facie duty $O(D_iA \& D_iB)$.

Further, agglomeration of prima facie obligations would lead to obligations to do the impossible. Suppose Sue Ellen has promised her lover to meet him again, but also promised her husband never to see the lover again. Then she has both a prima facie obligation to meet the lover and a prima facie obligation not to meet him. This, however, does not amount to an obligation to both meet him and not meet him. In cases of moral conflict, "no agent, conscious of the situation of conflict, in fact thinks that he ought to do *both* of the things. What he thinks is that he ought to do *each* of them." (Williams 1965, p. 120)

Thus, contrary to Purtill (1973, p. 437 and 1975, pp. 486-487), I propose that the principle of agglomeration does not hold for prima facie obligations.

On the other hand, there are strong reasons to accept the principle of agglomeration for over-all obligations. Atkinson (1965) accepted this principle on the grounds of "the unconditional prescriptivity of 'ought' ... [I]t seems that one should only affirm that one ought to do a and that one ought to do b if one is prepared also to affirm that one ought to do a and b." (p. 137) On the whole, agglomeration of over-all obligations pertaining to the same agent seems unproblematic. The same applies to agglomeration of over-all obligations of different agents if the principle of universal consistency is accepted.

3.3 Division

The left-to-right implication of (3) says, essentially:

(9) $O(A\&B) \rightarrow OA$

I propose to call this the *principle of division* of duties.

Counter-examples to this principle are easily found. There are numerous cases in everyday life when you can have a duty to A&B without having

a duty to A. Suppose, for instance, that I administer the economy of a club and that I have promised at a board-meeting to sell my own typewriter to the club for $50. Let A denote that the typewriter is brought to the club and B that $50 are transferred from the bank account of the club to my own account. Then I have a duty $O(D_iA \& D_iB)$ but no independent duty OD_iA nor OD_iB. (Most certainly not the latter, the auditor would say.) This counter-example is equally valid against division of prima facie and over-all obligations.

Sinnott-Armstrong (1985) put forward the following example: "[I]f I both mow and water your grass, I mow your grass, so, if it is obligatory for me to mow and water your grass, it is obligatory for me to mow your grass." However, the plausibility of this example depends on the contingent fact that mowing and watering are independently valuable. Suppose the grass was of some type that would be destroyed if it were mowed without being watered. Then an obligation to mow and water the grass would not imply an independent obligation to mow it.

Many practically important obligations consist of parts, at least one of which cannot in isolation be taken as a (prima facie or over-all) obligation. *In general, an obligation to a whole does not imply an independent obligation to every part of it.*

This was indicated in informal philosophy before the advent of modern deontic logic, for instance by Menger (1934, quoted by Ross 1941, p. 68). Weinberger (1970) and others have argued against the inclusion in deontic logic of the principle of division. Stranzinger (1978) showed how many of the paradoxes of deontic logic depend on this principle. In a similar vein, von Wright (1981) concluded that "in a deontic logic which rejects the implication from left to right in the equivalence $O(p\&q) \equiv Op \& Oq$ while retaining the implication from right to left, the 'paradoxes' would not appear." (von Wright 1981, p. 7)

Thus, the principle of division has to be rejected. As should be clear from the typewriter example, it cannot even be saved in the following weaker form (that may be called the *principle of disjunctive division*):

(10) $O(p\&q) \rightarrow Op \vee Oq$

The strong standing of the principle of division in deontic logic seems to depend, at least in part, on analogies with alethic modal logic. The corresponding principle $L(A\&B) \rightarrow LA$ is (for good reasons) accepted in most alethic systems. Further, the principle of division follows from

the semantic structure of "deontically perfect worlds" that is modelled after alethic modal logic. (See section 7.)

3.4 Inheritance

The following axiom schema is valid in standard deontic logic:

(11) If $A \rightarrow B$ is a theorem, then so is $OA \rightarrow OB$

(11) is interchangeable with the principle of division in the axiom system of standard deontic logic. Following Vermazen (1977), (11) will be called the *principle of inheritance* of oughtness. By inheritance, Vermazen meant situations "where the attempt to do one thing unavoidably involves one in an attempt to do something else, and where consequently an 'ought' attached to the first action is inherited by the second." (p. 14)

The principle of inheritance derives some plausibility from the fact that many words of the everyday language are used to express both oughtness and necessity: "must", "have to" and to some extent even "obligatory". However, as was pointed out in section 2, deontic logic should be concerned with an elementary oughtness as devoid as possible of other connotations. This also applies to connotations of necessary consequence. "[T]he fact that we can't help but bring about the necessary consequences of our action does not mean we have an *obligation* to bring them about." (Sayre-McCord 1986, p. 188.)

Thus the principle of inheritance should be rejected for both prima facie and over-all obligations. The counter-examples of section 3.3 can be used as more practical arguments against the principle.

If one wishes to enter the concept of necessity into formal normative discourse, then it should be given a separate formal representation. (This also makes it possible to express the concept of "must", in the sense of "either necessary or obligatory or necessitated by some obligation".)

3.5 Deontic detachment

The following is a theorem of standard deontic logic:

(12) $OA \,\&\, O(A \rightarrow B) \rightarrow OB$

Following Greenspan (1975, p. 260), it will be called the *principle of deontic detachment*. An equivalent and perhaps more lucid form is:

(13) $O(A \vee B) \,\&\, O{-}A \rightarrow OB$

(12) was taken by von Wright (1951) to be "intuitively obvious" as "valid on purely formal means", meaning that "[if] A is obligatory and if doing A commits us to doing B, then B is obligatory too" (p. 5).

McLaughlin (1955) criticized deontic detachment, giving the following counter-example: "[I]f walking in a public place commits us to wearing clothes, and walking in a public place is obligatory, does it follow that it is obligatory to wear clothes even though we do not walk in a public place?".

In his answer to McLaughlin, von Wright said: "The only explanation which I can suggest of the fact that McLaughlin is inclined to see a clash here between my deontic logic and his intuitions is that the example he chooses is 'practically absurd'. Walking in a public place is not the sort of act that can reasonably be unconditionally imposed on people as being their duty." (von Wright 1956, p. 507) However, less absurd examples are easily found. Suppose that as an electrician I have undertaken to repair the electrical system of your house. Then I ought to do the repair work (OD_iA). I also ought to turn off the main current if I do the repair work ($O(D_iA \rightarrow D_iB)$). From this does not follow, however, that I have an independent duty to turn off the main current, irrespectively of whether I do any repair work or not.

Since McLaughlin's 1955 article, not much criticism has been voiced against deontic detachment. Stranzinger (1978) has developed what he calls a "paradox-free" system of deontic logic, which von Wright (1981, p. 34) called "promising". In this system, the divisibility of duties has been rejected, but deontic detachment is maintained as an axiom. As the example above shows, this gives rise to problems similar to those of the divisibility of duties.

The above arguments against deontic detachment are just as valid for prima facie as for over-all duties. There is also a further argument against its acceptance for prima facie duties (as was explicitly done by Purtill, 1973, p. 437 and 1975, pp. 486-487). Let A be any statement such that both OA and $O-A$ apply. Then the impossible duty $O(A\&-A)$ can be derived through (12), contrary to the principle of self-consistency of duties accepted above. ([3])

The following weakened form of (12):

$$(14)\quad OA \;\&\; O(A \rightarrow B) \rightarrow O(A\&B)$$

([3]) Proof: OA is equivalent with $O(-A \rightarrow A\& -A)$. With $O-A$ this yields $O(A\& -A)$.

is valid for over-all obligations, and derivable from (8).([4]) For prima facie obligations, however, (14) must be rejected since it would give rise to impossible duties.([5])

3.6 Disjunctive extension and combination

The following theorem may be called the *principle of disjunctive extension*. It is valid in standard deontic logic, where it can be derived from the principle of division of duties.

(15) $OA \rightarrow O(A \vee B)$

This theorem has given rise to Alf Ross's paradox: If I ought to mail a letter, then I ought to mail or burn it. (Ross 1941). On the whole, (15) has very little to speak for it. If I ought to help an old woman across the street, not much (besides paradoxes) can be gained by deriving from this norm the norm that I ought to either help her across the street or rob her. The principle of disjunctive extension should be rejected, both for prima facie and over-all obligations.

The following theorem of standard deontic logic may be seen as a weaker version of disjunctive extension:

(16) $OA \,\&\, OB \rightarrow O(A \vee B)$

(16) will called the *principle of disjunctive combination* of duties. It is a valid principle for prima facie obligations. If I both have an obligation to A and an obligation to B, it is not to say too much that I have an obligation to A or B. None of the problems with (15) arises here.

In many cases when conflicts between prima facie duties are not easily resolved, (16) is useful in the derivation of over-all obligations. For instance, if I can only take one of two drowning persons aboard a life-boat, my prima facie duty to save person i stands in contradiction with my prima facie duty to save person j. It is not reasonable to say that I have an over-all obligation to save one specified person and not the other (provided that both persons have an equal right to life). This does not mean, however, that I have no prima facie duty that can be turned into an over-all duty. The duty to save either i or j can fulfil this function.

([4]) Proof: Substitute $A \rightarrow B$ for B in (8).

([5]) Proof: OA is equivalent with $O(-A \rightarrow A)$. With $O-A$ this yields $O(A\,\&\,-A)$.

The principle of disjunctive combination should also be accepted for over-all obligations. If I have an over-all duty to A, and I also have an over-all duty to B, then it seems innocuous enough to say that I have also the weaker over-all duty to $A \vee B$. Admittedly, the particular need for disjunctive combination of prima facie duties, namely resolving conflicts of duties, does not apply to disjunctive combination of over-all duties. However, it is reasonable to accept a plausible principle for over-all duties if the same principle applies to prima facie duties. By doing this, we will be able to let all the prima facie duties become over-all duties in a case when they are compatible.

3.7 The empty duty

The third axiom of standard deontic logic:

(4) $O(A \vee -A)$

may be called the *principle of the empty duty*. The formula $O(A \vee -A)$ does not express an obligation to bring about or let continue a tautological state of affairs. (The "O" operator contains no statement about action, and neither does the tautology.) According to the standard interpretation, (4) does not even mean that "the agent is obligated to act in some way or other" (von Wright 1968, p. 62) since neither the O operator nor the tautology specifies an agent. ($O(D_iA \vee -D_iA)$ is equivalent with $O(D_kB \vee -D_kB)$). O $(A \vee -A)$ is "an obligation that it is impossible not to fulfill" (Føllesdal and Hilpinen 1970, p. 13).

von Wright (1951, p. 10) originally rejected this principle, and instead proclaimed the opposing *principle of deontic contingency*, namely: "A tautologous act is not necessarily obligatory, and a contradictory act is not necessarily forbidden." However, many authors after von Wright have accepted the principle of the empty duty, and it is included in standard deontic logic. (Føllesdal and Hilpinen 1970, p. 13).

In some cases, the empty prima facie duty can be derived through (16). For instance, two opposite prima facie duties OA and $O-A$ will give rise to the empty duty $O(A \vee -A)$. When a set of prima facie obligations contains an empty duty, this may be a sign that it also contains a conflict to be resolved. However, this is no reason to postulate that the empty duty exists in all normative systems, either prima facie or over-all.

The principle of the empty duty seems to have its origin in the notion that oughtness includes necessity. The corresponding alethic principle

$L(A \vee -A)$ is valid, and in any system containing at least one obligation, (4) can be derived from (11). ([6]) However, there does not seem to be any valid argument for (4) that takes the ought operator in the sense of elementary oughtness, not including necessity. Therefore, the principle of the empty duty should be rejected for both types of obligations.

3.8 Conclusion

In summary, then, an adequate axiomatic system for prima facie duties should contain (5) and (16), i.e. the principles of self-consistency and disjunctive combination. These are weak axioms, and the above analysis corroborates the statement by McConnell (1978, p. 273) that if there are genuine moral dilemmas "our moral reasoning is radically different from what it is supposed to be by standard systems of deontic logic".

Provided that universal consistency is accepted (cf. section 3.1), (5), (6), (7), (8), (14) and (16) are valid for over-all obligations. (6) and (7) can be derived from (5) and (8), and further (14) can be derived from (8). Therefore, (5), (8), and (16) are sufficient. These are the principles of self-consistency, agglomeration and disjunctive combination.

Introducing "O_1" as a symbol for prima facie duties and "O_2" for over-all duties, the following principles will then be accepted:

(17) $-O_1 (A\& -A)$
(18) $O_1A \,\&\, O_1B \rightarrow O_1 (A \vee B)$
(19) $-O_2 (A\& -A)$
(20) $O_2A \,\&\, O_2B \rightarrow O_2 (A \vee B)$
(21) $O_2A \,\&\, O_2B \rightarrow O_2 (A\&B)$

Further, according to the definition in section 2.3, all over-all obligations are also prima facie obligations. Therefore, the following principle applies:

(22) $O_2A \rightarrow O_1A$

(19) follows from (17) and (22).

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([6]) Proof: Let OB be that obligation. Use the theorem $B \rightarrow A \vee -A$ in (11).

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