PROHIBITION DILEMMAS AND DEONTIC LOGIC

Peter VALLENTYNE

Abstract: Prohibition dilemmas are choice situations in which all feasible actions are forbidden. I argue that they are conceptually possible, and that the standard principles of deontic logic need to be revised so as not to rule them out.

1. Introduction

The principle that for any state of affairs, p, either p is permissible or ~p is permissible (P(p) ∨ P(~p)) is a generally accepted principle of deontic logic. This says, in effect, that *some* state of affairs is permissible. I shall argue that the logic of the deontic concepts does not entail that something is permissible, and that therefore this principle is not properly part of deontic logic. This same argument will also be used to show that the principle that a tautology is obligatory is also not properly part of deontic logic. I shall further argue that rejecting these principles requires one to revise certain other principles that are usually accepted.

It should be noted that I am concerned with the logic of deontic concepts common to all normative systems. Deontic concepts can be interpreted as those of morality, those of a legal system, those of a club's rules, etc. It may be that the principles to which I object are valid on a particular interpretation of the deontic operators (those of morality, say). My claim is only that these principles are not valid for all normative systems, and therefore not part of deontic logic proper.

2. The Possibility of Prohibition Dilemmas

A *prohibition dilemma* arises when an agent is in a choice situation in which all actions are forbidden. That prohibition dilemmas are conceptually possible is shown by the following example. Suppose that, relative to the rules of a certain club, breaking a promise is absolutely forbidden,

i.e., under no circumstances is it permissible to break a promise. Suppose that this morning I promised my wife that I would phone her exactly at 5:00, but that (due to a lapse of memory) I later promised a friend that I would phone him exactly at 5:00. Here I am, just before five o'clock, and I have only one phone in front of me. I can phone my wife or I can phone my friend, but I can't phone both at exactly 5:00. Since promise-breaking is absolutely forbidden, and I have promised to both to phone them at exactly 5:00, every action open to me is forbidden. I am in a prohibition dilemma.

In the above example I find myself in a dilemma because of my previous actions (making two promises which it is generally difficult to jointly satisfy). Dilemmas can arise without being due to an agent's previous actions. Suppose, for example, that it is forbidden to kill one's parents and forbidden to allow them to die. A dilemma would arise in a situation in which unless one kills one's mother, she will kill one's father. In such a situation it would be forbidden to kill one's mother, but also forbidden to do anything else (since that would allow one's father to die).

These are surely conceptually possible situations. There is nothing contradictory about them. No action is both permissible and not permissible (since no action is permissible). Nor is any action both obligatory and not obligatory (since no action is permissible, no action is obligatory). Of course, the fact that the club's rules allows such situations to arise is an undesirable feature (especially if such situations arise frequently), and we would probably not knowingly choose such rules. Still, there is nothing contradictory about them. So, prohibition dilemmas are conceptually possible – at least relative to club rules. ([1])

In both of the above examples none of the agent's *feasible* actions are permissible. One might object that there some actions that are permissible; it is just that they are not feasible. It's not clear that appropriate sense can be made of the notion of an infeasible action being permissible or forbidden ([2]), but, even if this is granted, the following example shows that it is conceptually possible for no action – feasible or not – to be permissible.

([1]) In "Two Types of Moral Dilemmas" (forthcoming in *Erkenntnis*) I distinguish prohibition dilemmas from obligation dilemmas (which are choice situations in which more than one action is obligatory) and, with one qualification, argue that the former but not the latter are conceptually possible.

([2]) I discuss this matter in "Two Types of Moral Dilemmas".

Suppose that a certain club has a rule that forbids male members to be in a sitting position in the presence of a woman at the club bar. One year a progressive member informally proposes that not only the rule be dropped (because it is sexist), but that it be replaced by a rule forbidding male members to be in any position other than a sitting position in the presence of a woman at the club bar. (The idea is that the latter rule is necessary to break the habit of rising for women, and they intend to repeal it once the habit is broken.) A majority of the club members favor this proposal, and so at the next club meeting a formal proposal is put forward and passed. Unfortunately, due to an oversight the passed proposal calls only for the addition of the rule forbidding male members to be in a position other than sitting in the presence of a woman. The original rule (forbidding them to be in a sitting position) is not revoked. Thus, not only is it forbidden to be in a sitting position in the presence of a woman, it is also forbidden to be in any other position. Thus, when a woman is in the club bar a prohibition dilemma arises. The situation is not merely that no feasible action satisfies the club rules; it is rather that no action – feasible or not – can satisfy the club rules. This is because every action will either put the agent in a sitting or position or it won't, and both are forbidden. So even prohibition dilemmas of this strong sort are conceptually possible.

3. *Deontic Viewpoints*

As we shall see, a generally accepted principle of deontic logic says that for any state of affairs, p, either p is permissible or $\sim$p is. This seems to rule out prohibition dilemmas, and that suggests that the principle should be rejected. This, however, would be a bit hasty. There are different viewpoints from which the deontic status of states of affairs can be assessed. It is only on some of these that the above principle rules out prohibition dilemmas.

There are at least two basic viewpoints from which the permissibility of states of affairs can be assessed: the realistic point of view and the ideal point of view. The *realistic* point of view is a time-relative viewpoint, which takes the past as given, and not subject to evaluation (although it may treat the past as relevant for the evaluation of the possible futures). The *ideal* point of view, on the other hand, is an atemporal viewpoint,

which does not take the past as given, but rather subjects it to evaluation. Some examples will make the difference clear.

Suppose, that I find Jones lying in an alley, unconscious and bleeding after he has been robbed and beaten up by a bunch of hoodlums. Is it morally permissible for me to care for Jones? From the *realistic* point of view it would seem – assuming that there are no overriding countervailing moral considerations – that it is. Jones is suffering, and caring for him would seem to be morally indicated. From the *ideal* point of view, however, caring for Jones is not permissible, because in a morally ideal world Jones would not have been beaten up, and so I would not have the occassion to care for him. ([3])

From the ideal viewpoint $P(p) \vee P(\sim p)$ does not rule out prohibition dilemmas, i.e. choice situations in which all actions are forbidden. All it says it that (for a given time and a given world) for any state of affairs (e.g., my performing a certain action) either it is realized in some morally ideal world (relative to the norms of the given world) or its negation is. This does not rule out the possibility that for some times of some worlds, the past is such that no *historically possible* world, i.e., world having the same past, is morally ideal. For example, if I made conflicting promises, then (on the supposition that promise-breaking is forbidden) no historically possible world is morally ideal, but there still may some historically impossible morally ideal world.

From the realistic viewpoint, however, $P(p) \vee P(\sim p)$ does rule out prohibition dilemmas. It says that (for a given time and a given world) for any state of affairs (e.g., my performing a certain action) either it is realized in some *historically possible* world that is morally acceptable *given* the history of the given world up to the given time, or its negation is. This rules out the possibility of prohibition dilemmas, since it rules out the possibility of the history up to a given time of a given world being such that nothing is permissible given those circumstances.

([3]) In order to dissolve the apparent paradox of it not being permissible to compensate for past wrongs and the like (as in the above case) many authors have deemed it necessary to indroduce the notion of conditional obligation. For an introduction to this literature see the introduction of Risto HILPINEN, *Deontic Logic: Introductory and Systematic Readings* (Dordrecht: D. Reidel, 1971). Unlike these authors, I think the best way to deal with the paradox is to treat deontic statements as time relative, and further distinguish between the realistic and ideal points of view. I follow very roughly the ideas of Richmond THOMASON, "Deontic Logic as Founded on Tense Logic", in Risto HILPINEN, ed., *New Studies in Deontic Logic* (Dordrecht: D. Reidel, 1981).

Because prohibition dilemmas are conceptually possible, $P(p) \vee P(\sim p)$ must be rejected when interpreted as representing the realistic viewpoint. In what follows I shall limit my attention to the realistic viewpoint and indicate how standard deontic logic needs to be revised once $P(p) \vee P(\sim p)$ is rejected.

4. *Standard Deontic Logic*

There are two common ways of axiomatizing standard deontic logic: one treats permissibility as primitive, and the other treats obligation as primitive. ([4]) Let us start by considering the axiom schemata and rules of inference with permissibility treated as primitive. As usual, "P" stands for permissibility, "Op" for optionality, "Ob" for obligation, and "F" for forbiddenness.

*P0: $P(p) \vee P(\sim p)$
P1: $\sim P(p \& \sim p)$
P2: $P(p \vee q) \leftrightarrow [P(p) \vee P(q)]$
*P3: $Ob(p) \leftrightarrow \sim P(\sim p)$
P4: $Op(p) \leftrightarrow P(p) \& P(\sim p)$
P5: $F(p) \leftrightarrow \sim P(p)$
RP1: A set of natural deduction rules for propositional logic.
RP2: If $\vdash p \rightarrow q$, then $\vdash P(p) \rightarrow P(q)$.

The usual possible world semantics take the following form: A model consists of: (1) a set, W, of possible worlds; (2) a binary relation, R, over W, the intuitive content of which is R(w1,w2) just in case, relative to the norms of w1, w2 is deontically acceptable; and (3) a valuation function, v, which assigns truth values to each atomic formula at each world. The following condition (seriality) is imposed in R:

*Ser: $(w1)\{(w1 \in W) \rightarrow (\exists w2)[(w2 \in W) \& R(w1,w2)]\}$

That is, for any world w1, there is some world, w2, that is acceptable relative to the norms of w1.

([4]) See the introduction of Risto HILPINEN, ed., *Deontic Logic: Introductory and Systematic Readings* for a general discussion of the axioms and semantics of deontic logic.

A formula is valid just in case it is true in all worlds of all models. Truth in a model at a given world is defined inductively in the usual way. The critical clauses for the deontic operators are the following (relativization to a model is left implicit):

IP: "P(p)" is true in a world w1 just in case "p" is true in some world w2 such that R(w1,w2).

*IOb: "Ob(p)" is true in a world w1 just in case "p" is true in every world w2 such that R(w1,w2).

IOp: "Op(p)" is true in a world w1 just in case "p" is true in some world w2 such that R(w1,w2) and "p" is false in some world w3 such that R(w1,w3).

IF: "F(p)" is true in a world w1 just in case "p" is true in no world w2 such that R(w1,w2).

Standard deontic logic adequately captures the logic of the deontic operators interpreted as representing the ideal viewpoint. I shall argue, however, that, when interpreted as representing the realistic viewpoint, that *Ser, and its axiomatic counterpart, *P0, must be rejected. Once these are rejected, *IOb, and its axiomatic analogue, *P3, need to be revised.

5. *Deontic Logic for the Realistic Viewpoint*

Before examining the particulars of the above semantics we need to expand the structure of the models to take into account the time-relativity of the realistic viewpoint. (Remember that, unlike the ideal viewpoint, the realistic viewpoint assesses the permissibility of states of affairs relative to a given time.) We need to modify the model structure as follows: (1) add a set, T, of times; (2) add a binary linear ordering relation, $>$, over T; (3) take the moral acceptability relation, R, to be a ternary relation among two worlds and a time; and (4) reexpresses *Ser and the various semantic clauses to take account of the time relativity.

A model thus takes the following form: A model consists of: (1) a set, W, of possible worlds; (2) a set, T, of possible times; (3) a linear binary relation, $>$, over T, the intuitive content of which is that t1 $>$ t2 just in case t1 is later than t2; (4) a tenary relation, R, over T×W×W, the intuitive content of which is R(t,w1,w2) just in case, relative to the history of w1 up to t, w2 is both historically possible and deontically acceptable relative to the norms of w1; and (4) a valuation function, v, which assigns truth values to each atomic formula at each world.

The seriality condition on R would be reformulated as:

*RSer: $(t)(w1)\{(w1 \in W) \rightarrow (\exists w2)[w2 \in W) \& R(t,w1,w2]\}$

A formula is valid just in case it is true at all points in time of all worlds of all models. Truth in a model at a given world is defined inductively in the usual way. The critical clauses for the deontic operators are the following (relativization to a model if left implicit):

RP: "P(p)" is true in a world w1 at t just in case "p" is true in some world w2 such that R(t,w1,w2).

*ROb: "Ob(p)" is true in a world w1 at t just in case "p" is true in every world w2 such that R(t,w1,w2).

ROp: "Op(p)" is true in a world w1 at t just in case "p" is true in some world w2 such that R(t,w1,w2), and "p" is false in some world w3 such that R(t,w1,w3).

RF: "Fp" is true in a world w1 at t just in case "p" is true in no world w2 such that R(t,w1,w2).

So far, we have simply reformulated the conditions. Let us now see which of these conditions are appropriate for deontic logic for the realistic viewpoint.

*RSer requires that for any given world and any given time there be some historically possible, deontically acceptable world. This rules out prohibition dilemmas, and therefore should be rejected. Likewise, *P0, states that for any given world and any given time some state of affairs is permissible. This too rules out prohibition dilemmas and should be rejected.

Once *RSer is rejected, *ROb needs to be revised. For without *Ser, *ROb would assign truth to "Ob(p)" in a world and a time relative to which no historically possible world is deontically acceptable. This is because it would be vacuously true that "p" is true in all historically possible, deontically acceptable worlds. And yet "P(p)" would be assigned falsity relative to this world and the time. This is surely wrong. Obligation implies permissibility. Thus, we need to revise *ROb to:

ROb: "Ob(p)" is true in a world w1 at t just in case *"p" is true in some world w2 such that R(t,w1,w2)*, and "p" is true in every world, w3 such that R(t,w1,w3).

Note that in the presence of *RSer ROb is equivalent to *ROb. In the absence of *RSer the difference between ROb and *ROb is simply that the former, but not the latter, ensures that obligation implies permissibility.

The axiomatic counterpart to *ROb is *P3 ($Ob(p) \leftrightarrow \sim P(\sim p)$). This too, needs to be revised so as to ensure that obligation implies permissibility.

The appropriate axiom for obligation is:

P3: $Ob(p) \leftrightarrow [P(p) \ \& \ \sim P(\sim p)]$

That is, a state of affairs is obligatory just in case it is permissible and its negation is not. Again, in the presence of *P0 P3 is equivalent to *P3. In the absence of *P0 the difference between P3 and *P3 is simply that the former, but not the latter, ensures that obligation implies permissibility. ([5])

The rules of inference and the remaining axioms require no modification due to the rejection of *P0.

So far we have considered only the axiom schemata where permissibility is treated as primitive. The standard axiom schemata for standard deontic logic where obligation is treated as primitive are:

*OB0: $Ob(p \vee \sim p)$
OB1: $Ob(p) \rightarrow \sim Ob(\sim p)$
OB2: $Ob(p \& q) \leftrightarrow [Ob(p) \ \& \ Ob(q)]$
*OB3: $P(p) \leftrightarrow \sim Ob(\sim p)$
*OB4: $Op(p) \leftrightarrow [\sim Ob(p) \ \& \ \sim Ob(\sim p)]$
*OB5: $F(p) \leftrightarrow Ob(\sim p)$
ROB1: A set of natural deduction rules for propositional logic.
ROB2: If $\vdash p \rightarrow q$, then $\vdash Ob(p) \rightarrow Ob(q)$.

Once *RSer is rejected and *ROb is replaced by ROb, *OB0 is no longer valid. In worlds and times relative to which no historically possible world is deontically acceptable, not even tautologies are permissible, nor, a fortiori, obligatory. *OB0 must therefore be rejected.

([5]) A referee for this journal pointed out that on pages 78-81 of *An Essay on Deontic Logic and the General Theory of Action, Acta Philosophica Fennica* XXI (1968) Georg Henrik VON WRIGHT discusses prohibition dilemmas (as illustrated by the story of Japhtah) under the title "predicaments". VON WRIGHT fails, however, to distinguish prohibition dilemmas from obligation dilemmas (situations of conflicting obligations). This is because he accepts $Ob(p) \leftrightarrow \sim P(\sim p)$, which, as just argued, should be revised once the possibility of prohibition dilemmas is recognized.

*OB3 must be revised, because it equates permissibility of p with $\sim p$ not being obligatory. In worlds and times relative to which no historically possible world is acceptable, no state of affairs is permissible, nor, a fortiori, obligatory. So, contrary to *OB3, $\sim p$ can be not obligatory without p being permissible. *OB3 needs to be replaced by:

OB3: $P(p) \leftrightarrow [Ob(p \vee \sim p) \ \& \ \sim Ob(\sim p)]$

$Ob(p \vee \sim p)$ states that (relative to a given world and time) $p \vee \sim p$ is true in some acceptable, historically possible world, and true in all such worlds. Because $p \vee \sim p$ is a tautology, this is equivalent to saying that there is some acceptable historically possible world. (There are acceptable, historically possible worlds just in case $p \vee \sim p$ is true in some, and all, such worlds.) And that is just to say that some state of affairs is permissible. Thus, OB3 states that a state of affairs, p, is permissible just in case some state of affairs is permissible and $\sim p$ is not obligatory. It is easy to verify that this is exactly the revision needed to reflect the revision of *ROb to ROb.

Likewise *OB4 needs to be revised, because in worlds and times in which no state of affairs is permissible, no state of affairs is obligatory or optional, yet according to *OB4 every state of affairs would be optional (since for any p $\sim Ob(p)$ and $\sim Ob(\sim p)$). *OB4 needs to be replaced by:

OB4: $Op(p) \leftrightarrow [Ob(p \vee \sim p) \ \& \ \sim Ob(p) \ \& \ \sim Ob(\sim p)]$

Because $Ob(p \vee \sim p)$ states that some state of affairs is permissible, OB4 states that a state of affairs, p, is optional just in case some state of affairs is permissible, but neither p nor its negation is obligatory. It is easy to verify that OB4 is valid, but *OB4 is not, on the revised semantics.

Finally, *OB5 needs to be revised, because in worlds and times relative to which every state of affairs is forbidden, nothing is obligatory, yet according to *OB5 every state of affairs would be obligatory (since for any p, $F(\sim p)$). *OB5 needs to be replaced by:

OB5: $F(p) \leftrightarrow [\sim Ob(p \vee \sim p) \vee Ob(\sim p)]$

Because $Ob(p \vee \sim p)$ states that some state of affairs is permissible, OB5 states that state of affairs, p, is forbidden just in case no state of affairs is permissible, *or*, the negation of p is obligatory. Again, it is easy to verify that OB5, but not *OB5, is valid on the revised semantics.

6. *Conclusion*

Because prohibition dilemmas are conceptually possible, and the principles of standard deontic logic rule them out, when interpreted as being from the realistic viewpoint, these principles need to be revised. At the level of the semantics, this means (1) giving up the assumtion that there is always an acceptable, historically possible world, and (2) redefining the truth conditions for obligation so as to ensure that obligation implies permissibility. At the level of axiomatics, this means (1) giving up the axioms $P(p) \vee P(\sim p)$, and $Ob(p \vee \sim p)$, and (2) revising the usual definitions of obligation, optionality, and forbiddenness, so as to ensure that obligation and optionality each implies permissibility, and that forbiddenness implies impermissibility. ([6])

University of Western Ontario Peter VALLENTYNE
Department of Philosophy
London, Ontario
Canada N6A 3K7
(519) 661-3453

([6]) For helpful comments on an earlier version of this paper I want to thank: Robert AUDI, Kurt BAIER, Bob BINKLEY, Dick BRONAUGH, Don HUBIN, Shelly KAGAN, Geoff SAYRE MCCORD, and Michael ZIMMERMAN

Methapors & Modality

James W. GARSON

1. *Introduction*

The purpose of this paper is to describe the formal and philosophical merits of an approach to quantified modal logic (QML) that doesn't require that terms be rigid designators.

Though the controversies of the sixties tended to focus on whether QML made sense in the first place, the more recent consensus seems to be that QML is possible, though perhaps not yet actual. The battles with Quine and his followers, however, did have the positive effect of making clear how deeply issues such as essentialism, transworld identification, and the distinction between *de re* and *de dicto* are intertwined with the development of a philosophical foundation for QML.

By the early seventies there were a host of approaches to QML, and their variety and complexity seemed to offer little hope that they would be of any use to the philosopher with but a passing interest in technical matters. In fact, without any philosophical underpinnings to motivate the application of these systems, it wasn't entirely clear that they were *modal* logics.

Kripke's 'Naming and Necessity' championed the first widely accepted philosophical account which motivates a QML. His remarks there sketch a framework which complements the formal structure of the systems he presented in 'Semantical Considerations in Modal Logic', systems which rely on the rigid designator treatment of terms and quantification. This formal choice colors Kripke's entire philosophical outlook. It is central to his 'resolution' of the problem of transworld identification, to his insistence that if anything, it is *de re*, rather than *de dicto* modality that is more perspicuous, to his sharp distinction between the world as it is known and the world as it is, and to his demythologization of the telescope metaphor.

The philosophical community has, no doubt, been relieved at the way Kripke has drawn order out of chaos. His philosophical views are beautifully tailored to his formal structures. The danger is that we will