# IN DEFENSE OF TEMPORALLY RELATIVE DEONTIC LOGIC
## A REPLY TO PROFESSOR CASTAÑEDA

Job VAN ECK

Recently several proposals have been made to temporalize deontic logic([1]) and semantical systems have been constructed, with a proof theoretical elaboration([2]) or applications of philosophical analysis.([3])

This time-oriented approach has also met scepticism from different parts. In this article I want to deal with a rather pronounced criticism that is to be found in an essay of Hector-Neri Castañeda, called "The Paradoxes of Deontic Logic: The Simplest Solution of All of Them in One Fell Swoop",([4]) to wit in section II, 5 "Ought and time".

As I will make use of the language of my own system QDTL([5]) let me as an introduction give a rough sketch of the intuition behind its semantics.

It is based upon a notion of temporal necessity that is defined in terms of a strict-accessibility relation. This temporal necessity is expressed by formulas of the form $\Box_t\varphi$, where t is a time-index and $\varphi$ may have time-indices too. It is read as: "at time t it is necessary that $\varphi$" and is interpreted in terms of a temporally relative accessibility relation as follows: $V(\Box_t\varphi, w) = 1$ iff for each world v such that

([1]) See THOMASON, R.H., Deontic logic as founded on tense logic, in R. Hilpinen (ed.) New studies in deontic logic, Dordrecht 1981. An earlier advocate is R. Montague in his article Pragmatics (in R. Klibansky (ed.), Contemporary philosophy: A survey, Florence, 1968).

([2]) See ÅQVIST, L. and HOEPELMAN, J., Some theorems about a "tree" system of deontic tense logic. (In R. Hilpinen (ed.) o.c. p. 187-221). We also mention Chellas, B.F., The logical form of imperatives, Stanford: Perry Lane Press, 1969.

([3]) See VAN ECK, J.A., A system of temporally relative modal and deontic predicate logic and its philosophical applications. Dissertation, Univ. of Groningen, 1981. Published in Logique et Analyse 99 and 100, 1982 p. 249-290 and 339-381.

([4]) In R. HILPINEN (ed.) o.c. p. 37-85.

([5]) QDTL is an abbreviation of "quantificational deontic tense logic".

$w R_t v : V(\varphi, v) = 1$ ("at t it is necessary that $\varphi$" is true in world w if and only if $\varphi$ is true in each world that is accessible for w at t).
Now $w R_t v$ (world v is accessible for world w at t) means: w and v have the same past, seen from t.

A world is regarded here as a world-course, a temporal sequence of situations. At each moment there is a total situation, the complex of all facts at that moment. We have a set of such possible worlds, all being ordered by this sequence of time. Some of these worlds are accessible at time t for our world, viz. those worlds whose courses until t are identical with the course of our world until t. These are the worlds that have at time t the same past as our world (from time t on they may have different courses).

This picture can easily be put to use in deontic contexts too: some of the worlds that are accessible at time t for our world are (as) perfect (as possible) in relation to our world from time t. Statements that express practical moral cues refer to this group of worlds as follows:

$$V(O_t\varphi, w) = 1 \text{ iff for each best world } u \in \{v | w R_t v\} : V(\varphi, u) = 1$$

("at time t it ought to be the case that $\varphi$" is true in world w if and only if in each best world out those worlds that are at t accessible to world w, $\varphi$ is the case).

Note that the validity of $(\Box_t\varphi \supset O_t\varphi)$ and $(O_t\varphi \supset \Diamond_t\varphi)$ is an immediate result (the best worlds at t form a-non-empty-subset of the accessible worlds at t). This is an interpretation of "Ought implies Can" in terms of temporal necessity: these ought-sentences (cues) are based upon the just mentioned accessibility relation.

Furthermore we have dyadic formulas of the form $\varphi O_t \psi$ ($\varphi$ commits at t to $\psi$), the intuitive interpretation of which is: "In all world-courses that are accessible from t onwards and are as perfect as possible – given that $\varphi$ is the case in them – $\psi$ is the case."
Semi-formally

$$V(\varphi O_t \psi, w) = 1 \text{ iff for each } \textit{best} \text{ world } u \in \{v | w R_t v \text{ and } V(\varphi, v) = 1\} : V(\psi, u) = 1$$

We have a choice function Q that, given a time t, a world w, and a condition $\varphi$ determines this set of fitting best accessible world-courses. $O_t\psi$ can be defined as $(\varphi \supset \varphi) O_t \psi$.

Now I want to deal with the above mentioned section of Castañeda's essay. For convenience I will quote it here almost completely. (6) The division in three parts is mine and made for ease of reference.

I "*Obligatoriness*$_u$ *is timeless*. This timelessness is on a par with the timelessness of the possession by an object of a temporal property, e.g., being blue at 3 p.m. today. It is true, however, that deontic sentences do include a tensed verb in their expressions of deontic operators, for instance:

(27a) John ought $_{\text{by the rules}}$ to have retired at 65.
(28) It was obligatory$_i$ that some men stayed behind.

These may suggest that obligations come and go. Yet this need not be any different from the way in which colors and shapes come and go leaving predication, on some views in any case, as timeless. In this respect, the English verb 'ought', inflexible and selfsame in all its constructions, seems to be philosophically the most perspicuous of all deontic words. Thus, (27) and (28) are better taken as:

(27a) John ought by the rules to have retired at 65.
(28a) It ought$_i$ to have been that some men stayed behind.

II There is, undoubtedly, an intimate connection between time and obligation. But we must be very careful to distinguish among: (a) the time of the action one ought to do; (b) the time of the oughtness; (c) the time of the truth of an ought-statement; and (d) the time of utterance or of the making of an ought-statement. Consider the following example:

(29) At 3 p.m. Pat ought to mail an apology to Mary.

What is 3 p.m. the time of? Obviously it is not the time of the utterance, nor is it the time of the truth of "Pat ought to mail an apology to Mary." What does it mean for this (sentence) to be true at some time or other? Obviously, *3 p.m. is the time of the mailing*, not the time of the oughtness or obligatoriness.

(6) Almost, i.e. but for the first sentence, that refers to a previous section.

III By complicating our data somewhat we can establish the important datum:

(P.PO) *Principle of the present-tenseness of ought*

The English verb 'ought' is always in the present tense, so that: *Once an agent ought, according to rule R, to A, always thereafter he ought according to R to have Aed.* (Patently, the sense of 'ought' is the same in both occurrences.)

Consider the following array of examples in support of (P.PO):

(30) I ought to visit Mary next week.
(31) Next Sunday is when I now ought to visit Mary.
(32) Tomorrow is when I ought now to visit Mary.
(33) Today is when, now, I ought to visit Mary.
(34) Yesterday is when I ought, now, to have visited Mary.

Note that none of (30)-(34) implies that the visit took place, nor that it did not take place. Of course, given the inherent presentness of 'ought', the word 'now' is redundant. The chief point is that times and tenses change around 'ought', times and tenses that belong in the subordinate clause in the scope of 'ought, 'ought' remaining an unmovable bastion. The semantical unity of the array (30)-(34) requires a unitary account of the logic of ought that covers *all* of them, and respects the constant sense of 'ought' in them.

*Perhaps* we ought to distinguish the time of an action and the time of its *obligatoriness*$_1$. But we need more persuasive evidence than the mere phenomenon of *tense agreement* registered in (27) and (28)."

I will comment on the parts II, III and I of the quotation in this order.

*Ad II*

What does it mean for (29) "At 3 p.m. Pat ought to mail an apology to Mary." to be true at some time or other?

My claim is that one cannot determine the truth-value of (29) without considering the point of time to which it (29) pertains. This may make all the difference. Suppose that Pat has just outraged Mary and Mary rushed away in tears and I now (at time t) assert that (29) is the case. It may be that I am right, that I utter a true statement. But (29) need not to be true if it pertains to a point of time earlier than t: if Pat hasn't done any harm to Mary and she has not yet outraged her, it is not the case that (at 3 p.m.) Pat ought to mail an apology to Mary. So it may be that sentence (29) once was false and is true later on. This is possible because it is situation – dependent, bearing the hidden time *variable* "now", and thus conveys different statements at different times. In order to be able to lay open the difference we have to reveal the time dependence in the logical formula representing the sentence, semiformally: $O_{now}\varphi_{3.p.m.}$. Unlike Castañeda I do not distinguish here between (c) the time of the truth of an ought-statement and (b) the time of the oughtness.

Now I'll answer the question what it *means* for (29) "to be true at some time or other", thereby showing the way one may apply a temporally relative deontic system like QDTL.

Let us assume for the sake of argument that after Pat's insult she owes Mary an apology indeed and that the only (allowed) possibilities to fulfill this duty are to mail an aplolgy at 1 p.m., 2 p.m., or 3 p.m. today (I use "time 10, 20, 30" instead of of "1, 2 and 3 p.m." for easiness); let time 1 be the time just after Pat's insult, and let $p_t$ stand for "At time t Pat mails an apology to Mary". Then we may assert $O_1 (p_{10} \vee p_{20} \vee p_{30})$: in all deontically best possible courses the world may take from time 1 on Pat mails an apology at time 10, 20 or 30. Now, at time 1, that she has insulted Mary, mailing an apology at time 10, 20 or 30 is necessary in order to make the best of it. And we can add $(\neg O_1 p_{10} \wedge \neg O_1 p_{20} \wedge \neg O_1 p_{30})$, she is permitted to choose between the times of mailing. Suppose that she does not mail at 10 and we look at the situation at 11. Then $\Box_{11} \neg p_{10}$: the state of affairs $\neg p$, being a constituent of the world at 10, is a constituent of all possible courses the world can have from any time later than 10 (for instance 11) onwards, $\neg p$ has become a part of the irrevocable past, a (temporal) necessity. Let us assume that the deontic situation does not change between 1 and 11, i.e. that no stronger obligations arise in the meantime, the fulfillment of which renders the realization of

$(p_{10} \vee p_{20} \vee p_{30})$ impossible, and that no situations arise that render the mailing impossible. Then also $O_{11}(p_{10} \vee p_{20} \vee p_{30})$. But this together with $\Box_{11} \neg p_{10}$ implies $O_{11}(p_{20} \vee p_{30})$. And again we may add $(\neg O_{11} p_{20} \wedge \neg O_{11} p_{30})$ and continue the story like before: suppose she does not mail the letter at 20 and again the deontic situation does not change between 11 and 21. Then we have, because of $\Box_{21} \neg p_{20}$ and $O_{21}(p_{20} \vee p_{30})$, $O_{21} p_{30}$. This story gives an answer to the question what it means for (29) to be true at some time or other. We have (the truth of) $\neg O_1 p_{30}$, $\neg O_{11} p_{30}$ and $O_{21} p_{30}$, which may be paraphrased as: (29) is false at time 1 and 11, but true at time 21.

All ought-formulas in this section express situation-dependent ought-propositions that tell at each time what the moral agent (Pat) now (i.e. at 1, 11, 21 etc.) has to do. In order to take moral decisions we need a moral point of view producing cues that tell us what we ought to do now, in this specific situation. We may regard the system QDTL([7]) as a logic of such an ethical point of view([8]): the function Q each time offers sets of (nearly) best accessible worldcourses in terms of which specific cues are interpreted.

The context we built around sentence (29) is very simple and does not do justice to the richness of possibilities of application of the system.

Elsewhere([9]) I showed that it not only enables us to offer very natural solutions of the well known paradoxes of deontic logic but also to give conceptual analyses of notions that are important for moral reasoning. To give one more example of an application of the system we will deal later on with Castañeda's so-called Biconditional paradox.

*Ad III*

According to Castañeda "The chief point" of the examples (30)-(34) "is that times and tenses change around 'ought', ..., 'ought' remaining an unmovable bastion". If 'ought' in (30)-(34) means *obeying rule R*

([7]) And other temporally relative systems like that of Åqvist and Hoepelman.
([8]) Of course deontic logic does not supply an ethical point of view.
([9]) See the work mentioned in note 3.

*requires that* Castañeda is right in his claim that this 'ought' is timeless ([10]). But if it means *according to moral point of view Q the situation now requires that* this 'ought' is not timeless and as far from being an unmovable bastion as "the situation now" is. In that case the very fact that "times change around 'ought' " argues for a temporally relative deontic logic, the relation between the time-indices in the formulas $O_t\varphi_{t'}$, which allow us to represent such changes, being of crucial importance for exhibiting the logical structure of the situation described. It is this relation that determines whether the formula expresses a prima facie duty (if $t<t'$, i.e. $t'$ later than t) or an actual duty (if $t = t'$). ([11]) By the way note that $O_t\varphi_{t'}$ (where $t'<t$) is not the logical form of (34). Either (34) is timeless and means: Rule R requires that yesterday I have visited Mary, or the word "now" is out of place here and the speaker looks back at yesterday and now expresses his view on the deontical situation of yesterday. Then its form is $O_{\text{yesterday}}\,\varphi_{\text{yesterday}}$, officiating as a moral judgement in retrospect.

Note also that the temporally relative interpretation of (30)-(34) meets Castañeda's requirement that it should respect the constant sense of "ought" in them. Just like "the winner of the Tour de France of the year x" has a constant sense but different denotations for different values of the variable x, the phrase $O_t\varphi$, although it may have different references (truth-values, sets of possible worlds) for the different values of the time index, has a constant sense governed by the choice function, respectively moral point of view Q.

*AD I*

If *Obligatoriness*$_u$ is *Requiredness by the Rules U* it may be timeless. For instance when the Rules U are immutable. The tenses in "was required" and "was obligatory" are due to the fact that the time

([10]) I don't want to discuss the linguistic question whether the English verb "ought" is always in the present tense. I don't think so, but it does not matter for our purpose here.

([11]) For a detailed analysis of these notions of prima facie-and absolute obligation see Ch I and Ch III of van Eck o.c.

of the speaker's utterance of (27) and (28) is later than the situations (27) and (28) are about. ([12])

But what about *Obligatoriness*$_u$ in the sense of *Requiredness by the situation t according to moral point of view U*? Does Castañeda's argument here undermine the idea of the temporal relativity of this notion? I don't think so.

Castañeda contends that the timelessness of the obligatoriness$_u$ "is on a par with the timelessness of the possession by an object of a temporal property, e.g. being blue at 3 p.m. today". Let us take such an object d which is blue at (time) 3, semi-formally $B_3 d$, or $d \in \{x \mid B_3 x\}$. This predication (possession) resp. membership is timeless indeed, i.e. the relation between the object and the property is timeless. Now Castañeda suggests that obligations come and go the way in which colors and shapes come and go. So let's take a state of affairs p (for instance Pat's mailing an apology to Mary), which is obligatory at time 1, semi-formally $O_1 p$ or $p \in \{\varphi \mid \varphi$ is the case in all U-best of those world-courses that are still accessible at time 1$\}$. And again, this possession of obligatoriness resp. this membership is timeless, but this does not therefore say that the obligatoriness$_u$ *itself* is timeless, just like the timeless possession of a property does not guarantee the timelessness of the property itself.

In order to give an other example of how the temporally relative system QDTL can be applied I will deal here with Castañeda's so-called Secretary or Biconditional paradox. ([13]) It consists of the following set of instructions:

(35) Lydia ought$_R$ to do the following:
(a) arrive at her office at 8 a.m.;
(b) open her office to the public at 9 a.m.;
(c) just in case she does not open her office to the public at 9 a.m., post a note instructing the public to go to Room 311.

("ought$_R$" is short for "ought according to rules R")

([12]) However, if the rules change in the course of time temporal parameters may come into the picture. For instance, in 1969 John is required by the rules to retire at 65, but in 1970 he is not; then the rules require him to retire at 70.

([13]) See page 62-63 of R. Hilpinen (ed.) o.c.

This is a paradox, because a formalization in the language of a traditional deontic logic results in a set of propositions that implies a proposition that is *not* implied by (35):

$\{O\,\text{arrives}_8, O\,\text{opens}_9, O(\neg\text{opens}_9 \equiv \text{posts})\}$ ([14]) implies $O\,\neg\text{posts}$.

Castañeda comments: "This is a paradoxical result. Clearly (35) ... does *not* imply ... that Lydia is not to post a note instructing the public to go to Room 311. This "paradox" has *nothing* to do with whether Lydia's actions are unalterable or not, or with whether her actions are past, or future."

With both points Castañeda makes here I disagree.

For sure, one cannot from (35) derive: there is a rule (R) to the effect that Lydia ought not to post a note. But if we read, with Castañeda, $O\,\neg$posts as: Lydia ought according to rules R not to post a note, then it *is* implied by (35). Obeying (35) requires that she does not post a note: if she does, something is wrong (according to rules R).

This is easy to see. If she posts a note rightly, obeying (c), this means that she does not open her office at 9 a.m. and does not obey (b). If, on the other hand, she posts a note wrongly, not observing (c), she opens her office at 9 a.m. and nevertheless posts the note, which is forbidden as well. Thus $O\,\neg$posts is not a paradoxical result: (35) implies that Rules R do not permit (i.e. forbid) Lydia to post a note instructing the public to go to Room 311.

Now someone might say: "But then there is a paradox after all, because if she does not realize (b) then she ought to post, but the outcome of your reasoning is that she ought not to post!" With this remark I have arrived at Castañeda's second point. I'll show that *this* paradox has everything to do with whether Lydia's actions are unalterable or not and with whether her actions are past, or future.

To that I'll give an application of the system QDTL. Imagine that at 7 a.m. Lydia leaves her home and that, owing to an agreement with her boss to obey certain rules R, the following propositions hold good now:

(a) Lydia ought to arrive at her office at 8 a.m.,
(b) she ought to open her office to the public at 9 a.m., and,
(c) just in case she does not open her office to the public at 9 a.m., she ought to post a note instructing the public to go to room 311.

([14]) I would prefer a dyadic formalization of the last proposition (see below), but for the paradox it does not matter.

The "ought" in these propositions is different from the "ought" of (35). It is an "all things up to now considered ought".

In order to work out the paradox let us assume that throughout the story the deontic circumstances do not change i.e. that no stronger obligations, overruling (a)-(c) arise (for instance to help the victim of a street accident) and that fulfilling the obligations does not become impossible.

We have (a) $O_7$ arrives$_8$, (b) $O_7$ opens$_9$
(c) ($\neg$opens$_9$ $O_7$ posts) $\wedge$ (opens$_9$ $O_7$ $\neg$posts).
Note the following points:

- $O_7$ p does not mean for instance: the situation at 7 a.m. requires, according to rules R, that p, but: the situation at 7 a.m. requires, according to moral point of view Q, that p. The reason why (a)-(c) are true is that one of the guiding principles of Q is that not keeping an agreement is bad.
- As I take the meaning of "just in case" in (c) as: if and only if, (c) is a conjunction of two conditional ought-statements, "if she does not open she ought to post" and "if she opens she ought not to post".
- In the context of (b), (c) involves a secondary duty telling what Lydia ought to do if she does not fulfill her primary duty (b). That is why (c) should not be formalized as
  $O_7$ ($\neg$opens$_9$ $\supset$ posts) $\wedge$ $O_7$ (opens$_9$ $\supset$ $\neg$posts) or, equivalently, as $O_7$ ($\neg$opens$_9$ $\equiv$ posts): the left part of this conjunction is trivial, viewed in the light of (b). It does not make sense to say: in all worldcourses that are perfect from 7 on in which $\neg$opens$_9$ is true, posts is true, because worldcourses in which $\neg$opens$_9$ is true are no perfect worldcourses at all. (c) expresses a secondary duty, an obligation that arises when other duties are violated (i.e. when there is no question of an ideal worldcourse any longer) and consequently cannot be rendered with the help of the monadic $O_t$ operator. Thus the left hand of (c) should be interpreted not in terms of deontically perfect worldcourses from 7 on, but rather as saying something about worldcourses that are as perfect as worldcourses, accessible from 7 on, *and* which satisfy $\neg$opens$_9$, may be.
- (b) together with (c) implies $O_7$ $\neg$posts. This is as it should be (see above).

Now let us assume that Lydia arrived at 8 a.m. but did not open her office at 9 a.m. and see what the situation now is, say at 9.05 a.m.

We have: $\text{arrives}_8$, $\neg\text{opens}_9$, $(\neg\text{opens}_9\ O_{9.05}\ \text{posts}) \wedge (\text{opens}_9\ O_{9.05}\ \neg\text{posts})$([15]). As soon as she has not realized (b) this fact has become irrevocable, because it lies in the past. At any moment after 9 a.m. her not opening the office at 9 a.m. is temporally necessary. So we have $\Box_{9.05}\neg\text{opens}_9$, but this, together with $(\neg\text{opens}_9\ O_{9.05}\ \text{posts})$ implies $O_{9.05}\ \text{posts}$!

Thus we see how this paradox has to do with whether Lydia's actions are unalterable, resp. past, or not. As long as her "action" $\neg\text{opens}_9$ was future she had not yet the non-conditional duty to post a note. For all times t before 9 – in our story $7 \leqslant t \leqslant 9$ – (the first half of the conjunction) $(\neg\text{opens}_9\ O_t\ \text{posts}) \wedge (\text{opens}_9\ O_t\ \neg\text{posts})$ does *not*, together with $\neg\text{opens}_9$, imply $O_t\,\text{posts}$. ([16]) But if $9 < t$, it *does* imply, together with $\neg\text{opens}_9$, being equivalent to $\Box_t\neg\text{opens}_9$, $O_t\,\text{posts}$. ([17])([18])

This paper is meant as a response to Castañeda's criticism of the very idea of the temporal relativity of "ought". But it must be stressed here that he is not totally averse to it. At page 59 he writes that the view that deontic operators have temporal parameters deserves to be developed and *can* be attached to his theory. Anyhow his criticism is not the most important point of his essay. Its principal importance is that it offers, on the basis of extensive analyses of certain features of deontic English, a very interesting deontic calculus that not only affords a new solution to the well known paradoxes but also deals with examples of deontic reasoning presented as tests of adequacy of any system of deontic logic. The main characteristic of the system is that it meets the need of a distinction that Castañeda

([15]) Remember that the deontic situation did not change.

([16]) On the contrary it (i.e. the second half of it) implies, together with $O_t\,\text{opens}_9$, $O_t\neg\text{posts}$.

([17]) I take it for granted that the context of (35) makes it clear how long (35c) remains in force.

(18) Thus formulas of the form $\varphi_t O_{t'}\psi$ have a distinct logical behaviour accordingly as $t' \leqslant t$ or $t' > t$ ($\psi$ may have any time index). Only in the second case they permit (together with $\varphi_t$) a detachment resulting in $O_{t'}\psi$. For a detailed philosophical justification of this point and its relevance for moral reasoning see the sections "Commitment and detachment" in Ch I and Ch III of the work mentioned in note 3.

claims to be essential, that between a) *propositions*, circumstances – indicative elements – which can include actions performed and b) *practitions*, foci of deontic operators, the infinitival elements performable by moral agents. For instance as to the Biconditional paradox, Castañeda comments "The error lies in the identification of the deontically considered action of Lydia's mentioned in (b), Lydia to open her office, with the circumstance mentioned in (c), Lydia's opening her office! The "paradox" can be solved very simply by respecting the indicative – infinitive contrast present in (35) ..." This contrast prevents us from deriving, that Lydia ought not to post a note, from (35 b + c), which would be, according to Castañeda, a paradoxical result.

In spite of the plain differences between Castañeda's system and QDTL, both in philosophical background and form, there is one striking resemblance that betrays itself in two principles stating the irrelevance of difference in scope of the ought-operator in some cases. I mean Castañeda's principle $O_i(p \supset A) \equiv (p \supset O_i A)$ (where i stands for an adverbial qualifier, the propositional variable p represents a proposition and the capital letter A a practition), and the QDTL theorem

$O_{t'}(\varphi_t \supset \psi) \equiv (\varphi_t \supset O_{t'}\psi)$ where $t < t'$ ([19]) ($\psi$ may have any time index)

My temporally necessary propositions (temp. nec. state of affairs) resemble Castañeda's propositions (circumstances) in that both are indifferent to deontic scope. In QDTL possible states of affairs get the logical rôle analogous to Castañeda's circumstances as soon as (if and only if) they have become realized (or rather, inescapable), whereas for Castañeda the circumstances may be temporally contingent.

But, as already stated, the systems are fundamentally different. Nevertheless, or perhaps for that very reason, we should not consider them as competitors. I think that we must distinguish several families of deontic notions and produce different logical systems for them. Thus the following types of ought-statements are to be discerned:

([19]) In QDTL we have in addition the principle $(\varphi_t O_{t'}\psi) \equiv (\varphi_t \supset O_{t'}\psi)$, where $t < t'$ and $\psi$ may have any time index.
Our solution of the Biconditional paradox is based upon it. Cf. also note 18. For similar principles see also the work of Åqvist and Hoepelman mentioned in note 2.

1) Ideal-ought statements,
   a. General norms and ethical principles, telling what deontically perfect, resp. nearly perfect worlds look like, accordingly as primary or secondary (reparational) norms are at issue, for instance "You ought not to lie", resp. "If you insult somebody you ought to apologize". They are dealt with by the standard systems of (monadic, resp.) dyadic deontic logic.
   b. Instructions involving obligatoriness as a result of agreements or accepting rules. Usually they contain references to more or less concrete situations and persons. I regard Castañeda's system as a logic for this kind of ought-statements. Perhaps the distinction between a. and b. is overdone and his system should be taken for a rival of the standard systems. Only, in my opinion one needs dyadic formulas to represent conditional secondary-ought statements, whether they are of type 1)a., b., or 2). But Castañeda did not accept them in his system, because he is against a dyadic approach. ([20])
2) "All things up to now considerd"-ought statements, answers to the question "What should I do here and now?", provided by a moral point of view to be represented as a selection function that picks out the (nearly) best possible worlds out of those worlds that are still accessible to our world at a given time. They are dealt with by systems of temporally relative deontic logic.

What should we say about the logical relationship between these two sorts of ought-statements? I think one cannot derive an "all things considered" ought from an ideal ought plus factual statements, there is a logical gap between them that cannot be bridged in this way. The relationship is of a different character. Ideal ought statements function, together with value statements and preference propositions, somehow as part of the "content" of a moral point of view and should as guiding rules be extensionally embodied in a selection function that, given the "settled facts" (a world at a time) choses the class of best accessible worlds that determines the truth values of "all things considered" ought statements.

([20]) For his arguments see Castañeda o.c. p. 72-74.

Elsewhere ([21]) I wrote that if you want to characterize a person's morality you should look at "his selection function". Perhaps you may associate it with an "inner voice".

In my opinion the problem about the relationship between the two mentioned types of ought-statements amounts to the question how to reveal what is going on (or rather should rationally be going on) "beneath the surface of" a selection function. How should the inner voice reason?

This question asks for refinements of the definitions of such a function that have been given up to now. ([22]) It is obvious that the formal structure of the procedures of decision involved in choosing the worlds that are the alternatives to be aimed at, meets up rational decision conditions, to be incorporated as requirements the function has to satisfy.

It is in this context that deontic logic should make clear the logical relationship between the different types of ought statements at issue.

*Rijksuniversiteit Groningen* Job VAN ECK

([21]) See VAN ECK o.c.

([22]) See ÅQVIST and HOEPELMAN o.c. p. 197 and VAN ECK o.c. p. 354, and p. 377-380.