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Δ-TIL and Problems of Deontic Logic

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In two articles which recently appeared in *Organon F*, Daniela Glavaničová outlined Δ-TIL—a theory aiming at extending the apparatus of Transparent Intensional Logic (TIL) so that it addresses (and ideally solves) problems that arise within deontic logic. The ambition of the first paper (published in Slovak) is to present a suitable logical analysis of *deontic modalities* in terms of TIL. Its main contribution, according to Glavaničová, consists in "offering a semantically based distinction between implicit and explicit deontic modalities" (Glavaničová 2015, 211). The goal of the second article is "to amend the former analysis of deontic modalities in terms of TIL to incorporate both the standard (relativistic) view and the minimal semantics of TIL" (Glavaničová 2016, 204).

The general point of the articles can be viewed from two somewhat different perspectives. If we are primarily interested in the logical theory designed by Pavel Tichý and developed by his followers,[1] we can view the articles as an attempt to extend the analytical potential of TIL so that the theory allows for an illuminating analysis of sentences that have not yet been the focus of attention of TIL adherents. We can thus see the papers primarily as aiming at advancing TIL as an analytical tool. If we are mainly interested in deontic logic, we can view the articles as an attempt to address some problems that trouble deontic logic and to outline their solution. Of course, these two perspectives are not mutually exclusive and we can conjecture that Glavaničová's aspiration

[1] The crucial reference works here are Tichý (1988) and Duží, Jespersen & Materna (2010).

was twofold—to contribute to the development of TIL as well as to the development of deontic logic.

In this discussion paper, I would like to briefly consider to what extent the goal of the papers has been fulfilled. My worry is that the contribution of the paper to the development of TIL is less significant than Glavaničová thinks and that her conviction that the analytical insights which she outlines open a pathway to solving some (or perhaps even most) paradoxes of deontic logic is based on a misperception of the nature of the problems that arise within deontic logic.

At the very beginning, I should stress that Glavaničová limits her attention to the analysis of deontic modalities—sentential modifiers that occur in sentences of the form "It is obligatory that φ", "It is forbidden that φ", "It is permitted that φ" (symbolically $O\varphi$, $F\varphi$, $P\varphi$) in which φ stands for sentences or statements. The resulting compound sentences are interpreted descriptively. This means that they have certain truth-conditions, i.e. they are supposed to be true or false (in a given context). It is thus important to remember that when Glavaničová speaks about deontic logic what she has in mind is a narrowly conceived deontic logic—the logical theory of sentences which don't have prescriptive (action-guiding) meaning but which describe—adequately or not—the (or a) normative situation.

The central contribution of the first article consists in the suggestion that we should treat sentences of the form

F1 "It is obligatory that φ"

as systematically ambiguous. Sentence form F1 can be interpreted as synonymous with the sentence form

$F1_{imp}$ "It is implicitly obligatory that φ"

or as synonymous with the sentence form

$F1_{exp}$ "It is explicitly obligatory that φ".

The operators "it is implicitly obligatory that" (we can concisely write "obligatory$_{imp}$") and "it is explicitly obligatory that" ("obligatory$_{exp}$") are to be carefully distinguished as they denote objects of different types. Let us take for example the sentence

S1 "It is obligatory that Pavel is silent"

The sentence can be—correctly—analysed either by the formula

$\text{TILS1}_{\text{imp}}$ $[{}^0O_{wt}\,[\lambda w \lambda t\,[{}^0Silent_{wt}\,{}^0Pavel]]]$

or by the formula

$\text{TILS1}_{\text{exp}}$ $[{}^0O^*_{wt}\,{}^0[\lambda w \lambda t\,[{}^0Silent_{wt}\,{}^0Pavel]]]$.

The operator O employed in the first analysis represents a property of propositions (this is within the technical notation of TIL suggested by the following type analysis $O/(\text{oo}_{\tau\omega})_{\tau\omega}$).[2] The operator O^* employed in the second analysis represents a property of propositional constructions $(O^*/(\text{o*n})_{\tau\omega}$ where *n is the type of constructions—the objects which have the central place in the semantics provided by TIL).

The truth conditions of the formulas representing the two alternative analyses of sentences like S1 are stated in analogous ways: Let ${}^0T$ constructs the truth-value True and ${}^0F$ constructs the truth-value False. Let, furthermore, C be a construction of a proposition and let the expression $\alpha : \beta$ is true if and only if α construes the same object as β (with respect to a valuation). The truth-conditions of sentences formed by means of O and O^* are then as follows:

${}^0T : [{}^0O_{wt}\,C]$ iff $C \in O_{wt}$
${}^0F : [{}^0O_{wt}\,C]$ otherwise.
${}^0T : [{}^0O^*_{wt}\,{}^0C]$ iff ${}^0C \in O^*_{wt}$
${}^0F : [{}^0O^*_{wt}\,{}^0C]$ otherwise.[3]

These definitions in effect say that if, e.g., the sentence "It is obligatory that Pavel is silent" is disambiguated as saying "It is implicitly obligatory that Pavel is silent", then it is true in the actual world just and only in case that the *prop-*

[2] We should note that the term "proposition" is within the present discussion consequently used as a technical term denoting any function from world courses to truth values.

[3] See Glavaničová (2016, 213). The definitions, in fact, seem somewhat suspicious to me. I, for example, don't see how a *construction* of a proposition could be a member of the set of (in this case obligatory) propositions.

osition denoted by the sentence "Pavel is silent" is among those which are implicitly obligatory in the actual world. Similarly, if the sentence "It is obligatory that Pavel is silent" is disambiguated as saying the same as "It is explicitly obligatory that Pavel is silent", then it is true in the actual world if and only if the *construction* constructed by the sentence "Pavel is silent" is among those which are explicitly obligatory in the actual world.

Of course these definitions would be entirely uninteresting if they were not supplemented by some logical principles. These are provided by the following four rules[4]

(R1) $[{}^0O*_{wt}\ {}^0c] \vDash [{}^0O_{wt}\ c]$
(R2) (i) $\lambda w\lambda t\ [{}^0O*_{wt}\ {}^0c]$, (ii) $[{}^0{=}i\ {}^0c\ {}^0c'] \vDash \lambda w\lambda t\ [{}^0O*_{wt}\ {}^0c']$
(R3) (i) $[{}^0O_{wt}\ [\lambda w\lambda t\ [c_{wt} \to d_{wt}]]]$, (ii) $[{}^0O_{wt}\ c] \vDash [{}^0O_{wt}\ d]$
(R4) $[\forall^\omega w\forall^\tau t\ c_{wt}] \vDash [{}^0O_{wt}\ c]$

The first rule dictates that whenever some propositional construction is among those which are explicitly obligatory, the proposition constructed is among those which are implicitly obligatory. The second rule states that if some propositional construction is explicitly obligatory then so are all those which are procedurally isomorphic. (R3) and (R4) are analogues of two principles of *Standard Deontic Logic* (SDL). The first is a deontic version of *modus ponens* and the second is a deontic version of the modal rule of necessitation.

Now it is time to assess what kind of interesting insights the framework presented by Glavaničová provides. She tries to demonstrate its virtues by what she calls *Russell's test*.[5] Somewhat surprisingly, the whole testing consists in a discussion of how the inferential scheme called the *Ross paradox*

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[4] In these rules $=i$ represents the relation of procedural izomorfism, and $\vDash$ represents the entailment relation among constructions. c, c' and d represent propositional constructions. Classical predicate logic is accepted as a background theory.

[5] She quotes the following passage from *On Denoting*: "A logical theory may be tested by its capacity for dealing with puzzles, and it is a wholesome plan, in thinking about logic, to stock the mind with as many puzzles as possible, since these serve much the same purpose as is served by experiments in physical science" (Russell 1905).

fares with respect to her distinction between implicit and explicit obligation.[6] The main result can be shortly presented in the following way:[7] while the inferences

RP1 "It is obligatory$_{imp}$ that Pavel is silent"

"It is obligatory$_{imp}$ that Pavel is silent or kills Richard"

and

RP2 "It is obligatory$_{exp}$ that Pavel is silent"

"It is obligatory$_{imp}$ that Pavel is silent or kills Richard"

are shown to be valid in Δ-TIL, the inference

RP3 "It is obligatory$_{exp}$ that Pavel is silent"

"It is obligatory$_{exp}$ that Pavel is silent or kills Richard"

is claimed to be invalid.[8] The point of Glavaničová's deliberations on the Ross paradox seems to consist in the claim that though RP2 is valid there is nothing paradoxical about this as Pavel can fulfil the implicit command described by the sentence "It is obligatory$_{imp}$ that Pavel is silent or kills Richard" but that this still does not mean that he fulfils the command which is described by the sentence "It is obligatory$_{exp}$ that Pavel is silent" (cf. Glavaničová 2015, 225).

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[6] The original version of Ross paradox was presented in the form of the inference *Mail this letter!,* hence *Mail this letter or burn it!*, which was valid according to the prevailing accounts of the logic of imperatives (cf. Ross 1941). It was thus not straightforwardly relevant for *statements* about obligations.

[7] I won't follow Glavaničová's way of presenting the Ross paradox as I find it quite misleading. She introduces the paradox in the form of an argument which she labels as "intuitively invalid" but then she says that the argument consists in an unproblematic application of *modus ponens* (which is in fact the case).

[8] This conclusion is, in Glavaničová's text, presented in the form of the claim that we cannot prove the sentence "If it is obligatory$_{exp}$ that Pavel is silent then it is obligatory$_{exp}$ that Pavel is silent or kills Richard" within her system.

This outcome is somewhat puzzling. First, it is not clear what is meant by the phrase "implicit command described by the sentence …" The most plausible explanation is that Glavaničová presupposes that there exists a logic of commands which allows us to derive implicit commands from explicit ones and that these implicit commands can be described by sentences which are analysed by means of the "obligatory$_{imp}$" operator.[9] Unfortunately, the papers don't provide clues shedding light on the relationship between (explicit and implicit) commands and statements speaking about (explicit and implicit) obligations. Generally, we don't learn anything as to how the sets O^*_{wt} and O_{wt} are formed. This is a serious problem—most model situations against which we test acceptability of the principles of different systems of deontic logic involve discussion on morally relevant obligations, but it seems quite strange to distinguish between explicit and implicit obligations in moral discourse, so we seem to lack an intuitive grounding for these (quite essential) considerations.[10]

Another problem is that it is not at all clear why the fact that Pavel can fulfil the command in conclusion without fulfilling the one in the premise should guarantee that the inference leading to "It is obligatory$_{imp}$ that Pavel is silent or kills Richard" is not paradoxical. Pointing out that coping with the obligation described in the conclusion does not automatically exempt the obliged person from coping with the obligation mentioned in the premise is, of course, relevant,[11] but it would, as it seems, keep being relevant even if RP3 were a

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[9] Glavaničová remarks that inferences consisting of commands are inherently problematic as commands are neither true nor false (Glavaničová 2015, 201), but she does not explicitly deny the possibility of a logic of commands.

[10] We might suppose that all sentences speaking about moral obligations are to be generally treated as speaking about implicit obligations. Then, however, Δ-TIL clearly leads us to conclude that "It is morally obligatory to kill a drowning child or to save it" is a true moral statement as soon as we suppose that "It is morally obligatory to save a drowning child" is true. This is likely to be hard to swallow for those who view the Ross paradox as a serious problem of the logic of deontic statements. (The more that statements like "It is morally obligatory to give the starving beggar food or to give him money so that he can buy some" seem perfectly reasonable as 'choice offering' moral claims.) For my analysis of the Ross paradox cf. Svoboda (2004; 2013).

[11] Arguments stressing this point were presented in the early eighties (at the latest) (cf. Castañeda 1981).

valid argument. Yet Glavaničová seems to presume that validity of RP3 would be highly problematic.

The general problem with Δ-TIL is that it is very weak. Let us suppose that the monastery code which is several times mentioned in Glavaničová's examples contains the sentence:

S2 "It is obligatory that monks fast and keep silent".

We may, moreover, have reasons to suppose that it is correct to disambiguate the sentence as saying

S2* "It is obligatory$_{exp}$ that monks fast and keep silent"[12]

Now, we can imagine Glavaničová's hero Pavel asking the truthful custodian Richard whether the code explicitly asks the monks to fast. Intuitively, it is quite obvious that the answer should be positive. But under Glavaničová's conception of explicit obligations we don't have any reason to affirm such an answer—the truth of S2* surely doesn't provide any substantiation for the claim that

S3 "It is obligatory$_{exp}$ that monks fast"

is true. (R2) is the only rule that governs inferences which have as conclusions statements about explicit obligations, and the constructions which follow "obligatory$_{exp}$" in the formal explication of S2* and S3 are obviously *not* procedurally isomorphic. This quite clearly indicates that what Glavaničová means by explicit obligations is remote from what we normally mean when we say that something is explicitly required or explicitly obligatory.[13]

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[12] It seems very strange to admit that the code could contain the statement "It is obligatory$_{imp}$ that monks fast and keep silent". This, in fact, rather clearly suggests that 'statements' contained in such a code are in fact not to be seen as describing a code but as forming it (i.e. as—covertly—action guiding). Glavaničová, however, does not explain what she means by a code, so there is no ground for a discussion.

[13] What Glavaničová says in section 10 of her earlier article suggests that she is aware of the problems associated with her account of explicit obligations. She mentions the possibility of introducing semi-explicit modalities (obligations). The somewhat controversial advantage of introducing such modalities is that it would allow us (and force us) to disambiguate deontic sentences in three different ways. The main problem with this

Δ-TIL presented by Glavaničová (2015) is also weak in another respect. The sets O^*_{wt} and O_{wt} can include all propositional constructions, or all propositions respectively. In fact, it is easy to demonstrate that as soon as two statements of the forms $[{}^0O^*_{wt}\ {}^0c]$ and $[{}^0O^*_{wt}\ {}^0\neg c]$ are true (for example the statements "It is obligatory$_{exp}$ that Pavel is silent" and "It is obligatory$_{exp}$ that Pavel is not silent") then the set O_{wt} unavoidably contains all propositions, i.e. any proposition is implicitly obligatory and we face an 'explosion of obligations'. In most systems of deontic logic, the problem of 'dangerous explosion' is precluded by adoption of a principle assuring that contradictory obligations cannot arise—typically in the form of the axiom: $\neg(OA \wedge O\neg A)$. Glavaničová, however, explicitly refrains from adopting a principle of this sort and so the threat of explosion is an urgent problem for her Δ-TIL.

In her second article, Glavaničová seems to take a somewhat different stand. She says that if we don't assume that there is just one set O^*_{wt} and one set O_{wt} of explicit obligations, i.e. if we accept what she calls "deontic relativism", then the situation becomes different. Here she notes that "it is quite reasonable to demand that normative systems be internally consistent" (Glavaničová 2016, 206). Unfortunately, it is not clear how this requirement is to be reflected in Δ-TIL. As the initial step towards the relativist framework, she suggests that axioms and rules are "decorated with subscripts". Thus, instead of formulas of the form OA and O^*A we may use formulas O_xA and O^*_xA where x refers to certain normative system. In fact, the core of the second article consist in justifying of this kind of relativism.

My general impression here is that Glavaničová has been somewhat misled by the metaphysics behind the apparatus which she employs. The fact that in the first article she considers only one set O^*_{wt} and one set O_{wt} would normally be taken as being just a reasonable simplification—it is quite natural to suppose that whenever we speak about something being obligatory or permitted we talk within a given context. The fact that adherents of SDL don't explicitly relativize statements saying that something obligatory to a particular normative system surely is not to be taken as a testimony that their theory concerns (only) talk on 'absolute obligations'. It is thus surprising to see that Glavaničová felt pressed to interpret deontic modalities discussed in the first article as absolute

idea, of course, is that it is entirely unclear how a useful concept of semi-explicit modalities might be introduced.

(non-relative) in the suggested sense.[14] From an 'external' point of view her argumentation in favour of deontic relativism (a significant part of the second article consists of this argumentation) appears to be close to trivial and the adherents of objectivism that she mentions appear to be mere straw men. Moreover, what she says reveals a serious confusion on some issues. She suggests that adopting the relativized deontic modalities solves the paradox of contrary-to-duty obligations (Chisholm's paradox), which she presents in the following way (cf. Glavaničová 2016, 208):

(P1) Sophie shall not kill.
(P2) It ought to be that if Sophie does not kill, she is not punished for killing.
(P3) If Sophie kills, she ought to be punished for killing.
(P4) Sophie kills.

The statements presented in (P1)–(P4) describe a situation in which three claims containing deontic modalities are complemented by a factual claim. The situation described is unfortunate as the last statement suggests that Sophie did not meet her obligation and killed, but what has been said does not seem inconsistent. However, under its most plausible formalisation in SDL[15]

(P1') $O\neg A$
(P2') $O(\neg A \rightarrow \neg B)$
(P3') $A \rightarrow OB$
(P4') A

the set of sentences is inconsistent—the formula $OA \wedge O\neg A$ as well as the formula $OA \wedge \neg OA$ are derivable. This, of course, raises the question how the problem might be explained away. Glavaničová's solution is quite striking. She points out that the paradox can be solved "via deontic relativism"—we can treat the deontic modality contained in (P1) as referring to other normative

[14] In practice, however, she relativizes deontic modalities from the very beginning of the first article.

[15] Glavaničová, in fact, discusses a somewhat specific version of the paradox. Its original version and the related discussion can be found in Chisholm (1963) and Hilpinen (1971).

system than those deontic modalities contained in (P2) and (P3).[16] This is a bizarre solution. Glavaničová is surely right that if we treat the deontic statements as referring to different normative systems the inconsistency is avoided, but she does not provide a single reason why should we do that. The whole problem of Chisholm's paradox arises from the fact that all the mentioned sentences speaking about obligations seem reasonable from an intuitive point of view—in this case from a viewpoint of a person taking a coherent moral standpoint. Maybe Glavaničová has some substantiation for presuming that it is reasonable to treat the statements within the paradox in a relativistic way, but she does not mention any and I can't imagine any.

Acceptance of a kind of deontic relativism together with the requirement that normative systems are internally consistent seems to be a reasonable position. I am, however, afraid that Glavaničová will face problems if she wants to take seriously the idea that statements speaking about explicit obligations occurring in one normative system should not be in conflict. While formulating the consistency rule for statements on implicit (relative) obligations is unproblematic,[17] it is quite unclear how we could formulate a useful consistency rule assuring (deontic) consistency of statements about explicit obligations. By a "useful rule" I mean a rule that would, for example, allow us to identify the following three deontic statements as inconsistent:

S4 "It is obligatory$_{exp}$ that Pavel is silent"
S5 "It is obligatory$_{exp}$ that if Pavel works as the monastery porter, he is not silent"
S6 "It is obligatory$_{exp}$ that Pavel works as the monastery porter"

It is quite obvious that, if we analyse the sentences in the way suggested by Glavaničová, we will have to conclude that they are perfectly consistent. My conjecture is that if we analyse these sentences by means of the operator O^*

[16] She literally says "We can solve CTD problem via deontic relativism treating primary and secondary subsystems of certain normative systems as different normative systems". (Even if we had some reason to make the step she suggests, we should ask why inconsistency between norms belonging to two subsystems of a certain normative system should be tolerable.)

[17] For example, the principle $[^0O_{wt}\ c] \vDash \neg[^0O_{wt}\ \neg c]$ will do for the non-relativistic case.

where the type analysis is $O*/(o*n)_{\tau\omega}$ then the only way to identify the statements as conflicting is through the inconsistency of the implicit obligations derived by (R1). But, if the conflict among statements on explicit obligations is identified by means of the relation of conflict (inconsistency) among statements on implicit obligations, then it is difficult to imagine how the logical properties of the two kinds of statements could be so different as Δ-TIL in its present form suggests—the relation of normative conflict and logical inconsistency are obviously two sides of one coin in SDL and they are in an obvious way interconnected with the relation of entailment. Maybe the theory can be developed so as to provide a reasonable account of conflicts among statements speaking of explicit obligations, but the fact that this central issue has not been addressed at all by Glavaničová suggests how scanty Δ-TIL is.

The just outlined controversial features of Glavaničová's proposal (as well as some others which I am leaving out for brevity's sake)[18] lead me to conclude that Δ-TIL in its present form does not open very promising way to enhancing the analytic potential of TIL. Glavaničová has apparently been misled by the fact that the leading figures of TIL distinguish between explicit and implicit attitudes and within common normative discourse people speak about something being explicitly or implicitly ordered (ordered, requires) or permitted. This association between the two kinds of explicitness is, however, rather a terminological coincidence than a clue that deserves be taken seriously.[19] At the same time, I don't find in the paper any argument which would convince me that the apparatus of TIL is a suitable tool for addressing and solving the problems that have been discussed in deontic logic during the decades of its development. I am not saying that TIL cannot serve as a basis for developing a framework that will allow for illuminating analyses of deontic modalities, I

[18] I, for example, find Glavaničová's (2016, 215) proposal to treat normative system (provisionally) as individuals (along with humans, mountains and pieces of furniture) as highly problematic. It is difficult to imagine how, e.g., a moral code of some society could reasonably be explicated as an individual. Her other suggestion, namely, to add a further atomic type—a type for normative systems—to the basis is more interesting. She, however, mentions this possibility only in passing.

[19] The terms "explicit attitudes" and "implicit attitudes" were introduced as technical terms in TIL (probably in Duží 2004), and this terminology is in my view not ideal. It would be, perhaps, more suitable (though less concise) to distinguish between "attitudes to the construction of an object" and "attitudes to the constructed object" or "coarse-grained attitudes" and "fine-grained attitudes".

am only suggesting that Δ-TIL is not a very promising first step towards the formation of such a theory.[20]

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