Are Deontic Modals Hyperintensional?

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Let me begin with a personal memory. Many years ago I presented a conference paper devoted to the problems of deontic reasoning. As an example of inferential steps that agents involved in deontic language games can make I put forward two model inferences:

IA1   *Mary, feed the sheep and the goats!*
        Mary, feed the goats!

IA2   *Mary, feed the sheep!*
        Mary, feed the sheep or the goats!

I then asked the people in the audience to reflect on their intuition as concerns the validity of the inferences, i.e. I asked them whether the conclusion is, in their view, entailed by the premise.[1]

[1]It is, of course, somewhat controversial to speak about *inferences* in connection with compounds consisting of imperative sentences. The debates among philosophers and logicians on whether such compounds deserve to be called logical inferences begun with Jørgensen [14]. They are rather complex and persistent. We can, with some simplification, say that those who deny that such compounds deserve to be seen as inferences think that there is nothing like the logic of imperatives (this position is sometimes called the *imperativological skepticism*) while those who are open to the idea that it is worthwhile to study the logic of imperatives can be called the *imperativological optimists*. Non-philosophers, however, usually don't have any problem understanding the point of the question concerning the validity of simple inferences of this kind.

As I expected, nearly all the people present (they were predominantly philosophers) were ready to acknowledge (though some with a bit of hesitation) that the first inference is valid. As concerns the second — IA2 — the audience was more divided. Most members of the audience adhered to the view that the inference is incorrect while some were hesitant to take a clear stand. There was one person, however, who vigorously defended the view that the inference was valid. That person was Marie Duží.

As my intuition was that the inferential step presented in the second inference is rather clearly invalid,[2] I tried to undermine her position. I suggested, that those who imagine themselves in the position of an addressee of the command/instruction "Feed the sheep or the goats!" are very likely to understand it so, that they are allowed to choose which animals they are to feed and as the command "Feed the sheep!" apparently excludes any choice of this sort it cannot entail the choice opening command. I argued that an average lazy person, upon receiving the command "Feed the sheep or the goats!", is likely to consider whether it is easier to feed the sheep or the goats and will then choose to undertake the less demanding task (an assiduous person can, of course, choose to follow the command by feeding both the sheep and the goats). If, for example, there are only two goats on the farm and fifty sheep, a typical addressee is going to react with something like "Well, then I am going to feed the goats" (to make cooperatively clear which of the tasks is going to be completed by them). Marie conceded, sort of, that such an understanding makes sense but she still insisted that the inferential step in IA2 must be correct as the content of the command in the conclusion is logically weaker than the content of the command in the premise. The inferential step, according to her conviction, must be analogous to the step taken from "Mary will feed the sheep" to "Mary will feed the sheep or the goats". I was surprised by how strong her intuition seemed to be and how vigorously she defended it.[3]

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[2]I share this intuition with large number of scholars — in fact, most of logicians find this kind of inference, which is commonly called Ross paradox, highly problematic. (We will return to Ross paradox later.)

[3]In fact, I shouldn't have been so surprised — vigorousness, as all who know

I remembered this occasion when I, relatively recently, read a paper written by a scholar who can be regarded as a follower of Marie — at least in the sense that she is significantly younger than Marie, they have been in touch for many years and they both tend to look at any issue related to logic through the prism of transparent intensional logic (TIL). The person is Daniela Glavaničová and the paper was her "Hyperintensionality of Deontic Modals: an Argument from Analogy" [11]. It struck me that Glavaničová's perspective on deontic reasoning must be, in its spirit, very similar to Marie's and that the paper perhaps indicates why their approach to (deontic) logic is so different from mine.[4]

In this paper I will try to get a firmer grasp on the kind of outlook that is, I think, behind the specific approach to deontic reasoning which appears to me to be common for the two scholars and perhaps also for other people who insist on hyperintensionality of deontic modals.[5] First, I will devote attention to Glavaničová's argument from analogy which is meant to support the view that deontic modals create hyperintensional contexts. Subsequently, I will focus on Faroldi's argumentation, which shares the same goal. I will try to show that his arguments in favour of hyperintensionality of deontic modals are unconvincing and the logical system which he presents is unsatisfactory. In the last part of the paper, I will turn attention to a more general issue — the different views on the nature and mission of logic. I will formulate hypotheses that are meant to explain why the stances of adherents of TIL towards logic in general and on deontic logic in particular are so disparate from those which I hold. I will distinguish two positions concerning the nature of logic — the Platonist one and

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Marie can confirm, belongs among the quintessential characteristics of her personality. (In fact, I suspect that Marie is one of the few people who would choose to feed a herd of sheep instead of feeding two goats if she were offered a choice between the tasks — just for the fun of accomplishing a more challenging mission).

[4]In fact, this idea should (or at least could) have occurred to me earlier when I read earlier papers by Glavaničová [8, 9], to which I reacted (see [26]), but I didn't at that point think of the possible relationships between their outlooks.

[5]I should perhaps note that I don't mean to suggest that all 'hyperintensionalists' are bound to share the mentioned Marie's view on the validity of IA2 or that she still sticks to the view which she spontaneously adopted many years ago.

the Protagorean one — and I will explain how their adoption in my view affects our strategies concerning the formation of logical systems and assessing their acceptability and other related qualities.

As I have suggested, the core idea defended in Glavaničová's paper that inspired my deliberations is that deontic modals create hyperintensional contexts. The idea is not brand new but it is of fairly recent vintage. Let's cite what she says:

> "Recently, hyperintensionality of deontic modals (expressions such as it is *obligatory that, it is permitted that, it is forbidden that, (an agent) ought to..., (an agent) is allowed to...*, and so forth) has been brought into the focus (cf. [1, 5, 6, 8, 10]. Paradoxes of deontic logic and the failure of substitution of classical equivalents have been enlisted as the main motivation for going hyperintensional in deontic logic." [11, p. 653]

Glavaničová, in her paper, formulates a new argument for the hyperintensionality of deontic modals which "is based on an over-looked analogy between epistemic logic and deontic logic" (ibid).

The initial idea, namely that epistemic modals like *(an agent) knows that..., (an agent) believes that..., (an agent) excludes that...*, create hyperintensional contexts, is not controversial. Proponents of TIL have devoted a lot of attention to the logical analysis of sentences of this kind (see [29, 18, 4]) and I gladly admit that TIL is probably the most sophisticated available tool for the logical analysis of sentences that express different propositional and notional attitudes, including the epistemic ones.

Compared to the attention that was devoted to the analysis of these kinds of sentences, the attention which adherents of TIL devoted to the analysis of sentences and inferences containing imperatives or deontic modals is negligible. To the best of my knowledge, Pavel Tichý — the creator of TIL — never considered analyzing special logical features of sentences containing the deontic modals (let's call them *deontic sentences*).

He also neglected other sentences which are characteristic of deontic discourse — sentences that articulate commands and prohibitions

as well as those sentences that are suited for issuing permissions or granting privileges, i.e. sentences in which phrases like *you may...*, *you are hereby granted the privilege to...* appear. The disregard for imperative sentences among adherents of TIL has relatively clear reasoning behind it. As Duží, Jespersen, and Materna point out in their classical book from 2010, Tichý adopted the view that we don't need a special logic of imperative sentences[6] as their logic is essentially the same as the standard logic of indicative sentences and the difference is not on the semantic but only on the pragmatic level (c.f. [4, p. 351]). The logic of imperatives is thus seen as (at best) parasitic on the logic of indicatives, i.e. on the (traditional) logic of propositions.[7]

The disregard of deontic sentences that lasted until Glavaničová's contributions doesn't have so straightforward an explanation. Deontic sentences clearly have their specific features and questions like: "Does (the proposition expressed by) the sentence[8] *It is forbidden that Tom sells his house* (logically) entail the sentence *It is permitted that Tom doesn't sell his house*?" or "Does the sentence *Tom ought to sell his car or his house* entail the sentence *If Tom won't sell his house he should sell his car or his yacht*?" seem legitimate and worth answering.

There is, I guess, one plausible explanation of the tricky status of sentences of this sort. While we can assume that the sentence *It is forbidden that Tom sells his house* is, after all, i.e. when it is properly completed,[9] true or false when we suppose that the sentence

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[6]The same holds for interrogative sentences. Still, the pivotal figures of TIL devoted some attention to the analysis of interrogative discourse (see [17, 28]). A comprehensive but in my view somewhat too skeptical discussion of the logic of imperatives can be found in Hansen [12].

[7]The idea that the logic of imperatives is parasitic on the logic of indicatives was articulated by Dubislav in the period which from the present perspective can be called the *prehistory of deontic logic* (see [3]).

[8]I will hereinafter neglect the — undoubtedly important — difference between indicative sentences and propositions which those of them that are meaningful express, and I will simply talk about sentences assuming that such a simplification won't cause any misunderstandings.

[9]We take it, for example, as a shorthand for the sentence *It is forbidden by Canadian law that Thomas Bernard, born 11.9.1948, sells his house in Toronto, at 75 Bolzano Avenue, after April 21, 2022.*

is used within a particular legal discourse, in case of the sentence *Tom ought to sell his house* where the "ought" is interpreted as prudential or moral we can hardly take for granted that the sentence bears a definite truth value. In some cases/contexts we may conclude that the (suitably complemented) sentence is clearly true or false[10] but in many, perhaps even most, cases sentences in which "ought" or a similar deontic expression plays a central role are correctly understood as expressing recommendations or instructions. Recommendations, as well as instructions, can be wise, silly or controversial but they are not true or false — their role is to *guide actions* not to *state facts*, they are *prescriptive* not *descriptive*.

From a logical viewpoint we can (and in a sense have to) choose between three basic strategies concerning deontic sentences: a) we will disregard the prescriptive use/interpretation of deontic sentences and take them as a specific category of statements, b) we will disregard the descriptive use/interpretation of deontic sentences and take them as a specific category of prescriptions (action-guiding sentences) or c) we will decide to take both the descriptively and prescriptively interpreted deontic sentences as legitimate objects of logical study. Let us call strategy a) *the descriptivist strategy*, strategy b) the *prescriptivist strategy* and strategy c) the *two-fold strategy*.

If we adopt strategy c), we open space both for the *logic of deontic statements* and for the *logic of prescriptive judgements*. (We can then take this latter logic as coinciding or overlapping with the *logic of imperatives* or as a different field of study.)

As we can see, logicians interested in deontic discourse must make "strategic" choices that are not easy or, more precisely, which may be quite difficult for those who want to have their conception of deontic logic well justified. Among logicians who were aware of the intricacy of the choices was the main founder of deontic logic, G. H. von Wright, who struggled with them for most of his professional life (see [31, 32, 33, 34, 35]). Many logicians, however, don't perceive the

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[10]For example when a kibitzer comments on a chess game, saying "If white wants to win she should castle" when castling is the only way for white to prevent check mate.

choices as being too difficult. A number of them tacitly (or perhaps even unconsciously) accept the descriptivist strategy. In this sense, the mainstream of deontic logic, which takes the so-called standard deontic logic (SDL) as a prototypical system (or at least as a benchmark system), can be — if we simplify a bit — classified as descriptivist. [11]

I am not quite sure whether Marie Duží would resolutely adhere to the descriptivist strategy but there are good reasons to ascribe it to Daniela Glavaničová, who clearly treats deontic sentences as truth-bearers in her texts.[12] Adoption of the descriptivist approach is in a sense convenient as we don't need to bother about the so-called Jørgensen's dilemma, which raises the question of whether expressions like imperatives and prescriptively interpreted deontic sentences, which are (according to the prevailing view) not truth-bearers, can be related by the relation of logical consequence. The descriptivist position is, of course, legitimate providing that it is adopted consistently and those who hold it carefully avoid casual digressing to the prescriptive interpretation of deontic sentences (such digressing may, unsurprisingly, be tempting in many contexts).

Let us in the following paragraphs presume that we have adopted the descriptivist approach or the two-fold strategy with a focus on the logic of deontic statements. We can then concentrate on the question of whether deontic modals seen in this way are hyperintensional — whether expressions like *it is obligatory that..., it is permitted that..., it is forbidden that..., (an agent) ought to..., (an agent) may ...* create contexts which are like the contexts created by epistemic phrases or whether they contribute to the meanings of the relevant sentences in significantly different ways.

As I have indicated, authors like Glavaničová and Faroldi are convinced that they do create hyperintensional contexts. What are their

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[11]One should be aware of the fact that the decision to view deontic sentences as descriptive, i.e. true or false (if we accept the law of excluded middle) has important implications which by far not everybody is ready to fully accept.

[12]It is, however, possible that she is open to the adoption of a version of the two-fold strategy. In Glavaničová [10], we come across formulations that indicate that she might be open to accept the two-fold strategy, to this point she has, however, focused only on the logic of deontic statements.

reasons? Besides Glavaničová's argumentation that points to the alleged analogy between epistemic and deontic modal terms, the crucial motives are not difficult to understand. Both authors are convinced that if we consequently treat the deontic modals, resp. the relevant logical constants O, F, and P as we know them from SDL (c.f. [13])[13] as creating hyperintensional contexts, we easily avoid most or perhaps even all the paradoxes which trouble SDL and similar systems of deontic logic.

Such a strategy makes sense: it is quite obvious that if we raise the standards for what can be substituted for what in the contexts of deontic operators (in particular if we disallow substituting of co-extensional terms within the contexts), we significantly weaken the original system and hence it is likely that we won't be forced to accept inferences which seem incorrect or implausible as valid. This kind of strategy, which we might call *better safe than sorry* amounts to putting stress on the natural and highly relevant requirement that logic shouldn't authorize inferences that (according to our intuitions) lead from true premises to a false conclusion.

The strategy, unsurprisingly, also has its limitations: if we put all the weight on this requirement we might conclude that the best (safest) system of logic is one that does not approve any inferences as valid. It is, however, not difficult to see that a logical system of this kind wouldn't be satisfactory as the possible problems just "get swept under the carpet". In fact, a system of this kind would hardly deserve the title "logical".

We thus should aspire to build logical theories that are not only safe but also ambitious. A logical theory should allow us to classify as logically correct as many inferences (arguments) which a) are intuitively correct and b) are such for logical reasons — i.e. their correctness is based on the meaning of the logical constants (resp. on the formal features of the relevant language) as being possible. Only

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[13]It should be clear that SDL is not standard in the sense that most logicians interested in deontic logic accept it. It is a proper name of a system with which hardly anyone is satisfied but which serves as a kind of common reference point in discussions about deontic logic.

then the theory will be useful.

One can try to put pragmatic requirements like ambitiousness, simplicity, usefulness and user-friendliness aside and simply require that we have to identify the right/correct logical theory — the one that captures logical relations as they really are. This, seemingly natural, requirement however breaks down when we seriously consider the question of how we might get a clear and reliable insight into the realm in which logical relations are distinct and definite. Platonic recollection appears somewhat unreliable and we can also hardly build on something like the mystic visions of those who dare claim that they have a good insight into the realm of logical relations. Thus we are, I am afraid, left with intuitions of fallible humans and with balancing reliability and ambitiousness.[14]

Let us now take a look at how the idea that deontic modals are hyperintensional fares from this perspective. We can start with simple deontic arguments like the following one:

DA1   *No one is allowed to drive any motor vehicle on Bolzano Road.*
      Any electric pick-up is a motor vehicle
      Jim is not allowed to drive an electric pick-up on Bolzano road.

This argument seems straightforwardly correct and we can be quite sure that any policeman who is convinced that its first premise is true would be unwilling to enter into an argument as to whether Jim is, on this basis, forbidden to drive an electric pick-up on Bolzano road or not. But if we insist that the deontic term "allowed" creates a hyperintensional context, there is, as far as I can see, little chance to classify it as correct. The fact exposed in the second premise, namely that any electric pick-up is (actually and perhaps even by necessity) a motor vehicle, is unessential when we cannot "make use of it" in the — allegedly hyperintensional — context created by the deontic terms like "allowed" or "forbidden". Thus we can see that insisting on the claim that deontic contexts are hyperintensional can get us into

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[14]More about the related issues can be found in Peregrin and Svoboda [21].

trouble if, for example, the police employ a stronger (more ambitious) logic than we do.

Let us consider an analogous argument in which an "epistemic operator" plays a central role, namely:

EA1   *Jim believes that he didn't drive any motor vehicle on Bolzano road.*
      Any electric pick-up is a motor vehicle
      Jim believes that he didn't drive an electric pick-up on Bolzano road.

In this case, I presume, we would have a reasonable chance to convince a policeman that Jim can be, at least in principle, so ignorant that he is not aware of the obvious fact that driving an electric pick-up amounts to driving a motor vehicle and thus the conclusion is not substantiated by the two premises. (Still, this is unlikely to save Jim from a potential fine if he did drive the electric pick-up on Bolzano road as we all know that ignorance, and less so blatant ignorance, is no excuse.)

Let us consider another argument:

DA2   *Jim ought to visit all his cousins*
      Tim is one of Jim's cousins
      Jim ought to visit Tim

I think that hardly anyone would wish to deny that it is an intuitively valid inference. If we try to identify its logical form, the following two options seem plausible:

DAF2 $$\frac{O_j \forall x(C(x,j) \to V(j,x)) \qquad C(t,j)}{O_j V(j,t)}$$

DAF2* $$\frac{O \forall x(C(x,j) \to V(j,x)) \qquad C(t,j)}{O V(j,t)}$$

The first one corresponds more closely to DA2 as it straightforwardly speaks about Jim's obligation (which is indicated by the subscript to the operator O). The second corresponds rather to the argument whose first premise reads: *It ought to be the case that if any individual is a cousin of Jim then Jim visits the individual (in the near future).* In any case, it seems reasonable to expect that respectable systems of deontic logic should classify both DAF2 and DAF2* as (logically) valid (if they occur in their language). Nevertheless, it is difficult to imagine how we could recognize their validity if we assume that phrases like "is obliged" or "it is obligatory that", resp. the operators O_j and O, create hyperintensional contexts — the relevant information about the kinship relation can't be easily retrieved for the sake of argumentation.

Let us again compare the argument with its "epistemic analogue":

EA2   *Jim believes that he has visited all his cousins*
      Tim is one of Jim's cousins
      Jim believes that he has visited Tim

I am convinced that most logicians, as well as laymen, would agree that this argument is incorrect and its form, let us say

$$B_j \forall x (C(x, j) \to V(j, x))$$
EAF2 $$\frac{C(t, j)}{B_j V(j, t)}$$

should be classified as invalid by any reasonable epistemic/doxastic logic.

Let us, finally, consider the following two statements:

DS1   *No one is allowed to draw a square on this blackboard.*

DS2   *Tom may draw a regular quadrilateral on the blackboard.*

It seems obvious that the two statements are incompatible for logical reasons — they should be, if properly analyzed, logically inconsistent. But once again, if we take the phrases ...*is (not) allowed to* ... *and* ...*may...* as forming hyperintensional contexts, it is difficult to see

how the formulas that are going to represent the logical structure of the sentences might be shown to be incompatible, notwithstanding that we explicitly adopt a statement like

DS3   *Necessarily, any square is a regular quadrilateral (and vice versa)*

as our premise. This is, once again, an unfortunate effect of the assumption that deontic terms standardly create hyperintensional contexts.

Now it is, I believe, quite clear what I want to suggest: I wish to claim not only that the analogy between epistemic and deontic modal terms on which Glavaničová wants to build her argument is not, by far, as convincing and robust as she supposes. In fact, I want to cast doubt on the very idea that deontic modals create hyperintensional contexts.

The controversial idea that they do is also promoted by Federico Faroldi [6], who not only presents arguments designed to show the failure of conceptions within which deontic modals are conceived as non-hyperintensional (conceptions allowing for the substitution of classical logical equivalents in the contexts created by deontic modals), but he also outlines a theory which is meant to surpass the controversial deontic theories.

Before I turn my attention to Faroldi's ideas, I should perhaps mention a problem that is characteristic not only of Faroldi's account but also of other approaches to deontic logic. I have already suggested that we must (or at least we should) choose how we want to conceive our project when we want to deal with issues covered by the general term "deontic logic". I mentioned that essentially we have three options: a) the *descriptivist strategy*, b) the *prescriptivist strategy*, and c) the *two-fold strategy*. Unfortunately, many authors writing about deontic logic don't clearly say which approach they have chosen. This doesn't seem like a too big problem as we can expect that their choice can be recognized from the way in which they talk, but this is not always the case — often the indications in the texts are conflicting and hence confusing.

This is, unfortunately, also the case with Faroldi. He seems to oscillate between the descriptivist approach and the two-fold approach. He, on the one hand, clearly takes deontic sentences as truth-bearers, but, on the other hand, he apparently takes them as items that have (when suitably used) an action-guiding force — a force which is typical of, for example, proclamations contained in legislative codes. We are thus left in doubt about whether he is just a somewhat careless descriptivist or a special sort of logician adopting the two-fold strategy — one that is convinced that distinguishing between descriptive and prescriptive understanding of deontic sentences is futile, or at least unimportant, because the logical principles guiding their logical behavior are exactly the same (or strictly parallel) in both cases. This kind of view might be called the *both-at-one-blow policy in deontic logic*. I have argued elsewhere that this policy is — no matter whether it is adopted deliberately or unconsciously — a crucial source of confusion in deontic logic (see [27]).

Let me show how the ambiguity which concerns the "strategic approach" to the study affects one of Faroldi's arguments in favour of the view that deontic modals create hyperintensional contexts.

Let us carefully read Faroldi's argumentation. He writes:

> "Consider the following:
> (1) You ought to drive.
> (2) You ought to drive or to drive and drink.
>
> The prejacents of (1) and (2) are logically equivalent, because A is logically equivalent to $A \vee (A \wedge B)$. But (1) and (2) cannot be considered equivalent obligations, as many legal systems scrupulously remind us. The fact that driving and [driving or (driving and drinking)] have the same truth value in all situations is not enough to make them interchangeable in ought contexts, preserving all normatively relevant features. Besides these intuitive considerations, where these two obligations are equivalent, we should take normative systems to be either largely irrational or very bad at guiding action effectively, since driving and drinking would be an acceptable (even required)

course of action to satisfy one's obligation to drive." [6, p. 389]

From what Faroldi says here, one would guess that he either accepts the prescriptivist strategy or he is an adherent of the two-fold strategy focused on the logic of prescriptive judgments — the two sentences he mentions in his example are clearly understood as "guiding actions", i.e. prescriptive. But when he later begins to use a formal apparatus we can see that he works with sentences of this kind as if they express declarative statements which are either true or false. The best explanation for this seems to be that he accepts the *both-at-one-blow policy* and this allows him to freely oscillate between viewing one and the same sentences once as expressing an action-guiding prescription and another time as a deontic statement. But if he does this, he should declare this openly and defend the chosen approach as it is far from uncontroversial.

But let us pass over this issue and focus on assessing how convincing Faroldi's argument is. He points out that "driving and [driving or (driving and drinking)] have the same truth value in all situations". This claim, I am afraid, does not make much sense — driving (similarly as swimming, sitting or sleeping) clearly does not have any truth value. Types of actions, resp. generic acts, simply don't have any truth values. This point was made already in von Wright's seminal paper *Deontic Logic* [31].

If we disregard this problem and suppose that Faroldi's "prejacents" are more appropriately expressed by the sentences *You drive* and *You drive or you drive and you drink* we will easily see that the problem which he points out is only a variant of the well-known *Ross paradox*,[15] which indicates that disjunction in imperative sentences (or

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[15]In his paper from 1941, Alf Ross turned his attention to the implausibility of the inference from *Mail the letter!* to *Mail the letter or burn it!*. (To be accurate — Ross says that "from: slip the letter into the letter-box! we may infer, slip the letter into the letter-box or burn it!" (p. 62) which is, in his view, obviously a wrong step.) The inference turns out to be correct if we adopt Dubislav's convention mentioned above. (It is worth noting that Ross takes sentences occurring in the inference in question as action-guiding, no matter what grammatical form they have (see [24]).

more generally in action-guiding sentences) behaves differently than in ordinary declarative statements. There are, however, many logical theories that more or less successfully deal with the problem without involving means so "heavy-weight" as hyperintensionality.

If we consider the problem of the substitution of (classical) logical equivalents within prescriptive sentences without a prejudice we will see that the substitution is not controversial if we avoid using "or". The substitution may yield somewhat strange-sounding sentences but the arguments don't seem wrong at all. Let us consider for example the following equivalents of Faroldi's (1):

3. *You ought to drive and (to) drive and (to) drive.*

4. *You ought to drive and if you don't drive then [you ought to] drive.*

Both the sentences which are formed analogously to Faroldi's (2) sound somewhat strange but they appear to say/require the same thing as (1) and thus the substitution step does not seem too controversial and still much less evidently wrong.

Another strange thing about Faroldi's argument is his surprising conclusion that "driving and drinking would be an acceptable (even required) course of action to satisfy one's obligation to drive". I don't understand what Faroldi is after here. If I have an obligation to drive, I can satisfy it by a complex action that consists in driving and singing or in driving and smoking or in driving and drinking (either non-alcoholic or alcoholic beverages), etc. Nothing, of course, guarantees that all of the combinations of actions are acceptable — if I am obliged to avoid smoking then driving and smoking is clearly an unacceptable course of action[16] but this seems quite uncontroversial. Similarly unproblematic is the case with driving and drinking: driving and drinking water is fine unless this combination of actions is forbidden by the relevant code and the situation is quite analogous when by 'drinking' we mean 'drinking alcoholic beverages'.

From what I have said it is, I believe, clear that I find the argument of Faroldi's that I have just outlined above utterly unconvincing. His

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[16]I can't see what might make one think that it is "even required".

next argument is quite bizarre as it concerns the biblical Eve eating infinitely many apples, and I will skip it. His third argument invites us to consider two deontic sentences

5. *It ought to be the case that the pope shakes hands with Shakira.*

6. *It ought to be the case that Shakira shakes hands with the pope.*

complemented by an assumption that "it is the case that the pope shakes hands with Shakira if it is the case that Shakira shakes hands with the pope" [6, p. 390]. Faroldi then emphatically states that if "ought" were to be analyzed non-hyperintensionally, we would have to conclude that the two deontic sentences come out as equivalent. But this, in his view, is patently false.

Once again I don't understand the gist of his argument. The *requirement* suggesting that the relevant event of shaking hands is something that ought to take place can be, in my view, expressed by both the sentences and in this sense the sentences are equivalent. It is, in my view perfectly natural to understand (5) and (6) as sentences *describing* (correctly or incorrectly) a certain deontic situation and they are, I believe, true in exactly the same situations.

Faroldi disagrees. He points out that the pope might have a (shaking) obligation towards Shakira, without it being the case that Shakira has a (shaking) obligation towards the pope. I gladly agree with his point, but I think that it doesn't concern his example and so it is not relevant. Neither (5) nor (6) speak about an obligation of a certain person. Such obligations would be properly expressed by sentences like *Shakira ought to (see to it that she) shake(s) hands with the pope.* But then it is clear that no substitution within the reach of the deontic modal (which might be, as I have indicated, symbolically expressed by indexing the deontic operator — let say Os) can turn Shakira's obligation into an obligation of the pope, and hence Faroldi's argumentation fails.

Even if Faroldi's arguments in favour of hyperintensionality of deontic modals are unconvincing, one might be ready to admit that if the system of hyperintensional deontic logic that he proposes (HDL) satisfies the crucial requirements: i) it is not affected by paradoxes,

and at the same time ii) it is ambitious/fruitful enough (i.e. allows us to classify inferences that are intuitively logically valid as valid according to the system), then his point is generally convincing. And Faroldi apparently believes that the propositional deontic logic that he proposes is satisfactory or at least a promising candidate for a respectable system of deontic logic. He briefly shows that HDL does not validate some paradoxical inferences that affect SDL. He, however, doesn't try to convince the reader that this success is not achieved at the expense of the ambitiousness/fruitfulness of his logic. This is, as I have suggested, a natural worry that arises when we "go hyperintensional". In the case of a logical system like HDL, which contains as its *only* rule the rule of the substitution of hyperintensional equivalents, such a worry is surely more than well substantiated.

I don't want to subject HDL to a complex critique here. I will only outline two critical points. The first one I have already mentioned. The language of HDL is a propositional language which allows for "mixed" formulas like $A \vee OB$ or $\neg OA \to B$, i.e. it allows for expressing sentences like *Ostrava is the capital of Moravia* or *Bjørn ought to drive* or *If it is not obligatory that Bjørn fasts then (it is true that) Pavel is a philosopher.*[17] It is quite obvious that language of this kind is not suitable for the formalization of sentences that are action-guiding. The deontic sentences expressible in this language are either true or false, otherwise they couldn't be connected by classical connectives with sentences expressing common statements.

If we appreciate this, it is obvious that Faroldi's system is quite detached from his argumentation in which he clearly talks about prescriptively interpreted (action-guiding) sentences. Faroldi might perhaps connect the system and the argumentation if he successfully defends the acceptability (or better appropriateness) of a version of the "both-at-one-blow policy", but he doesn't try to do that.

The second critical point concerns his axiom

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[17]HDL doesn't contain the connective of implication, but I assume that it can be defined in the usual way. Of course, using material implication in the formalization of sentences about conditional obligations is associated with a number of problems, and it is hard to believe that at least some of them don't affect the plausibility of HDL.

13. $O(A) \vee O(B) \approx_H O(A \vee B)$.[18]

The fact that this formula is valid straightforwardly suggests that, for example, the sentence *Jim ought to mail the letter or Jim ought to burn the letter* is, as far as its meaning goes, equivalent to the sentence *Jim ought to mail the letter or burn it*. The step from the left side to the right one is, as we have seen above, quite controversial — it is a version of Ross' paradox. I don't want to exclude that the reasonability of such a step might be plausibly defended, but the defense is far from straightforward.

Unfortunately, the right-to-left direction is controversial too. It apparently validates, for example, the inference from *Jim ought to buy oranges or tangerines to Jim ought to buy oranges or Jim ought to buy tangerines*. Intuitively, the first sentence suggests that Jim is obliged to buy some fruits, specifically oranges or tangerines, while it is not specified which of the two — he is apparently in a situation where he can choose. The second, which is supposedly equivalent, nevertheless quite clearly suggests that there is no room for choice — Jim is obliged to buy a specific kind of fruit, we just don't learn from the sentence whether he ought/is obliged to buy oranges or he ought/is obliged to buy tangerines. In any case, the sentence instantiating the left side of axiom 13 is true only if Jim is not free to choose which fruits to buy.

Once again, it is perhaps possible to defend the step in some way, but then we can't help but recognize that our language is unsuited to appropriately capture the common situation which arises when the addressee/subject of an obligation can choose in which way he will comply with a command. (We have come across this situation in the very beginning in connection with the command *Mary, feed the sheep or the goats!*) A language that is incapable of describing such a common type of deontic situation is, I am afraid, substantially flawed. So I dare to conclude that the consequences of axiom 13 are unacceptable.

I don't want to categorically exclude the possibility of building a satisfactory system of deontic logic in which deontic operators are

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[18]The symbol '$\approx_H$' represents hyperintensional equivalence (see [6, p. 396]).

treated as creating hyperintensional contexts but I don't think that Faroldi has succeeded in completing this project. The argumentation he presents is, in my view, unconvincing, and he has not succeeded in either of his two tasks, namely a) to subvert the plausibility of non-hyperintensional deontic theories and b) to build a satisfactory deontic logic. As I have indicated, I am not very optimistic about the prospects of building an acceptable logical system of this sort — if we "go hyperintensional" in deontic logic, the resulting theory is likely to be safe (providing that we build it carefully), so it will not approve as valid any argument forms which are instantiated by incorrect arguments but it will, I am afraid, hardly be useful.

Let me close this paper with a general consideration that turns attention to the ways in which our philosophical positions affect our perception and evaluation of logical systems in general and systems of deontic logic in particular. I assume that Marie and Daniela share a general view of the nature of logic which, quite naturally, determines also their outlook on deontic logic. This is the picture according to which logic "investigates logical objects and ways they can be constructed" and according to which findings of logic "apply regardless of what people do with those objects: whether they exploit them in asserting, desiring, commanding, or questioning" Tichý, [1978, p. 278; 2004, p. 298].[19]

My hypothesis is that it is exactly this picture of logic that, if taken as seriously as Marie tends to take it, almost inevitably leads its advocates to take a stand that is quite unfavourable to the specificities of reasoning that involves sentences characteristic of deontic and in particularly prescriptive discourse. Her principled approach thus doesn't allow her to accept certain inferential steps that common language users consider clearly correct and the correctness of which can be recognized on the level of the form, as truly logical. If

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[19]In the passage, Tichý refers to Fitch, who claims: "[W]e do not need a special 'logic of imperative statements', 'logic of performative statements', and so on, as logic over and beyond, or basically different from the standard logic of propositions" (see [7, p. 40]). I should perhaps mention that I find the concept of imperative statement difficult to comprehend, but I won't go into the details here.

we insist that on the semantic level there is no difference between the sentences *Jim drives Tim's car, Does Jim drive Tim's car?* and *Jim, drive Tim's car!*, and all the difference in their meaning is relegated from the sphere of semantics to the sphere of pragmatics, then there is no space for admitting that the individual sentences might occupy different places in the relevant "logical webs".[20] There is also no space left for admitting that *ought* sentences interpreted prescriptively or imperative sentences might require a specific logical analysis that would reflect their specific features.

The position of Marie Duží (as I conceive it) is rigorous: If we have made some discovery concerning logical principles, then we have to bite the bullet and stick with it even if it appears counterintuitive in a specific case. This "obligation" stems from the outlook within which a) logic is meant to reveal the true logical reality as it is and b) all logically relevant features of sentences are reduced to their (narrowly conceived) semantic characteristics.[21] From such a perspective it is natural to insist that if *Mary feeds the goats or the sheep* is entailed by *Mary feeds the sheep* we must bite the bullet and accept that the prescription *Mary feed the goats or the sheep!* is entailed by *Mary feed the sheep!* (providing that the sentences are at all logically interconnected).

The position of Daniela Glavaničová is in my view somewhat less

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[20] That there are such specific webs is, in my view, convincingly demonstrated in a number of publications that focus on the logical features of questions (see e.g. [2]) or on the logical features of imperatives (see e.g. Vranas [36, 37]).

[21] When Pavel Materna cooperated with A. Svoboda and K. Pala in the 1970s he flirted with the idea of distinguishing between the *external pragmatics* (including the speaker, the context of her utterance etc) and the *internal pragmatics* which "operates within language 'dead', or in other words, constitutes part of a language user's apparatus preconditioning the actual use of a given language" [25, p. 208]. (The phrase "language 'dead' " apparently refers to a language seen as a system lacking any dynamics.) From such a perspective the difference between the three sentences about Jim and Tim belongs to internal pragmatics. Admittedly, the borderline between semantics and internal pragmatics is, to a large extent, optional. From such a perspective, the differences connected with the grammatical mood of sentences might turn out to be logically relevant. This suggests that Tichý's (Fitch's) conception of the logically relevant features of our language is by far not the only possible one even from the perspective of an adherent of TIL.

rigorous — she obviously takes into account intuitions that are associated specifically with employing sentences for prescribing and in this way she implicitly takes them as relevant from a logical point of view. In this way, she apparently diverges from the standard TIL position according to which mood is a matter of pragmatics (and hence irrelevant for logical considerations). She, however, seems to be ready to sacrifice ambitiousness/fruitfulness of a logical system when its safety/reliability might be endangered. It is, I guess, the main reason why she is ready to adopt the unfortunate consequences associated with conceiving deontic modals as creating hyperintensional contexts.

My position as concerns the nature of logic is quite different from the one favoured by Marie and Daniela. In my view, there is no fixed logical reality to be described. Still, logic is concerned with a kind of reality — with the, by its very nature fuzzy/indistinct, reality of our common normatively established practices that are called argumentation, (overt) reasoning or proving. Their indistinctness is, of course, connected with the fact that their natural media are natural languages.[22] Any nontrivial language, be it natural or artificial, is by its nature a "growth medium" for such practices, and being a competent speaker of the language involves (some would perhaps say amounts to) the ability to recognize (though not infallibly) which simple steps in reasoning are correct, which are incorrect and which are somewhere in between (almost always correct, correct or incorrect depending on a given context, strictly speaking incorrect, etc). The ambition of logic is to identify those kinds of inferential steps which are (or can be) employed no matter what we talk about (i.e. which are independent of a particular discourse topic), "extract" them from the language (the extraction involves "purifying" and schematizing) and systematize them.[23]

Unsurprisingly, the process of extracting, purifying and systematizing may result in approving steps that are controversial. If they

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[22]We may speculate about whether these practices are characteristic only of the reasoning of us humans or of any possible reasoning (e.g. reasoning practiced by extraterrestrial civilizations), but such speculations are likely to be sterile as we, I am afraid, cannot look at our concept of reasoning from the outside.

[23]More about the principles of such processes can be found in [21].

are too controversial then they are likely to subvert the proposed logical system which approves them. If they are controversial only to some extent we may decide to tolerate such a minor discrepancy between our intuition and our systematization and adopt the system in spite of its imperfection as deserving the label "logic" without any provisos.[24]

The history of deontic logic can serve as a paradigmatic example of different attempts at suitable extracting, purifying and systematizing. Most of the theories proposed during the last century failed because the controversial inferences approved by the theories turned out to be unacceptable for (most of) the community of involved logicians.[25] Others have failed and may fail because the resulting theory is too weak — doesn't allow us to classify inferences that seem clearly correct for logical reasons as correct within the theory.[26] One can, of course, presume that there is a "genuine" deontic logic to be discovered. Such a conviction is safe in the sense that there is no way in which it might be convincingly refuted. One can only insist that those who adopt it try to make clear how can we "measure" the *appropriate-likeness* (an analogue of truth-likeness or verisimilitude of scientific theories) of the individual theories and how we might recognize that we have identified the one and perfect (deontic) logic.

Marie Duží, as far as I know, strongly holds to the "realistic" outlook on logic just outlined, and I believe that she would keep holding to it if she turned her attention to deontic logic — she would, I believe, tend to think that there is a genuine deontic logic to be captured by our theory. I also presume that she would be unwilling to admit that it might be reasonable to distinguish between the logic of *deontic*

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[24]For example, many logicians are ready to tolerate 'the paradoxes of material implication', as the systematization provided by classical propositional logic is so valuable, elegant and useful for various purposes. Others, of course, may find the paradoxes intolerable and search for another systematization — see, e.g., already [15].

[25]A good example is the very first modern system of deontic logic, proposed by Ernst Mally (see [16]). Mally didn't foresee all the unacceptable consequences which stemmed from his axioms, which seemed to him to be unquestionable.

[26]This is, in my view, likely to be the fate of Glavaničová's Δ-TIL or Faroldi's HDL.

statements (descriptively interpreted deontic sentences) and *deontic judgments* (prescriptively interpreted deontic sentences). I am, however, not sure how she would react if asked to provide criteria for measuring the appropriate-likeness of the individual theories. (Perhaps she will take a stand on these issues in the future.)

I suppose that Daniela Glavaničová, as a devoted follower of Pavel Tichý's legacy, also tends to lean towards the "realistic" outlook with respect to logic (including deontic logic). As in Marie's case, I am uncertain what would be her attitude toward the "appropriate-likeness measuring task". I only know that she believes that building deontic logic is a project worth devoting energy to — she has proved it by her activities in this field.

I also believe that the three of us don't differ (at least not too much) as for the criteria that we tend to almost automatically employ for assessing which systems of deontic logic are better and which are worse. Still, there is a principled difference between the conception of logic shared by Marie and Daniela which can be called Platonic, and the one that I have defended for many years (often together with Jaroslav Peregrin, who has adhered to it for most of his professional career)[27] which might be perhaps called Protagorean as it suggests a specific kind of man-as-measure doctrine for logic. Within this doctrine, logic is primarily a tool that we — humans — create and use to achieve different goals related to our communication.[28]

Frankly, I tend to think that even those who adhere to conceptions that are overtly radically Platonic tend, after all, to measure the "logicality" of individual logical theories as well as their comparable acceptability by pragmatic human measures which are based on common considerations. Good logical theory should be consistent, safe (free of counterintuitive consequences), fruitful, useful, sophisticated and yet elegant. Those who adopt the Protagorean conception of logic have the advantage that they can openly adjust their criteria of logicality so that they reflect the purpose of building individual logical theories. A Protagorean logician can openly do trade-offs be-

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[27] See Peregrin [19, 20].

[28] We have defended this picture in Peregrin and Svoboda [22, 23].

tween various "qualities" of logical theories: sometimes (relative to some purposes), she can take as a crucial quality of a logical theory the extent to which it allows for fine-grained analysis, in other cases she can put stress on simplicity and user-friendliness. In one case she can, for pragmatic reasons, give preference to the safety/reliability of the theory in question and reprobate a system that has only slightly counterintuitive consequences, while in the other case she may highly value inferential fruitfulness of the logical theory which she considers and assesses.

The defenders of the Platonic conception are, I am afraid, determined by their creed to search for *the* genuine logic or, if they are pluralists, for *the* genuine logics. They cannot openly say: "The system that I propose is not a true deontic logic — I am sure that it is not appropriate in the sense of capturing the (relevant) real deontic logic, but I propose that you take it as such because it may be useful". (Well, they can do this, but they would have to feel awkward doing so. Or at least they should feel awkward.)

As I have suggested, my impression is that scholars like Duží, Glavaničová (and probably also Faroldi) prefer safety and fine-grainedness to ambitiousness and inferential fruitfulness. This is, in a way, natural — if you aspire to capture the logical relations as they truly are in a realm that we can call the *third realm* or the *Platonic realm* then the worst mistake one can make while building a logical system is that the theory will approve some inferential relations that do not exist in this special realm. In such a case, the theory is simply wrong and hence it is only a failed attempt at building a logic. If one, on the other hand, presents a logical theory that does not capture all the relations but identifies at least some of them correctly then the theory is not perfect but it is not wrong in any strong sense, it is only not as good/perfect as it might/should be.

Also, if one assumes that we should aim at *revealing/discovering* the true logical structure which certain sentences of natural language exhibit, then their natural ambition is to capture the structure as it is — in its full richness/fine-grainedness. This then naturally leads one to prefer as an analytic tool a logic that allows for a really fine-grained,

and ideally exhaustive, analysis, even though it may not be user-friendly. Practicality and user-friendliness are likely to be inessential to a dedicated logical Platonist. If the reality of the realm of logical relations is complex and difficult to untangle, our logic should be correspondingly complex.

If, on the other hand, one views logical theories as a human tool — a tool that is primarily designed to allow for a clearer formulation of our assertions (or of our instructions) and for minimizing the space for mutual misunderstandings everywhere where clarity and understanding are of utmost importance — one is likely to be more open to introducing convenient simplifications when this enhances the usefulness of the theory. Such an approach also leads one to highly value the fruitfulness of the theory as one always has in mind that it should be useful as *our* tool (and possible confusion can be prevented by introducing explicit provisos of which everyone is then aware).

I, however, don't want to say that adhering to a version of logical Platonism has only disadvantages. Adoption of certain philosophically grounded principles and limitations can be challenging and inspiring and also the quest for unity and comprehensiveness which is (or should be) characteristic of Platonist conceptions can catalyze the formation of worthwhile and insightful logical theories. However, I think that the cons of the position prevail over its pros. Moreover, I believe that deontic logic is the area in which we are in danger of paying particularly dearly for our preconceptions, no matter how well they fare in different areas of logical research.

References

[1] Anglberger, A. J. J., Faroldi, F. L. G. & Korbmacher, J. (2016): "An Exact Truthmaker Semantics for Permission and Obligation". In: O. Roy — A. Tamminga — M. Willer (eds), *Deontic Logic and Normative Systems: 13th International Conference, DEON 2016, Bayreuth, Germany, July 18 – 21, 2016.* London: College Publications, 16–31.

[2] Ciardelli, I., Groenendijk, J., and Roelofsen, F. (2019): *Inquisitive Semantics.* Oxford University Press.

[3] Dubislav, W. (1938): "Zur Unbegrundbarkeit der Forderungssätze". *Theoria* 3, 330–342.

[4] Duží, M., Jespersen, B., and Materna, P. (2010): *Procedural Semantics for Hyperintensional Logic. Foundations and Applications of Transparent Intensional Logic.* Berlin: Springer Series Logic, Epistemology, and the Unity of Science 17.

[5] Faroldi, F. L. G. (2019): *Hyperintensionality and Normativity.* Cham: Springer.

[6] Faroldi, F. L. G. (2019): "Deontic Modals and Hyperintensionality". *Logic Journal of the IGPL* 27 (4), 387–410.

[7] Fitch, F. (1971): "On kinds of utterances". In: P. Kurtz (ed.), *Language and Human Nature*, St. Louis: Waren H. Green.

[8] Glavaničová, D. (2015): "K analýze deontických modalít v Transparentnej intenzionálnej logike". *Organon* F 22 (2), 211–228.

[9] Glavaničová, D. (2016): "Δ-TIL and Normative Systems". *Organon* F 23 (2), 2016, 204–221.

[10] Glavaničová, D. (2017): "In Defence of Δ-TIL". *Organon* F 24 (1), 105–113.

[11] Glavaničová, D. (2019): "Hyperintensionality of Deontic Modals: An Argument from Analogy". *Filozofia* 74 (8), 652-662.

[12] Hansen, J. (2013): "Imperative Logic and Its Problems". In: Gabbay et.al. (eds.),*Handbook of Deontic Logic and Normative Systems*, College Publications, 137-192.

[13] Hilpinen, R. (ed.) (1971): *Deontic Logic: Introductory and Systematic Readings.* D. Reidel, Dordrecht.

[14] Jørgensen, J. (1937–1938): "Imperatives and Logic", *Erkenntnis* 7, 288–296.

[15] Lewis, C. I. (1918): *A Survey of Symbolic Logic*, University of California Press, Berkeley.

[16] Mally, E. (1926): *Grundgesetze des Sollens. Elemente der Logik des Willens*, Graz: Leuschner & Lubensky. Reprinted in Ernst Mally: *Logische Schriften. Großes Logikfragment — Grundgesetze des Sollens*, K. Wolf, P. Weingartner (eds.), Dordrecht: Reidel, 1971, 227–324.

[17] Materna, P. (1981): "Question-like and non-question-like imperative sentences". *Linguistics and Philosophy* 4, 393–404.

[18] Materna, P. (1998): Concepts and Objects. *Acta Philosophica Fennica*, vol. 63, Helsinki.

[19] Peregrin, J. (1995): *Doing Worlds with Words*. Dordrecht: Kluwer.

[20] Peregrin, J. (2019): *Philosophy of Logical Systems*, New York: Routledge.

[21] Peregrin, J., and Svoboda, V. (2017): *Reflective Equilibrium and the Principles of Logical Analysis: Understanding the Laws of Logic*, New York, Routledge.

[22] Peregrin, J., and Svoboda, V. (2021): "Moderate anti-exceptionalism and earthborn logic". *Synthese* 199, 8781–8806.

[23] Peregrin, J., and Svoboda, V. (2022): "Logica Dominans vs. Logica Serviens". *Logic and Logical Philosophy*, Special Issue: Logics and Their Interpretations. H. Antunes — D. Szmuc (eds.) Vol. 31 No. 2, 183-207.

[24] Ross, A. (1941): "Imperatives and Logic". *Theoria* 7, 53–71 (reprinted in: A. Ross, "Imperatives and Logic". Philosophy of Science 11, 1944).

[25] Svoboda, A. (1976): "Apropos of internal pragmatics". *Brno Studies in English*, 12, 187–224.

[26] Svoboda, V. (2016): "Δ-TIL and Problems of Deontic Logic". *Organon F* 23 (4), 539–550.

[27] Svoboda, V. (2018): "A Lewisian taxonomy for deontic logic". *Synthese* 195, 3241–3266.

[28] Tichý, P. (1978): "Questions, answers, and logic". *American Philosophical Quarterly* 15, 275–284. Reprinted in (Tichý 2004: 293—304).

[29] Tichý, P. (1988): *The Foundations of Frege's Logic*. De Gruyter, Berlin — New York.

[30] Tichý, P. (2004): *Collected Papers in Logic and Philosophy*. V. Svoboda, B. Jespersen, and C. Cheyne (eds.), Filosofia, Prague and University of Otago Press, Dunedin.

[31] von Wright, G. H. (1951): "Deontic Logic". *Mind* 60, 1–15.

[32] von Wright, G. H. (1969): "On the Logic and Ontology of Norms". In: J. W. Davis — D. J. Hockney — W. K. Wilson — D. Reidel (eds), *Philosophical Logic*, Dordrecht.

[33] von Wright, G. H. (1971): "A New System of Deontic Logic". In: R. Hilpinen (ed.) (1971), 105–120.

[34] von Wright, G. H. (1985): *A Pilgrim's Progress, Philosophers on Their Own Work* vol. 12. Peter Lang, Bern.

[35] von Wright, G. H. (1991): "Is there a Logic of Norms?". *Ratio Juris* 4, 265–283.

[36] Vranas, P. B. M. (2011): "New Foundations for Imperative Logic: Pure

Imperative Inference". *Mind* 120, 369–446.

[37] Vranas, P. B. M. (2016): "New foundations for imperative logic III: A general definition of argument validity". *Synthese* 193 (6): 1703-1753.