

Von Wright's Legacy

On Metanormative Interpretation of Deontic Logic within Social Pragmatics

Berislav Žarnić

University of Split
Faculty of Humanities and Social Sciences

The Human Condition

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Overview

- 1 Normativity and humanities
- 2 Von Wright's deontic logic
- 3 Formal explication
- 4 Philosophical consequences

Georg Henrik von Wright, one of the founders of deontic logic, in his last papers, notably in "Deontic Logic: A Personal View" from 1999, opened paths that lead to the reinterpretation of axioms of deontic logic as metanormative principles ("normative demands on normative systems") addressing the norm-giver. The outline of the approach needs to be worked out in detail and the aim of this contribution is to present the two possible ways of doing so and evaluate their interpretative accuracy. Firstly, the set-theoretic approach of Alchourrón and Bulygin naturally extends to meta-normative interpretation within a translation scheme which interprets deontic axioms as descriptions of "perfection properties" of norm-sets, i.e., sets containing the propositional contents of obligation-norms. The analysis reveals that perfection properties are relative to the perspectives of the norm-giver and the norm-recipient. It is a second-order obligation (demand of rationality, von Wright) placed upon the norm-giver to create a consistent norm-set. On the other hand, the "perfection property" of deductive closure shows how the norm-recipient ought to treat a norm-set, it is not the property the norm-giver ought to achieve. The translation of deontic axioms as descriptions of desirable properties of norm-sets does not achieve full interpretative accuracy since Von Wright does not accept the thesis that the range of the permissible is fully determined once the range of the obligatory has been delineated. This negative claim, which can be defended on the grounds other than interpretative accuracy, leads to the second way of filling in the details of Von Wrights outline. Besides the perfection properties of the norm-set, the metanormative reading must be extended to properties of its counter-set (the set of that which is either optional or forbidden), which, as a matter of fact, may overlap with the norm-set. For example, extending the translation schema to properties of counter-sets it can be shown that the property corresponding to the consistency of a norm-set is the completeness of its counter-set. This parallelism of desirable properties becomes theoretically important for understanding the situation when the norm-recipient is subordinated to an inconsistent normative system, i.e., a system where either the norm-set is inconsistent or the norm-set overlaps with the counter set. The role of norm-recipient does not include the power to change an inconsistent normative system and thus the norm-recipient remains subordinated to it. So, it seems that the second-order norm or demand of rationality is in force, which requires a change to an inconsistency tolerant logic, while retaining the perfection properties of the two sets. Von Wright's outline of metanormative reinterpretation of deontic logic opens a new theoretical perspective that shows the essential role of social pragmatics for a logically oriented theory of normative systems.

Normativity and humanities: logic of ideographic sciences

“I am inviting you to see the difference between the humanities and the natural sciences in the light of the difference between the factual and the normative, between rules which state how things in fact go and rules which ordain how they should go according to the conceptions of those who instituted the rules.”



Georg Henrik von Wright
(1981).

Humanism and the Humanities.

*In Philosophy and Grammar:
Papers on the Occasion of the
Quincentennial of Uppsala
University*, S. Kanger and S.
Öhman, Sven, eds., pp. 1–16.
Dordrecht: Springer

[p.12]

- Von Wright's is not isolated in understanding normativity as an essential property of the social reality.
- If we accept the invitation to see the difference between the natural sciences and the humanities in the light of the difference between the factual and the normative, then deontic logic comes to the fore and becomes the specific logic of sciences of man. So, the reach of deontic logic is wider than the theory of normative systems.

Deontic logic as modal logic: 1950s

“One day when I was walking along the banks of the River Cam —I was at that time living in Cambridge (England)— I was struck by the thought that the modal attributes “possible,” “impossible” and “necessary” are mutually related to one another in the same way as the quantifiers “some,” “no” and “all.” I soon found that the formal analogy between quantifiers and modal concepts extended beyond the patterns of interdefinability... I had made another accidental observation —this time in the course of a discussion with friends— namely that the normative notions of permission, prohibition, and obligation seemed to conform to the same pattern of mutual relatedness as quantifiers and basic modalities.”



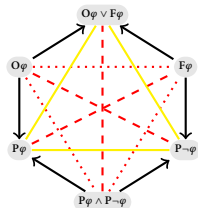
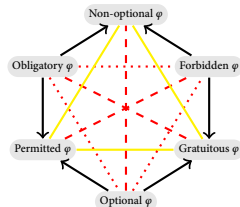
Georg Henrik von Wright (1999).

Deontic logic: a personal view.

Ratio Juris 12:26–38.

[p.28]

The hexagon of logical relations holding in standard KD deontic logic. The red dotted line represents the contrariety relation, the red dashed line represents contradiction, the full line represents subcontrariety, and the arrows represent subalternation (implication).



The turn towards logical pragmatics

“...deontic sentences in ordinary usage exhibit a characteristic ambiguity. Sometimes they are used as norm-formulations. We shall call this their prescriptive use. Sometimes they are used for making what we called normative statements. We call this their descriptive use. When used descriptively, deontic sentences express what we called norm-propositions. If the norms are prescriptions, norm-propositions are to the effect that such and such prescriptions ‘exist’, i.e. have been given and are in force.”



Georg Henrik von Wright
(1963).

*Norm and Action : A Logical
Enquiry.*

London: Routledge and Kegan
Paul.

Logical pragmatics takes into account the use of language. Different logics correspond to different uses of the language:

- 1 the *logic of norms* corresponds to the *prescriptive use of language*,
- 2 the *logic of norm-propositions* corresponds to the *descriptive use of language*.

Example. According to KD modal logic sentences $P\varphi$ and $P\neg\varphi$ are subcontraries, and so cannot be false together. Nevertheless, it is possible that a normative system is incomplete so that in it there is neither permission for φ nor for $\neg\varphi$. Therefore, $P\varphi \vee P\neg\varphi$ is not a theorem of the logic of norm-propositions.

Deontic logic as a study of rationality conditions in norm-giving activity

“Deontic logic, one could also say, is neither a logic of norms nor a logic of norm-propositions but a study of conditions which must be satisfied in rational norm-giving activity. It is strict *logic* because the conditions which it lays down are derived from *logical* relations between states in the ideal worlds which normative codes envisage.”



Georg Henrik von Wright
(1993).

A Pilgrim's Progress.

In von Wright, G.H. *The Tree of Knowledge and Other Essays*, 103–113.
Leiden: Brill.

[p.111]

- This programmatic statement on the directions for the development of deontic logic together with the outline of the path of its realization puts once again Von Wright in the role of the “midwife” (to use his own words) of the new perspective in deontic logic.

The basic idea can be summarized as follows: Thanks to the prescriptive use of language normative systems come into existence. The logical properties of normative systems are described using the language of the “logic of norm-propositions”. Some logical properties are “perfection-properties”. The absence of a certain perfection-property does not deprive a normative system of its normative force. In the prescriptive use of language the norm-giver ought to achieve some perfection properties of the normative system thereby produced. Deontic logic is a study of logical perfection properties; properties which act as the normative source of requirements to which the norm-giver and the norm-recipient are subordinated.

Obligation-norms and permission-norms

“Just as possibility is the negation of the necessity of the contradictory of a proposition, permission is the negation of the obligatoriness of the contradictory. $Pp \leftrightarrow \neg O\neg p$ is a theorem of “classical” deontic logic.

I think that this opinion is mistaken. The relation between permission and absence of prohibition is not a *conceptual* but a *normative* relation. One may be able to give good reasons why such things which are not prohibited by the norms of a certain code should be regarded as permitted by the code in question. But to declare the non-prohibited permitted is a normative act. One could have a meta-norm to the effect that the not-prohibited is permitted. The well-known principles *Nulla poena sine lege* and *Nulum crimen sine lege* may be thought of as versions of this meta-norm. Or at least as closely related to it.”



Georg Henrik von Wright (1991).

Is There a Logic of Norms?

Ratio Juris 4:265–283.

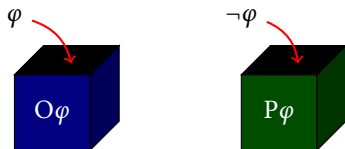
The non-derivative or logically primitive character of permissions poses a difficult problem for the semantic modelling. A possible solution will be presented here.

Summarizing von Wright's reinterpretation of deontic logic

- Non-derivative character of permissions. Permission and obligation are not interdefinable.
- If permission and obligation are not interdefinable, then there are two types of consistency:
 - ① External consistency relates obligation-norms and permission norms: $\neg(O\varphi \wedge P\neg\varphi)$.
 - ② Internal consistency deals with obligation-norms: $\neg(O\varphi \wedge O\neg\varphi)$.
- The set of obligation-norms ought to have perfection properties. Perfection properties are “normative demands on normative systems”, “rationality conditions of norm-giving activity”.¹
- The extension of von Wright's outline requires: (i) to take into account perfection properties of the set corresponding to permission norms, and (ii) to explicate perfection relations between obligation-norms and permission norms (e.g. external consistency).

¹A simple formula of logical pragmatics depicts the situation: after the norm-giver g prescribes that φ it becomes forbidden for her/him to prescribe that $\neg\varphi$, $[g : !\varphi]F_g^2(g : !\neg\varphi)$.

The metaphor: putting in boxes but with diverse logical structure (I)



- The facts about a normative system are represented using the language of set-theory:

- $O\varphi$ is represented by $\ulcorner \varphi \urcorner \in \mathcal{N}$,
- $P\varphi$ is represented by $\ulcorner \neg\varphi \urcorner \in \overline{\mathcal{N}}$.

Although counter-intuitive at the first glance, the adequate metaphor for permitting is that of putting the negation of the content into the permission box.

- The perfection properties are different for different “boxes”. For example, having a contradictory pair is an imperfection property of the obligation box, but for the permission box this is neither a perfection nor an imperfection property. Similarly, completeness is a perfection property for permissions but not for obligations: it is indifferent whether $\ulcorner \varphi \urcorner \in \mathcal{N} \vee \ulcorner \neg\varphi \urcorner \in \mathcal{N}$ holds, while $\ulcorner \varphi \urcorner \in \overline{\mathcal{N}} \vee \ulcorner \neg\varphi \urcorner \in \overline{\mathcal{N}}$ ought to hold.
- This model, as will be shown, can account for the fact that perfection properties come in pairs, one for obligations, another for permissions, both of which are characterized by the same theorems of standard deontic logic.

The metaphor: putting in boxes but with diverse logical structure (II)

Example

The difference in logical structure of the two “boxes” is also visible from the following facts:

- A perfect counter-set can have a contradictory pair of (negations) of permission-norm contents, which means that a certain state of affairs is optional. This fact does not cause an “explosion” (since in this box the principle *ex contradictione quodlibet* does not hold).
- Presence of a disjunct for each disjunction is a perfection property only for the “counter-set”, i.e., permission-norm set.
 - In a perfect system $(\varphi \vee \psi) \in \mathcal{N}$ does not require $\varphi \in \mathcal{N} \vee \psi \in \mathcal{N}$.
 - In a perfect system $(\varphi \vee \psi) \in \overline{\mathcal{N}}$ does require $\varphi \in \overline{\mathcal{N}} \vee \psi \in \overline{\mathcal{N}}$.



Metatheory of descriptive theory and normative system

- The proposed two-sets model bears resemblance to the relation between a theory T and its counter-part $\mathcal{L} - Cn(T)$. The counter part has logical properties such as “closure under implicant” (if $\psi \in \mathcal{L} - Cn(T)$ and φ entails ψ , then $\psi \in \mathcal{L} - Cn(T)$).
- The perfection properties of the descriptive theory have been well investigated within the logic of natural sciences. For example, the completeness of a theory, formulated in a language that cannot express its own syntax, counts as its perfection property, but the completeness of obligation-norm set is not its perfection property. The mismatch holds also on the side of “counter-sets”: the completeness of the descriptive counter-part $\mathcal{L} - Cn(T)$ is an indifferent property, while in the realm of normativity it is a perfection property of the “counter-set” representing permission-norms.
- The construction is different too: there is no “exclusion” part in building a theory since rejecting a sentence equals accepting its negation. This need not be the case with normative systems, whose obligation and permission parts are separately built.
- These facts shows that deontic logic as the study of “rationality conditions of norm-giving activity” or “perfection properties of normative systems” is a sui generis logic. If one accepts, together with von Wright, the central position of the phenomenon of normativity in humanities and social sciences, then deontic logic plays the prominent role in the philosophy of the science of man by revealing the logical basis of its methodological autonomy.

The turn towards logical pragmatics

STANDARD DEONTIC LOGIC	SET-THEORETIC APPROACH	SECOND-ORDER NORMS
theorems of standard deontic logic	perfection properties of the normative system	obligations of the norm-giver in the prescriptive use of language ²
Example: internal and external consistency		
$O\varphi \rightarrow \neg F\varphi$	$\{\varphi, \neg\varphi\} \notin \mathcal{N}$	$[g : \underline{!O_r\varphi}]F_g g : \underline{!F_r\varphi}$
$O\varphi \rightarrow \neg P\neg\varphi$	$\mathcal{N} \cap \overline{\mathcal{N}} = \emptyset$	$[g : \underline{!O_r\varphi}]F_g g : \underline{!P_r\neg\varphi}$

² $g :=$ norm-giver; $r :=$ norm-recipient; $F_g :=$ it is forbidden for the norm giver that ...;
 $g : \underline{!O_r\varphi} :=$ the norm giver has used the sentence $O_r\varphi$ in the prescriptive way; $[C]E :=$ after C it is the case that E .

Connecting the two languages of deontic logic

- A simple formal explication for von Wright's programmatic statement can be obtained using the set-theoretic approach proposed by many philosophical logicians (e.g., Carlos Alchourrón and Eugenio Bulygin, or, more recently, John Broome), according to which the existence of an obligation-norm within a normative system is represented by the membership of its propositional content in the set that represents the normative system in question.
- In the set theoretic approach the basic idea is to represent the norm by the membership relation between its content φ and "norm-set" \mathcal{N} : the expression 'it is obligatory that φ ' is explicated as ' $\varphi \in \mathcal{N}$ '.

On set-theoretic approach

- This highly reduced model can be made more realistic by adding variables, such as those for the source, addressee and situation and taking as elementary the expression 'by the source s it is obligatory in the situation w upon actor i that φ '. E.g., following Broome \mathcal{N} would be treated as a three-place function which delivers norm-contents (requirements), $\mathcal{N}(s, i, w) \subseteq \mathcal{L}$.
- The major point of divergence within the set-theoretic approach lies in the properties one is willing to assign to norm-sets.
- It is in accord with the approach proposed by von Wright to treat norm-sets as simple sets consisting just of sentences that correspond to contents of explicitly promulgated norms and to lay the question of their logical properties aside.
- In the approach proposed here it is not assumed that a norm-set is deductively closed, or closed under equivalence. The norm-set, as understood here, is just a set and the question of its desirable properties is solved by second-order norms addressed to different actor roles.

Translations

\mathcal{L}_{pl} is the language of propositional logic.

Language \mathcal{L}_{SDL} : $\varphi ::= p \mid O p \mid P p \mid \neg \varphi \mid (\varphi_1 \wedge \varphi_2)$ where $p \in \mathcal{L}_{pl}$.

Language $\mathcal{L}_{\langle \mathcal{N}, \overline{\mathcal{N}} \rangle}$: $\varphi ::= p \mid p \in \mathcal{N} \mid p \in \overline{\mathcal{N}} \mid \neg \varphi \mid (\varphi_1 \wedge \varphi_2)$ where $p \in \mathcal{L}_{pl}$.

$$\tau^+, \tau^-, \tau^* : \mathcal{L}_{SDL} \mapsto \mathcal{L}_{\langle \mathcal{N}, \overline{\mathcal{N}} \rangle}$$

To norm-set properties

$$\begin{aligned} \tau^+(O\varphi) &= \ulcorner \varphi \urcorner \in \mathcal{N} \\ \tau^+(P\varphi) &= \ulcorner \neg \varphi \urcorner \notin \mathcal{N} \end{aligned}$$

To counter-set properties

$$\begin{aligned} \tau^-(O\varphi) &= \ulcorner \varphi \urcorner \notin \overline{\mathcal{N}} \\ \tau^-(P\varphi) &= \ulcorner \neg \varphi \urcorner \in \overline{\mathcal{N}} \end{aligned}$$

To norm-system properties

$$\begin{aligned} \tau^*(O\varphi) &= \tau^+(O\varphi) \\ \tau^*(P\varphi) &= \tau^-(P\varphi) \end{aligned}$$

$\tau^*(\varphi) = \varphi$ if $\varphi \in \mathcal{L}_{pl}$; $\tau^*(\neg\varphi) = \neg\tau^*(\varphi)$; $\tau^*(\varphi \wedge \psi) = \tau^*(\varphi) \wedge \tau^*(\psi)$, where $\star = +, -, *$.

Correspondences

POSTULATES OF STANDARD DEONTIC LOGIC	NORM-SET PROPERTIES	COUNTER-SET PROPERTIES
(D) $O\varphi \rightarrow P\varphi$	consistency $\tau^+(D) = \varphi \in \mathcal{N} \rightarrow \neg\varphi \notin \mathcal{N}$	completeness $\tau^-(D) = \varphi \notin \overline{\mathcal{N}} \rightarrow \neg\varphi \in \overline{\mathcal{N}}$
(2) $(O\varphi \wedge O\psi) \rightarrow O(\varphi \wedge \psi)$	closure under conjunction $\tau^+(2) = (\varphi \in \mathcal{N} \wedge \psi \in \mathcal{N}) \rightarrow (\varphi \wedge \psi) \in \mathcal{N}$	having at least one conjunct for each conjunction contained $\tau^-(2) = (\varphi \wedge \psi) \in \overline{\mathcal{N}} \rightarrow (\varphi \in \overline{\mathcal{N}} \vee \psi \in \overline{\mathcal{N}})$
$\frac{\vdash_{pl} \varphi \rightarrow \psi}{(cl) O\varphi \rightarrow O\psi}$ alternatively, (K) axiom together with necessitation rule	deductive closure if $\vdash_{pl} \varphi \rightarrow \psi$, then $\tau^+(cl) = \varphi \in \mathcal{N} \rightarrow \psi \in \mathcal{N}$	“closure under implicant” if $\vdash_{pl} \varphi \rightarrow \psi$, then $\tau^-(cl) = \psi \in \overline{\mathcal{N}} \rightarrow \varphi \in \overline{\mathcal{N}}$
(D*) $O\varphi \rightarrow \neg P\neg\varphi$		RELATIONAL PROPERTIES external consistency $\tau^*(D^*) = \varphi \in \mathcal{N} \rightarrow \varphi \notin \overline{\mathcal{N}}$
(G) $O\varphi \vee P\neg\varphi$		“gaplessness” $\tau^*(G) = \varphi \in \mathcal{N} \vee \varphi \in \overline{\mathcal{N}}$

Imperfections in graphical presentation

- “Relational (or external) inconsistency” occurs if $\mathcal{N} \cap \overline{\mathcal{N}} \neq \emptyset$.
 - An example: $\mathbf{O}\varphi \wedge \mathbf{P}\neg\varphi$ is given in the picture below.
- “Inner inconsistency” occurs if $\{\psi, \neg\psi\} \subseteq \overline{\mathcal{N}} \neq \emptyset$ for some ψ .
 - An example: $\mathbf{O}\psi \wedge \mathbf{F}\psi$ is given in the picture below.
- Incompleteness: existence of normative gaps, $\neg\mathbf{O}\chi \wedge \neg\mathbf{P}\chi$

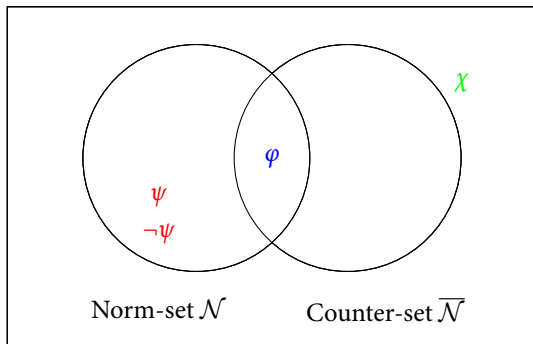


Figure : A “gapful” but and “doubly inconsistent” normative system.

Relational perfections

- A normative system $\langle \mathcal{N}, \overline{\mathcal{N}} \rangle$ with “relational perfections”:
 - it is gapless, $\mathcal{N} \cup \overline{\mathcal{N}} = \mathcal{L}$,
 - it is externally consistent, $\mathcal{N} \cap \overline{\mathcal{N}} = \emptyset$.

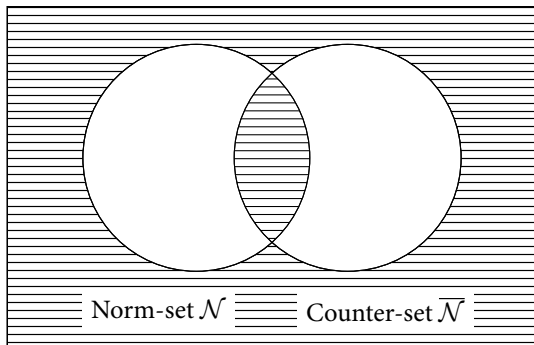
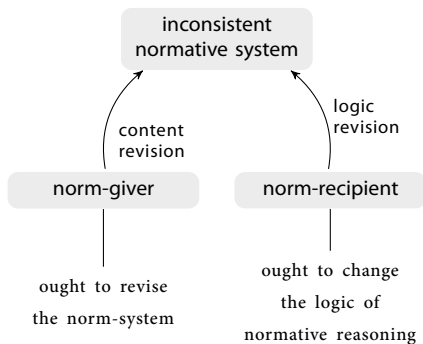


Figure : A gapless and externally consistent system.

Social Pragmatics of Deontic Logic

- Von Wright's programmatic statement can be extended to include normative reasoning as another type of norm-related activity. Second-order norms for the roles of norm-giver and norm-recipient need not be the same. This difference most vividly appears in the relation of roles to an inconsistent normative system.
- The reasons why the term 'social pragmatics' can be applied to the von Wright's understanding of deontic logic in his later works are, inter alia, the following:
 - the term 'pragmatics' indicates the study of language-use:
 - the norm-giver is engaged in the prescriptive *use of language* while constructing a normative system,
 - the norm-recipient *uses a system constructed by language use* as the basis of her/his normative reasoning;
 - the term 'social' indicates that more than one language-user (or social role) should be taken into account:
 - the (role of) norm-giver,
 - the (role of) norm-recipient.
- Social pragmatics of deontic logic studies the norms that apply to norm-related activities of social actor roles. These norms can be properly called 'second-order norms' since they cover the activities that are related to a normative-system

The logical pragmatics view on inconsistency



Corrective obligations with respect to an inconsistent normative-system.

Logic revision as a second-order obligation

- A normative vacuum does not appear if the norm-recipient is subordinated to an inconsistent normative system, in which there is no way out of the normative conflict on the basis of the metanormative principles on the priority order over norms.
- On the other hand, the norm-recipient cannot reason using classical logic since it would lead to the logical “explosion” (on the side of the norm-set).
- The only remaining option is logic revision.³ So, the norm-recipient faced with an inconsistent normative system ought to adopt an inconsistency-tolerant logic under which the normative properties will be preserved, namely, closure under entailment and adjunction of the norm-set together with correlated properties of the counter-set (closure under implicants and closure under having at least one conjunct for each conjunction). Is there such a logic? Yes there is (or there are)! The deontic dialethic logic (G. Priest) fits the need of logic revision on the side of the norm-recipient.

³In the view of perfection properties, some postulates of logic revision can be outlined. The first condition that a logic change ought to satisfy is to restore coherence (=non-explosiveness) of the set whose logic is being changed. Secondly, the change of logic ought to preserve desirable logical properties. The two conditions of the logic revision, restoration condition and preservation condition, resemble the content contraction, but the difference lies in the fact that instead of consistency it is the coherence that is being restored, and, instead of maximal preservation of the content, it is the desirable logical properties that are being saved.

What can be learnt on *human condition* from von Wright's interpretation of deontic logic?

- Man, as an imperfect rational being, creates imperfect normative systems by the prescriptive use of language.
- Man can be subordinated to an imperfect normative system and compelled to reason on its basis.
- Deontic logic is not the logic of actual normative systems for they can fail in being perfect. It is neither the logic of normative reasoning since its basis can be imperfect.
- Deontic logic is the logic of perfect systems and their perfection properties, the ones that the norm-giver ought to achieve in normative system (re)construction, and the ones to which the norm-recipient relates in her/his reasoning in spite of the actual imperfections.⁴

⁴The author acknowledges support from Croatian Science Foundation (HRZZ) within the research project: LOGICCOM–Logic, Concepts, and Communication.