# QUANTIFICATIONAL ENTITLEMENTS AND RELEVANTOID DEONTIC LOGIC

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*Abstract*

We develop a new system of deontic logic which implements a new treatment of quantified deontic and juridical propositions; chiefly those concerning positive rights, which are couched in terms of existential quantifiers: the right to have a dwelling, or a job, to enjoy medical care and so on. In order to achieve such a treatment, new axioms are put forward, but at the same time most of the usual axioms of standard systems of deontic logic are dropped.

*Preliminaries*

Systems of fuzzy deontic logic have been developed which are based on a nonconservative extension of Anderson & Belnap's system of entailment $E$. Unlike some of such systems, the present one is based, not on $P5$, but on $P10$. The chain of systems $P5...P10$ is constituted by nonconservative extensions of entailmental logic $E$ proposed by Anderson & Belnap;[1] unlike P5, $P10$ contains a classical negation and is a conservative extension of classical logic. The present paper offers a new system of deontic logic (DAP), based on a sentential calculus which we call *relevantoid logic*.

But first we briefly present the (Hilbert-style) axiomatic system:

Primitive symbols: '$\wedge$', '$N$', '$\rightarrow$', '$H$', '$p$', '$q$', etc are used as schematic letters. Notational conventions are à la Church: all two-place functors have the same weight and associate leftwards; a dot after a two-place functor stands for a left parenthesis with its mate as far to the right as possible.

Definitions:

$\ulcorner p \vee q \urcorner$ abbr $\ulcorner N(Np \wedge Nq) \urcorner$      $\ulcorner p \leftrightarrow q \urcorner$ abbr $\ulcorner p \rightarrow q \wedge . q \rightarrow p \urcorner$

$\ulcorner Lp \urcorner$ abbr $\ulcorner NHNp \urcorner$      $\ulcorner p \& q \urcorner$ abbr $\ulcorner Lp \wedge q \urcorner$

$\ulcorner p \supset q \urcorner$ abbr $\ulcorner HNp \vee q \urcorner$      $\ulcorner \neg p \urcorner$ abbr $\ulcorner HNp \urcorner$

'$\neg$' is strong negation, meaning 'not at all'. 'H' is read: 'It is altogether true that'. '$\supset$' is a [mere] conditional, read 'only if'. Implication, '$\rightarrow$', is a

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[1] For a detailed presentation of those systems, see Peña (1993).

connective such that $\vdash_{P10} p \to r$ only if $\vdash_{CL} p \supset r$ but not conversely. (CL is of course classical logic.)

The Chain of Systems:

$P0 = E$

$P1 = P0$ + Factor (i.e. $\ulcorner p \to q \to .p \to .p \wedge q \urcorner$)

$P2 = P1$ + Linearization ($\ulcorner p \to q \vee .q \to p \urcorner$)

$P3 = P2$ + the Self-Self Principle ($\ulcorner N(p \to p \to N(p \to p)) \to .p \to p \urcorner$)

$P4 = P3$ + IF [Implicational Funnel] ($\ulcorner p \to q \vee .p \to q \to r \urcorner$)

$P5 = P4$ + one of these: Aristotle ($\ulcorner N(p \to Np) \urcorner$), Boethius ($\ulcorner p \to q \to N(p \to Nq) \urcorner$) or Contradiction (namely, for some particular sentential constant $j$: $\ulcorner j \wedge Nj \urcorner$)

$P3.5 = P3$ + both these principles: $\ulcorner p \to q \to .NHNHp \to Hq \urcorner$ and $\ulcorner Hp \to q \vee .Np \to r \urcorner$

$P8 = P3.5$ + these two: $\ulcorner a \urcorner$ and $\ulcorner a \to p \vee .p \to q \urcorner$

('a' is a sentential constant meaning the conjunction of all truths)

$P10 = P8 + \ulcorner HN(Na \to a) \urcorner$

Rule of inference:

DMP (i.e. disjunctive *modus ponens*): for n≤1:

$$p^1 \to q \vee (p^2 \to q) \vee \ldots \vee p^n \to q, p^1, \ldots, p^n \vdash q$$

MP [*Modus Ponens*] is a particular case of the rule — the one wherein $n=1$. *Adjunction* is a derived inference rule.

Quantification:

Our quantificational extension of system $P10$ is obtained by adding further axiomatic schemata plus three inference rules. We introduce universal quantifier as primitive and define $\ulcorner \exists xp \urcorner$ as $\ulcorner N \forall xNp \urcorner$. We also define $\ulcorner p \backslash q \urcorner$ as $\ulcorner p \to q \wedge \neg(q \to p) \urcorner$ («p\q» means that it is less true that $p$ than that $q$»). By $\ulcorner r[(x)] \urcorner$ we mean a formula $\ulcorner r \urcorner$ with no free occurrence of variable 'x'. Additional axiomatic schemata:

$\exists x(\forall xq \wedge p) \leftrightarrow \forall x(\exists xp \wedge q)$     $\forall x(p \wedge q) \to (\forall xp \wedge q)$

$\forall xs \backslash r[(x)] \supset \exists x(s \backslash r)$     $\forall xp \wedge \exists xq \to \exists x(p \wedge q)$

$\forall x \neg p \to \neg \exists xp$

Additional Inference Rules:

rinfq01    (universal generalization): $p \vdash q$

           (provided $\ulcorner q \urcorner$ results from prefixing $\ulcorner p \urcorner$ with a finite number of universal quantifiers)

rinfq02   (Free-variables change rule): $p \vdash q$
         (provided $\ulcorner q \urcorner$ results from $\ulcorner p \urcorner$ by uniformly replacing every free
         ocurrence (in $\ulcorner p \urcorner$) of a certain variable with an also free ocur-
         rence of another variable)

rinfq03   (alphabetic variation rule): $p \vdash q$
         (provided $\ulcorner q \urcorner$ is an alphabetic variant of $\ulcorner p \urcorner$).

## Introducing the Deontic System *Dap*

One of the motivations of our current proposal is that we want to secure what seems to us a correct treatment of quantified deontic and juridical propositions. Most deontic-logic accounts and systems are deficient in this respect.[2] That feature of our current proposal is all the more important as positive rights are couched in terms of quantifiers: the right to have a dwelling, a job, to enjoy medical care and so on. (Cf. the Universal Declaration of Human Rights, arts. 22-26, and especially the International Compact for Economic, Social and Cultural Rights, signed in New York on 16-12-1966, whose art. 11 states 'the right of every person to an adequate welfare, ..., and to a continuous improvement of their conditions of existence'.)

Even negative rights are expressed through [universal] quantifiers. Thus, without an adequate treatment of quantifiers, no system of deontic logic is satisfactory.

However, standard systems of [classical] deontic logic make it extremely difficult, if not downright impossible, to implement quantifiers in any reasonable way.

We introduce as primitives these symbols: $\ulcorner ap \urcorner$ is read as 'It is allowed that $p$' or 'It is licit that $p$'; $\ulcorner op \urcorner$ abbr. $\ulcorner NaNp \urcorner$; '$o$' means obligation; $\ulcorner fp \urcorner$ abbr. $\ulcorner Nap \urcorner$; '$f$' means forbiddance; '$\blacksquare$' is a modal operator meaning *concrete necessity*, practical unavoidability; '$\blacktriangledown$' is defined: $\blacktriangledown p$ abbr $\ulcorner N\blacksquare Np \urcorner$: '$\blacktriangledown$' means feasibility. '$\succ$' means a causal relation between facts, whereas '$f$' means a relation of forcing (coercing, compelling, constraining). We are aware that we need an axiomatic account of those relations, but at this stage we can offer none.

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[2] Although in the first important modern collection of essays on deontic logic (Hilpinen 1971) some authors, such as Kanger and Hintikka, pointed out the relevance and «indispensability of quantifiers in deontic logic» (Hintikka 1971, p. 61), only a few approaches to the logical analysis of deontic notions have dealt with quantificational issues — among them Castañeda's (1975), Makinson's (1981), van Eck's (1982), and Puga's (1985).

Axioms for system DAP:

| | | |
|---|---|---|
| $Axd01$ | $a(p \vee q) \rightarrow ap \vee q$ | [PUAL] |
| $Axd02$ | $o(p \vee q) \rightarrow op \vee q$ | [PUAO] |
| $Axd03$ | $p \wedge q \& o(p \vee q) \rightarrow op \vee oq$ | [PFAO] |
| $Axd04$ | $\blacksquare op \rightarrow \blacktriangledown p$ | Kant |
| $Axd05$ | $p \succ q \& ap \rightarrow aq$ | [causal closure] |
| $Axd06$ | $p \pounds q \& ap \rightarrow oq$ | [PEO] |
| $Axd07$ | $o \exists xp \rightarrow \exists xop$ | [PDD][3] |
| $Axd08$ | $op \rightarrow ap$ | Bentham |
| rinf I: | If $\vdash p \leftrightarrow q$ then $\vdash op \leftrightarrow oq$ | |
| rinf D: | If $\vdash p$ then $\vdash \blacksquare p$ | |

$Axd01$ says in effect that, if it is not the case that $q$ at all, then the disjunction of $p$ and $q$ is permitted only in so far as $p$ is permitted. In other words, if and when one of the disjuncts completely fails to obtain, to the extent that the other disjunct is forbidden, the disjunction is forbidden, too; for if and when $p$ is not the case at all, to ban realization of $q$ amounts in effect to prohibit realization of $p$-or-$q$. (Thus humans never live more than 250 years; should they be allowed to commit murder or live more than 250 years, that authorization would in fact license murder; when one of the disjuncts completely fails to materialize, the disjunction's realization means the realization of the other disjunct; the latter's licitness is thus what the disjunction's rightfulness amounts to.) On the other hand, if a person is poor, then her being allowed to be rich or receive public support implies her right to receive public support; you cannot deny her such a right while claiming that she keeps the disjunctive entitlement.)

Likewise, $Axd02$ in effect amounts to positing that, if and when $B$ completely fails to obtain, an obligation to do either $A$ or $B$ implies an obligation to do $A$. For, if $B$ is not the case at all, then an agent can comply with the disjunctive obligation to do $A$-or-$B$ only to the extent that she performs $A$; but if by performing $A$ she fulfills an obligation, and — under the circumstances — there is no alternative way of fulfilling that obligation, then she is under an obligation to perform $A$.

$Axd03$ in effect says that, if and when both $p$ and $q$ obtain, you can fulfill the duty to do either $p$ or $q$ only to the extent that either you fulfill the duty to do p or else you fulfill the duty to do $q$. In other words, if you ought to do $A$ or $B$ and you do both, you have fulfilled your obligation either by doing $A$ or by doing $B$ — one of those two actions was obligatory for you.

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[3] Or alternatively, $\forall xap \rightarrow a \forall xp$. On the contrary, Kanger defends the validity of the next sentences: ˉ($\exists x$OughtFx $\supset$ Ought $\exists xFx$), and (Right $\forall xFx \supset \forall x$RightFx) (Kanger 1971, p. 53).

*Axd*04 is a qualified version of Kant's principle to the effect that what is obligatory is possible (*impossibile nulla obligatio*). Our current version thereof is more guarded: to the extent that it is necessary (in the sense of being practically unavoidable) that *A* is obligatory, *A* is feasible.[4] Notice that thus formulated, the principle only covers obligations which the agent cannot avoid. An agent may incur unfeasible obligations as a result of their own previous choices; an agent may put herself under obligations she can no longer discharge. But the deontic or juridical system of norms as such never imposes an obligation unconditionally on an agent unless honouring the obligation is feasible for the agent.

*Axd*05 means that the causal consequences of a permitted action are also permitted. In other words, if *q* is a causal consequence of *p*, forbidding that *q* implies banning that *p*. Which means that you are deontically debarred from doing an action which causally entails a forbidden result. That is what we propose in the place of the traditional principle of closure in virtue of which the logical consequences of an obligation are also obligatory — a most irksome principle which gives rise to uncountable and intractable paradoxes, such as the Good Samaritan, the gentle murder paradox and so on (we shall come back below to the paradoxes of deontic logic and the closure principle).

Causal closure means that whatever brings about a forbidden result is prohibited. That may sound a bit too strong and may have to be qualified; the causal relation in question may have to be constrained by relevancy and directness considerations. Even so, as it stands causal closure seems to us pretty obvious: many prohibitions are left unsaid because doing what is thereby forbidden would cause a breach of other prohibitions.

*Axd*06 is the *principle of ensuant obligation, PEO* for short. What makes a right a right for somebody to do some action is nothing else but the duty for everybody else not to stand in the way of her doing that action. *PEO* is closely connected with the former principle. In effect it determines that, if doing something, *A*, forces someone (in the sense of compelling or constraining her) to do something she can licitly refrain from doing, then *A* is forbidden: you are not entitled to force anyone not to enjoy one of her rights.[5] A right — a licit course of action — is such that its owner may not be compelled or constrained to give it up. Rights imply an obligation for

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[4] Bonevac and Seung also distinguish between 'mere logical possibility' and 'real possibility' or feasibility, viewing the latter as the one involved in Kant's principle (Bonevac & Seung 1988, p. 329). We can find a close argumentation in van Eck (1982, p. 268).

[5] An alternative formulation of this principle is the following: $\ulcorner p \pounds q \wedge aNq \rightarrow fp \urcorner$ or, it is forbidden to do something which obstructs or impedes or hampers or thwarts someone's performing an action she is rightfully entitled to perform.

everybody else to respect those rights, and so a duty not to disturb the right's owner's's enjoyment thereof. If you have a right to vote, no one is allowed to compel you to refrain from voting; if you have a right not to vote, no one is allowed to force you to vote. In fact it would be meaningless to grant a right and yet to allow other people to coerce the right's owner not to exercise that right.

*PEO* can also be read as saying that no compulsion is legitimate except if it meets the law-enforcing requirement, or *LER*, namely that of contributing to the preservation of the lawful order — in other words, making somebody abide by her duty. Notice that that does not mean that every compulsion meeting the *LER* is legitimate; resorting to compulsion is always wrong without the *LER*, but is often wrong, too, even with the *LER*.

*Axd07* is the principle of deontic determination, *PDD*. It says that the only way of making it obligatory that something or other be such that $p$ is to establish for some particular entity or other the duty of being such that $p$. No normative system can impose an obligation to the effect that at least an entity be such that $p$ while allowing at the same time for every entity a non-compliance with the duty to be such that $p$; to the extent that the system imposes the general obligation, it must impose a particular duty to fulfill it as regards some particular entity or other.

Its alternative formulation says that to the extent that every entity is such that it may licitly have a certain feature, it is licit for all entities taken together to have that feature. Thus, if every citizen has the right to vote for a certain party, it is licit that they all vote for that party (even if, by doing so, they are somehow undermining multi-party democracy; think of such constitutions as prescribe that parties failing to secure at least a certain percentage of votes cease to be legal political parties).[6] On the other hand, if it is forbidden that all the citizens vote for that party, then not every citizen has an unconditional right to vote for it; their right to vote for the party will be contingent upon not everybody else doing the same thing.

*Axd08* is Bentham's principle (or the principle of licitness of obligations, *PLO*), namely: that a course of action is mandatory only to the extent that it is licit. No normative system worthy of the name can enforce an obligation without thereby also granting people the right to perform the action which they are thereby bound to carry out. Unfortunately not everybody agrees

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[6] Thus some constitutions impose a legal duty to keep a multi-party political system (which has been criticized by some legal scholars on account of its being unenforceable) and yet rule that any party receiving a share of votes of less than a certain percentage (ten, eight or five percent depending on the particular case) is bound to be excluded from the political scene or at least to enjoy the rights which accrue to recognize, legitimate political parties. It is obvious that such constitutions may lead to legal dilemmas quite straightforwardly.

with us on that score,[7] but Bentham seems to us the most obviously true axiom in deontic and juridical logic.

Rule I means that actions which are demostably equivalent are subject to the same obligations, or lack of obligation. Rule D is Gödel's rule; in our present case, it means that what is provably true in our system is unavoidable. Theorems of general logic are of course unavoidable. And theorems of deontic logic are also unavoidably true (if the system is correct). Thus if our system establishes an unconditional obligation to do $A$, the system also countenances that noone can help being under such an obligation. (Of course an agent can refrain from fulfilling the obligatory action, at least in a number of cases; here is where punishment applies).

*Some Theorems*

1. One of the results we can prove within system $DAP$ is the principle of disjunctive obligation ($PDO$), namely that a disjunctive duty implies that at least one of the disjuncts is also obligatory. Proof:

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|---|---|---|
| (2) | $\neg p \supset .o(p \vee q) \rightarrow oq$ | from $Axd02 + P10$ |
| (3) | $\neg q \supset .o(p \vee q) \rightarrow op$ | from $Axd02 + P10$ |
| (4) | $\neg(p \wedge q) \supset .o(p \vee q) \rightarrow .op \vee oq$ | (2), (3), $P10$ |
| (5) | $p \wedge q \supset .o(p \vee q) \rightarrow .op \vee oq$ | from $Axd03 + P10$ |
| | $o(p \vee q) \rightarrow .op \vee oq$ | (4), (5), $P10$ |

The significance of PDO lies in the fact that, according to it, a disjunctive obligation can be imposed only in so much as at least one of the disjuncts is rendered obligatory. A corollary of PDO (in effect an alternative formulation of the same principle) is the principle of aggregative permission (PAP), namely: $\ulcorner ap \wedge aq \rightarrow a(p \wedge q) \urcorner$: to the extent that two actions are both licit, it is also licit to perform them both. To the extent that you have the right to remain at home and you have the right to say what you please, you have the right to remain and home and say what you please. (We shall be going into apparent counterexamples in a moment.)

Both PAP and PDO are incompatible with standard systems of deontic logic, which claim that logical consequences of obligations are also obligatory. Accordingly, such systems entail that, for every $\ulcorner p \urcorner$, $\ulcorner p \vee Np \urcorner$ is obligatory (within classical logic there is no difference between strong and non-strong negation — so we can represent classical negation as 'N' or as '¬'). But of course for many — in fact most — situations, $p$, neither $p$ nor not-$p$ is obligatory. Likewise within standard deontic systems, PAP entails that

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[7] See, for example, Priest (1987, p. 243) or Routley and Plumwood (1989, pp. 665 and 667).

you cannot have a right to *A* and also a right not to *A*; for then, should PAP obtain, you would have a right to *A*-and-not-*A*, which — within those systems — entails that everything is allowed (by Cornubia or Pseudo-Scotus principle: $\ulcorner p \wedge Np \supset q \urcorner$). Thus, within standard systems of deontic logic PAP is incompatible with the fact that two contrary courses of actions may be both licit[8] — you may have the right to vote and also the right not to vote, in other words you may be free as regards voting.

2. Another outstanding result is the principle of joint permission, PJP, namely: $\ulcorner Hp \supset .aq \rightarrow a(p \wedge q) \urcorner$; PJP is little more than an alternative formulation of *Axd*02. PJP determines that in a world wherein a situation, *A*, is fully realized, *B* can be allowed only to the extent that what is thereby being permitted is the joint situation *A*-and-*B*. Thus, under the assumption that, in our world, situation *A* is fully realized, you can forbid the joint realization of *A*-and-*B* only insomuch as you are in effect forbidding *B*. So, no constitution-designer can legitimately allege that he is not banning plebeians from becoming ministers if he forbids citizens to be low-born and yet become ministers. In a world like ours where certain people are in fact low-born, that prohibition implies that those low-born people are banned from becoming ministers.

Likewise, forbidding that a criminal be such that he is a criminal and yet enjoys the protection of the law entails forbidding him from enjoying the protection of the law. We do not want any chicanery to the effect that the criminal has the right to enjoy the protection of the law, but no right to, being a criminal, enjoy such a protection; or, in other words, that he is abstractly entiled to enjoy the protection of the law, but that he forfeits such a right if and when he becomes a criminal. Should that be the case, we would say that people are not (unconditionally) entitled to the protection of the law; that they are entitled to such a protection provided they abide by the law. The present writers think that one of our age's juridical advances is the belief that everybody is unconditionally entitled to the law's protection; everybody, including criminals. They have the duty to pay for what crimes they have committed, but they cannot be deprived from the law's protection. (Which, among many other consequences, entails that no punishment may be unconstrained or unrestrained; no person is such that society is entitled to do anything and everything to her.)

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[8] This sense of freedom to act or optionality is defined in some deontic calculus by a new operator: $\ulcorner ip \urcorner$ is read as 'It is indifferent or optional that *p* or *Np*' $\ulcorner ip \urcorner$ abbr. $\ulcorner ap \wedge aNp \urcorner$ Sometimes, this kind of permission has been called two-sided permission or strong neutrality; see von Wright (1951), Alchourrón and Bulygin (1971) and Weinberger (1977).

3. Another theorem which can be proved in DAP is the principle of conditional obligation, PCO, viz.: $\ulcorner p \& o(p \supset q) \rightarrow oq \urcorner$ : to the extent that, its being the case that $p$, it is obligatory that $q$-if-$p$, to that extent at least it is obligatory that $q$. Notice that it is not entirely obvious whether in general $\ulcorner o(p \supset q) \urcorner$ is an adequate representation of conditional obligation; $\ulcorner (p \supset oq) \urcorner$ has been claimed to be a more reasonable or useful representation, allegedly truer to what is usually meant;[9] and it is uncontroversial that $\ulcorner p \& (p \supset oq) \supset oq \urcorner$ [10] (we can ignore here the difference between implication '$\rightarrow$' and the mere conditional '$\supset$'). PCO in effect says that even if conditional duty is represented as $\ulcorner o(p \supset q) \urcorner$, such an obligation plus its being the case that $p$ entails that it must happen that $q$.

*Objections and Apparent Counterexamples*
*Against PAP*:
(Objection #1): 'John may have the right to marry Joan and also the right to marry Leonora, but no right at all to be a bigamous man by marrying them both.'

Reply: John does not have the (unconditional) right to marry Joan. Nor does he have the unconditional right to marry Leonora. For one thing, he is entitled to marry Joan only if he refrains from marrying anybody else. For another, he has no (unconditional) right to marry Joan even if he refrains

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[9] A certain confusion may be the source of the claim that conditional obligation has to be of the form $\ulcorner p \supset oq \urcorner$ instead of $\ulcorner o(p \supset q) \urcorner$. The confusion is the one between pragmatic and semantic considerations. Let us define $\ulcorner fp \urcorner$ as $\ulcorner oNp \urcorner$ ('$f$' means 'It is forbidden that'). Very often, but not always, $\ulcorner f(p \wedge q) \urcorner$ is a joint prohibition, while the first conjunct, $\ulcorner p \urcorner$, is a fact of the matter beyond the scope of the agent (present) choice; thus 'Do not be a male citizen and fail to serve in the Army'. Since you do not choose your sex or (initially at least) your citizenship, what in such a case is up to you is to abide, or fail to abide, by the prohibition not to serve in the Army (if you are a male citizen). Thus some authors argue that the presciption is 'If you are a male citizen, you are obliged to serve in the Army'. However, even though pragmatically there is some sort of conversational likelihood that in sentences of the form $\ulcorner f(p \wedge q) \urcorner$ $\ulcorner p \urcorner$ should stand for a fact of the matter beyond your choice, sometimes such a quasi-presupposition fails: 'Do not drink and drive', 'Do not earn a revenue of more than 10,000 \$ and fail to pay an income tax', etc. In many such cases, you can abide by the prohibition either by refraining from performing the latter conjunct or by directly or indirectly manage to avoid the reality of the former conjunct.

[10] This is the principle of factual detachment, some versions of which have been questioned by van Fraassen (1972), D. Lewis (1973) and Decew (1981). Factual detachment seems to us not only an unnegotiable and obvious truth, but also a crucially necessary link in our moral and legal reasoning, without which we fail to see how conditional obligation-sentences could play the important role in deontic argumentation they in fact play. Of course the rule-counterpart of this principle is rejected by relevantists (unless, of course, '$\supset$' is replaced with '$\rightarrow$'); but such issues lie outside the scope of this paper.

from marrying anybody else; he is entitled to marry Joan only if Joan wants to marry him.

Interestingly, our deontic result illustrates an important difference between individual and collective action. For John and Joan to have the right to marry is one thing; for John to have the right to marry Joan is quite another. If John and Joan are both unmarried adults, they have the right to marry; which means that the couple {John, Joan} has the right to belong to the set of married couples. What is licit is a joint action performed by the couple — which of course supervenes on certain actions by its two individual members. But those actions by the members are not unconditionally licit; in fact they are licit only to the extent that the joint action takes place — and accordingly other actions are not realized.

(Objection #2): 'I have the right to go to the cinema; I also have the right to remain at home; but as to having the right to go to the cinema while at the same time remaining at home — which is of course impossible —, I neither want such a «right» nor have any use for it; I only want to have rights which I can exercise.'

Reply: If you have an unconditional right to go to the cinema and also an unconditional right to remain at home, you have a right to do both. Of course, you do not want or need such a right, you have no use for it; but then nothing wrong or irksome or grievous comes from having such a right. Notice that Kant's principle — to the effect that what is obligatoty is possible or feasible — has no necessary counterpart for permission. There is something vexing about being under an obligation to do something which is impossible, or to refrain from doing something which is unavoidable; there is no similar awkwardness in being entitled to do something which cannot be done — except that you cannot profit from such a right. A normative system should allow whatever it does not forbid (this is the principle of permission, PP; see below). So, if it does not allow people to follow a certain course of action — on account of that course being impossible or unfeasible — the system is bound to forbid such a course of action. But there is no reason for the normative system to forbid a course of action only on account of the course of action being unfeasible. Probably it is unfeasible for humans to live more than 200 years, but there is no reason for an ethical or legal code to forbid humans from living more than 200 years. Nor is it feasible for a human individual to master a thousand tongues, despite the moral and juridical licitness of such a polyglottic exploit.

Notice that there is a difference between cases wherein two alternative courses of action are both licit while they are in fact incompatible — their conjunction being unfeasible, i.e. concretely impossible —, on the one hand, and cases in which two courses of action are jointly realizable, with that joint realization being illicit. The latter are such that those two courses

of action are not both (unconditionally) licit; the reason for that being pre-
cisely the fact that they can be jointly followed, which by hypothesis would
be a forbidden action; so, the right to follow one of those two courses of
action is conditional and contingent on refraining from following the alter-
native course of action. Of course in usual parlance you may be said to
have the right to do $A$; it is understood: *provided you refrain from doing B,
or C, ...* (You are entitled to vote for party $X_1$ if you do not vote for any
other party; so, you cannot claim an unconditional right to vote for $X_1$, even
when you have already voted for $X_2$.)

Against PDO:
(Objection #1): 'Suppose John is bound to either give money for charitable
proposes or else adopt (at least) an orphan. Yet he is not obliged to give
money to the poor. Nor is he bound to adopt an orphan. Hence it is not the
case that either he is obliged to give money or else he is obliged to adopt an
orphan.'
Reply: whenever — whether because one is unwilling or unable — either
alternative is in fact ruled out or will (determinately) fail to materialize,
carrying out the other alternative is the only way for the disjunction to be
realized; hence, if $A$ will [completely] fail to be the case, an obligation to $A$-
or-$B$ implies a duty to $B$. Now there are two opposite views on future con-
tingents: alethic determinism and alethic indeterminism.

According to alethic determinism, future contingents are determinately
true or false. In accordance with such a view, either it is determinately true
that John will give money to the poor or it is determinately true he will not
give money to the poor; in the latter case, he is obliged (under the hypothe-
sis) to adopt an orphan. (What if it is determinately true that he will do both
actions? In such a case we do not know for sure which one is obligatory,
but really it does not matter much.)

According to alethic indeterminism, although it is determinately true that
either it will be the case that $p$ or not, it may fail to be either determinately
true that $p$ or determinately true that not-$p$. In other words, 'determinately'
does not distribute over disjunction. If that view is correct, then for John to
be, determinately, either obliged to $A$ or obliged to $B$ does not entail his
being either determinately obliged to $A$ or determinately obliged to $B$. In
such a case, our claim that John is bound to $A$ or bound to $B$ does not
commit us to hold that either alternative is truthfully assertable; what would
be truthfully assertable would be the disjunction between them.

Thus, upon either view John can be said quite reasonably to be either
bound to $A$ or bound to $B$ on account of his being bound to $A$ or $B$.

(Objection #2): 'An agent can fulfill an obligation by performing an action
which is not obligatory at all; e.g. when the agent has free choice — within

a certain range — as to the means conducive to an obligatory end. But the disjuncts are like means by realizing which the end — in this case the disjunction — is realized.'

Reply: a disjunction between two courses of action can be implemented only by carrying out one of those courses of action; in some reasonable sense, he who performs the disjunction A-or-B by carrying out A has done A and nothing else; or at least, his carrying out A-or-B can be reasonably said to consist in his carrying out A. It is quite a stretch of proper, rigourous use of the terms to call A a 'means' towards A-or-B. If in doing A the agent is not fulfilling an obligation and, moreover, neither would he fulfill an obligation in case he performed B, his fulfilling the disjunctive obligation would be kind of miraculous, some sort of floating performance. For his disjunctive action could no longer be said to consist in performing one of the disjuncts — unless an obligatory performance may consist in a nonobligatory one, which seems odd to say the least.

(Objection #3): 'PDO entails that, if someone is bound to do a conditional action, B if A, while he is allowed to A, he is obliged to B. But suppose Mary ought to do this: lock the door if she goes home; doing B-if-A is tantamount to doing not-A-at-all-or-else-B; suppose she is entitled to go home; but PDO then entails that Mary must lock the door —so she must lock the door unconditionally, whatever she chooses to do.'

Reply: the objection relies on a principle of permutation of a deontic operator and an operator of maximal degree; it assumes — correctly, to our mind — that $\ulcorner p \supset q \urcorner$ is equivalent to $\ulcorner \neg p \vee q \urcorner$, which in turn is equivalent to $\ulcorner HNp \vee q \urcorner$. Now, PDO does indeed entail $\ulcorner o(p \supset q) \rightarrow .oHNp \vee oq \urcorner$. How can we infer from that result the following one: $\ulcorner o(p \supset q) \wedge ap \supset oq \urcorner$ ? In virtue of a corollary of the first Principle of Mildness (see below), namely $\ulcorner oHp \rightarrow Hop \urcorner$. Thus the result holds only for mild systems (paradoxical though that may sound). But the result is much more plausible than may seem at first sight. For one thing, perhaps Mary's obligation is a conditional one: if she goes home, she ought to lock the door. In that case, she is not under the disjunctive obligation of either not going home at all or else locking the door (instead she is such that, either she does not go home at all, or else she is bound to lock the door). For another, she is unlikely to be (unconditionally) entitled to go home; she is probably entitled to this: to go home provided she locks the door. Finally, the conclusion that — in a world where what Mary chooses to do is to go home — she must lock the door seems to us independently plausible. No need to quibble that, if that conclusion is true, it is true regardless of whether or not she goes home. For, in a world where in fact she goes home — and so completely refrains from not-going-home-at-all — her only way of fulfilling her (putative) obligation of either not going home at all or else locking the door is by

locking the door; which, under such circumstances, would be obligatory for her. And in a world where she does not go home at all, she fulfills her obligation (to either completely refrain from going home or lock the door) by performing the first disjunct.[11] In a world wherein Mary does not lock the door at all, she is bound not to go home [at all]; in such a world, by entirely refraining from going home, she is discharging her disjunctive obligation. If, on the other hand, she goes home and does not lock the door at all, she is obviously breaking her obligation.

Against PDD:

(Objection #1): 'Everybody has the right to travel to Venice. But it is not allowed that everybody travels there, whether at the same time or even at different times within their life-span. If every living human travels to Venice once in their lives, Venice will collapse, invaluable historic and artistic treasures disappearing forever under the sheer weight of the incoming tourists.'

Reply: not everybody has an unconditional right to travel to Venice. In fact perhaps nobody has such a right. Whatever rights people have in that connection are conditional, contingent upon not everybody else (and not many other people) doing the same thing. People may be claimed to have the right to travel to Venice only in so much as some conditions are assumed to obtain.

(Objection #2): 'But assume everybody has an unconditional right to migrate. PDD compels us to deny that everybody has the right to migrate to country $A$ (unless country $A$ is so huge that all living humans could live there); and the same thing happens with country $B$, and with country $C$, and so on; hence there is no country such that everybody has the right to migrate there. Take any individual at random, Mike. Where is Mike entitled to go? To $A$? To $B$? ... Surely there is some country to which Mike has the right to go. Suppose it is $A$. In virtue of what is he entitled to go to $A$? Not in virtue of everybody being so entitled, since PDD (plus facts of real life) in effect rules out such an entitlement. Thus, the root of Mike's being nevertheless entitled to go to $A$ seems mysterious.'

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[11] Likewise, assume that, if Peter works well this year, he will win the prize next year; hence, if he works well this year and dies on the 31 december, he will win the prize next year. Such a result is spurned by connexivist logicians — who reject the augmentation principle (namely that, if $p$ only if $q$, then $p$-and-$r$ only if $q$). But everybody else finds the result acceptable: in every world where either Peter completely fails to work well this year or he wins the prize next year, it is true that, either he completely fails to work-well-this-year-and-die-on-31-december, or else he wins the prize next year.

Reply: we face this situation: [MikRig] $\ulcorner \forall x \exists z (x \in human \supset .z \in for\text{-}$ $eign\_country \wedge goes(x, z)) \urcorner$. It does not of course follow that there is a country to which every human is entitled to go — that inference would be a quantificational fallacy. What determines that Mike is entitled to go here rather than there is the conjunction of [MikRig] with the particular (contingent) circumstances. If too many people migrate to country $A$, thus overstretching $A$'s resources, Mike is no longer entitled to go to $A$; he may go to $B$, or to $C$, ... But since not everybody is going to migrate everywhere (in fact nobody is going to migrate to two different places, let alone everywhere), in practice there will be no shortage of countries for Mike to be entitled to migrate to. The remaining difficulty — if it is one — is that we lack any *a priori* criterion as to what particular country Mike is entitled to migrate to — assuming his right to migrate to some country or other. We can safely presume, however, that, other things being equal, he has an equal right to migrate to any country where his migration is not destructive as things stand.

### A Plausible Extension of DAP: Two Principles of Mildness
The principles we have put forward hitherto constitute the basis of any reasonable system of norms — to our mind. We now add two supplementary principles. Systems respecting those two further principles are mild; systems violating either principle are harsh.

The idea behind our two additional principles is that a system is (unduly) harsh iff it imposes a duty that an agent can carry out only by completely failing to enjoy one of her rights. In other words, a system is harsh iff it gives rise to either of these two situations:

(1)    $\ulcorner p \leftrightarrow Nq \wedge oHp \wedge aq \urcorner$ : $\ulcorner p \urcorner$ is incompatible with $\ulcorner q \urcorner$, but, while $\ulcorner q \urcorner$ is licit, $\ulcorner Hp \urcorner$ is obligatory.
(2)    $\ulcorner p \leftrightarrow Nq \wedge op \wedge aHq \urcorner$ : $\ulcorner p \urcorner$ is incompatible with $\ulcorner q \urcorner$, but, while $\ulcorner Hq \urcorner$ is a rightful course of action, $\ulcorner p \urcorner$ is obligatory.

The first principle of mildness is the rejection of harsh situations of kind (1), that is to say the principle $\ulcorner \neg(p \leftrightarrow \neg q \wedge op \wedge aq) \urcorner$ ; or equivalently: $\ulcorner \neg(o \neg p \wedge ap) \urcorner$, i.e. $\ulcorner oHp \supset Hop \urcorner$ ; which within our proposed sentential calculus entails: $\ulcorner oHp \rightarrow Hop \urcorner$.

The second principle is the rejection of situations of kind (2), or equivalently the principle $\ulcorner aHp \rightarrow Hap \urcorner$.

What justifies our rejection of harsh normative systems is that they enact stark dilemmas, dilemmas, that is, wherein the agent cannot manage to abide by her duties (to some extent at least) by reducing the degree of her enjoying those of her rights which turn out to be in conflict with those duties; stark dilemmas constitute quite severe normative conflicts, with an

agent being rightfully entitled to do an action $A$ and yet duty-bound to do another action $B$, while $A$ and $B$ turn out to be out and out incompatible: either you perform $A$ and then completely refrain from performing $B$, or conversely, with nothing in-between. We do not know whether natural law is harsh (we hope it isn't) but anyway it seems to us pretty clear that a plausible *desideratum* for our normative systems is that they should not be harsh.

Notice that what prompts us to (somehow tentatively and a little hesitatingly) espouse the principles of mildness is not that in general we identify the degrees of obligatoriness (or those of licitness) of an action with the degrees of realization of the obligatory (respectively, licit) action. Some actions are such that, in virtue of their own particular characteristics, if they are realized at all, they are realized to at least a certain degree $d$; however the degree of obligatoriness (or licitness) of those actions may be less than $d$.

On the other hand the converses of the two principles of mildness are much more disputable. That an action is fully obligatory does not obviously entail that it is obligatory to perform it to an extent of one hundred percent. (It may be fully mandatory to behave [to some extent] altruistically — for instance, by giving succour to helpless humans or other animals —, whereas it is not mandatory at all to behave in a wholly altruistic way.) Thus $\ulcorner Hop \rightarrow oHp \urcorner$ does not seem to be a correct universal principle of deontic logic. Likewise, for an action to be entirely licit does not mean that it is licit to perform it completely. It may be wholly rightful to do an action $A$ to some extent, while doing $A$ to a degree of 100% may be utterly illicit. (A [more or less] self-serving behaviour may be rightful, while an entirely self-serving behaviour is not rightful at all.) Thus, $\ulcorner Hap \rightarrow aHp \urcorner$ is also a principle of dubious credentials.

Notice that, should the converse second principle of mildness hold, namely $\ulcorner Hap \rightarrow aHp \urcorner$, then, in virtue of the very same second principle of mildness, $\ulcorner aHp \rightarrow Hap \urcorner$, the following thesis would be a theorem, too: $\ulcorner \neg op \rightarrow a \neg p \urcorner$ (let us call it the principle of strong permission): 'To the extent that it is not mandatory at all that $p$, it is licit that it should not be the case that $p$ at all'. This is a particularly strong version or the principle of permission, which we do espouse (but only under a weaker version, see below) against arguments put forward by Alchourrón and Bulygin. We doubt whether there are situations, $p$, which are not mandatory at all while their respective strong negations or overnegations, $\neg p$, are by no means licit. Again it may be altogether non-mandatory to behave altruistically, while it

is by no means licit to behave in an utterly selfish way.[12]

*Principles Not Included in Our System Dap*
(1) Prior's principle: $\ulcorner p \supset q \wedge op \supset oq \urcorner$, or its exported version $\ulcorner op \supset . p \supset q \supset oq \urcorner$ This is a particularly strong version of the closure principle — discussed below, under (5). In general the closure principle states that, if $\ulcorner q \urcorner$ is a logical or necessary consequence of $\ulcorner p \urcorner$, the obligatoriness of $\ulcorner q \urcorner$ follows from the obligatoriness of $\ulcorner p \urcorner$. Prior's principle strengthens closure by making mere (contingent) truth of $\ulcorner p \supset q \urcorner$ a sufficient condition, together with the truth of $\ulcorner op \urcorner$, for the truth of $\ulcorner oq \urcorner$. Since the Closure principle is not valid, neither is Prior's.

(2) Iteration: $\ulcorner op \supset oop \urcorner$. Against Iteration it can be argued that there are obligations which exist in virtue of contingent situations, but that had better not exist — and would not exist if such unfortunate contingencies did not take place. Thus, criminals have to be punished, but it is not the case that they must be such that they must be punished; on the contrary, they must be such that they do not have to be punished. Admittedly, though, that objection against Iteration may rest on a confusion between different sorts of obligation. It can be countered that it is against the law for crimes to go legally unpunished, or in other words that the law prescribes that penal laws should be in operation for all crimes to be punished. Thus, if and when crimes have been committed, their perpetrators must be obliged to be punished. Also, if a legal norm $\mathbb{N}$ commands that p, then some higher-order or procedural norm prescribes that $\mathbb{N}$ should be in operation —under the existing circumstances, such as the legislative assembly having passed a bill to that effect — and hence that it should be obeyed. Accordingly $\ulcorner op \to oop \urcorner$ would be a correct principle provided 'o' is taken univocally. That may be the case. If the objection is right, then $\ulcorner aap \to ap \urcorner$ is also a valid principle. But we harbour a certain qualm about it in virtue of its possible clash with the principle of permission (see below): one's being entitled to being entitled to such or so does not obviously imply that one is *eo ipso* entitled to such or so. Thus at this stage we remain neutral as regards Iteration.[13]

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[12] However we do not want our current remarks to be construed as an outright denial of the principle of strong permission or either of the two converse principles of mildness; further research is called for in this connection and lies in the future.

[13] There are other similar principles we do not want to espouse either: $\ulcorner oap \to ap \urcorner$; $\ulcorner aop \to op \urcorner$. There are too many (apparent, at least) counterexamples against such principles for them to be (sufficiently) plausible. Their purported usefulness is dubious.

(3) Disiteration: $\ulcorner oop \supset op \urcorner$. Even if criminals must be such that they do not have to be punished, since they have in fact committed crimes, they — unfortunate as that obligation is — must be punished. Even if such a difficulty rests on a confusion between two sorts of obligation, it is also hard to see how the fact that it should be legally bindiing that it should be mandatory to perform action $A$ would automatically or necessarily entail that $A$ is legally mandatory. (The Constitution may require the legislators to make a statute making $A$ mandatory, while the legislators delay complying with their constitutional duty.)[14]

(4) The principle of free choice:[15] $\ulcorner a(p \vee q) \supset .ap \wedge aq \urcorner$. Even though we — unlike those who espouse Closure — do not admit that $\ulcorner a(p \vee q) \urcorner$ follows from $\ulcorner ap \urcorner$[16], while at the same time we hold that one's being allowed to do $A$ or $B$ implies one's bearing some sort of deontically relevant relation to action $A$ and also the same sort of deontically relevant relation to action $B$, we do not believe that such a relation is necessarily that of *being allowed to do*. Rather the ensuing deontic relation is that of being allowed to do one of the disjuncts if one completely fails to do the other disjunct: $\ulcorner \neg p \wedge (ap \vee q) \rightarrow aq \urcorner$. If at a self-service restaurant you are entitled to eat beans or corn flakes, and you choose not to eat corn flakes at all, you are entitled to eat beans. But from your being entitled to eat either beans or corn flakes it does not follow that you are unconditionally entitled to eat beans.

(5) Closure: from $\vdash p \supset q$ to infer $\vdash op \supset oq$. (Or an implicational version thereof, replacing '$\supset$' with '$\rightarrow$'.) Closure is the root of many paradoxes,

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[14] Disiteration is also involved in some annoying results, such as the praise paradox: Suppose that (1) Hitler has the duty to behave well, and (2) If Hitler behaves well, he must be praised. But then, by Closure and Disiteration, (3) Hitler must be praised — unconditionally, whatever he does or how he behaves. An interesting discussion of iteration principles in deontic logic can be found in Priest (1987, pp. 244-245). Within our present approach, which does not countenance closure, disiteration by itself fails to yield those irksome paradoxes.

[15] See von Wright (1968), chapter 1, section 6. The free choice principle can also be called 'Ross's principle' because it is implicitly invoked in arguments about Ross's paradox, namely that an obligation to A-or-B follows from an obligation to A (according to all systems of deontic logic enacting the closure principle), while that result would entail a licence to do $A$ and also a licence to do $B$.

[16] A variant of logical closure. Ross's paradox hinges around the other variant, namely: $\ulcorner op \supset o(p \vee q) \urcorner$ However they are interdeducible, of course — given the definition of 'licit' as 'not obligatory not'.

such as the Good Samaritan, the gentle murder, simplification, and so on.[17] Let us summarily go into those paradoxical consequences of Closure.

1.— Good Samaritan considerations: since, necessarily, if you help the poor, there is poverty, and you ought to help the poor, there must be poverty. Since, if Bardulf murders Rose, he must at least murder her painlessly, and murdering someone painlessly necessarily entails murdering him or her, it follows that, if Bardulf murders Rose, he must murder her. Of course, scope contrivances, gimmicks, have been devised, but we remain unconvinced by them. Thus, we cannot make sense of the proposal that places 'painlessly' alone in the scope of the deontic operator, to the effect that what would be claimed is that, if Bardulf kills Rose, he kills her and, dutifully, in a painless way. In a painless way what? Surely what ought to be painless is the murder of Rose by Bardulf. But, necessarily, if a murder is painless, it exists; necessarily, if a murder exists, someone is murdered. Therefore, even if we fall back on scope differences, Closure leads to the conclusion that someone must be murdered (if we admit that murderers must at least kill their victims in a painless way).

2.— Contrary-to-duty obligations: Since $\ulcorner \neg p \supset . p \supset q \urcorner$ is a logical theorem (both in classical logic and in our relevantoid system), Closure leads to: $\vdash \ulcorner o \neg p \supset o(p \supset q) \urcorner$; thus he who fails to comply with an obligation must do every conceivable action (in virtue of PCO), ever so appalling and gruesome.

3.— Useless or obnoxious duties: Closure yields ludicrous results, such as: everybody's being bound to sleep or not to sleep; parents bound to raise their children must raise them or kill them; everybody is forbidden to square the circle, and indeed is obliged to being unable to square the circle.[18] Whatever else you think of Ross's paradox, it is uncontroversial that no such «obligation» is of any use whatsoever in our juridical thought or practice.

4.— Chisholm's paradox (contrary-to-duty imperatives paradox). It consists of two horns. The first runs as follows: by Deontic Aggregation (namely the rule $\ulcorner op \urcorner$, $\ulcorner oq \urcorner \vdash o(p \wedge q) \urcorner$ — see below), Closure entails the principle of deontic detachment, viz. $\ulcorner o(p \supset q) \wedge op \supset oq \urcorner$, an instance of which is this one: 'If It is obligatory that Ted should not steal from Jenny, and it is obligatory that, if Ted does not steal from Jenny, he should not be punished for stealing from Jenny, then Ted must not be punished for steal-

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[17] See Goble (1991) and Díez Ausín and Peña (1993).

[18] By the way, a crank priding himself on his purported ability to square the circle and advertising it as a wonderful feat would be both confessing to a crime and preaching law-transgression.

ing from Jenny'; since the protasis is clearly true, we reach the conclusion: 'Ted must not be punished for stealing from Jenny'. This is now the second horn of the paradox: From (1) 'Ted steals from Jenny', and (2) 'If Ted steals from Jenny, he must be punished for stealing from Jenny', it follows that (3) 'Ted must be punished for stealing from Jenny'; that second horn involves either factual detachment — should (2) be understood as 'If (1), then it is obligatory that Ted should be punished for stealing from Jenny' — or else our principle of conditional obligation, PCO — if (2) is understood as 'It is obligatory that, if (1), then Ted should be punished for stealing from Jenny'. Within our current framework, the first horn cannot be established, since we reject both Deontic Aggregation and Closure.

5.— Deontic simplification: Sarah is bound to accept an invitation to write a review of a certain book and in fact write the review. Closure entails that she must accept the invitation — even if, as a matter of fact, she is not going to write the review, for whatever reason. (Such is Jackson & Pargetter's paradox of the Procrastinator.)[19] We think that Sarah's obligation to accept the invitation and to honour it does not entail an obligation to accept the invitation; quite the contrary, she is only bound to accept the invitation if she is going to honour it — she must even decline the invitation if, as a matter of fact — as things stand in this world — she is not going to live up to her promise to write the review.[20]

Our rejection of deontic simplification is based upon this argument: $\ulcorner p \wedge q \urcorner$ may be unconditionally obligatory, while there is only a conditional obligation to $\ulcorner p \urcorner$ (namely, $\ulcorner p \urcorner$ must be the case if $\ulcorner q \urcorner$ is the case). A surgeon is often bound to give anaesthetics to a patient and operate upon her; he is not bound to operate upon her unconditionally (if he has been unable or unwilling to give her anaesthetics, since the pain may kill her or cause her a greater evil than she laboured under before the operation).

There being a close similarity between generalized conjunction and universal quantification, $\ulcorner o \forall x p \urcorner$ does not entail $\ulcorner \forall x o p \urcorner$. It is obligatory that all should abide by the law; in certain specified cases, though, when the law's empire has broken down, your may fail to be bound to abide by the law.

Likewise, $\ulcorner \exists x a p \urcorner$ does not entail $\ulcorner a \exists x p \urcorner$. Suppose there is a position you are entitled to hold. It does not follow that you are entitled to there being such a position you hold. There may be nothing over and above your right

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[19] Jackson and Pargetter (1986). See also Pietroski (1994).

[20] Notice that utilitarians think that, if $\ulcorner p \& q \urcorner$ leads to the best result, $\ulcorner p \& q \urcorner$ must happen; which does not entail that $\ulcorner p \urcorner$ must happen, since $\ulcorner p \urcorner$ alone may of course fail to yield the best result.

to hold that existing position which may give you a ground to claim a similar position. A dethroned king is not entitled to claim some crown or other on account of his being purportedly entitled to have a crown.[21]

## A Discussion About the Principle of Permission

An extended comment seems to be in order concerning $PP$ or the permission principle to the effect that whatever is not forbidden is allowed (the so-called Alchourrón-Bulygin problem). It has been contended that even if a code remains silent on whether or not an action, $A$, is allowed, and also on whether a different action, $B$, is allowed, we cannot jump to the conclusion that people have a legal right to do $A$ and that they also have a right to do $B$ (in accordance with the legal system in operation), since a person's doing $A$ may thwart (or prevent or hamper) another person's doing $B$; and there is a juridical principle to the effect that nobody has the right of staying in the way of another person's exercising a right (our axiom $Axd06$, i.e. $PEO$).

We solve the problem by admitting degrees of duty, prohibition and permission. In many cases it may well happen that $A$ is allowed, and so is $B$, but yet $A$ is also, to some extent, forbidden — in so much as it prevents another person performing action $B$ — at the same time that, in turn, $B$ is also to some extent prohibited for a similar reason.

Let us take an example: the janitor is bound to close the building's gates neither before 6:30 nor after 7:00. The visitors are bound to leave the building by 7:00 (or in other words: they are required to be outside the building after 7:00). Have they the right to remain within until 6:59? Has the janitor the right to close it at 6:45 if there still are visitors there? In virtue of $PP$ we can gather that the visitors may remain until 7 p.m.; if the janitor closes the gates when they are in the building, they are prevented from leaving; since they are banned from remaining after 7:00, they are bound to leave before 7:01, and hence (by Bentham's principle) they also have the right to leave before 7:01; the gates being closed would prevent them from leaving; so it is forbidden to close the gates when the visitors are still in the building before 7:00. But on the other hand the janitor has been given permission to close the gates at any moment he chooses after 6:30 (and before 7:01). By their continuing presence, the visitors are preventing the janitor from closing the gate when he wishes (within that range) while respecting everybody else's rights. Yet the janitor is bound to respect ev-

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[21] In the times of unbridled monarchistic thought, before the 19th century liberal revolution, people used to think that sovereigns do have such a quantificational right, and thus, should they be overthrown here, they must be compensated with another kingdom there. Redrawing the map of Europe accordingly was one of the main activities at international congresses such as those of Westphallen (1648), Utrecht (1714), and Vienna (1814).

erybody else's rights; hence (by Bentham) he is entitled to do so; hence (by *PDO*) he is entitled to both close the gates when he wishes and to respect everybody else's rights. Thus the visitors are in duty bound to leave at 6:30 — not to impede the exercise of one of the janitor's rights.

Such a «paradox» is just a contradiction. Within our approach it can be treated as a merely partial contradiction, which may turn out to be true (up to a point). Both rights may well exist, even though one of them ranks higher (or perhaps neither ranks higher — it all depends on a broad context within which the normative setup has to be interpreted). But even if the janitor is more entitled to close the gates than are the visitors to remain, this does not entirely nullify the latter entitlement. Rights, duties, prohibitions are not all-or-nothing matters.

Within our approach a course of action can be both allowed, up to a point, and yet also forbidden to some extent. But our system also encompasses a strong assertion operator, '*H*', read as 'It is entirely the case that', such that a person's being entirely allowed to do *A* completely rules out his being forbidden to do *A*.

Whatever the difficulties surrounding it, *PP* plays a major role in our common juridical thought, and is in fact the implicit base for many of our dearest claims against encroachment. More often than not we — rightly — feel entitled to a course of action, not in virtue of the law claiming it to be legitimate, but because of our [implicit] right to do whatever is not expressly prohibited, liable to penalty or punishment.

Our proposal thus entails that in cases of legal gaps both courses of action are to some extent allowed and yet also to some extent prohibited — in so far as each of them stands in the way of the alternative course of action.[22]

Strong difficulties beset the two classical approaches, one of which entirely rejects the existence of any legal rights unless and until they are explicitly recognized by the legal *corpus*, while the other unqualifiedly accepts as an unrestrictedly and wholly rightful entitlement whatever is not expressly forbidden by the law. The latter approach can hardly cope with

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[22] The legal setup in operation may be constituted by a large number of different codes or sub-codes, each of which would fill in the gaps in a particular way. As a whole, the setup neither uniquely allows one course of action neither uniquely allows the opposite course; accordingly, the setup also fails to uniquely forbid either. We thus take exception to the juridical doctrine of the 'uniquely correct solution' to any legal problem, espoused, among others, by Dworkin. He argues that for any legal case (hard or easy) there is a uniquely correct solution. The main idea which motivates that view is the belief in the ultimate coherence of legal material, in the law as a completely consistent and determinate body of norms (Dworkin 1986, p. 176). We hold that this is not the case and recognize the possibility not only of degrees of lawfulness but also of ambiguity, vagueness and tension within a legal system.

the possibility of mutually obstructive courses of action by two different persons, neither of which is prohibited by law. The former approach seems to us to lead to an unacceptable conclusion, namely that the juridical order leaves us unprotected whenever the explicit wording of the legal texts is vague or general. (When the bill of rights was added to the American Constitution, some founding fathers were averse to the move, alleging that, since each citizen is entitled to whatever action is not forbidden, drawing a list of rights could be regarded as an abridgment of liberties, as excluding any right not in the list, rather than the other way round.)[23]

What is more, the legal-gaps approach — according to which courses of action not explicitly forbidden are by no means *eo ipso* implicitly allowed — seems to us not just fraught with unpalatable consequences but in some sense hard to understand, at least if we identify our having a certain right with other people being obliged not to stand in the way of our exercising such a right. For the approach amounts to this: (1) in such situations, neither course of action is the exercise of a legal right; hence, (2) nobody transgresses the law by preventing or thwarting such a course of action; therefore, (3) no such preventive move can be a [legal] ground for charging its performer. But (3) entails that the preventive move is not unlawful, i.e. it is within the pale of the law, and hence that (4) it is rightful to perform such a preventive move.

In order to avoid the conclusion (4), the contender has to claim that some actions on account of which their performers may not be charged are not lawful either. Now, if we accept the reductive approach to rights — for you to have a right to do A is nothing else but for all other people to stand under the obligation not to hinder your doing A —, then having the right to A entails that, to the extent that you have indeed the right, you cannot be charged on account of having done A (otherwise the threat of arraignment would obviously be a deterrent, a hindrance against your doing A). Conversely, if you are free from legal liability on account of doing A, then, according to the reductive view, you have indeed the right to do A, unless other people are legally entitled to prevent you doing A. Yet it would be an extremely awkward and irksome situation for an action to be immune from public legal liability but open to private obstruction. To unreservedly allow such situations would mean to withdraw the law's protection.[24]

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[23] Modern contractual stipulations are cleverly worded in order not to rule out rights or duties not explicitly recognized to either contracting part.

[24] In fact such an obstruction would be a case of trespassing against persons, hence something which is legally forbidden.

We must face an objection to our view: if, in one of the situations being considered, the two courses of action are to some extent legal and therefore if they are, both, to some extent unlawful — each of them in so far as it obstructs or impedes the other, and also legal, course of action —, then their performance can be a basis for legal prosecution, which goes against the principle *nullum crimen sine lege*. We reply that many actions which are not explicitly forbidden by statute law are implicitly prohibited by the legal system as a whole, and hence can constitute grounds for prosecution. In the last resort, natural law or equity is to be fallen back on as a sufficient basis for prosecution, in case more explicit norms fail to protect people's rights — each legal system being conceived as a particular implementation of natural law. No legal system worth thinking about can fail to implicitly incorporate guidelines to cope with such issues, at least through analogical reasoning. (We are not denying that there are cases in which the legal system fails to give even implicit prevalence to either right;[25] even then it often happens that in some respects one of them ranks higher while the other ranks higher in other respects, neither ranking all in all higher.)

A consequence of our approach is the preservation of the principle of deontic excluded middle, *PDEM*. Since in all such cases neither course of action is wholly forbidden, both are [to some extent] allowed. Hence each of them is either allowed or forbidden. Other nonclassical approaches to deontic logic waive *PDEM* and even the principle of excluded middle *tout court*, *PEM*.[26] There are several strategies for the abandonment of *PDEM*. One is to maintain *PEM*, $\ulcorner p \vee Np \urcorner$, while rejecting the specifically deontic principle, namely that each action is either allowed or else forbidden; in order to make such a strategy workable you only need to relinquish the equivalence between not-forbidden and allowed. A more daring strategy consists in sacrificing *PEM* altogether. Our present considerations and our logical proposal cast doubt on any justification for such a strategy on the basis of deontic and juridical reasoning. Our view is that scrapping *PEM* is a desperate course which frequently stems from a failure to recognize degrees of legality — and more generally degrees of duty and moral entitlement.

To be sure, the classical construal of *PEM* — which mistakes being wholly true for being true *tout court* — means that each situation is either entirely the case or else not the case at all. Concerning things legal, that means that either you are wholly entitled to do *A* or else fully forbidden to

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[25] Concerning the limitations and conflicts between the traditional legal criteria to solve normative conflicts, see Gavazzi (1959), Bobbio (1960), and Iturralde (1989).

[26] Grana (1990) developed a non-alethic (paraconsistent and paracomplete) deontic calculus, giving up *PEM* and non-contradiction.

do *A*. Such a perspective seems to us unattractive and unrealistic. In fact we firmly believe that the admission of degrees of legality is the most promising and significant aspect of our current proposal. We grant that its acceptance calls for a reshaping of much juridical practice. But such a reshaping is anyway mandatory on the basis of current research in an astonishingly broad range of fields — concerning human and nonhuman reproduction, relations between members of our own species and other animals and so on. Departing from the all or nothing approach to rights seems to us an overdue step in our juridical evolution.

### What About Deontic Aggregation?

One of the principles which our current system fails to countenance is Deontic Aggregation: $\ulcorner op \wedge oq \supset o(p \wedge q)\urcorner$ — or an implicational version, with $\ulcorner \rightarrow \urcorner$ in place of $\ulcorner \supset \urcorner$.

In defence of Aggregation it has been claimed that, when two obligations belong to the same «order» or sort, or even to the same code, they must be conjoinable, since otherwise the normative order in question would be a disjoint one, constituting no coherent all-encompassing code. But what is the ground for the «optimistic» view that codes are necessarily consistent? The overwhelming evidence is to the contrary, as a matter of fact. Of course, every interpreter is free to idealize the codes, positing a distilled or modelic over-code devoid of contradictions.[27]

Alternatively, we can envisage accepting the normative contradictions and dealing with them within a paraconsistent logic.[28] In fact our own logical approach is paraconsistent. But we do not want, on that ground alone, to be bound to say that such codes as contain a norm to *A* and a norm to not-*A* (sometimes even to not-*A* at all) are thereby committed to imposing a norm to the effect that *A*-and-not-*A*. Thus, take a code regulating intellectual property which in fact contains certain deontic contradictions, making it mandatory under certain circumstances to do *A* and also, under such circumstances, mandatory not to do *A*. We do not want to attribute to the code the implied obligation to both do and yet refrain from doing *A*. In fact only an obsessive Justinianean conception of civil law leads to the illusion that codes are or have to be consistent. It may be a good thing for code-design-

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[27] What, in juridical contexts, is commonly called 'a contradiction' is not sentential contradiction, i.e. a formula of the form $\ulcorner p \wedge Np\urcorner$ but a norm of either the form $\ulcorner op \wedge oNp\urcorner$, or of the form $\ulcorner op \wedge aNp\urcorner$; Bentham's principle — what is obligatory is also licit — entails that a deontic contradiction of the former sort implies a deontic contradiction of the latter sort; which in turn — by the equivalence between 'obligatory' and 'not rightful not' —implies a sentential contradiction.

[28] Da Costa and Carnielli (1986), Puga (1985), and Puga and da Costa (1987).

ers, from Hammurabi onwards, to try to expunge normative contradictions from their juridical *corpora*, but their degree of success is of course variable.

Thus our current proposal agrees with a number of classical and nonclassical approaches to deontic logic in relinquishing Aggregation. We have thus come to agree with those who claim that the existence of normative conflicts constitutes a reasonably sufficient ground for such an abandonment.[29] Not even the acceptance of degrees of dutifulness and that of legal [partial] contradictions offers, alone, a helpful way out, since we are often obliged to do *A* in a high degree, to also do *B* in a high degree, while it is [utterly] impossible to do *A*-and-*B* in a high degree.

Alternatively, Kant's principle — what is mandatory is possible — could be given up:[30] we could contemplate situations wherein a wholly impossible course of action would be nevertheless obligatory. While we are prepared to qualify Kant's principle —as we have done with our axiom *Axd*04 — jetisonning Kant's principle altogether seems to us unsavoury, to say the least. The «Kantian» requirement forbids the legislator to impose unfeasible duties.[31]

We now do not think that, in order to make Aggegation compatible with our most cherished juridical principles, it suffices to distinguish the degree to which we are obliged to do *A* from the degree of our doing *A* under such an obligation. Of course we accept such a distinction. But — unlike what we claimed in a previous paper — we no longer think that it can be used in support of Aggregation.

Suppose you are bound to do *A* and also bound to do *B*, but doing *A*-and-*B* is unfeasible for you under the circumstances. To be precise, suppose that, as things stand, to the extent that you do *A*, you fail to do *B* — doing *A* is included in not-doing *B*. Now, suppose you are fairly bound to do *A* and also fairly bound to do *B*, but that it is completely unfeasible to fairly-do-*A* and fairly-do-*B*. You could hope that, since your being fairly obliged to do

[29] Chellas (1980), Schotch and Jennings (1981), Barcan (1980), Hilpinen (1985), Bonevac and Seung (1988).

[30] The classical formulation of this principle is rejected by Hintikka (1971), Priest (1987), Routley and Plumwood (1989).

[31] From a presuppositionalistic view-point it has been claimed that when the agent lacks the ability to perform an action, the question about the duty does not to arise (Hare (1963, sec. 4.3)). Such a presuppositionalistic wording does not agree with the original purpose of countenancing Kant's principle, though. When the question about *A* does not to arise, neither does the question about not-*A*. Yet, when an agent is unable to *A*, Kant's principle entails that she is definitely not under the obligation to *A* — so she is rightfully entitled not to *A*.

*A* is not the same as your being obliged to fairly do *A*, Aggregation does not entail an overcontradiction, a situation wherein an action would be mandatory, and hence feasible, and yet utterly unfeasible. If the degree applies to the obligation only, not to the action it renders mandatory, then — you hope — no overcontradiction results unless *A*-and-*B* (to whatever degree) is itself overcontradictory.

Unfortunately such a solution does not work. Let's come to specifics. Suppose you are a physician who can save a person's life, and who can save another person's life, but not both. Saving *A*'s life and *B*'s life is an utterly impossible task; thus Aggregation would put you under an unbearable burden. But you hope that, while — under prevailing circumstances — you cannot fully save *A*'s life if you save *B*'s life, at least in many cases you can to some extent save both. You can give to each of them a dose of the available remedy which can delay their death.

That may be true in some cases, but not always. There are dramatic cases of duty conflicts where the solution is undivided: you only have a small dose which can either save *A*'s life or save *B*'s life, whereas less than the whole dose will delay neither's death! The existence — at least clearly conceivable — of such cases seems to us (now!) a sufficient ground for abandoning Aggregation.

We do not want to fall back on an alternative way out, namely weakening Kant's principle even in a much more drastic way than we have done, and contending that what is required for an action to be obligatory is that in and of itself it should be metaphysically possible. On the contrary, we think that the kind of possibility involved is concrete possibility, feasibility, which is of course stronger than mere logical or metaphysical possibility. Thus you cannot take solace by thinking that to save *A*'s life is — in general, in and of itself — not entirely incompatible with saving *B*'s life, and that what alone is totally absent is a concrete possibility to do both under prevailing circumstances; which means a possibility realized in a possible world which should be, in relevant respects, «open to us» as things stand. For it is precisely such a concrete possibility what is relevant here, and the degree of concrete possibility — feasibility — of a happening depends not only on the extent of its being realized in some world or other, but on the extent of its being realized in a world related to ours in certain particular ways, and on the extent to which such relations do indeed hold.

Thus, even if in most cases the alternatively mandatory courses of action are to some extent concretely [partly] compatible — at the price of performing each of them in a low degree in order to allow for the other courses of action to also be materialized to some extent —, in some cases there is no degree of compatibility between two alternative courses of action — both of them mandatory to some degree. In the presence of such cases, Aggregation cannot be saved by claiming that often a half-performance of

conflicting duties can be the least bad solution; that a middle course is what most parents do concerning their several children's needs — they do not give all to one child with no regard at all to the needs of the other, e.g. It is frequently a good thing to go beyond the bounds of what seemed possible in order to partly accommodate opposite needs, in so fas as possible. All that is OK. Gradualistic or fuzzy logical approaches make such prospects worth discussing, whereas classical approaches rule them out altogether. But even when all those considerations are taken into account, it remains that some cases cannot be dealt with in such a way.

One reason which had previously prompted us — despite a lingering qualm —reluctantly to espouse Aggregation is that with Aggregation the principle of alternative rights, $PAR$, can be proved, namely $\ulcorner a(p \vee q) \rightarrow .ap \vee aq \urcorner$ : to the extent that you are entitled to do either A or B, you are entitled to do A or else you are entitled to do B. We had argued that, without $PAR$, you could be entitled to A in a very small degree, and to B not at all, while being entitled in a high degree to A-or-B. Such a legal right would be — we claimed — a mockery of justice.

Since existential quantification can be viewed as some sort of generalized disjunction, we had wondered if, supposing there was no entity, $x$, of a certain kind, for which it was allowed $A(x)$, still it could be licit that some-entity-or-other, $x$, of that kind should be such that $A(x)$. In other words: aren't we entitled to draw from the premise that $a\exists x[p(x)]$ the conclusion that $\exists x[ap(x)]$? We claimed that, if a juridical setup lays down that you have the right to primary free education at some public school or other, but also entirely forbids you from attending each single public school, that juridical setup would constitute a mockery, a travesty of normative order. So, we concluded, $PAR$ ought to be retained at whatever cost.

Fortunately, though, our current approach allows us to keep what we deem worth saving from those considerations, while at the same time disowning Aggregation. We then were concerned about the possibility of a situation wherein: (1) none of the goods of class $Z$ was available to an agent $A$; (2) $A$ was purportedly entitled to obtain some good of that class; and (3) $A$ couldn't claim any of those goods as rightfully his. Within our current framework, no such situation can arise; for, if you are entitled to access $A^1$ or $A^2$ or ... or $A^n$ and, as a matter of fact, you are debarred from accessing $A^2$, $A^3$, ..., $A^n$ then whosoever prevents you from accessing $A^1$ is thereby compelling you not to access $A^1$ or ... or $A^n$, i.e. is thereby illicitly forcing you not to enjoy one of your rights; which is illicit in virtue of $PEO$.

Many of our current legislative systems nominally grant positive rights to people, but, by failing to take sufficient practical steps to ensure that those rights are really enjoyed, they lead to avoidable legal conflicts: on the one hand, an individual or a collectivity $B$ may be the owners of a facility, $X$, and so they may be entitled to prevent anybody else from accessing $X$; on

the other hand — in virtue or the reasoning sketched out in our previous paragraph — people different from $B$ may be entitled not to be forcibly prevented from accessing $X$. Practical rationality demands a legislative overhaul.

### A Final Comment: The Deep Unlikeness Between Licitness and [Modal] Possibility

It is quite natural to somehow assimilate licitness to some sort of possibility, both on account of how we talk and owing to some internal features of the operators. However the similarity has been often pushed too far and thus has misled many a deontic logician. Our present approach departs from such an assimilation. A few modal principles can be kept in deontic logic by uniformly replacing ' $\Box$ ' with ' $o$ ' and ' $\Diamond$ ' with ' $a$ ': $\ulcorner op \rightarrow ap \urcorner$; $\ulcorner o(p \supset q) \wedge op \supset aq \urcorner$; $\ulcorner op \wedge aq \rightarrow a(p \wedge q) \urcorner$; $\ulcorner NaNp \leftrightarrow op \urcorner$. We reject, though, many principles which had been espoused on the ground of the resemblance under consideration, e.g.: $\ulcorner a(p \wedge q) \rightarrow ap \urcorner$; $\ulcorner a(p \vee q) \rightarrow .ap \vee aq \urcorner$; $\ulcorner ap \vee aq \rightarrow a(p \vee q) \urcorner$; $\ulcorner a\exists xp \rightarrow \exists xap \urcorner$; $\ulcorner \exists xap \rightarrow a\exists xp \urcorner$; $\ulcorner o(p \rightarrow ap) \urcorner$.

On the other hand, we hold a number of deontic principles whose modal counterparts would be clearly wrong: $\ulcorner ap \wedge aq \rightarrow a(p \wedge q) \urcorner$ (rights are aggregative); $\ulcorner \neg p \wedge a(p \vee q) \rightarrow aq \urcorner$ (when a disjunct entirely fails to be the case, the licitness of the disjunction makes the other disjunct a rightful one); $\ulcorner p \& aq \rightarrow a(p \& q) \urcorner$ (to the extent that, while a certain state of affairs obtains, some action is right, it is also right for that action to be done while the state of affairs holds); $\ulcorner \forall xap \rightarrow a\forall xp \urcorner$. The remaining similarity between licitness and possibility is very small.

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