Refutation of free choice permission (FCP) in deontic logic

Abstract: The formula for free choice permission (FCP) in deontic logic as P(p\/q)→(Pp/\Pq) (FCP) is *not* tautologous, *not* a paradox, and hence *not* applicable in Hilbert-style classical deontic logic as a guarded version. Therefore FCP forms a *non* tautologous fragment of the universal logic VŁ4.

We assume the method and apparatus of Meth8/VŁ4 with `T`autology as the designated proof value, **F** as contradiction, `N` as truthity (non-contingency), and `C` as falsity (contingency). The 16-valued truth table is row-major and horizontal, or repeating fragments of 128-tables, sometimes with table counts, for more variables. (See ersatz-systems.com.)

LET ~ Not, ¬ ; + Or, ∨, ∪, ⊔ ; - Not Or; & And, ∧, ∩, ⊓, ·; \ Not And;
> Imply, greater than, →, ⇒, ↦, ≻, ⊃, ↠ ; < Not Imply, less than, ∈, ≺, ⊂, ⊬, ⊭, ↞, ≲ ;
= Equivalent, ≡, :=, ⇔, ↔, ≜, ≈, ≃ ; @ Not Equivalent, ≠;
% possibility, for one or some, ∃, ◊, M; # necessity, for every or all, ∀, □, L;
(z=z) `T` as tautology, ⊤, ordinal 3; (z@z) **F** as contradiction, Ø, Null, ⊥, zero;
(%z>#z) `N` as non-contingency, Δ, ordinal 1; (%z<#z) `C` as contingency, ▽, ordinal 2;
~(y < x) (x ≤ y), (x ⊆ y), (x ⊑ y); (A=B) (A~B).
Note for clarity, we usually distribute quantifiers onto each designated variable.

From: Governatori, G.; Rotolo, A. (2019). Is free choice permission admissible in classical deontic logic?. arxiv.org/pdf/1905.07696.pdf

Abstract In this paper, we explore how, and if, free choice permission (FCP) can be accepted when we consider deontic conflicts between certain types of permissions and obligations. As is well known, FCP can license, under some minimal conditions, the derivation of an indefinite number of permissions. We discuss this and other drawbacks and present six Hilbert-style classical deontic systems admitting a guarded version of FCP. The systems that we present are not too weak from the inferential viewpoint, as far as permission is concerned, and do not commit to weakening any specific logic for obligations.

1 Introduction and background

A significant part of the literature in deontic logic revolves around the discussions of puzzles and paradoxes which show that certain logical systems are not acceptable—typically, this happens with deontic KD, i.e., Standard Deontic Logic (SDL)—or which suggest that obligations and permissions should enjoy some desirable properties. One well-known puzzle is the so-called Free Choice Permission paradox, which was originated by the following remark by von Wright in [23, p. 21]: "On an ordinary understanding of the phrase 'it is permitted that', the formula 'P(p∨q)' seems to entail 'Pp∧Pq'. If I say to somebody 'you may work or relax' I normally mean that the person addressed has my permission to work and also my permission to relax. It is up to him to choose between the two alternatives." Usually, this intuition is formalised by the following schema:

P(p ∨ q) → (Pp ∧ Pq) (FCP) (1.1)

LET p, q, r: p, r, P(ermission)

(r&(p+q))>((r&p)&(r&q)) ;

`TTTT T`**FF**`T TTTT T`**FF**`T` (1.2)

Remark 1.2: Eq. 1.2 as rendered is not tautologous. This refutes FCP as a paradox and its subsequent use in Hilbert-style classical deontic systems with a guarded version of FCP.