

Introduction

Conditional Modality I

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1 Introduction

- Leibniz (1670)
- Kanger (1950)
- Anderson (1956, 1958)
- von Wright (1968)
- Hilpinen (1982)

2 Beyond deontic modality

3 Conditional modality in Japanese, Korean and Burmese

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Leibniz's *Elements of Natural Law*:

What is permitted is

“what is possible for a good person to do”

What is obligatory is

“what is necessary for a good person to do”

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Hilpinen (2017, pp. 159–60) suggests paraphrasing Leibniz's thought here using conditionals:

One is permitted to do something just in case

if they do it, possibly, they are a good person

One is obligated to do something just in case

if they do not do it, necessarily, they are not a good person.

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Kanger (1957)

Stig Kanger, *New foundations for ethical theory* (distributed 1950, published 1957)

Analysed *ought* A as $N(Q \supset A)$, where

- ‘ N is the notion of analytic necessity’ (nowadays denoted with $\Box$)
- Q is ‘a constant stating what morality prescribes’
- $\supset$ is the material conditional

The material conditional

A **materially implies** C (often denoted $A \supset C$) iff A is false or C is true

A	C	$A \supset C$
0	0	1
0	1	1
1	0	0
1	1	1

You ought to clean your room if and only if it is impossible that morality's prescriptions are met and you don't clean your room

The strict conditional

A **strictly implies** C (often denoted $A \rightarrow C$) iff in every accessible world where A is true, C is true; in other words, there is no accessible world where A is true and C false (see Lewis 1912)

Kripke semantics for necessity and possibility (Kripke 1959)

A is necessarily true ($\Box A$) at a world w iff

A is true at **every** accessible world from w

A is possibly true ($\Diamond A$) at a world w iff

A is true at **some** accessible world from w

An equivalent formulation

Note: the strict conditional satisfies contraposition

Contraposition

The equivalence of ‘if A , C ’ and ‘if $\neg C$, $\neg A$ ’

Example

‘If Alice is in Berlin, she is in Germany’

‘If Alice is not in Germany, she is not in Berlin’

$$\Box(A \supset C) \equiv \Box(\neg C \supset \neg A)$$

So on Kanger’s analysis, *ought* A equivalently states $\Box(\neg A \supset \neg Q)$: necessarily, if A is false, morality’s prescriptions have not been met

- (1) You ought to clean your room
- (2) If you don’t clean your room, the rules will be broken

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we add a propositional constant $\langle S \rangle$ expressive of the $\langle \text{thing wrong,} \rangle$ or $\langle \text{sanction,} \rangle$ and our sole axiom governing $\langle S \rangle$ says that the sanction is avoidable, i.e., possibly false.

Axiom: $\Diamond \neg S$

Deontic modes are then defined as follows;

Df. O. $\langle Op \rangle$ is short for $\langle \neg p \rightarrow S. \rangle$

Df. F. $\langle Fp \rangle$ is short for $\langle O\neg p. \rangle$

Df. P. $\langle Pp \rangle$ is short for $\langle \neg Fp. \rangle$

That is, a state-of-affairs p is obligatory ($\langle O \rangle$), relatively to the normative system whose sanction is S , if the falsity of p entails (strictly implies) the sanction; it is forbidden if its falsity is obligatory; and it is permitted if it is not forbidden.

(Anderson 1958b, p. 86)

“to say that p is obligatory is to say that failure of p leads to a state-of-affairs P which is ‘bad’ ”

(Anderson 1958a, p. 103)

“it is *analytic* of the notion of obligation that if an obligation is not fulfilled, then something has gone wrong”

(Anderson 1967, pp. 346–47)

we add a propositional constant $\langle\langle S \rangle\rangle$ expressive of the $\langle\langle$ thing wrong, $\rangle\rangle$ or $\langle\langle$ sanction, $\rangle\rangle$ and our sole axiom governing $\langle\langle S \rangle\rangle$ says that the sanction is avoidable, i.e., possibly false.

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Exercise

What is the benefit of adding the axiom that the sanction is avoidable?

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Hint. Consider: if the sanction is unavoidable, what is obligatory?

Anderson (1956, 1958a,b)

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Hint. Consider: if the sanction is unavoidable, what is obligatory?

Undesirable result: **everything becomes obligatory.**

To formulate a system of deontic logic as an extension of alethic modal logic, then, we add to the wffs of a normal alethic modal logic X^{42} a propositional constant (symbolized 'S'), and a single axiom, as follows.

Ax. 15. *MNS*. (*S* is possibly false.)

We then add stipulative definitions of '*P*' and '*O*' as follows.

Df. *P*. "*Pa*" is short for "*MKaNS*." ("*a* is permitted" is defined as "it is possible that *a* and not-*S*," or "it is possible that *a* is true and the sanction is not invoked.")

Df. *O*. "*Oa*" is short for "*NPNa*." ("*a* is obligatory" is defined as "not-*a* is not permitted.")

We may also define operators '*F*',⁴³ and '*I*', such that "*Fp*" will have the interpretation "*p* is forbidden," and "*Ip*" will have the interpretation "*p* is indifferent."

Df. *F*. "*Fa*" is short for "*NPa*." ("*a* is forbidden" is defined as "*a* is not permitted.")

Df. *I*. "*Ia*" is short for "*KPaPNa*." ("*a* is indifferent" is defined as "*a* is permitted and not-*a* is permitted.")

Figure: From Anderson (1956)

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Let I denote “immunity to punishment”

It ought to be the case that A means

A is a necessary condition of I

$\Box(I \supset A)$, equivalent to $\Box(\neg A \supset \neg I)$

It may be the case that A means

A is a sufficient condition of I

$\Box(A \supset I)$

This is known as ‘strong permission’

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Let I denote “immunity to punishment”

Hilpinen (1982) suggested replacing the strict conditional $\Box(A \supset C)$ with the variably strict conditional, à la Stalnaker (1968) and Lewis (1973).¹

¹Nute (1985) suggested another kind of conditional.

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Hilpinen (1982) suggested replacing the strict conditional $\Box(A \supset C)$ with the variably strict conditional, à la Stalnaker (1968) and Lewis (1973).¹

Let f be a conditional selection function, taking a sentence and a world and returning a set of worlds where the sentence is true.

$A \Diamond \rightarrow C$ is true iff C is true at some A -world selected by f

$A \Box \rightarrow C$ is true iff C is true at every A -world selected by f

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A is permitted expresses $A \Diamond \rightarrow I$

A is obligatory expresses $\neg A \Box \rightarrow \neg I$

¹Nute (1985) suggested another kind of conditional.

Philosophers often argue that there is a distinctive kind of **metaphysical** modality (see Vetter 2026 for discussion)

Example

It is metaphysically necessary that the singleton set {Socrates} contain Socrates.

Example view: The metaphysically necessary truths are

the propositions which are true in virtue of the nature of all objects whatever

— Fine (1994), 'Essence and Modality'

Metaphysical modality

- Williamson (2007, pp. 157, 297) considers analysing metaphysical possibility and necessity in terms of counterfactuals

Williamson's motivation

To ground thinking about metaphysical modality in ordinary cognitive skills, and defend modal logic from empiricist skepticism

- Let $\Box \rightarrow$ denote the counterfactual conditional, and let $A \Diamond \rightarrow C$ abbreviate $\neg(A \Box \rightarrow \neg C)$.
- Let $\top$ is a tautology and $\perp$ a contradiction.
- Williamson suggests that a statement A is
 - metaphysically necessary just in case if it were false, a contradiction would obtain ($\neg A \Box \rightarrow \perp$)
 - with metaphysical possibility the dual of metaphysical necessity ($\neg(\neg\neg A \Box \rightarrow \perp)$, or $A \Diamond \rightarrow \top$)

The 'sanction', metaphysically speaking, is the existence of a contradiction

Interestingly, the equivalences Williamson proposes follow automatically if we analyse $\Diamond$ and $\Box$ via Kripke semantics:

- $\Box A$ is true iff A is true at every accessible world
- $\Diamond A$ is true iff A is true at some accessible world

and define

- $A \Box \rightarrow C$ iff C is true at every accessible world where A is true
- $A \Diamond \rightarrow C$ iff C is true at some accessible world where A is true

where, as usual,

- $\perp$ is true at no possible world
- $\top$ is true at every possible world

Conditional modality in Japanese, Korean and Burmese

- A number of languages typically express permission and obligation using conditionals, including Japanese, Korean, and Burmese
- Observed by Anderson (1956, pp. 204–205)
- (3) and (4), due to Akatsuka (1992), show this for Japanese

(3) *Permission:*

Tabe-temo ii.

eat even if good

Literally: “It is good even if you eat” = “You may eat”

(4) *Obligation:*

Tabenakere-ba ikenai/ dame da.

eat Neg if can go Neg no good is

Literally: “It is not good if you don’t eat” = “You must eat”

- Kaufmann (2017) calls these *conditional evaluative constructions*
- For discussion, see Akatsuka (1992), Wymann (1996), Nauze (2008), Knoob (2008), Narrog (2009), Kaufmann (2017), Chung (2019), and Li (2025)

(d) And finally, not only is it possible and plausible to construe statements of obligation in the idiom recommended by the systems *OX*, it is as a matter of fact the standard way of construing such assertions in certain natural languages. In Japanese,⁹⁴ for example, the standard way of rendering “*X* ought to be done,” is “*X wo shinakereba, narimaseng.*” The clause before the comma may be literally translated “if *X* is not done,” and the clause after the comma means something like “it won’t do,” or “things will go wrong” (literally, “it won’t become”). “Narimaseng,” in short, is standardly

⁹⁴ See Bloch and Jorden [19], pp. 399 and 415.

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taken in Japanese as the interpretation of what we have called the sanction ‘*S*’. The fact that obligations are expressed in a natural language by means of locutions paralleling so exactly those of the systems *OX*, should be sufficient to dispel any notion that the locutions of *OX* are somehow arbitrary or artificial or unnatural. And Japanese is not the only example; comparable modes of expression are also found in Korean.⁹⁵

Figure: From Anderson (1956)

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