

Meaning, Reference and Modality

Paul Dekker

ILLC/Department of Philosophy
Universiteit van Amsterdam
p.j.e.dekker@uva.nl

September — December 2009

Quine on Quantified Modal Logic

- ‘ $\Box\phi$ ’ means ‘“ ϕ ” is analytic’
- $\Box(\text{The number of planets} \geq 7)$
- $\Box(9 \geq 7)$
- $\Box(x \geq 7)$
- “The number of planets ≥ 7 ” is analytic. (False)
- “ $9 \geq 7$ ” is analytic. (True)
- “ $x \geq 7$ ” is analytic. (Nonsense)
- “Cicero” contains six letters.
- $\exists x$: “x” contains six letters.
- $\exists x$: the 24-th letter of the alphabet contains six letters.

“We see from (30)–(31) how a quantifier applied to a modal sentence may lead simply to nonsense. (...) Evidently this reversion to Aristotelian essentialism is required if quantification into modal contexts is to be insisted on. An object, of itself and by whatever name or none, must be seen as having some of its traits necessarily and others contingently, despite the fact that the latter traits follow just as analytically from some ways of specifying the object as the former traits do from other ways of specifying it. (...) The upshot of these reflections is meant to be that the way to do quantified modal logic, if at all, is to accept Aristotelian essentialism. (...) Such a philosophy is as unreasonable by my lights as it is by Carnap’s or Lewis’s. [C.I., PD] And in conclusion I say, as Carnap and Lewis have not: so much the worse for quantified modal logic. By implication, so much the worse for unquantified modal logic as well; for, if we do not propose to quantify across the necessity operator, the use of that operator ceases to have any clear advantage over merely quoting a sentence and saying that it is analytic.” (Reference and Modality, 1953, p. 30–31)

Necessity of Identity

(1)		$(x = x)$	(ax.)
(2)		$\Box(x = x)$	(\Box , 1)
		$[x/z]\Box(x = z)$	(subst.)
(3)		$(x = y)$	(ass.)
(4)		$[y/z]\Box(x = z)$	(Leibniz 2, 3)
		$\Box(x = y)$	(subst.)
(5)		$((x = y) \rightarrow \Box(x = y))$	(\rightarrow , 3, 4)
(6)	$\forall x, y$	$((x = y) \rightarrow \Box(x = y))$	(\forall , 5)

Kripke's Strawmen in 6 Theses

- ① To every name or designating expression 'X', there corresponds a cluster of properties, namely the family of properties ϕ such that A believes ' ϕX '.
 - ② One of the properties, or some conjointly, are believed by A to pick out some individual uniquely.
 - ③ If most, or a weighted most, of the ϕ 's are satisfied by one unique object y , then y is the referent of 'X'.
 - ④ If the vote yields no unique object, 'X' does not refer.
 - ⑤ The statement, 'If X exists, then X has most of the ϕ 's' is known *a priori* by the speaker.
 - ⑥ The statement, 'If X exists, then X has most of the ϕ 's' expresses a necessary truth (in the ideolect of the speaker).
- (C) For any successful theory, the account must not be circular. The properties which are used in the vote must not themselves involve the notion of reference in a way that it is ultimately impossible to eliminate.