Ch. 6 *Possibility: Metaphysics and Semantics*

Convention:
$$POT[F](x) \equiv \mathscr{P}(x, F) \qquad POT[\lambda x.A](x) \equiv \mathscr{P}(x, A)$$

6.1 Possibility defined; 6.2 Applying the definition

"A possibility is a potentiality *somewhere or other in the world*, no matter where." p197

Once-iterated potentiality: $\mathscr{P}^1(x, P)$
N+1 times iterated potentiality: $\mathscr{P}^{N+1}(x, P) = \mathscr{P}^1(x, \exists y : \mathscr{P}^N(y, P))$
$\mathscr{P}* = \mathscr{P}^N$ for some N

$\boxed{\Diamond A = \exists x : \mathscr{P}*(x, A)}$ (p.197)   i.e. as the *x*s in $\exists x : \mathscr{P}*(x, A)$

NB. future objects are often dispensable as witnesses, but past objects are not,
cf. the possibility that Socrates could have been a carpenter (p.200).

(Weakly vs. strongly possible: p.200)

De re: $\Diamond Fa$, e.g. it is possible that BV sits. Witness: BV.

De dicto: $\Diamond \exists x : Fx$, e.g. it is possible that there be a space station on Mars.
Witness: engineers (extrinsic potentiality involving Mars).

Applications: necessity of identity, p.203f   (1) $a = b$ (2) $\sim\mathscr{P}(a, \neq a)$ $\therefore$ $\sim\mathscr{P}(b, \neq a)$
necessity of origin, p.204ff

6.3 Three constraints

Extensional correctness: Preserves our intuitions about possibility/necessity (ch.7)
Formal adequacy: Generates a workable modal logic (at least T)
Semantic utility: Supplies a semantics for ordinary modal language.

6.4 Formal adequacy

(K1) If $\models A$, then $\models \Box A$
(K2) $\Box(A \supset B) \supset [\Box A \supset \Box B]$
(T) $\Box A \supset A$
(S4) $\Diamond \Diamond A \supset \Diamond A$
(S5) $\Diamond A \supset \Box \Diamond A$

p.209ff: (K1) follows from CLOSURE

(K2) follows from DISJUNCTION

(T) follows (by contraposition) from the principle that if A is true, then everything has the potentiality for A.

(S4) follows from the nature of iterated potentiality.

(S5) is true if the initial conditions of the universe could not have been different (p.213)

NB. "It is a feature of the potentiality-based account that what is possible and what is not is hostage to the way things actually are." p.202

6.5 Semantic utility: introduction

Basic idea:

(CAN) x can φ iff $\mathscr{P}(x, \varphi)$

3 semantically salient areas where can-talk is important:

- epistemic modality
- deontic modality
- dynamic modality (developments that are open given how things now are)

6.6 [Dymamic modality I:] 'Can' and context-sensitivity

(CAN*) x can φ in context C iff $\mathscr{P}(x, \varphi)$ <u>and</u> this is relevant in C

Three conditions on relevance: degrees, granularity, and agency. Together, these explain why can-claims are context-sensitive.

<u>Degrees</u>: e.g. "the bridge cannot break" in an enginnering context

<u>Granularity</u>: "Dispositional terms, it seems, typically come with a strong and relatively stable implication of intrinsicality which is held fixed across contexts. [...] 'Can' is much more flexible in this respect, and accordingly more sensitive to our interests in a given situation." (p.219)

e.g. "the vase cannot break" (true when transporting the vase, safely packed)
    "the vase can break" (true when considering where to place it once unpacked)

<u>Agency</u>: some potentialities count as abilities, linceeing can-talk. What sets abilities apart? Ryle: multi-trackness. Reid: being two-way (to φ or not to φ).

Seemingly difficult cases: "The debt rate can rise next year," "The average tax payer can still afford a yearly vacation" (p.230).

6.7 Dynamic modality beyond 'can'

Counterfactuals, pp.225–27:

(COULD) $\lceil$Fx $\diamondsuit\!\!\to$ G$x\rceil$ is true iff x has an iterated potentiality to be G, and being F is an earlier stage in that iterated potentiality.

$A \,\square\!\!\to B \equiv \sim(A \,\diamondsuit\!\!\to \sim B)$

N.B. If pandispositionalism ("strong structuralism") is false, this analysis may break down (p.227).

6.8 Dynamic modals as predicate operators; 6.9 Modality: root vs. epistemic

Two conflicting observations:

Uniformity The same modal words can express both epistemic and root modality (root modality being, roughly, the modal qualification of predicates).

Diversity Epistemics and roots differ systematically in their scope.

Vetter argues, on the basis of linguistic data, that *Diversity* is more important in terms of semantics.