Free Choice Permission:

$$\textsc{may}(\phi \textsc{ or } \psi) \Rightarrow \textsc{may}\,\phi \wedge \textsc{may}\,\psi$$

Epistemic Free Choice:

$$\textsc{might}(\phi \textsc{ or } \psi) \Rightarrow \textsc{might}\,\phi \wedge \textsc{might}\,\psi$$

An old theory: the Generalized No Cross-Parametric Predication Thesis (NCPP) for Epistemic Modals ($\blacklozenge, \blacksquare$):

$$c, i \vDash \blacklozenge\phi \text{ iff } \exists c' \in \mathcal{C}\text{: } c', i_{c'} \vDash \phi.$$

(see, for example, Perry & Israel, 1996; Weatherson, 2001.)

Agenda:

1. beguile you into 2Dism for disjunction
2. show its application to deontic modality via Free Choice Permission
3. transition from deontic to epistemic modality

I. Embedded Disjunction

$[\![p \textsc{ or } q]\!] = \lambda y \in D_{s,t}.\, [\lambda w' \in D_{s,t}\,.\, \exists \alpha \in Alt_y(p,q) : w' \in \mathcal{I}(\alpha)]$

	w_1	w_2	w_3	w_4
w_1	T	T	T	F
w_2	T	T	F	F
w_3	T	F	T	F
w_4	T	T	T	F

Table 1: 2D matrix for $\ulcorner p \textsc{ or } q \urcorner$

(Fusco, after Karttunen, 1977; Lewis, 1982; Groenendijk & Stokhof, 1982.)

II. Free Choice Permission

- **Cherry Blossom.** Bison Grass vodka, plum, Japanese peach, Hibiscus, Wormwood bitters. (\$13) [= q.]
- **Green Tomato.** Japanese barley vodka, tomato water, green tomato jam, lemon. (\$13) [= p.]

(3) You may have the Green Tomato or the Cherry Blossom.
$\textsc{may}(p \textsc{ or } q)$.

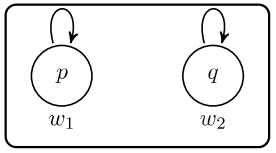
Ross's Puzzle: $\textsc{ought}\,\phi \not\Rightarrow \textsc{ought}(\phi \textsc{ or } \psi)$
R+: $\textsc{ought}(\phi \textsc{ or } \psi) \Rightarrow \textsc{may}\,\phi \wedge \textsc{may}\,\psi$

III. From Deontic to Epistemic Modality

$\textsc{ought}/\textsc{may}\,\phi$ imply $\textsc{can}\,\phi$; $\textsc{can}\,\phi$ implies $\textsc{might}\,\phi$ (= $\blacklozenge\phi$), in the sense of *a candidate for actuality, in the most inclusive sense.*

The full LFs: $\textsc{may}(p \textsc{ or } q), \blacklozenge p, \blacklozenge q \vDash \textsc{may}\,p \wedge \textsc{may}\,q$
$\textsc{ought}(p \textsc{ or } q), \blacklozenge p, \blacklozenge q \vDash \textsc{may}\,p \wedge \textsc{may}\,q$

Many Modalities



$s_{\text{nice}} = \{w_1, w_2\}$

- Compare two claims about this Kripke model:

  "There's one thing you $\textsc{may}$ do" ✗; "There are two things you $\textsc{may}$ do" ✓

  "There's something you $\textsc{may}$ not do". $(\exists x : \neg\,\textsc{may}\,x)$ ✗

  - $\forall w' \in s$: $s, w', w' \vDash \neg\,\textsc{may}(\neg A)$.

- $s, y, x \vDash \neg A$ iff $y \neq x$.

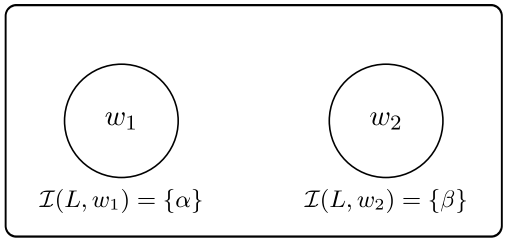
- Cross-parametric points that are quasi-actual are

  (i) not important for *planning*;

  (ii) not useful for *demonstrative referring*.

(6) She$_1$ might not be in Lima.
$\blacklozenge\neg L(x_1)$

(6) seems false; it's true that we don't know who *she* is, but *she* is *clearly* in Lima!



$s_{\mathrm{D}} = \{\alpha, \beta\}$

Old: $v, g \vDash \blacklozenge\phi$ iff $\exists v' : vRv'$ and $v', g \vDash \phi$.
(like Dilip's pg. 5)

New: $i \vDash \blacklozenge\phi$ iff $\exists c' \in s$: $i_{c'} \vDash \phi$.
In the case at hand: $\langle g, w\rangle \vDash \blacklozenge\phi$ iff $\exists c' = \langle g', w'\rangle \in s$: $g', w' \vDash \phi$

IV. Concluding

- What should we think of the (NCPP) theory of epistemic modality (the "Curious Incident of the Dog in the Night Time" theory?)

- Do we think Epistemic Free Choice is attested?

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