Aboutness and Modality

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Introduction

When we interpret a conditional or causal claim, we consider hypothetical scenarios.
How do we know which scenarios to consider?

Idea: When we interpret a conditional or causal claim, we identify a part of the world to change and imagine changing that.

- Sentences are about parts of the world
- When we interpret *if* A, *would* C or C *because* A, we vary the part of the world A is about.

Main evidence for this approach: It gives us just the right range of scenarios to account for how we interpret both conditionals and causal claims.

- Some approaches consider too few scenarios (e.g. similarity approaches and Kratzer's semantics)
- Other approaches consider too many (e.g. Fine's truthmaker semantics of conditionals)
- The present approach inhabits a Goldilocks zone between these extremes: not too restrictive, not too permissive, but just right.

Model construction

Where S is a set and $\leq$ a binary relation on S, define:

$\mathit{Sit} := S \times I$, where I is an arbitrary label set,

$M := \{t_i \in \mathit{Sit} : t \leq u \text{ implies } t = u \text{ for all } u \in S\}$,

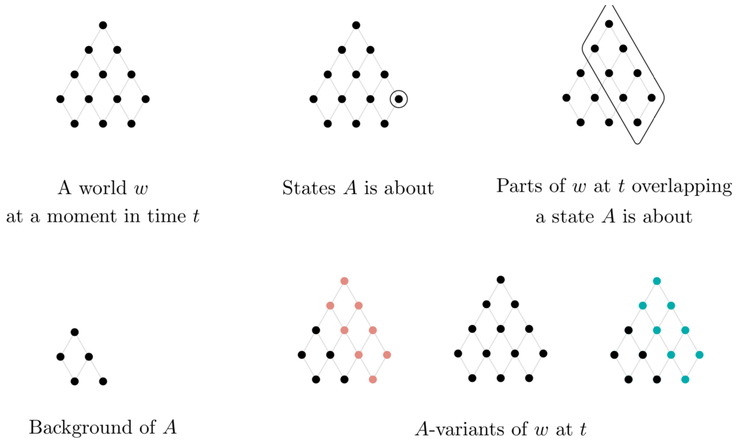
$W := \{(M', \preceq) : M' \subseteq M,\ \preceq \text{ is a linear order}\}$.

Given a set of sentences $\mathcal{L}$, a *nomic aboutness model* is a tuple $(S, \leq, \mathcal{A}, P, |\cdot|)$ where $(S, \leq)$ is a partial order such that every state is part of a moment, $\mathcal{A} \subseteq \mathcal{L} \times S$, $P \subseteq W$, and $|\cdot| : \mathcal{L} \to W$.

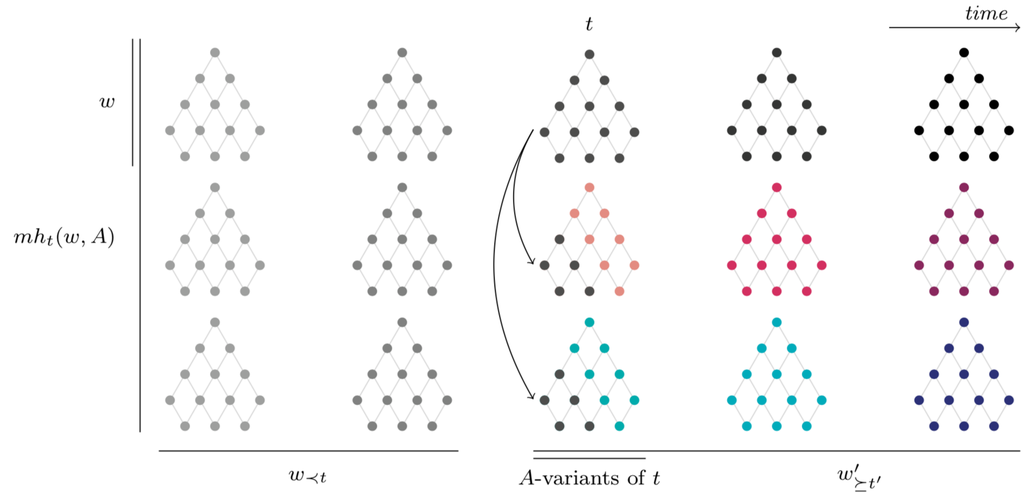
← see the full paper

How sentences raise hypothetical scenarios:

1. Pick a time t to imagine a change (intervention time)
2. Vary the part of the world the sentence is about at t



3. Play forward the laws:



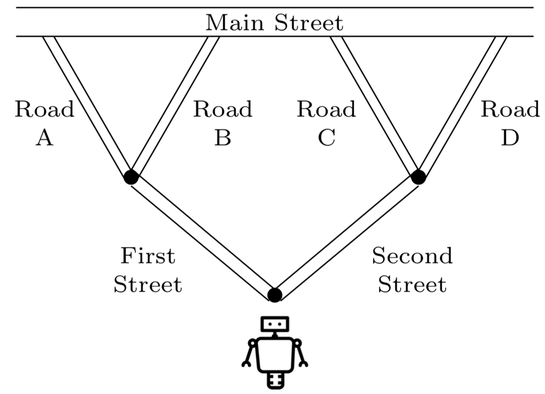
The modal horizon

4. Restrict to worlds where the sentence is true

- *Would*-conditionals select a world from this set
- *cause* and *because* quantify universally over this set

Sufficiency

cause and *because* imply that the cause was in some sense sufficient for the effect.



Suppose the robot turns at random and consider:

(1) a. The robot taking First Street caused it to take Road B.
b. The robot took Road B because it took First Street.

Or suppose Alice is actually 25 and compare:

(2) a. Alice can order alcohol because she is over 18.
b. Alice can order alcohol because she is over 12.

Is A sufficient for C just in case *if* A, *would* C is true? No! A plausible principle is **conjunctive sufficiency**:

$$A \wedge C \quad \Rightarrow \quad \textit{if } A\textit{, would } C$$

This is validated by similarity approaches (e.g. Lewis, Stalnaker) and Kratzer's premise semantics: when A is actually true, the only scenario raised by a *would*-conditional is the actual one.

Formal definitions

A state s is in the **background** of sentence A iff s does not overlap any state A is about
Moment t' is an A**-variant** of moment t iff every part of t in the background of A is part of t'
The modal horizon $mh_t(w, A)$ is

$\{w_{\prec t} \frown w'_{\succeq t'} : t' \textit{ is an } A\textit{-variant of } t,\ t' \in w' \text{ and } w' \in P\}$.

- A is sufficient for C at w iff C is true at every A-world in $mh_t(w, A)$
- *if* A, *would* C is true at w iff C is true at the selected A-world in $mh_t(w, A)$