

Modal aspect in conditionals

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Introduction

Proposal

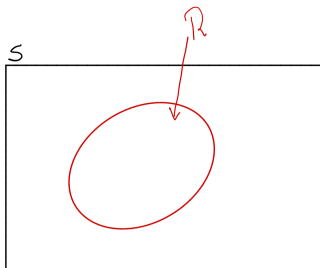
Tense and aspect play a crucial role in anchoring talk of possibilities to actuality in the linguistic construction of modal meanings.

My goal today is to sketch a proposal about how English assembles the ingredients of a modal interpretation on the basis of temporal markers. Building on earlier work, the focus will be on *would*-conditionals.

Quantifying over possibilities in situations semantics

A universal modal schema:

- (1) $\llbracket \text{would} \rrbracket^{g,w} \phi = 1$ iff $\forall s \in R, \phi$ is true in s .



My proposal will appeal to situations semantics (e.g. Kratzer 2021) and I will say more about that shortly.

Restrictions on domains

Sources of restrictions on *would*:

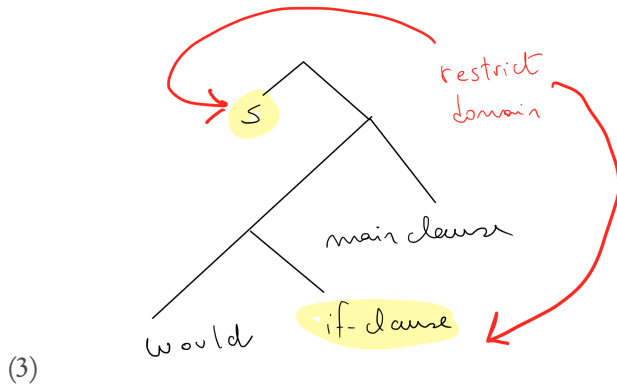
- (2) I accidentally tipped over the goldfish bowl yesterday. Luckily, I was able to quickly pick up my goldfish and put it in my glass of water.

If my goldfish had died yesterday, I would have been very upset.

- If-clause proposition
- Actual world facts
- Actual world laws

Restricting the domain of *would*

The crucial argument positions that restrict the domain of *would*:



A conspiracy

Proposal: the domain of quantification of a modal is identified as the result of a conspiracy in which tense and aspect play crucial and distinct roles.

Situations in the background

Kratzer-style situation (a.o. Kratzer 2021) provide a particularly appropriate framework for thinking about conditionals since they allow us to access simultaneously a temporal and a modal dimension.

In a sense, they collapse temporal and modal categories and thus provide us with ideal units to investigate the modal roles of tense and aspect.

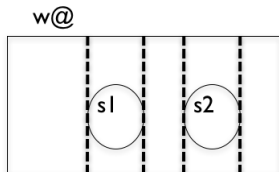
Kratzer-style situations

Situations are parts of possible worlds. Intuitively, we can think of a situation in the actual world as a ‘piece’ of the actual world, a part of what is going on.

The relationship between one part of what is going on and the parts that include it is the ‘part of relation, represented with \leq .

Temporal and modal coordinates

We can say that a situation s_1 temporally precedes ($<_t$) a situation s_2 iff the minimal 'temporal slice' that s_1 belongs to precedes the minimal 'temporal slice' that s_2 belongs to:



$$s_1 <_t s_2$$

Tenses and situations

Working within a situations framework, tenses would refer to situations instead of times:

- (4) a. $\llbracket \text{past}_i \rrbracket^{c,g} = g(i) = s_i$ (defined only if s_i precedes the speech event).
b. $\llbracket \text{pres}_j \rrbracket^{c,g} = g(j) = s_j$ (defined only if s_j includes/overlaps the speech event).

According to the proposal above, tenses will refer to a contextually salient (past/present) situation, the topic situation in the sense of Kratzer (2021).

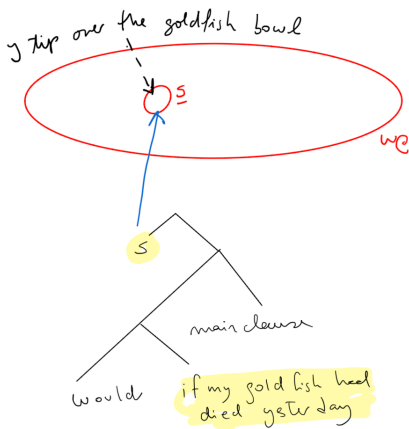
Anchor situation

The first conspirator: past tense

Proposal (Arregui 2009): past tense in *would*-conditionals identifies the anchor/topic situation for the modal.

Facts in the semantics of *would*

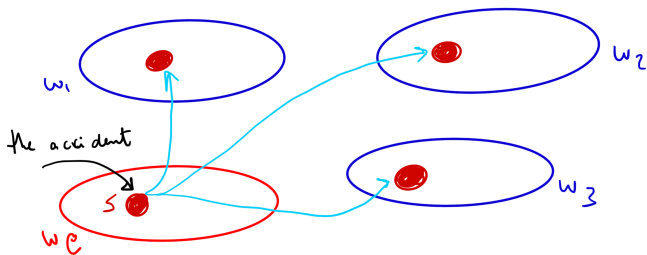
The situation argument in the interpretation of *would* anchors the interpretation to particular facts in the actual world. This is modelled using Kratzer-style situations:



(5)

Facts in the semantics of *would*

(6) If my goldfish had died yesterday, I would have been very upset.



(7)

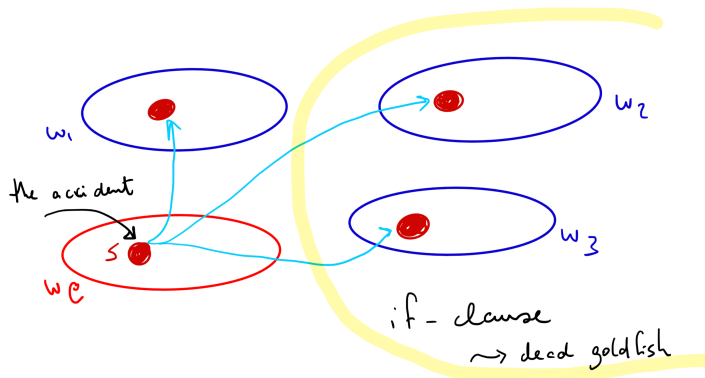
- Quantification takes place over worlds that match the situation referred to.
- Similarity happens compositionally and it is local.

Facts in the semantics of *woll*

How do if-clauses fit in?

(8) If my goldfish had died yesterday, I would have been very upset.

(9)



(10)

Past as past, but not all the past

Tichy's puzzle: Branching on its own seems to make wrong predictions.

(11) First example:

Peter presses the button in a completely random coin-tossing device, and the coin comes up heads.

a. If Susan had pressed the button, the coin would have come up heads.

anchor situation: the situation corresponding to the coin-tossing device (it is fair, cannot be manipulated, etc.)

Diversity Condition: Condoravdi (2002)

Diversity Condition: Choose an anchor so that the projected domain has both worlds where the modal's prejacent is true and worlds where it is false.
(Kratzer 2020)

Past as past, but not all the past

(12) Second example:

A friend wants to make a bet with you, offering you odds that the coin will not come up heads. You refuse. Your friend presses the lever in the completely random coin-tossing device, and the coin does come up heads. Your friend says:

- a. If you had bet heads, you would have won.

anchor situation: the coin came up heads

Local similarity gives us a way of handling the contrast. It is not a general backshifting analysis.

Evidence for reference to facts

Multiple counterparts: the case of Ripov

Ripov's story:

Our Ripov is a man of our world, who does not reappear anywhere else. Other worlds may have Ripovs of their own, but none of these is our Ripov. Rather, they are counterparts of our Ripov. What comes from trans-world resemblance is not trans-world identity, but a substitute of transworld identity: the counterpart relation. What our Ripov cannot do in person at other worlds, not being present there to do it, he may do vicariously through his counterparts. He himself is not an honest man at any world he is dishonest here, and nonexistent elsewhere but he is vicariously honest through his honest counterparts. (Lewis 1973)

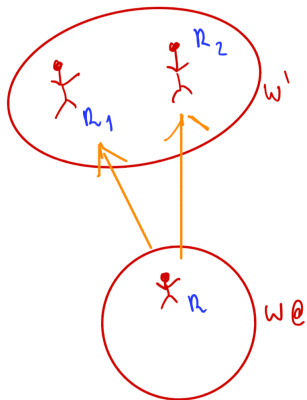
Evidence for reference to facts

Multiple counterparts: the case of Ripov

- (13) Ripov is a dishonest character who bribed the judges and won.
- a. If he had reformed, he would have confessed.
In the closest worlds where Ripov's counterpart reforms, he confesses
- (14) What if he had multiple counterparts at one of the closest worlds where he vicariously reforms? It is not enough if one reforms and another confesses; it is not even enough if one reforms and confesses, and another reforms without confessing. What we must require is that at every closest world where one of Ripov's counterparts reforms, all of those who reform also confess that is, none reform without confessing. (Lewis 1973)

Evidence for reference to facts

Multiple counterparts: the case of Ripov



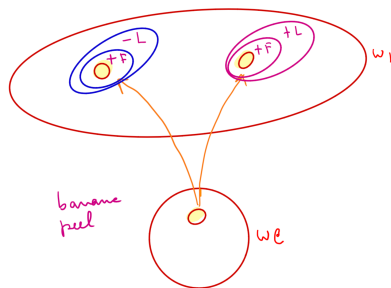
(15)

Evidence for reference to facts

Multiple counterparts for the anchor situation

- (16) We were quite lucky. A stray banana peel in the department lounge, but nobody was hurt.

Department chair: If someone had fallen, there would have been a lawsuit.



- (17)

The antecedent proposition

The second conspirator: aspect in the antecedent clause

The antecedent proposition

(18) Perfective antecedents:

Suppose you are about to go on holidays, and ask me to look after your plants. I accept, but I am rather nervous. I am not very good with plants.

You: Could you look after my plants next week, while I am gone?

Me: Of course. But I am rather nervous. If your plants died next week, I would be very upset.

A *Future-Less-Vivid* example.

The antecedent proposition

Lewis on Future-Less-Vivid Conditionals:

" (...)there are subjunctive conditionals pertaining to the future, like ‘If our ground troops entered Laos next year, there would be trouble’ that appear to have the truth conditions of indicative conditionals, rather than of the counterfactual conditionals I shall be considering. (Lewis 1973:4)

The antecedent proposition

(19) Perfect antecedents:

(back to the plants) Suppose your plants die before you leave on holidays, and you cancel your request. I feel sorry, but also relieved.

You: Dont worry about looking after my plants. They died yesterday.

Me: I am sorry, but also a bit relieved. If your plants had died next week (while I was looking after them), I would have been very upset.
... # If your plants died next week (while I was looking after them), I would have been very upset.

Perfectives are unhappy in this scenario. They lead to ‘indicative-like’ interpretations.

The antecedent proposition

Another non-perfective example:

- (20) Suppose you keep your plants in the kitchen cupboard, and worry because they are not growing. I can see what is going wrong:

You: I am worried about my plants.

Me: Oh, they simply do not have enough light. If they had enough light, they would be doing much better.

Examples with modifiers

- (21) Unfortunately, there isn't a single philosopher that my wife admires. But **if a philosopher that my wife admired** had visited the department last semester, I would have invited him to our house.
- (22) #As far as I know, my wife has never insulted any philosopher. But **if a philosopher that my wife insulted** had visited the department last semester, I would still have invited him to our house.

Simplifying assumptions

- The modal sets the antecedent clause time to non-past.
- Aspect matters.

See e.g. Condoravdi (2002)

The case of perfects

Perfect aspect as a quantifier over events:

$$(23) \quad \llbracket \text{perfect} \rrbracket^{g,w}(P) = \\ \lambda s \exists e. P(e) \text{ and Result}(e, s)$$

where *Result* is understood in terms of Parsons (1990) *Resultant States*: *s* follows (an occurrence of) the event.

The case of perfects

Back to our example:

$$(24) \quad \llbracket \mathbf{perfect} \rrbracket (\lambda e \text{ (your-plants-die } (e))) = \\ \lambda s \exists e. \text{ your-plants-die}(e) \text{ and Result}(e, s)$$

The case of perfects

Upshot:

(25) You: Dont worry about looking after my plants. They died yesterday.

Me: I am sorry, but also a bit relieved. If your plants had died next week (while I was looking after them), I would have been very upset.

Quantification takes place over worlds with a non-past situation following a situation in which your plants die next week.

The case of perfective

Perfective aspect is referential:

$$(26) \quad \llbracket \mathbf{perfective-e}_i \rrbracket^{g,w}(P) = \\ \lambda s. P(\llbracket \mathbf{e}_i \rrbracket^{g,w}) \text{ and } \llbracket \mathbf{e}_i \rrbracket^{g,w}(w) = s$$

Reference establishes an *aboutness* relation with an object in the actual world (...unless there is modal subordination of some kind!).

Behind the scene: Lewis events

Proposal:

- Verbs introduce essential properties of events.
- This is cashed out in terms of event-concepts or Lewis-style events.

Behind the scene: Lewis events

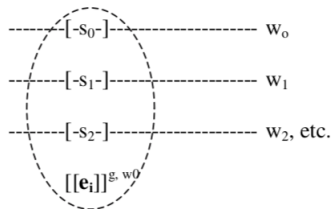
- (27) $\llbracket \text{perfective-}e_i \rrbracket^{g,w} (\lambda e (\text{your-plants-die } (e))) =$
 $\lambda s. \text{your-plants-die } (\llbracket e_i \rrbracket^{g,w}) \text{ and } \llbracket e_i \rrbracket^{g,w} (w) = s$

Behind the scene: Lewis events

- (28) To any event there corresponds a property of regions: the property that belongs to all and only those spatiotemporal regions, of this or any other possible world, in which that event occurs. Such a property belongs to exactly one region of any one world where the event occurs, and there are some such worlds. It belongs to no region of any world where the event does not occur, and there are some of those worlds also. (Lewis, Events 244)

Behind the scene: Lewis events

(29) Verbs predicate over event entities like this:



Upshot

Back to the plants:

(30) You: Don't worry about looking after my plants. They died yesterday.

Me: # I am sorry, but also a bit relieved. If your plants died next week, I would be very upset.

The antecedent is about an eventuality of the dying of the plants that has an extension in the actual world. We know that that eventuality is not an eventuality of the plants dying next week. The 'presupposition' associated with reference is not satisfied in this scenario.

What about FLVs?

- (31) I think your plants will live for a very long time. If they died next week, I would be astonished.

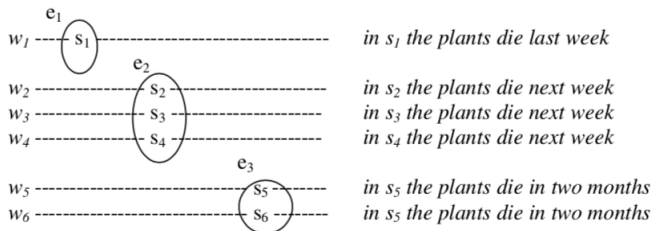
How do epistemic effects arise in this case?

What about FLVs?

- (32) I think your plants will live for a very long time. If they died next week, I would be astonished.

The antecedent is again about an eventuality that includes the death of the plants in the actual world. But in this context, we do not know when that will be. We do not know what it the referent of the event pronoun. We are in serious trouble. We appeal to a pragmatic strategy to rescue the situation: Stalnaker's diagonalization.

We consider the possible referents for the event pronoun given the worlds in the context set. Here is an example:



If we are in w_1 , the referent is e_1 ; if we are in w_2 , w_3 or w_4 , the referent is e_2 ; if we are in w_5 or w_6 , the referent is e_3 .

The antecedent proposition in *If you plants died next week,*

	w_1	w_2	w_3	w_4	w_5	w_6
w_1	F	F	F	F	F	F
w_2	F	T	T	T	F	F
w_3	F	T	T	T	F	F
w_4	F	T	T	T	F	F
w_5	F	F	F	F	F	F
w_6	F	F	F	F	F	F

Important: This proposition is only defined for worlds in the context set.

Diagonalization is a rescue strategy

Epistemic effects

We are driven to diagonalization as a rescue strategy to resolve the identity of the event pronoun associated with perfective aspect.

Diagonalization is a rescue strategy

Epistemic effects

The result is that the antecedent proposition is only defined for worlds in the context set. This is an epistemically loaded proposition.

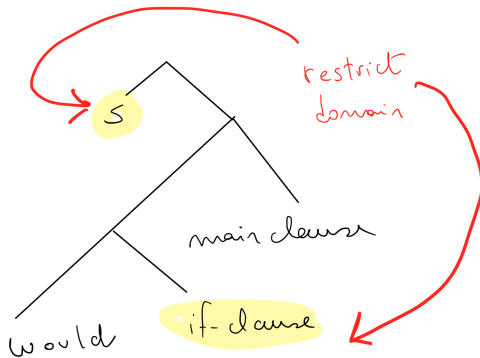
Diagonalization is a rescue strategy

Epistemic effects

The choice of perfective aspect cancels the possibility of a counterfactual interpretation because of the aboutness / referential relation it establishes with respect to events.

Putting things together

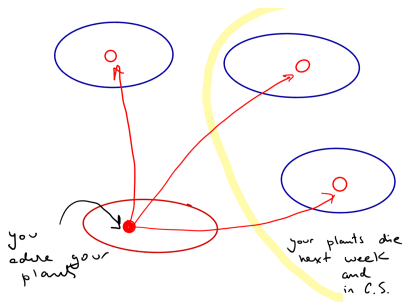
Back to the arguments of the modal:



(33)

Putting things together

Domain of quantification:



(34)

Perfective aspect in the antecedent results in a proposition only true in worlds in the context set.

Putting things together

How do the pieces fit in the interpretation of *would*-conditionals?

- Past tense identifies the anchor situation
- Perfect aspect quantifies over events - no epistemic effects
- Perfective aspect refers to events - epistemic effects

Conclusions

The epistemic impact of perfective

How do the pieces fit in the interpretation of *would*-conditionals?

- Perfective aspect results in epistemically loaded propositions
- Epistemic modal effect independent of tense, without additional modals

Thank you!