

Fake Tense in structural models

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1 The Problem

Fake Tense

In English subjunctive conditionals the Simple Past, and also the Past Perfect appear not to be interpreted as semantic past tense or past perfect.

- (2) If Peter left in time, he will be in Amsterdam ➔ indicative conditional
this evening.
- (3) If Peter left in time, he would be in Amsterdam this evening. ➔ simple past X-marked
SPC
- (4) If Peter had left in time, he would have been in Amsterdam this evening. ➔ past perfect X-marked
PPC

1 The Problem

Fake Tense

In English subjunctive conditionals the Simple Past, and also the Past Perfect appear not to be interpreted as semantic past tense or past perfect.

■ Fake Tense occurs in other contexts as well

- (5) I wished I owned a car.
- (6) He behaves like he was sick.
- (7) Suppose she failed the test.
- (8) It's time we left.

1 The Problem

Fake Tense

In English subjunctive conditionals the Simple Past, and also the Past Perfect appear not to be interpreted as semantic past tense or past perfect.

- Fake Tense occurs in other contexts as well.
- It occurs in various languages from different language families.

English, French, Latin, Classic Greek, Russian, and Old Irish (Indo-European), Cree (Algonquian), Tonga and Haya (Bantu), Chipewyan (Athabaskan), Garo (Tibeto Burman), Nitinaht (Wakashan), and Proto-Uto-Aztecan (in the reconstruction of Steele). [James 1982]

1 The Problem

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- Fake Tense occurs in other contexts as well.
- It occurs in various languages from different language families.
- Fake Tense is something a tense language can develop diachronically.

1 The Problem

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1 The Problem

1.2 Observations on PPCs

To express generic or counterpossible counterfactuals that do not talk about the past, the SPC-form is strongly preferred over the PPC form (Schulz, ms.).

- (5) If Hobbes had (secretly) squared the circle, sick children in the mountains of South America at the time would not have cared.
- (6) If 6 were prime, 36 would be composite.
- (7) If kangaroos had no tails, they would topple over.
- (8) If the density of wood were that of iron, it wouldn't float.

1 The Problem

1.2 Observations on PPCs

1. The SPC form, but not the PPC form, can be used to talk about future eventualities that are still possible at the utterance time.
2. SPCs can in principle be counterfactual, but if the particular eventuality in the antecedent has already happened in the past or if any presupposition of the antecedent is inconsistent with the actual history at the utterance time, then a SPC is infelicitous (Ippolito 2013, p. 55)
3. The counterfactuality of PPCs talking about the present or the future cannot be cancelled.



1 The Problem

1.2 Observations on PPCs

- (5) If you were in Paris next week, we could meet.
- (6) If you had been in Paris next week, we could have met.
- (7) John was sick yesterday. Now he is well, but he missed his chance to watch the final ball game. That was very unfortunate. #If only he were sick tomorrow instead, he would be happier. (cf. If only he had been sick tomorrow instead, he would have been happier.) [Ippolio 2013, p. 53]
- (8) John is dead. #If he were sick tomorrow, he would not travel. (cf. If he had been sick tomorrow, he would not have traveled.) [Ippolito 2013, p. 54]

2 The literature

Fake Tense



past-as-past approaches

- Tedeschi 1981
- Crouch 1992
- **Ippolito** 2003, 2006, 2013
- Condoravdi 2002
- Arregui 2007
- Romero 2014

past-as-modal approaches

- Palmer 1986
- Fleischmann 1989
- Dahl 1997
- Iatridou 2000
- Schulz 2014

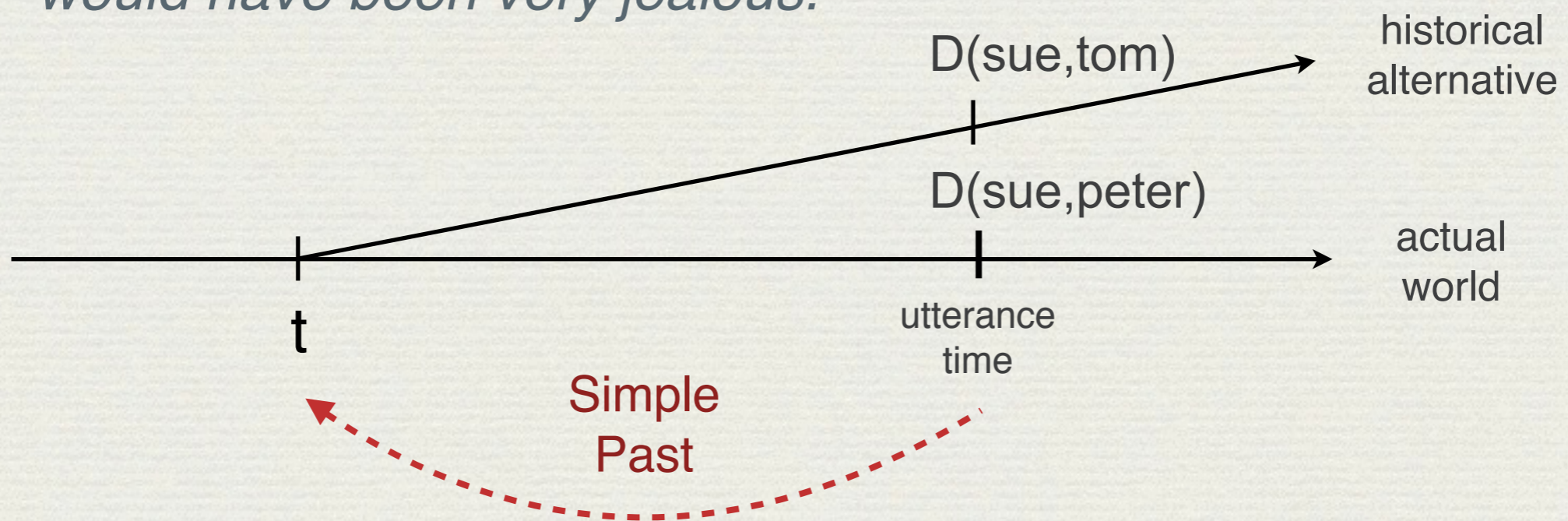
2 The literature

2.1 The PaP idea

- ♦ (Ontic/metaphysical) X-marked conditionals explore historical alternatives (Thomason).
- ♦ The simple Past shifts the temporal variable of the accessibility relation into the past.

PAST MODAL(FUT A)(FUT C)

(1) Sue is dancing with Peter. If she was dancing with Tom, Peter would have been very jealous.



2 The literature

2.2 The PaM idea

- ♦ In X-marked conditionals the Simple Past expresses modal distance instead of temporal distance.

(1) Sue is dancing with Peter. If she was dancing with Tom, Peter would have been very jealous.

the world the
sentence talks about

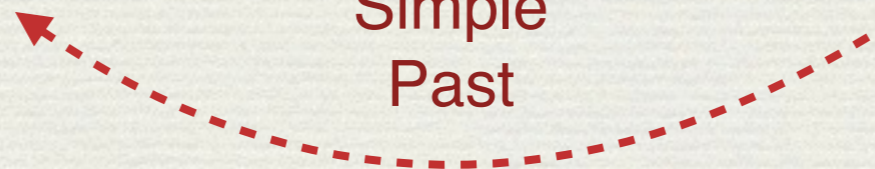
$D(\text{sue}, \text{tom})$

●
possible
world

$D(\text{sue}, \text{peter})$

●
actual
world

Simple
Past

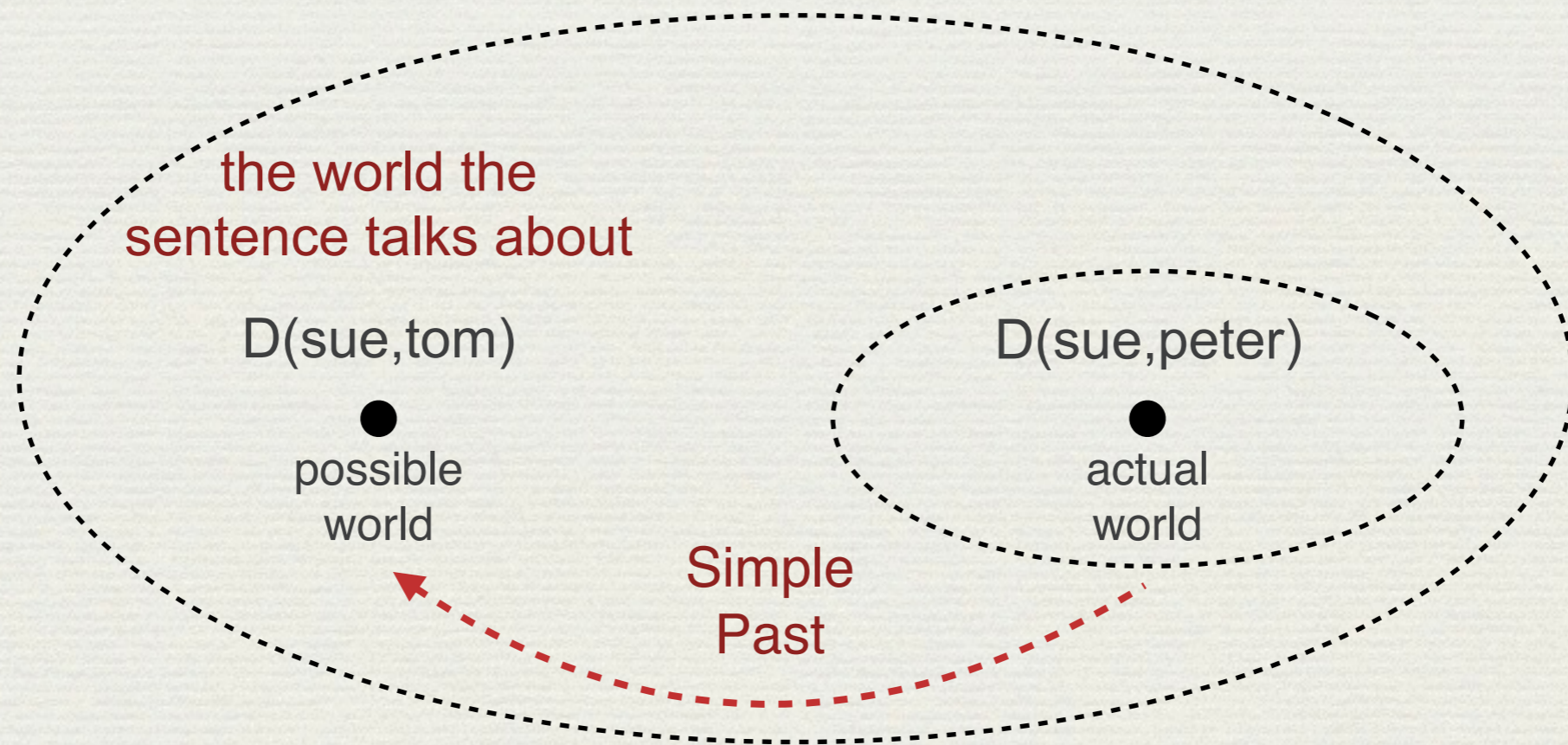


2 The literature

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(1) Sue is dancing with Peter. If she was dancing with Tom, Peter would have been very jealous.



3 Today

last time

- PaM (Schulz 2014) are not convincing as an approach to the second layer of past morphology

3 Today

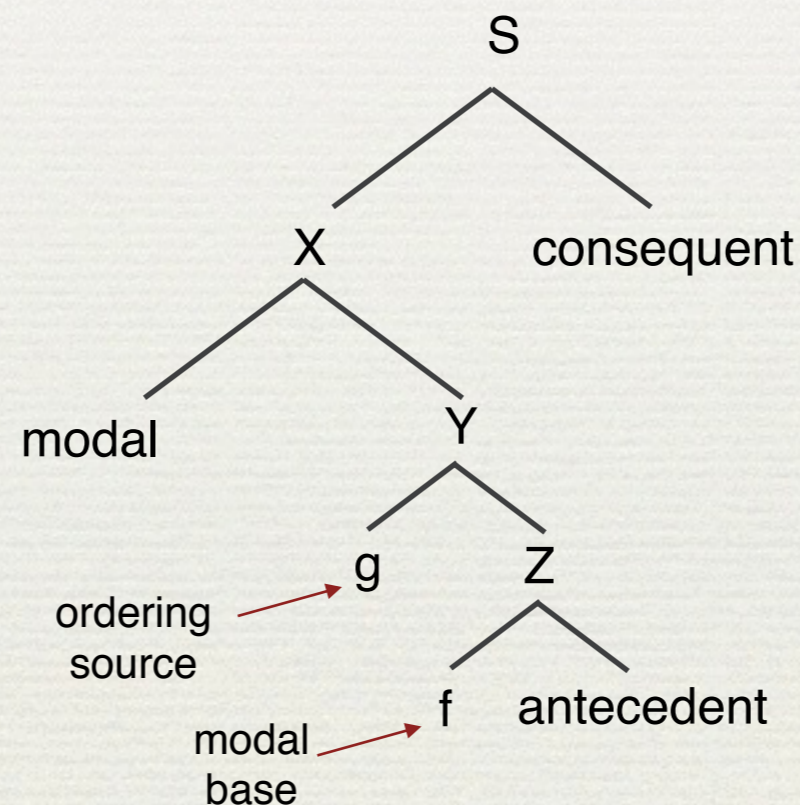
The goal of today's talk

- try to develop a PaP approach to the second layer of past tense morphology
- 1. discuss Ippolito 2013
- 2. discuss Pearl 2000/2013
- 3. try to bring together both approaches
- 4. try to give a compositional approach

4 Ippolito 2013

4.1 Assumptions

- restrictor approach to conditionals



- metaphysical modality is modelled using the historical accessibility relation of Thomason

$$\llbracket \text{HIST} \rrbracket^{c,g,t,w} = \lambda p \lambda w'. w' \text{ had the same history as } w \text{ put to } t \text{ and } p(w') = 1$$

4 Ippolito 2013

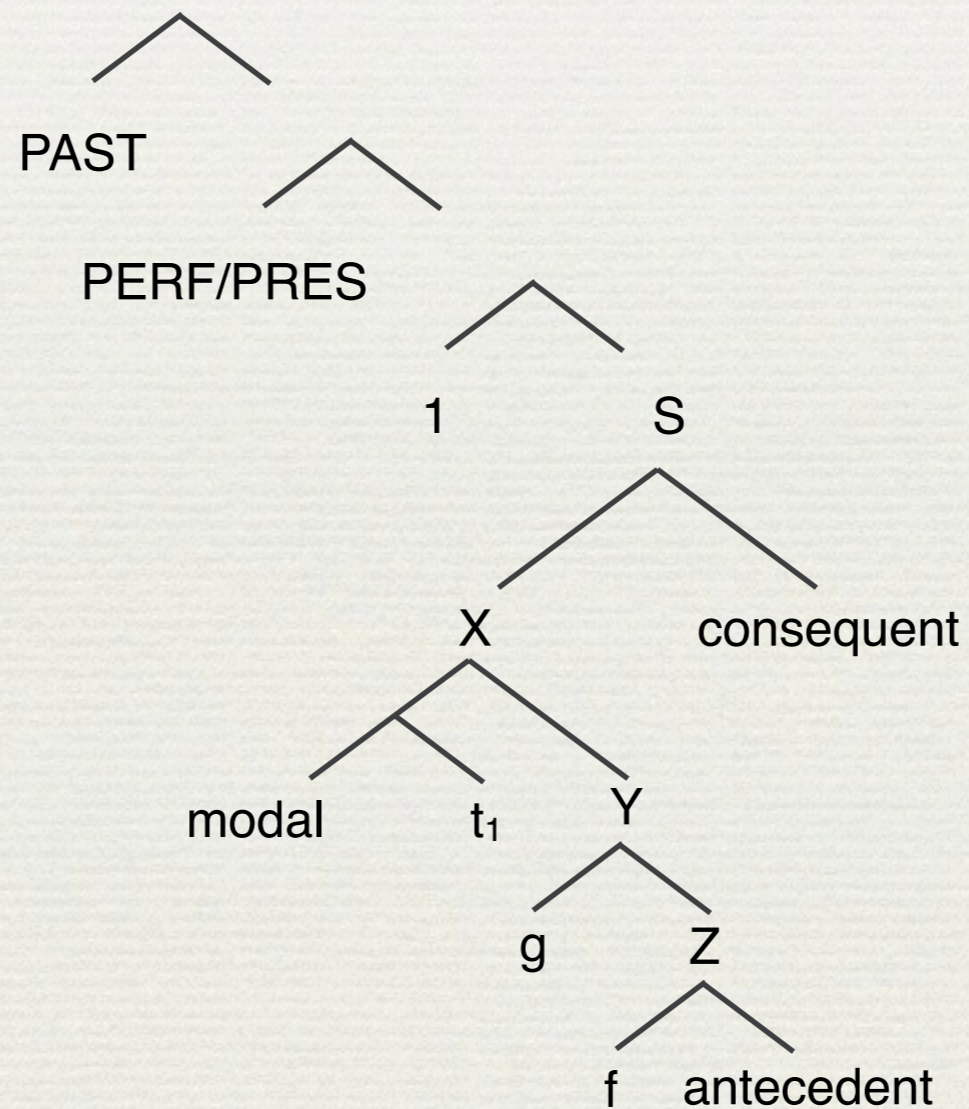
4.2 Interpretation of the observations

- observation 2.1: SPCs can be counterfactual at the utterance time
 - ➔ the accessibility relation needs to be evaluated at some past time point
 - ➔ this is the function of the Simple Present
- observation 2.2: restrictions on the use of SPCs
 - ➔ these restrictions are all about presupposition failure at the utterance time
 - ➔ SPCs need presupp. to be satisfied at the utterance time, PPCs at some (contextually given) past time
 - ➔ this is the function of the Perfect in PPCs

4 Ippolito 2013

4.3 The Theory

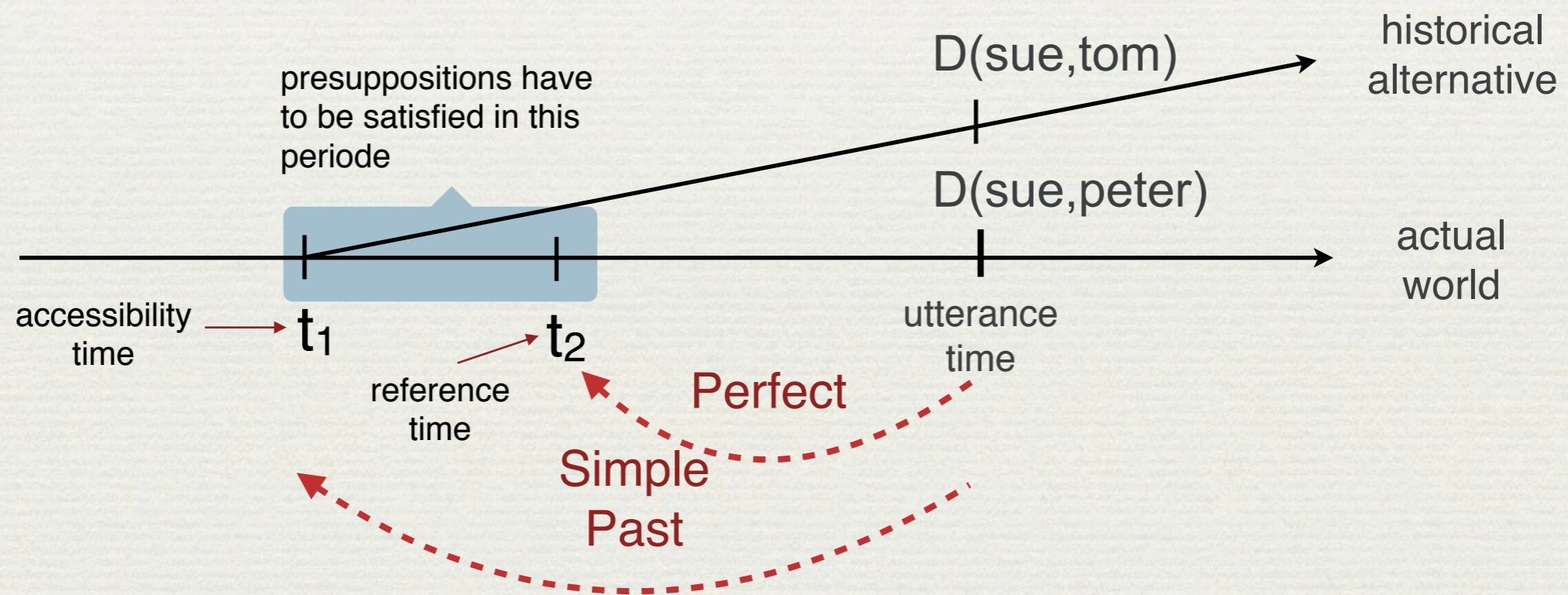
- compositional structure



4 Ippolito 2013

4.3 The Theory

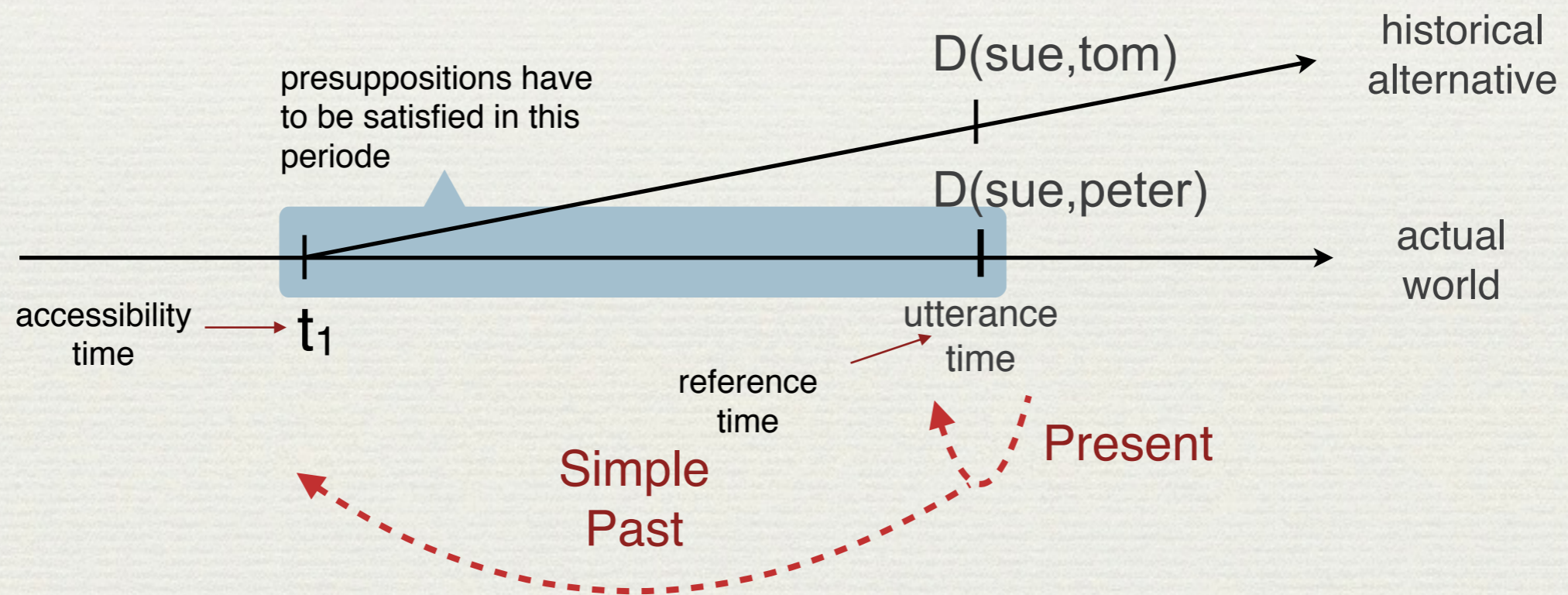
- double indexed theory for PPC



4 Ippolito 2013

4.3 The Theory

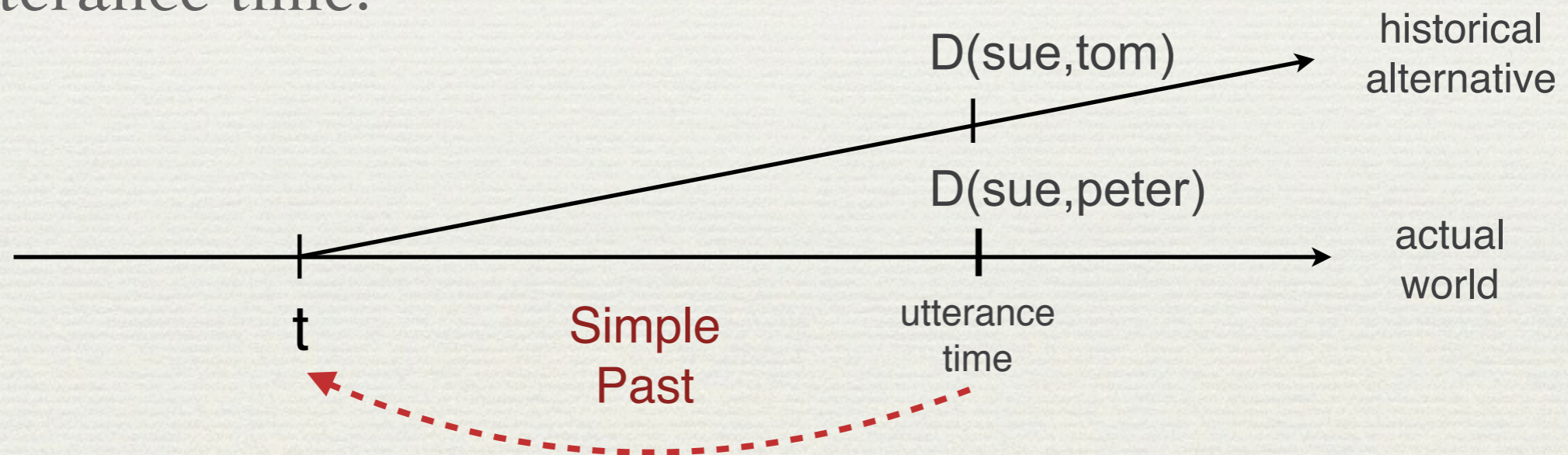
- double indexed theory for SPC



4 Ippolito 2013

4.4 Check the Observations

1. The SPC form, but not the PPC form, can be used to talk about future eventualities that are still possible at the utterance time. **???**



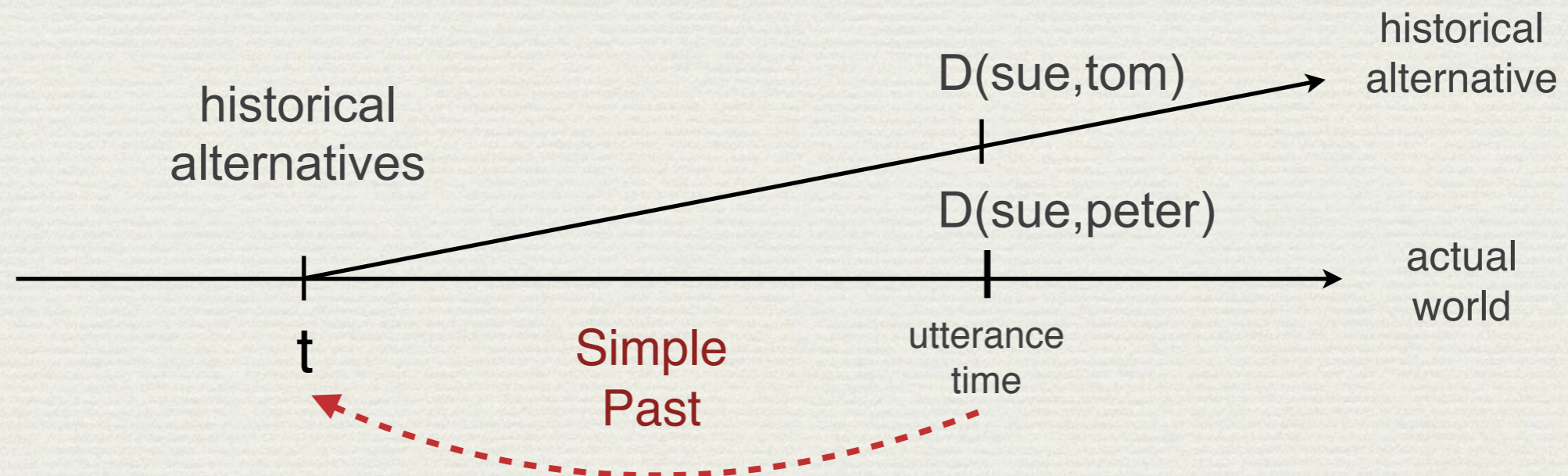
- qua semantics SPCs about the future can be counterfactual and PPCs about the future don't need to
- there are no examples for counterfactual SPCs about the future.
- whether the observation can be predicted depends on what happens with observation 3

4 Ippolito 2013

4.4 Check the Observations

2. SPCs can in principle be counterfactual ... ✓

BUT: she has to assume deictic tenses in antecedent and consequent
(for a different solution see Romero (2014))



4 Ippolito 2013

4.4 Check the Observations

2. ... but if the presuppositions of the antecedent are inconsistent with the actual history at the utterance time, then a SPC is infelicitous.



- BUT:** (i) She has to assume double indexing for modals: there is a special reference time to check presuppositions.
- (ii) There is no conceptual motivation for having a separate evaluation time for presuppositions.

4 Ippolito 2013

4.4 Check the Observations

3. The counterfactuality of PPCs talking about the present **X**
or the future cannot be cancelled.

■ use *Maximime Presupposition* principle

SPCs

the presuppositions of the antecedent have to be consistent with the actual history at the utterance time







PPCs

the presuppositions of the antecedent have to be consistent with the actual history at some past time

BUT: The explanation is antecedent-dependent. What if the antecedent doesn't carry any presupp.?

4 Ippolito 2013

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3. The counterfactuality of PPCs talking about the present or the future cannot be cancelled. 

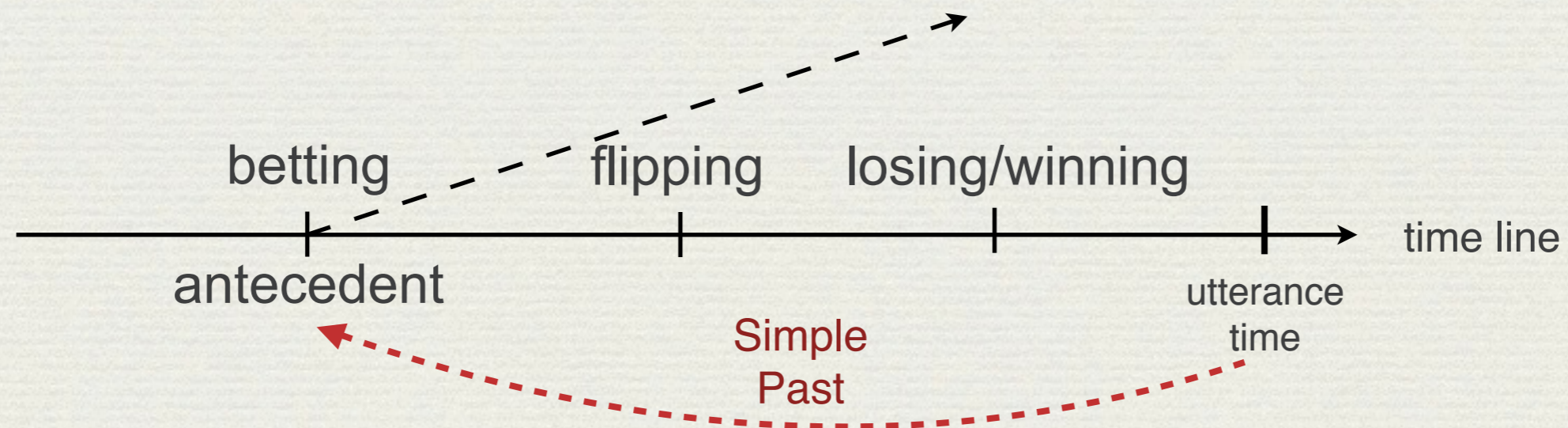
4 Ippolito 2013

4.5 Three general concerns

- PaP approaches to the Simple Past cannot explain its use in generic counterfactuals/counterpossibles (except if you make non-branches accessible as well).
- PaP approaches have a hard time accounting for the Morgenbesser examples.

A coin is going to be flipped and you bet on tails. Unfortunately, heads comes up and you lose. Now you can say:

(1) If I had bet on heads, I would have won.



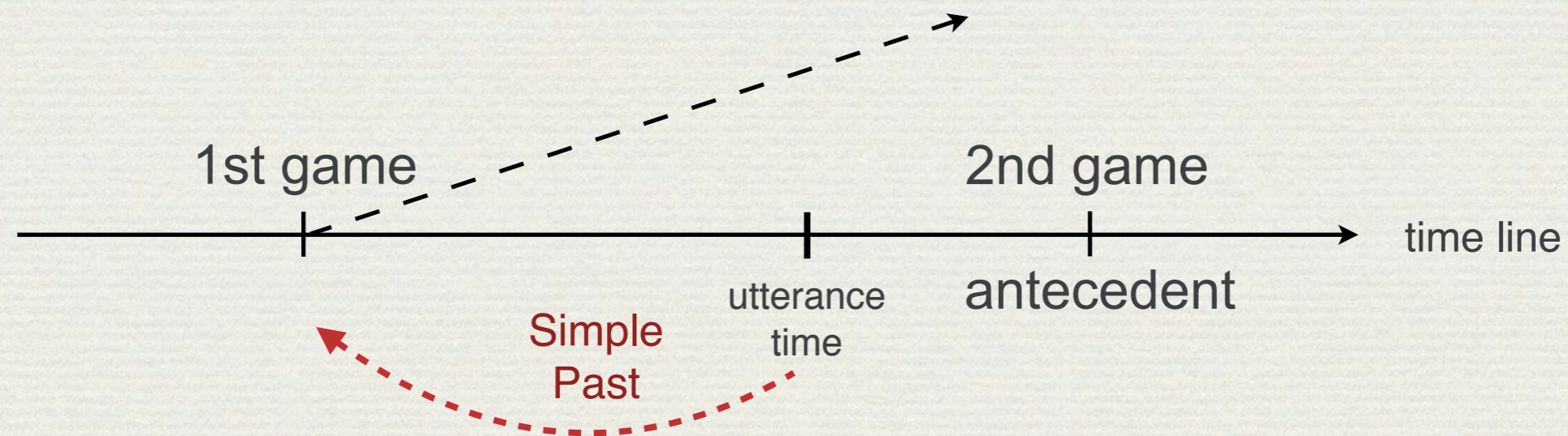
4 Ippolito 2013

4.5 Three general concerns

- PaP approaches need to restrict the reference to the latest possible antecedent branch and salience is no satisfying answer.

If you win the coin flip bet two consecutive times, you win the jackpot. I won the first time, but still need to place the bet for my second shot. I can truthfully say:

(1) If I were to win this time, I would get the jackpot.



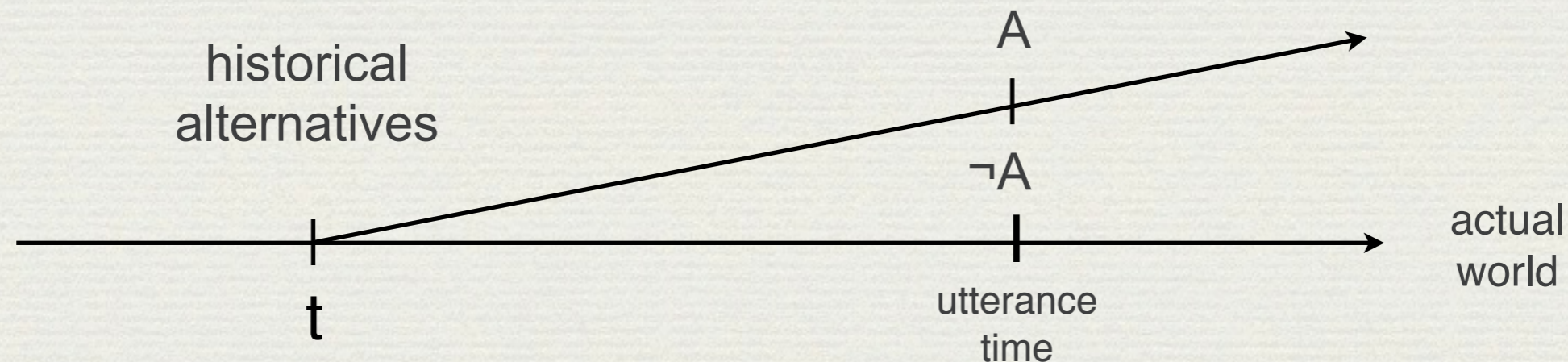
But what prevents the conditional to refer back to a time before the first bet?

4 Ippolito 2013

4.6 Towards a new solution

We attack a basic presumption of the approach:

- (Ontic/metaphysical) X-marked conditionals explore historical alternatives (Thomason).

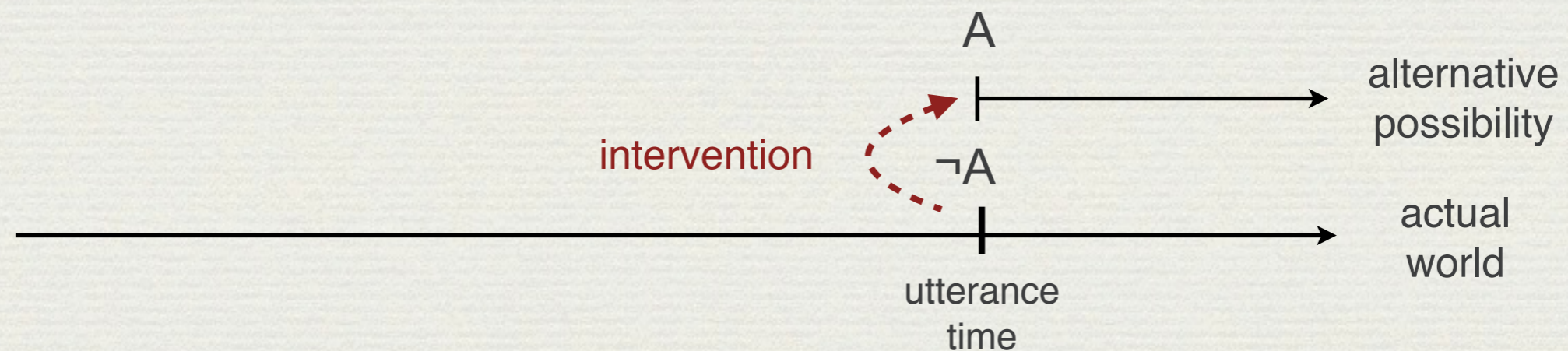


4 Ippolito 2013

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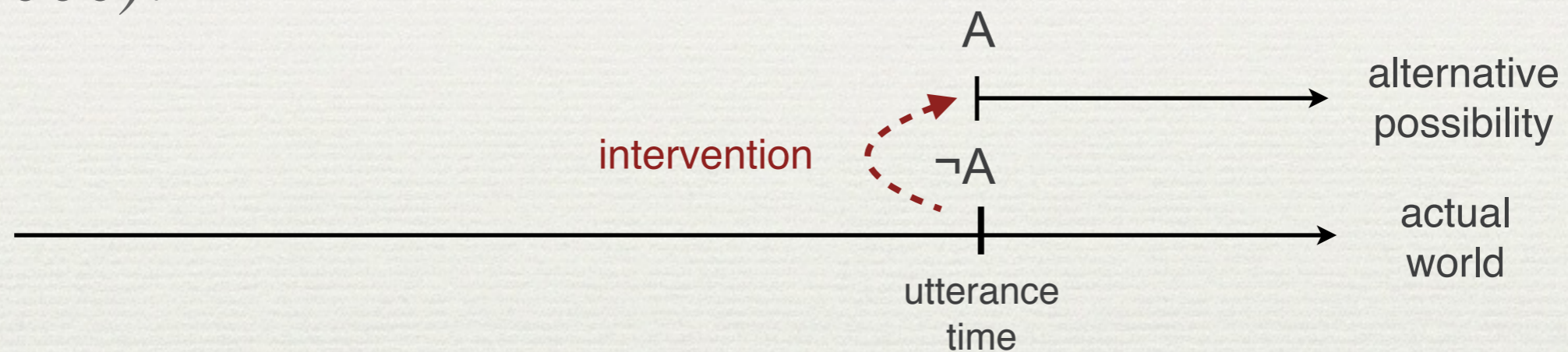
- (Ontic/metaphysical) X-marked conditionals explore historical alternatives (Thomason).



4 Ippolito 2013

4.6 Towards a new solution

- metaphysical alternatives by intervention (Pearl 2000).

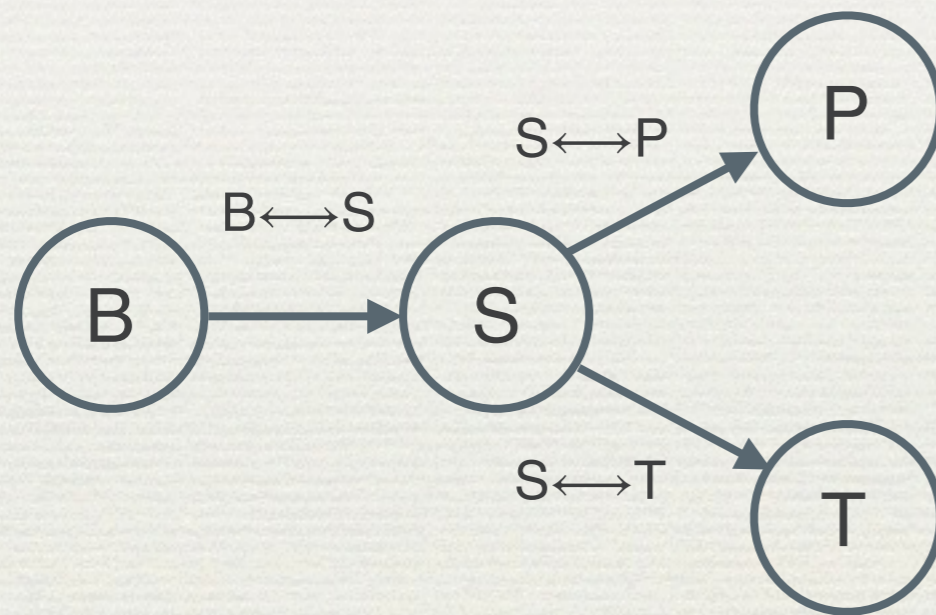


- ★ no need to distinguish different evaluation times for the accessibility relation and presupposition satisfaction
- ★ no need to worry about temporal reference
- ★ PaP for Simple Past is off the table

5 Conditionals in Causal Networks

5.1 Pearl's approach

Causal Networks:



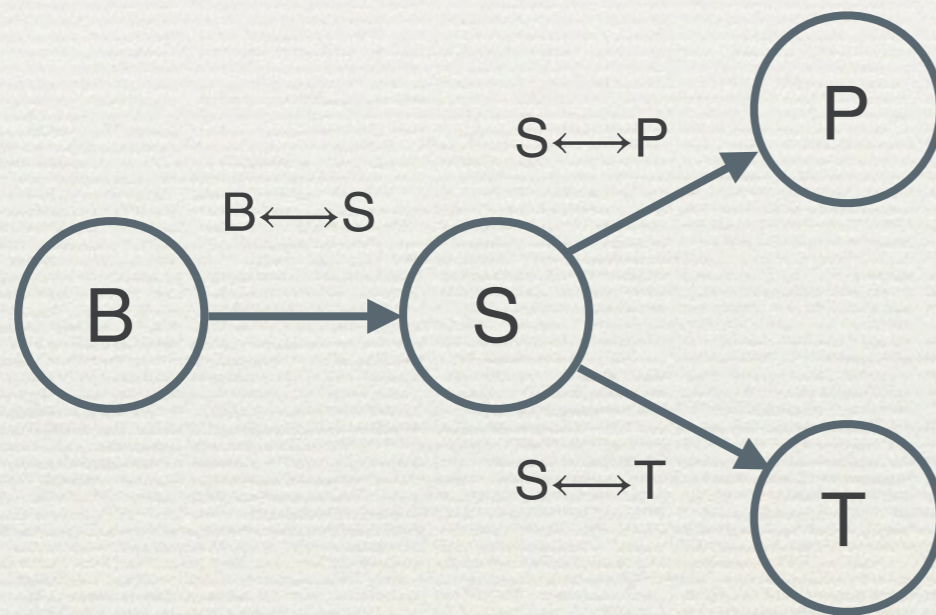
- effective way to store law-like information
 - probabilistic version and functional version
 - we take the functional version
- ➔ valuation (possible world)

.....
 $V(B)=1, V(S)=1, V(P)=1, V(T)=0$

5 Conditionals in Causal Networks

5.1 Pearl's approach

Interventions



- changing the value of a variable without considering its dependencies

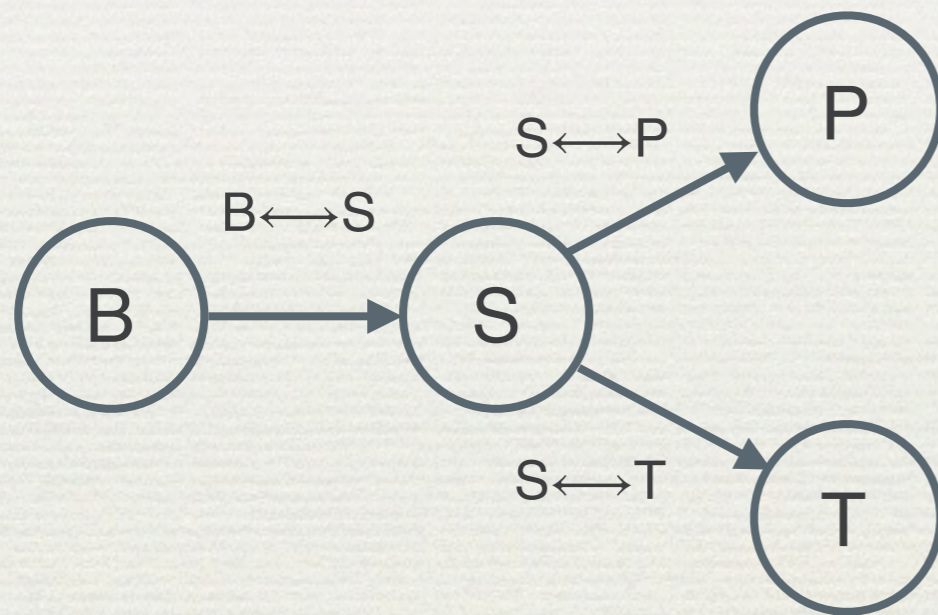
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 $V(B)=1, V(S)=\text{X}, V(P)=1, V(T)=0$

➡ valuation (possible world)

5 Conditionals in Causal Networks

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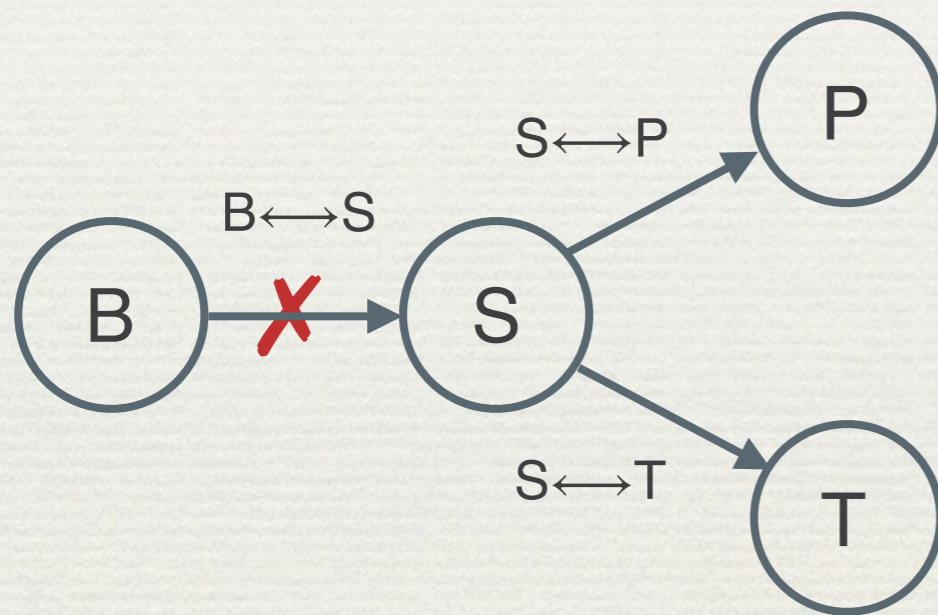
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5 Conditionals in Causal Networks

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Interventions



- changing the value of a variable without considering its dependencies
- standard: cutting causal history

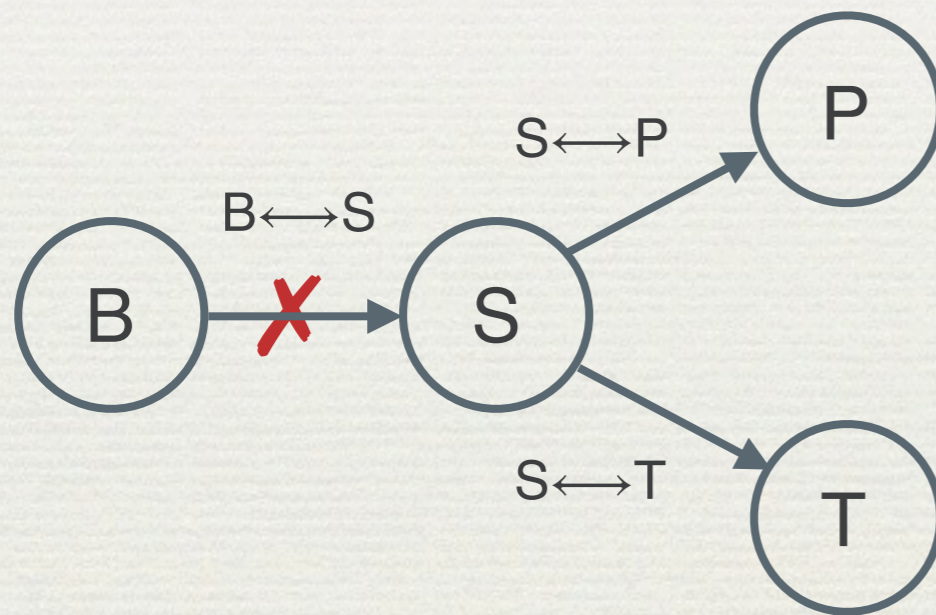
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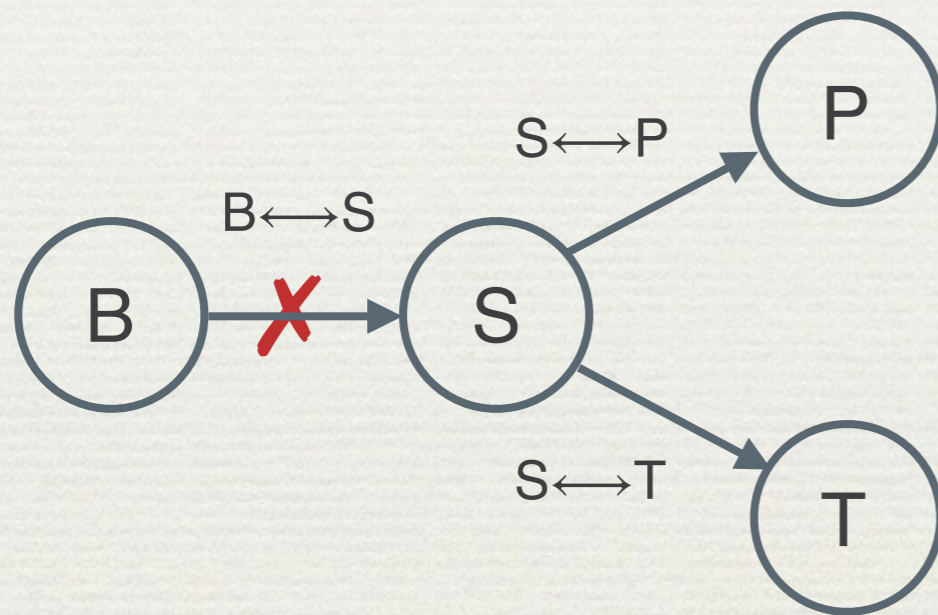
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➡ valuation (possible world)

5 Conditionals in Causal Networks

5.1 Pearl's approach

Interventions



.....

$$V(B)=1, V(S)=\mathbf{0}, V(P)=\mathbf{0}, V(T)=\mathbf{1}$$

- changing the value of a variable without considering its dependencies
- standard: cutting causal history
- doing vs. observing
- ➡ valuation (possible world)

5 Conditionals in Causal Networks

5.3 A note

- There are two respects in which Pearl differs from standard similarity semantics of conditionals
 - ▶ The alternative possibilities are directly constructed, not selected by minimality (but the approach can be stated as a similarity approach).
 - ▶ The consequences of this construction are generated, not just checked on all models that match the construction.
- For recursive structures a equivalent similarity approach can be given (Marti&Pinosio 2012, Halpern 2012).

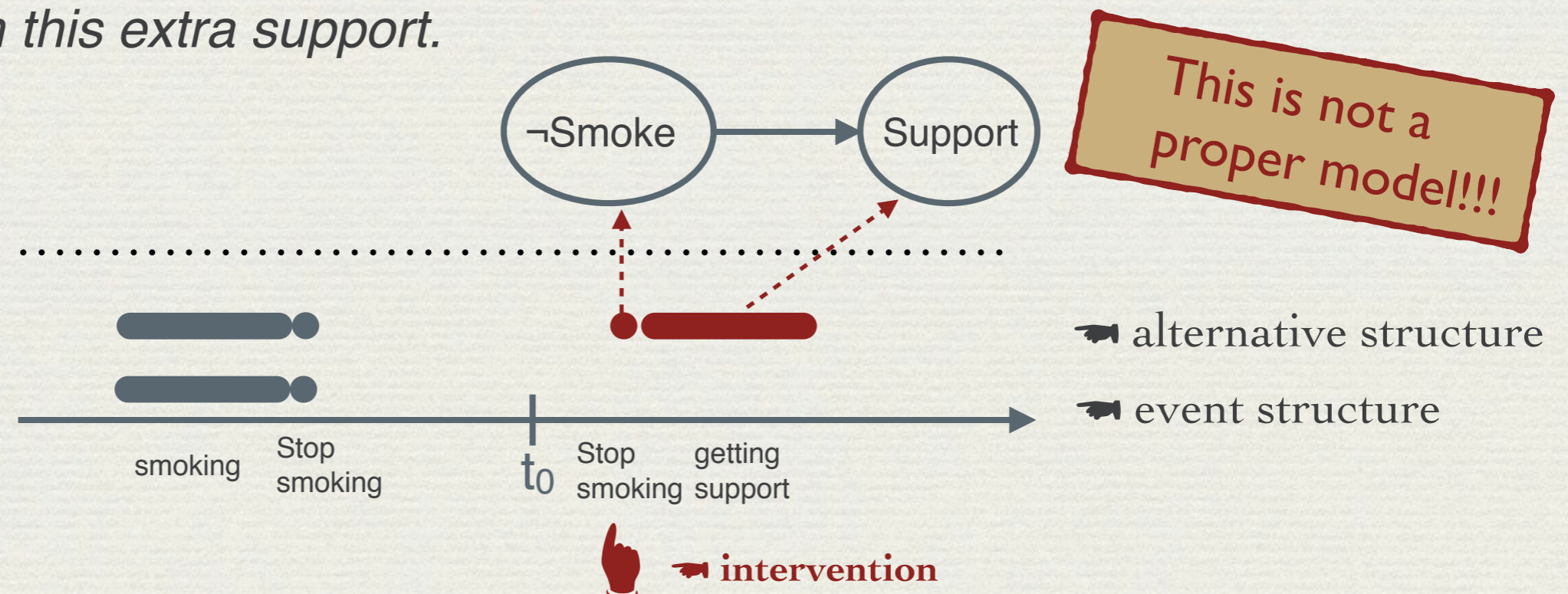
5 Conditionals in Causal Networks

5.4 A challenge for Pearl's approach

- What if the intervention violates conceptual/metaphysical laws?

Peter was a heavy smoker. Last spring he stopped and he hasn't started again. Recently his health insurance company started offering special support for people who want to stop smoking.

(1) If Peter had stopped smoking now, he would have benefited from this extra support.



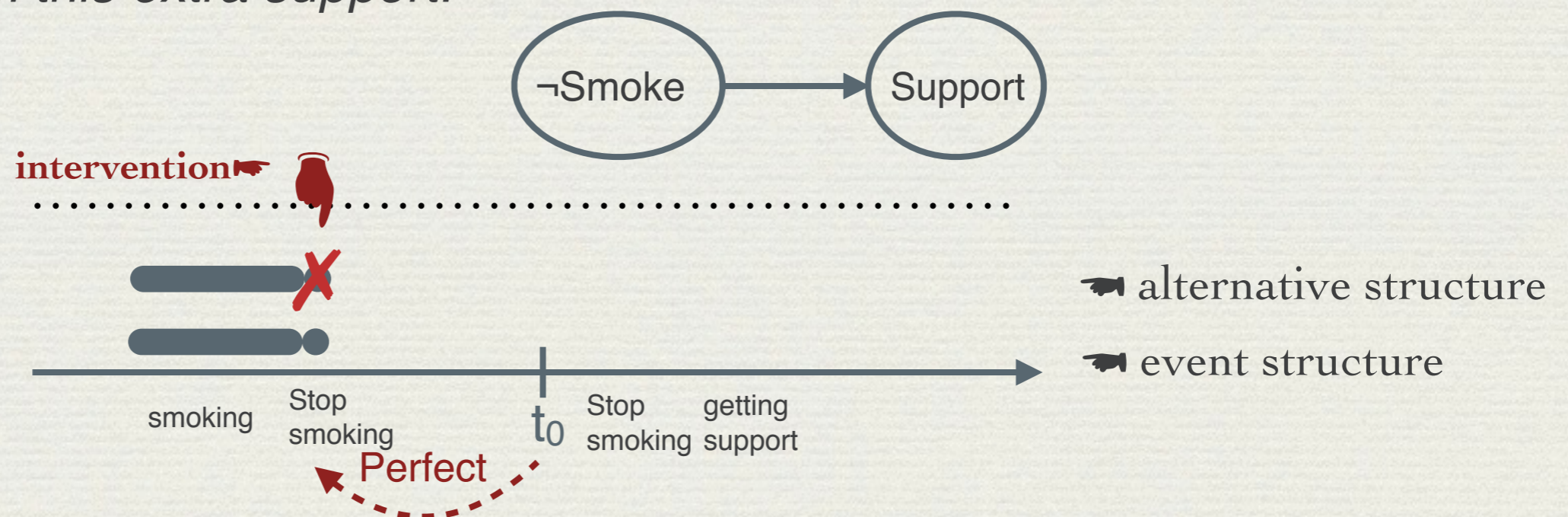
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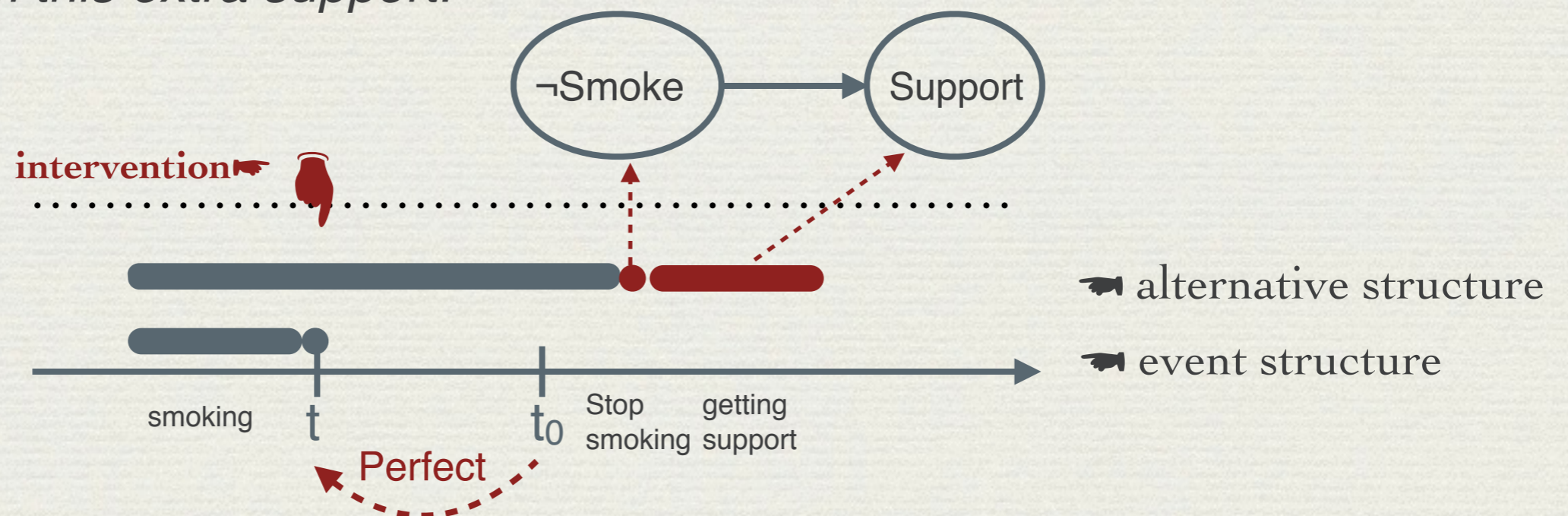
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6 The proposal

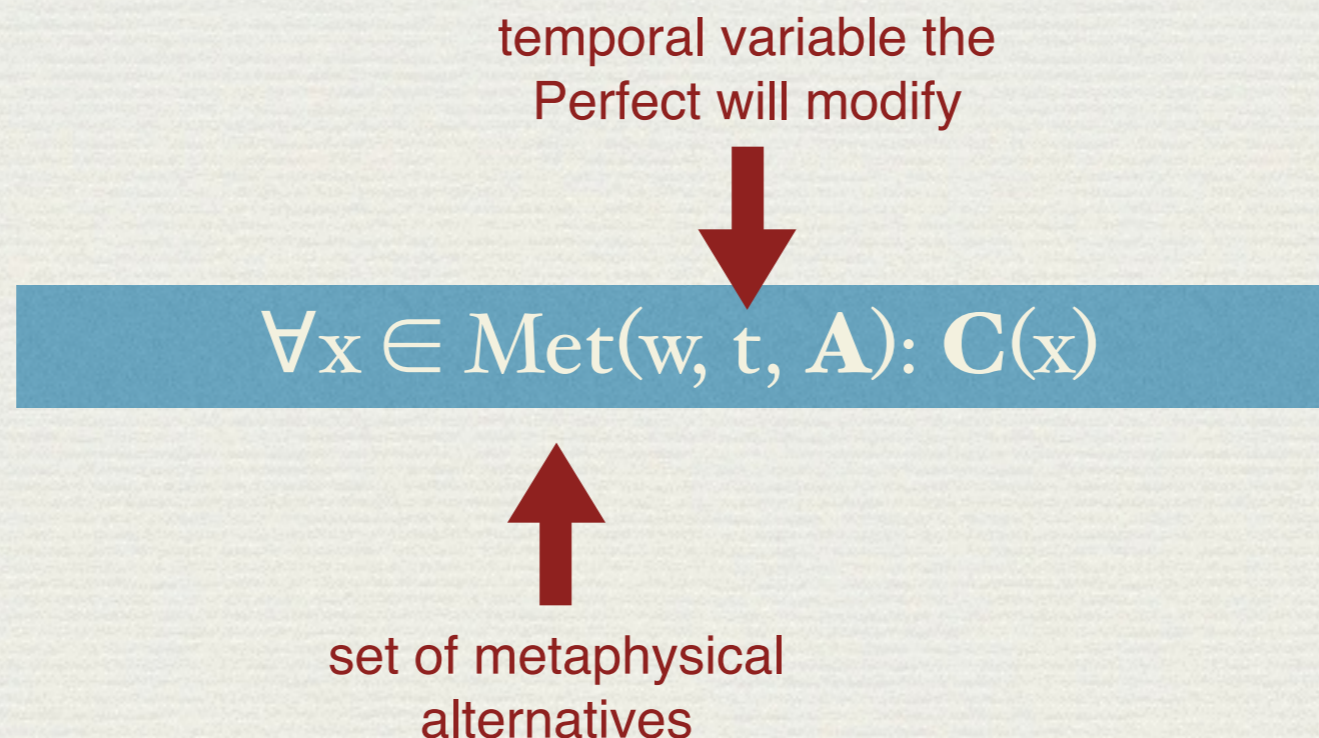
6.1 General Outline

- The cases in which a SPC cannot be used to express a non-past counterfactual conditional (observation 2) all concern situations in which making the antecedent true by intervention violates general constraints on what a proper model is for our language. We often describe such constraints as presuppositions.
- To make the antecedent true we need to change the past (by intervention).
- The Perfect in PPCs shifts the intervention to the past.

6 The proposal

6.1 General Outline

- The main difference with other approaches is a difference in how the metaphysical alternatives of world w at time t are defined.
- The interpretation receipt for conditionals can be maintained.



6 The proposal

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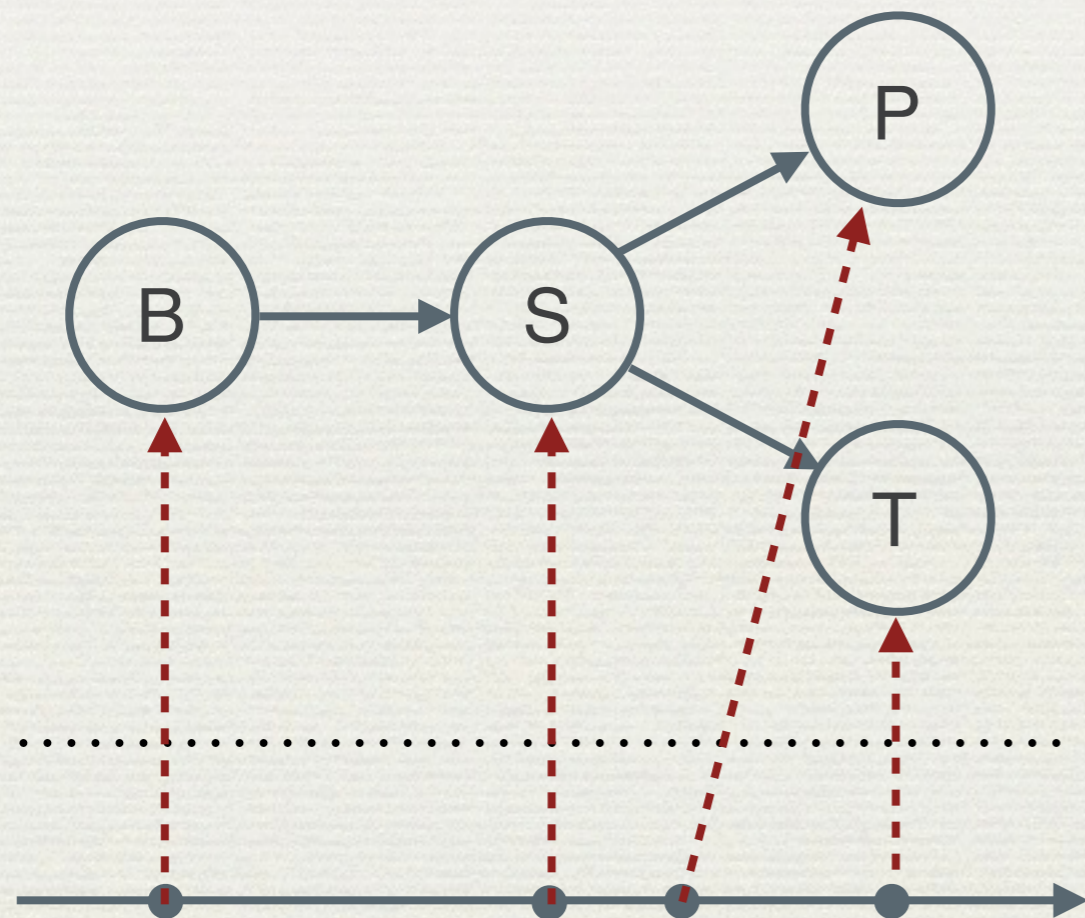
- The main difference with other approaches is a difference in how the metaphysical alternatives of world w at time t are defined.
- The interpretation receipt for conditionals can be maintained. Though, a lot can be said for analysing the antecedent as definite description (Schlenker 2000, Schulz ms.).

$C(\iota X. X = \text{Met}(w, t, A))$

6 The proposal

6.2 Formal Setting

Causal Networks :



■ causal network relating event types

→ type-token relation

→ event structure

6 The proposal

6.3 Solution 1: similarity

- Intervention can be restated in terms of a similarity relation.
- We can extend this order to event structures and select for the minimal event structures that make the antecedent true (with model restrictions on proper event structures).

$$\text{Met}(w_o, A) = \{w \mid w \models A \ \& \ \neg \exists w' (w' \models A \ \& \ w' < w)\}$$

- The selected event structures will work with the latest possible intervention that makes the consequent true - as intended.

6 The proposal

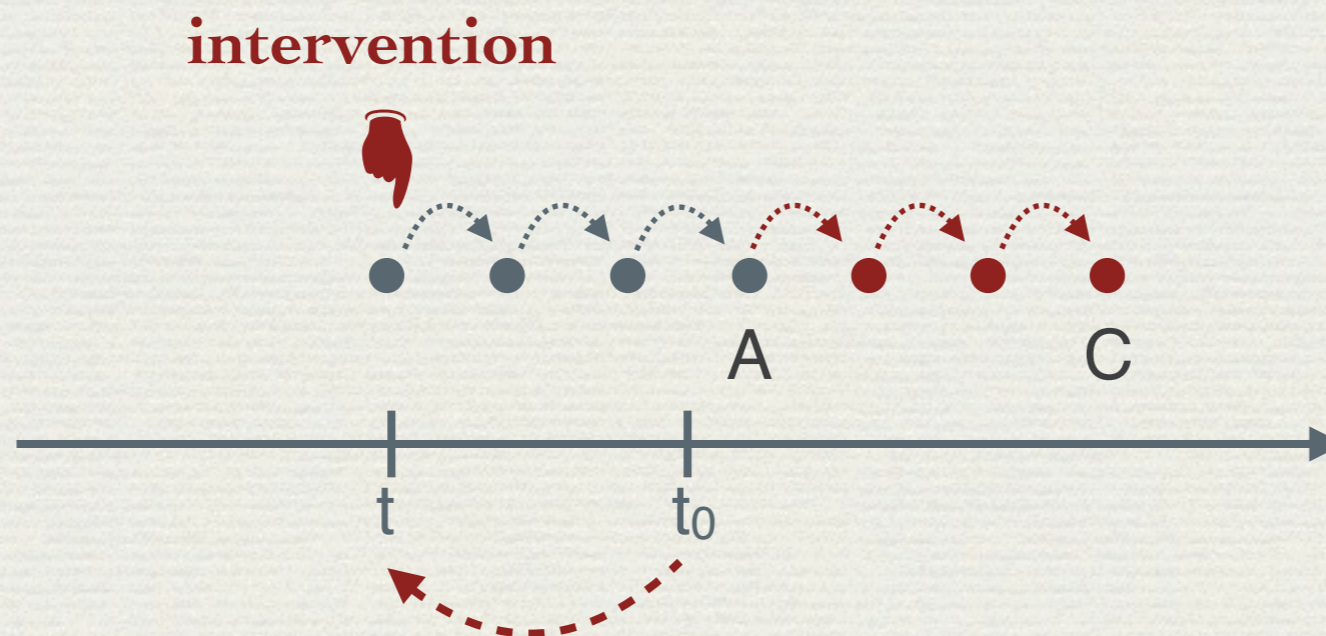
6.3 Solution 1: similarity

- BUT**
- There is no need to involve a temporal variable, no need to talk about the location of the intervention (compare relation between Lewis 1979 and the standard PaP approach).
 - Hence, we cannot explain the use of the Perfect in PPCs this way.
 - We could get this back by letting the similarity operation run over indices (pairs of worlds and times). The time-variable would anchor the evaluation time for antecedent and consequent.

6 The proposal

6.4 Solution 2: intervention

- We add an intervention at time t to world w_0 and generate the consequences of this intervention (an event structure w').
- Those generated structures w' that make the antecedent true, have to make the consequent true as well.



6 The proposal

6.4 Solution 2: intervention

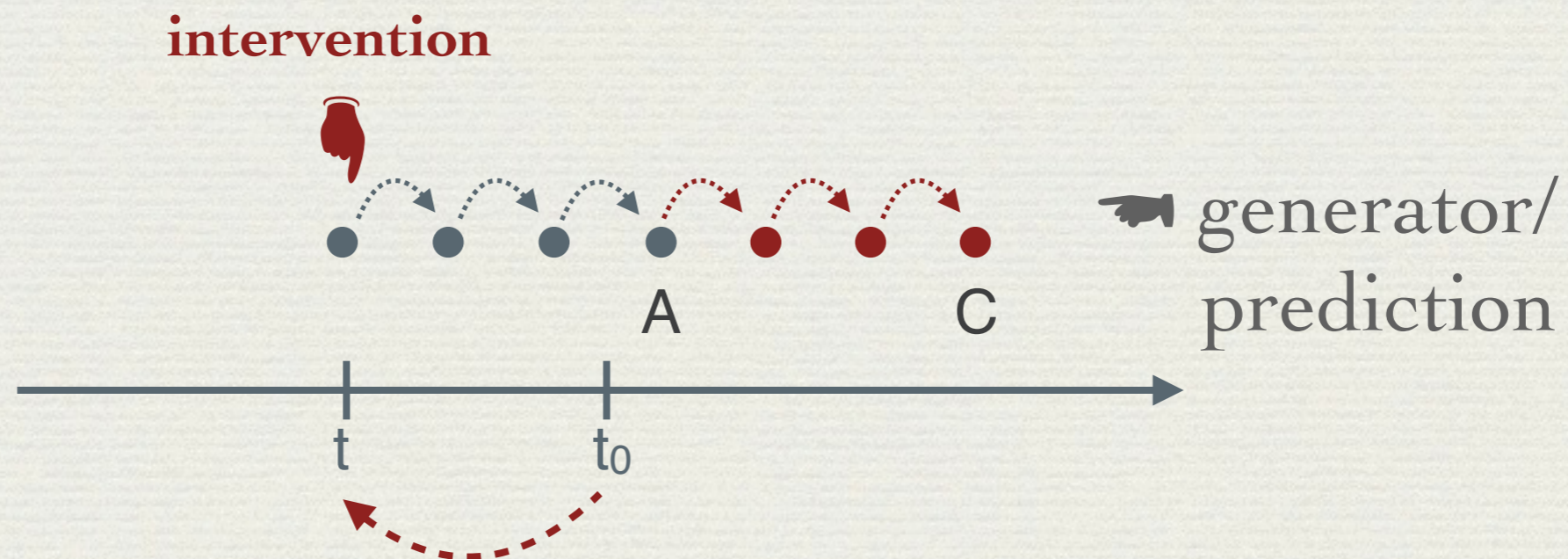
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$$\text{Met}(w_0, t, A) = \{w' \mid w' \text{ is generated from intervening in } w_0 \text{ at } t \ \& \ A(w')\}$$

6 The proposal

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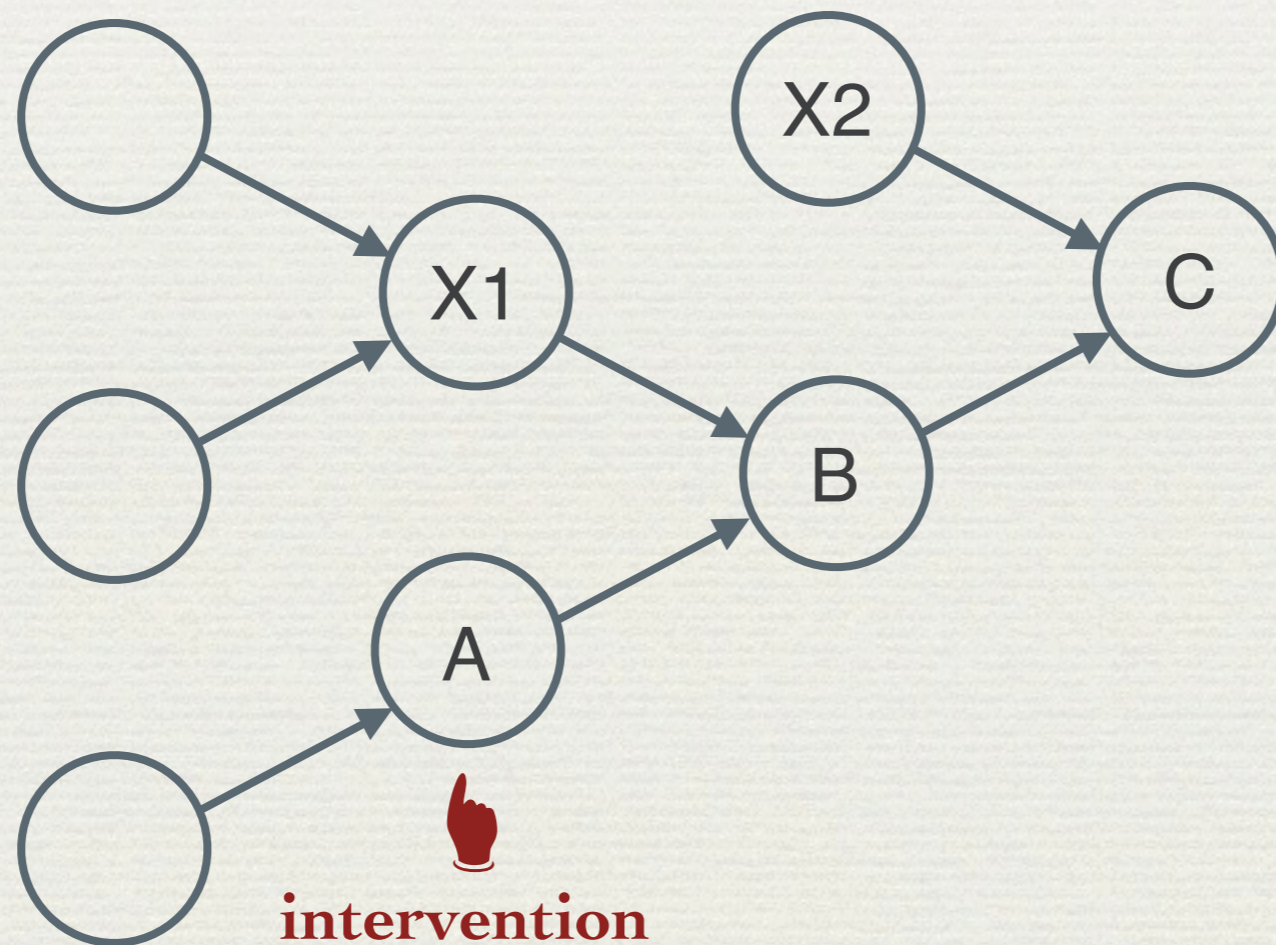
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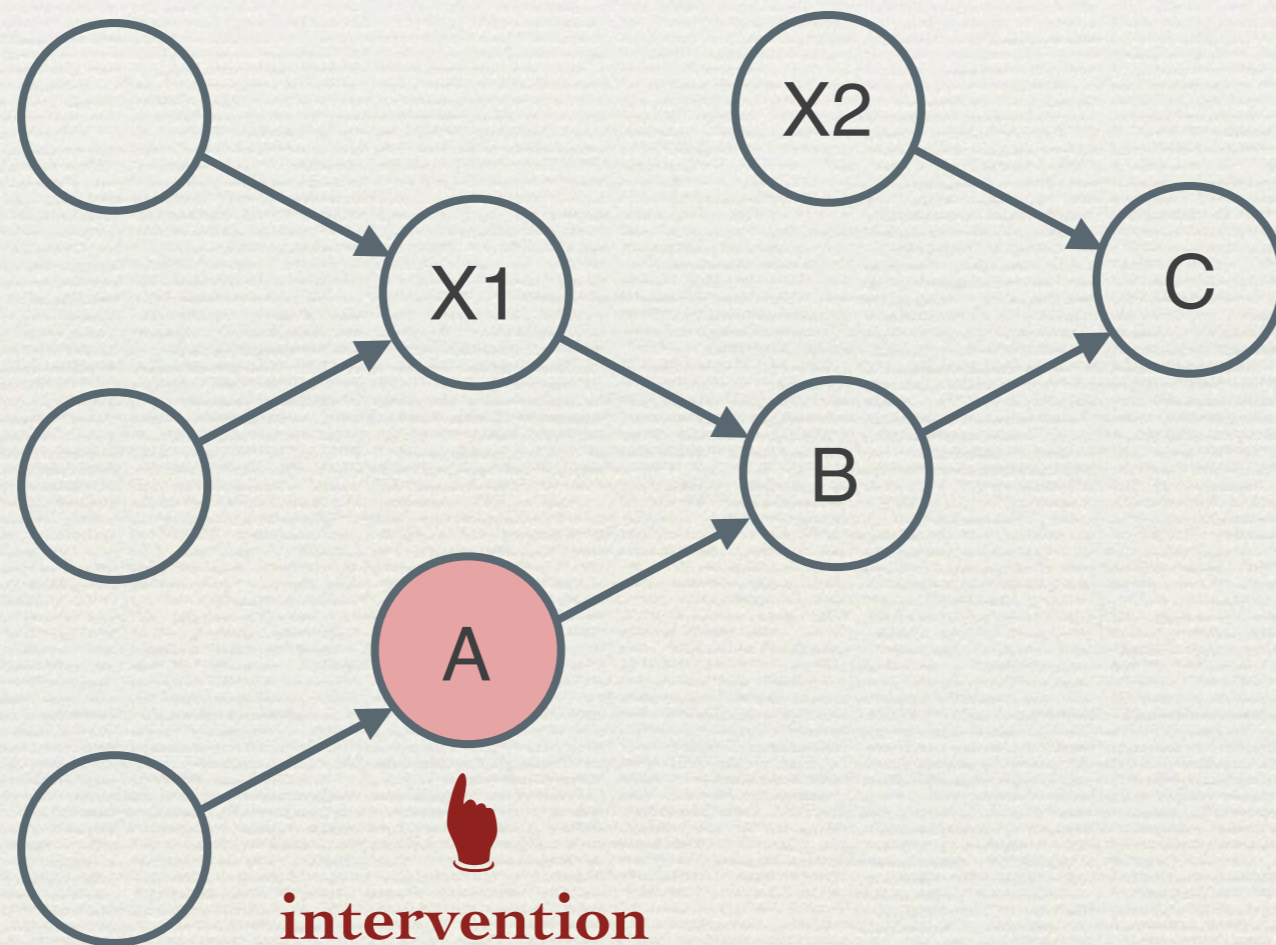
BUT: how to define the generator???



6 The proposal

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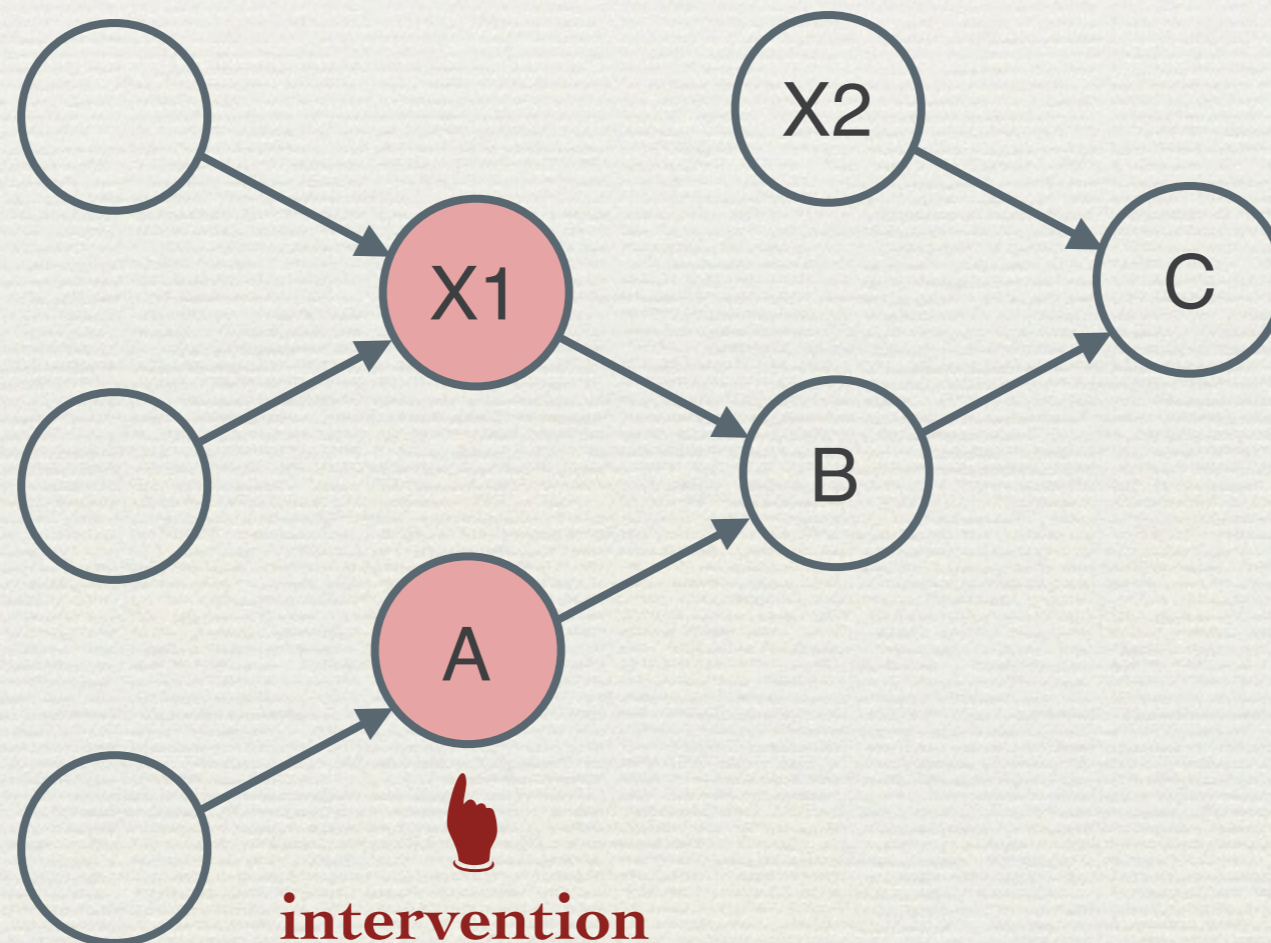
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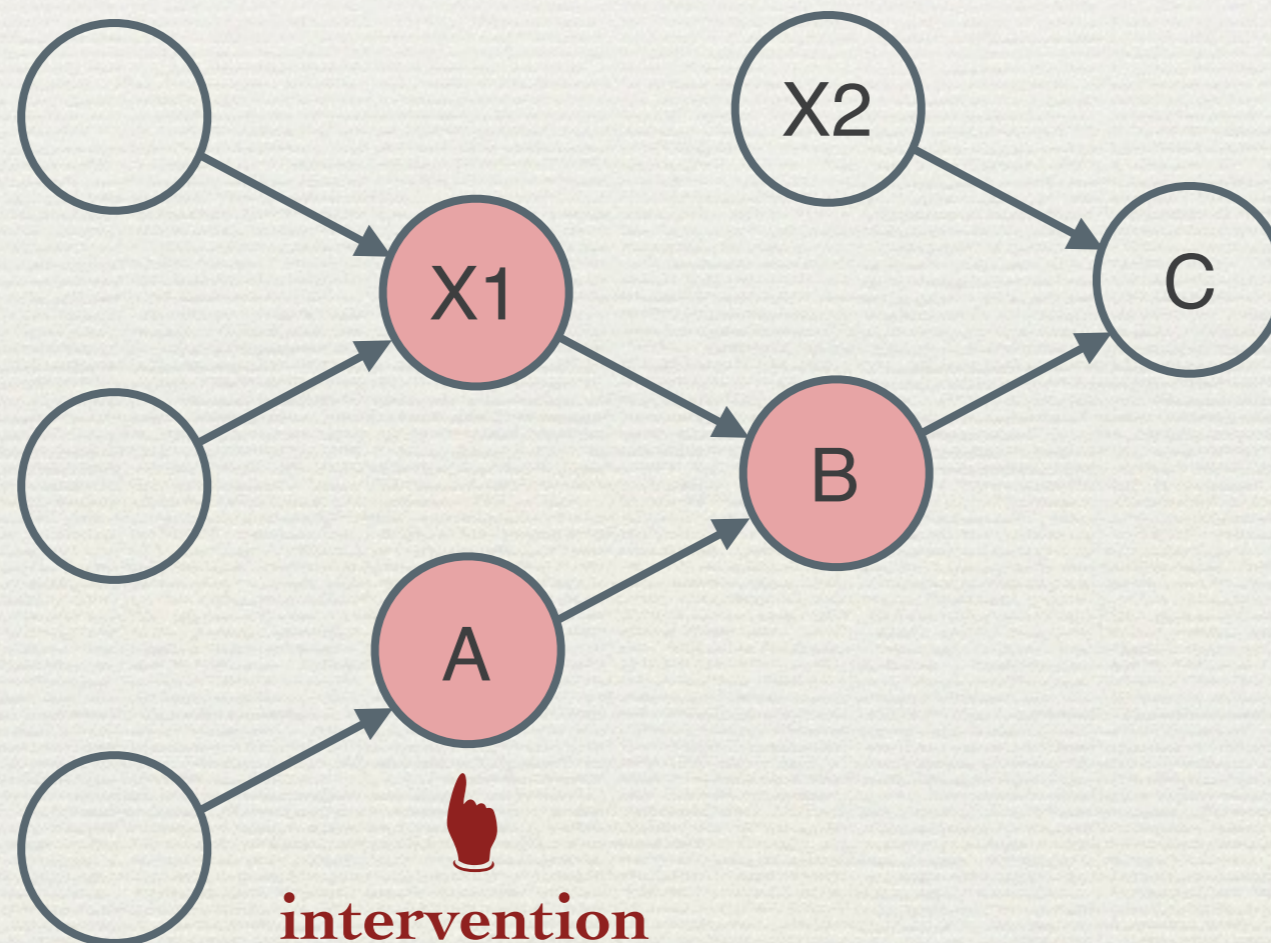
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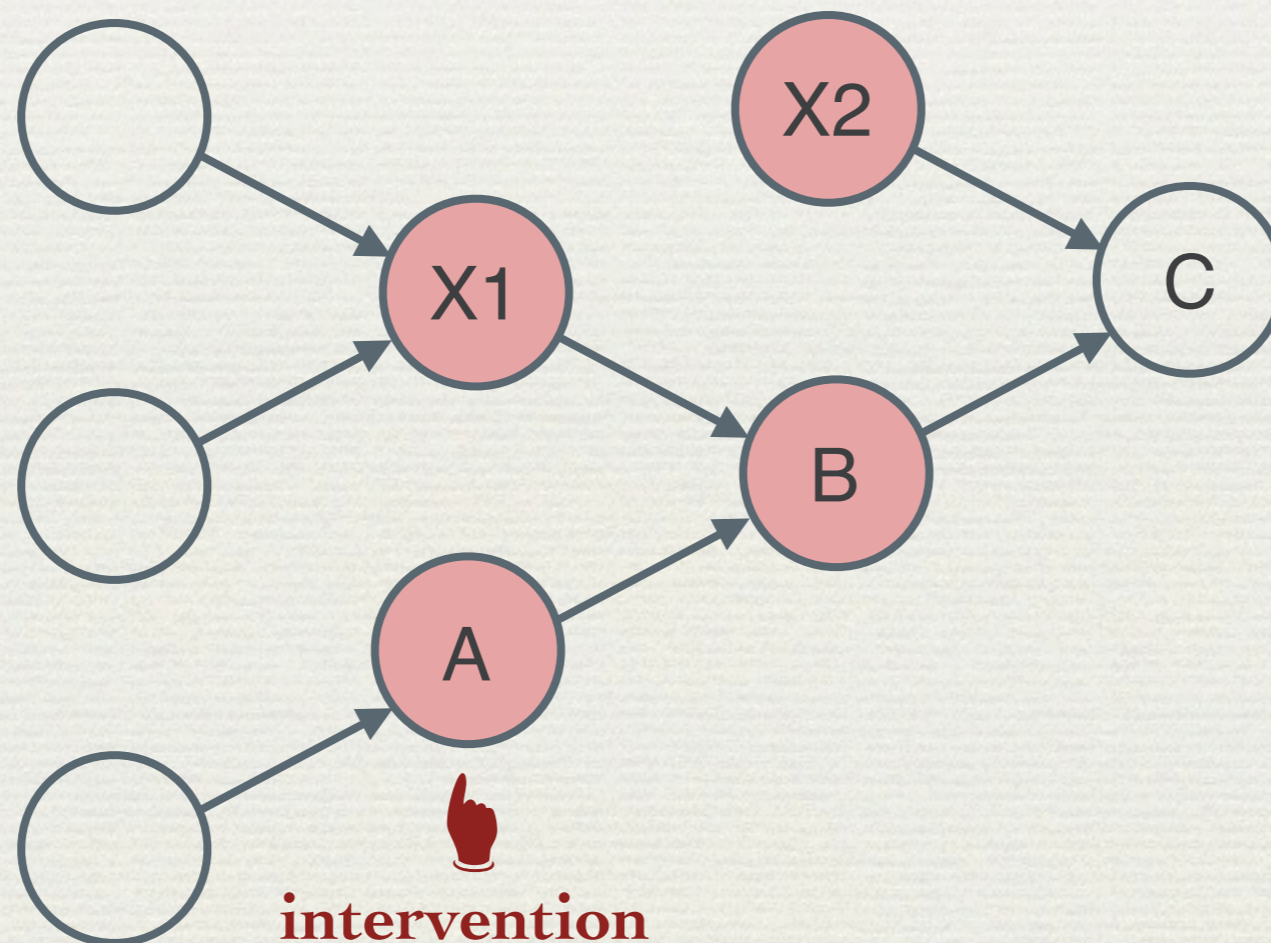
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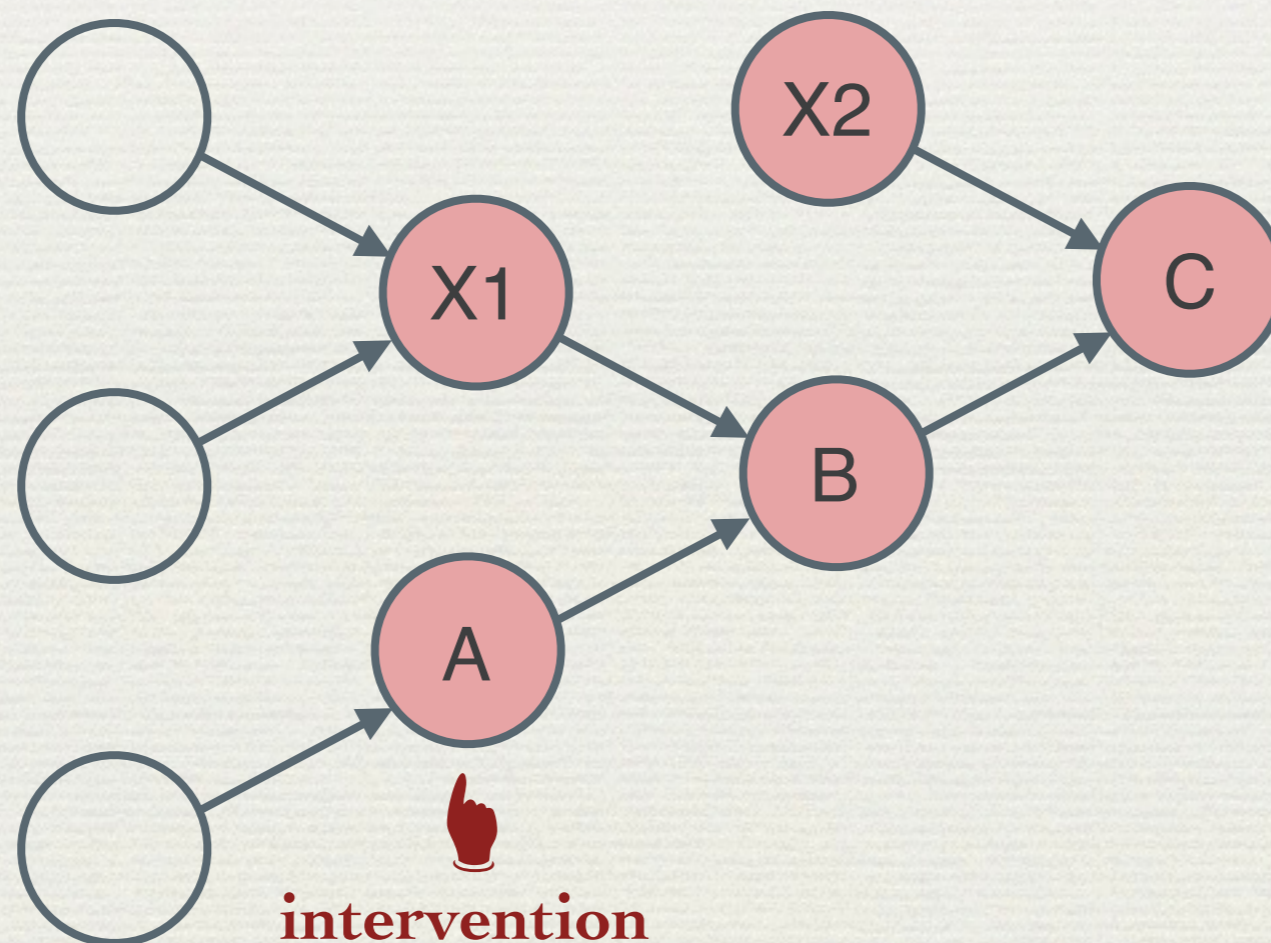
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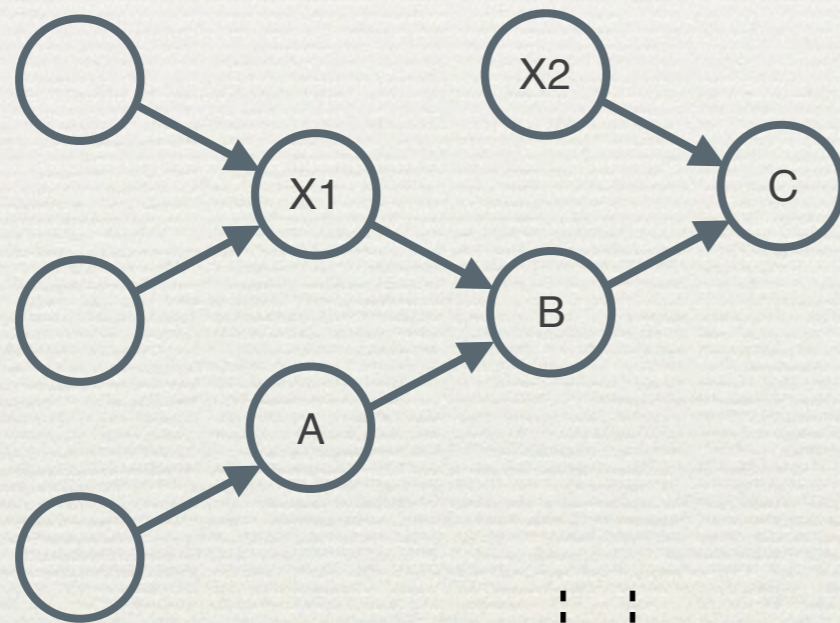
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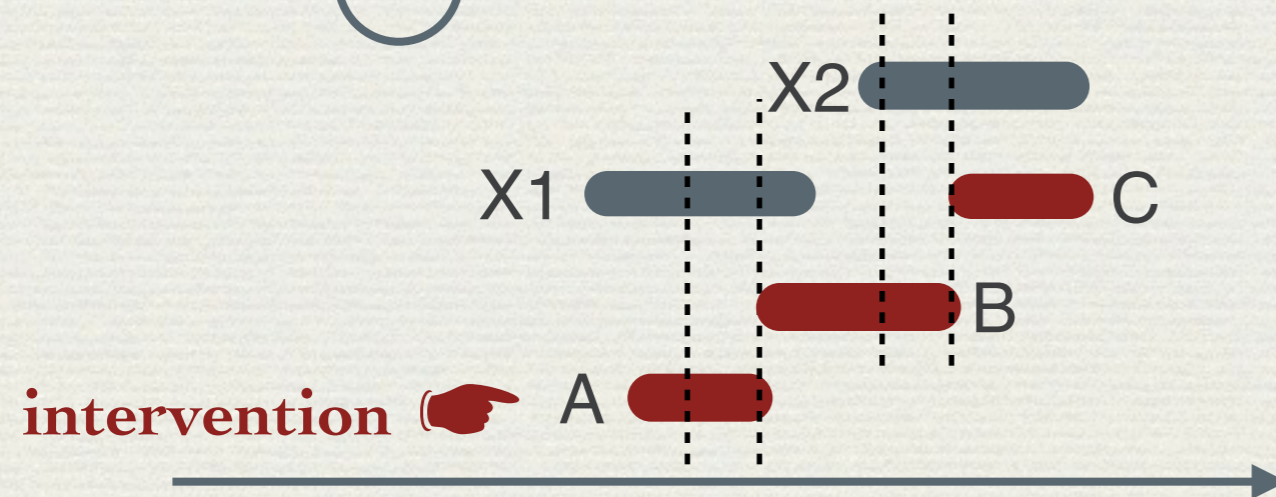
6 The proposal

6.4 Solution 2: intervention

BUT: how to define the generator???



- causes need to overlap to produce an effect
- causes precede their effect, but there mustn't be any event/time between causes and effect



⊕ additional information about typicality, eventuality types

6 The proposal

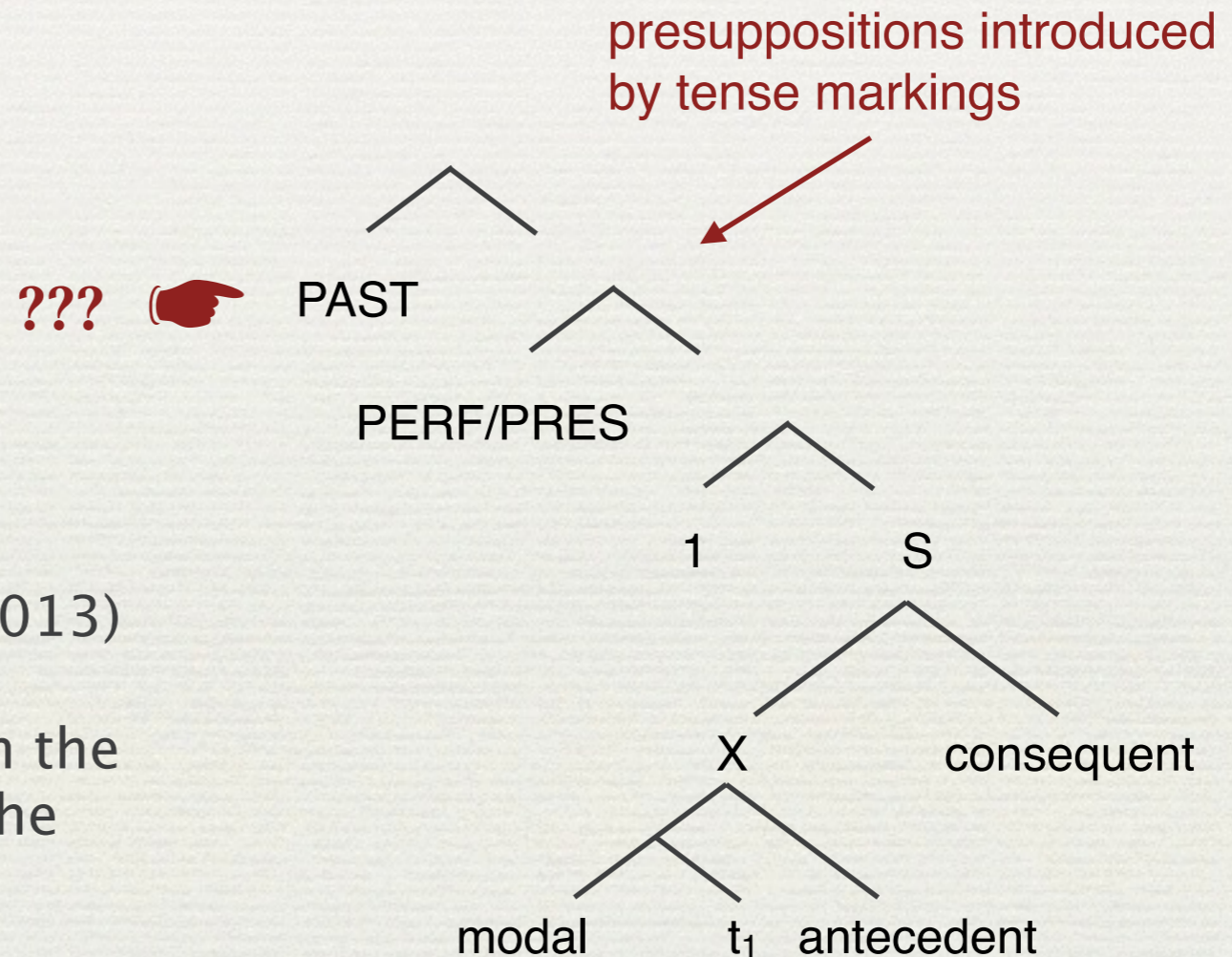
6.4 Solution 2: intervention

BUT:

- To generate event structures we need to predict temporal location and duration of eventualities.
- Partly this is a problem of the model of causation that we use here. We might need something more sophisticated, like the Event Calculus (Hamm&vLambalgen).
- Partly this is a problem of the simple event structure we work with. We might need more information about specific event types.

7 A Compositional Semantics

7.1 Solution 2: intervention



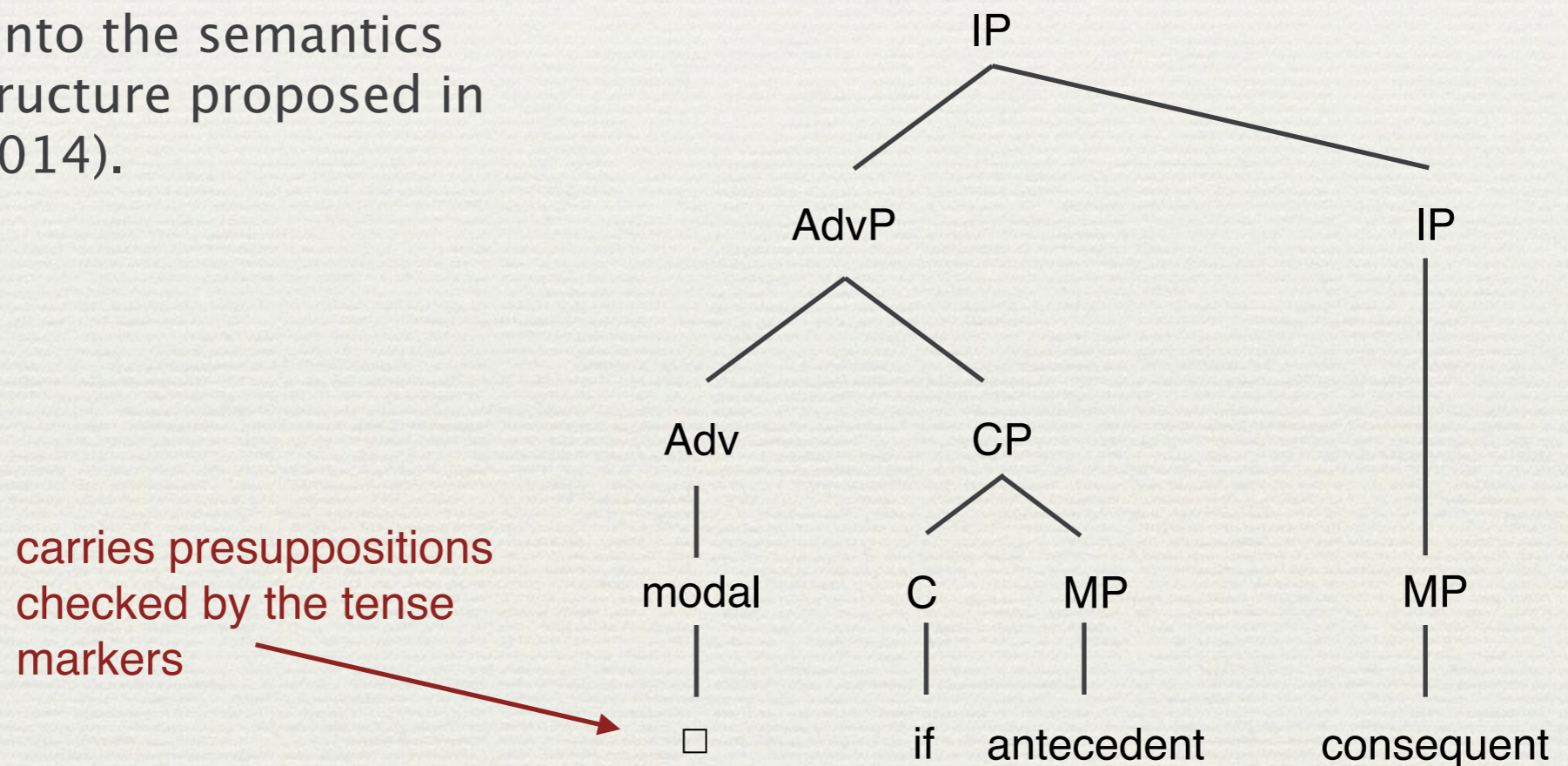
- We can follow Ippolito (2013) for the analysis of the LF structure and just plug in the alternative approach to the modal operator.

- But we cannot use Iatridou/Schulz approach to the Simple Past in this setting, because there the past tense is meant to say something about the worlds quantified over.

7 A Compositional Semantics

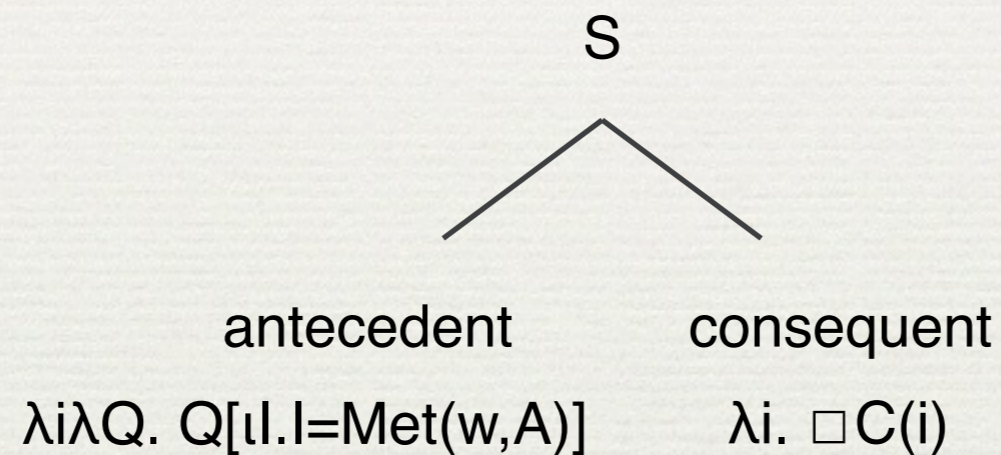
7.2 Solution 1: similarity

- This approach can be plugged into the semantics and LF structure proposed in Schulz (2014).



7 A Compositional Semantics

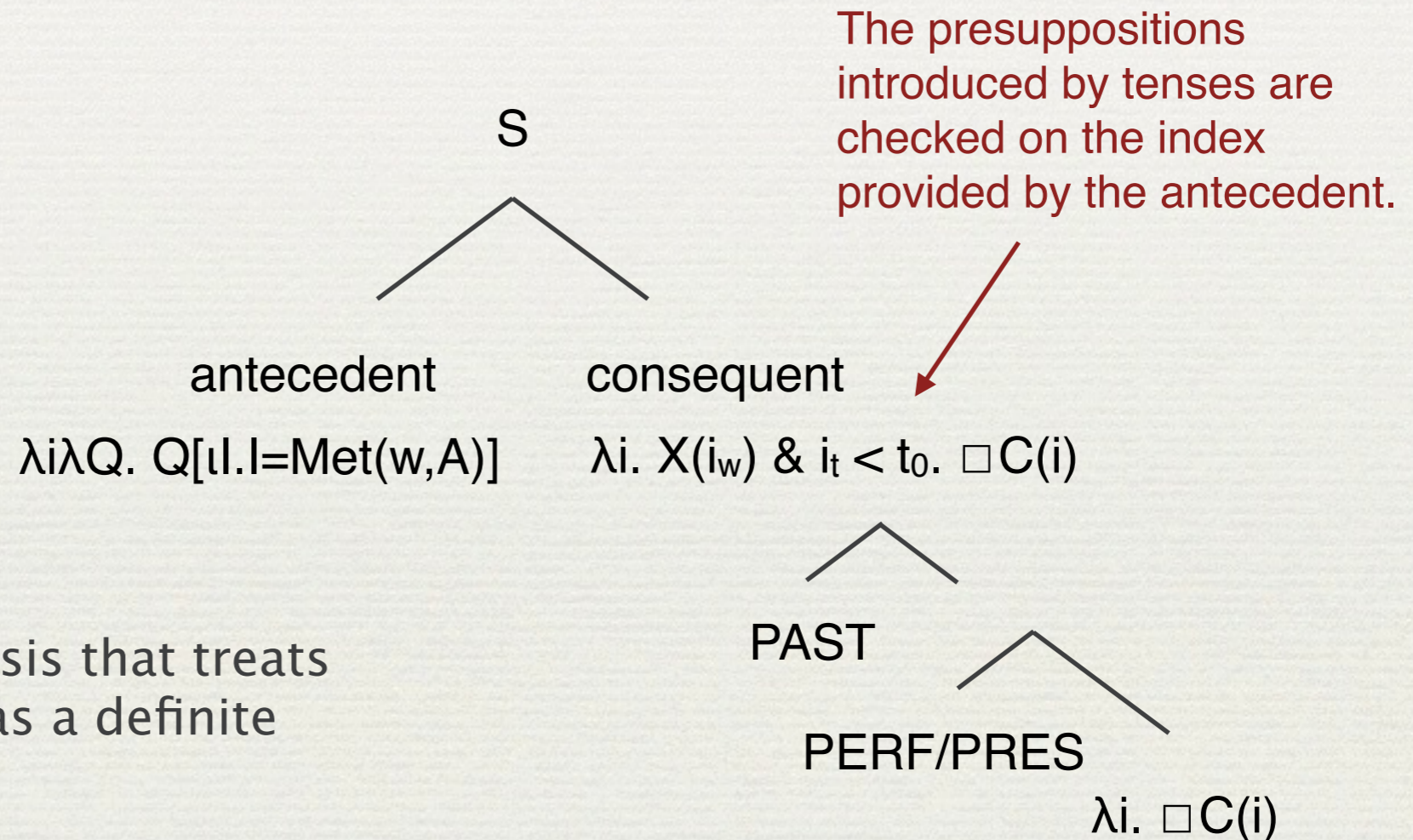
7.2 Solution 1: similarity



- I prefer an analysis that treats the antecedent as a definite description.

7 A Compositional Semantics

7.1 Solution 1



- I prefer an analysis that treats the antecedent as a definite description.

8 Checking the observations

To express generic or counterpossible counterfactuals that do not talk about the past, the SPC-form is strongly preferred over the PPC form (Schulz, ms.).

solution 1&2: Yes.

The perfect cannot be used because it is used to express a past-shifted intervention.

Generics and counterpossibles are not about interventions on event structures.

8 Checking the observations

1. The SPC form, but not the PPC form, can be used to talk about future eventualities that are still possible at the utterance time.

solution 1: Yes.

The order forces the intervention to take place as late as possible. If the Perfect is used, it wasn't possible to get the antecedent true with a non-past intervention. This entails that the antecedent is impossible at the utterance time.

8 Checking the observations

1. The SPC form, but not the PPC form, can be used to talk about future eventualities that are still possible at the utterance time.

solution 2: Yes, with a simple extension.

We propose that the antecedent presupposes that at t metaphysical alternatives are accessible that make the antecedent true. If we take the antecedent to be a definite description, this would follow naturally.

8 Checking the observations

1. The SPC form, but not the PPC form, can be used to talk about future eventualities that are still possible at the utterance time.

solution 2: Yes, with a simple extension.

Apply now *Maximise Presupposition*.

Because metaphysical alternatives decrease over time, an SPC comes with stronger presuppositions than a PPC.

Using a PPC implies that the presuppositions of the stronger alternative were not satisfied.

8 Checking the observations

1. The SPC form, but not the PPC form, can be used to talk about future eventualities that are still possible at the utterance time.

solution 2: Yes, with a simple extension.

We derive the same inference as with solution 1: an intervention at the utterance time that makes the antecedent true is not possible.

From this it follows that the antecedent is not possible at the utterance time.

8 Checking the observations

2. SPCs can in principle be counterfactual, ...

solution 1&2: Yes, because we work with intervention.

8 Checking the observations

2. ... but if the presuppositions of the antecedent are inconsistent with the actual history at the utterance time, then a SPC is infelicitous.

solution 1&2: Yes, because in this case intervention is not possible.

8 Checking the observations

3. The counterfactuality of PPCs talking about the present or the future cannot be cancelled.

solution 1: Yes, it's a semantic inference.

solution 2: Yes, inferences from *Maximise Presupposition* cannot be cancelled.

8 Checking the observations

BUT

- Details of the formal approach need to be worked out.
- Details of the compositional approach need to be worked out.