The Actual, the Counterfactual and the Possible

An Oceanic-centric approach to tense and modality

Kilu von Prince

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Materials and references

In this talk, I present an overview of some of my recent work on modality and tense, which is freely accessible from the following sources:

- Irrealis is real (submitted)
  `http://kiluvonprince.de/wp-content/uploads/2020/08/Irrealis.pdf`
- Counterfactuality and past (2019, *Linguistics and Philosophy*)
  `https://link.springer.com/article/10.1007/s10988-019-09259-6`
- Mapping irreality (2018, *Proceedings of Linguistic Evidence*)
  `https://publikationen.uni-tuebingen.de/xmlui/handle/10900/91242`.

The case of Daakaka

Past and future in realis/irrealis systems

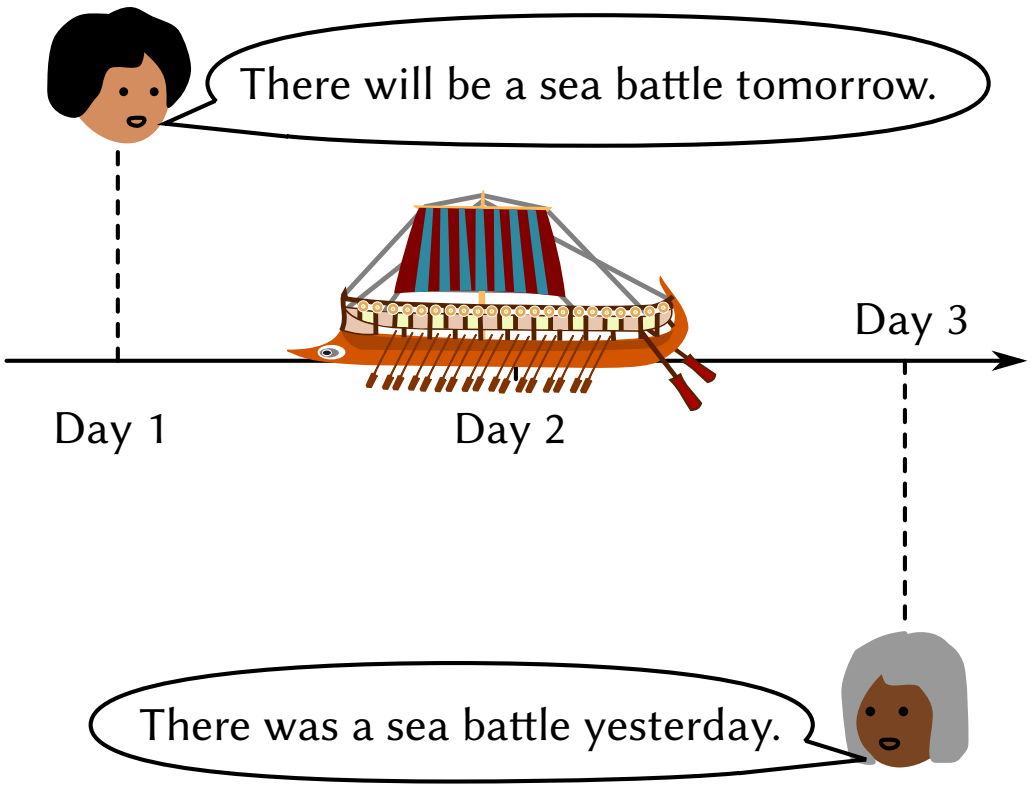
Realis/irrealis systems are characterized by a division between the past/present as opposed to the future. E. g. Nanti (Arawakan):

(1) a. *o=pok-Ø-i* *maika*
3.NONM.SBJ=come-IPFV-REAL.I now
"She is coming now."

b. *o=n-pok-Ø-e* *kamani*
3.NONM.SBJ=IRR-come-IPFV-IRR.I tomorrow
"She will come tomorrow."

from Michael (2014)

Diodorus Cronus and the asymmetry of past and future



4th–3rd c. BCE

Branching Time

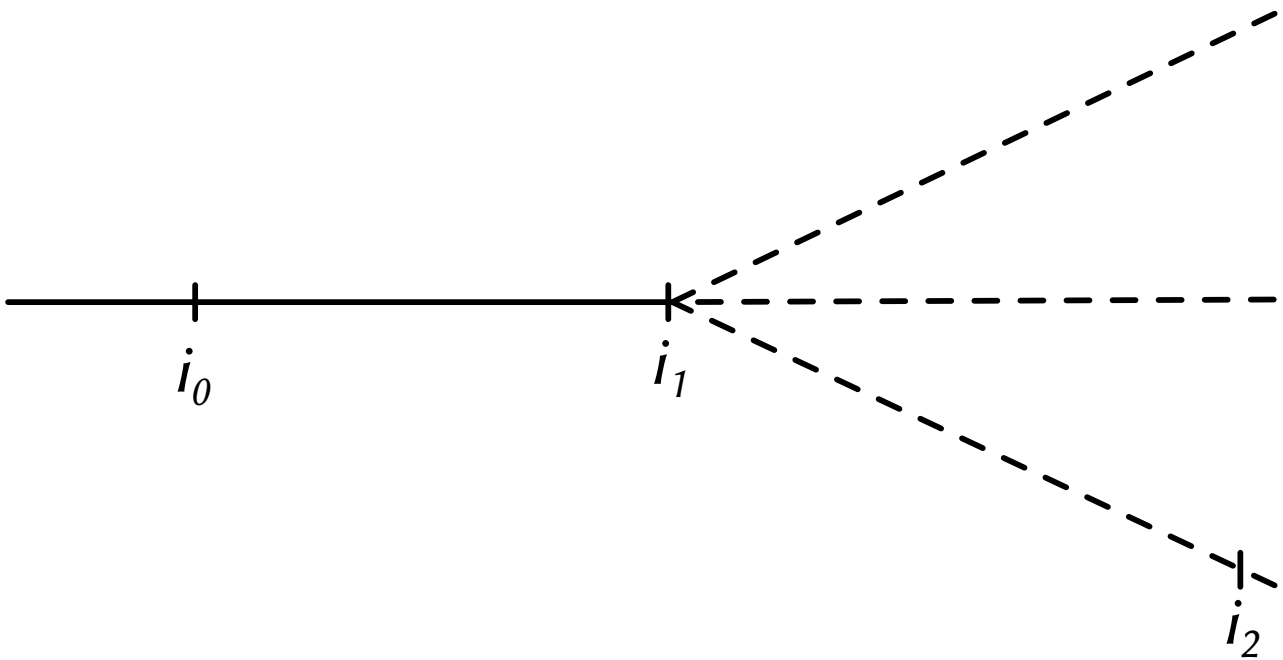


Figure: Branching time, after Prior (1957, 1967); Thomason (1970)

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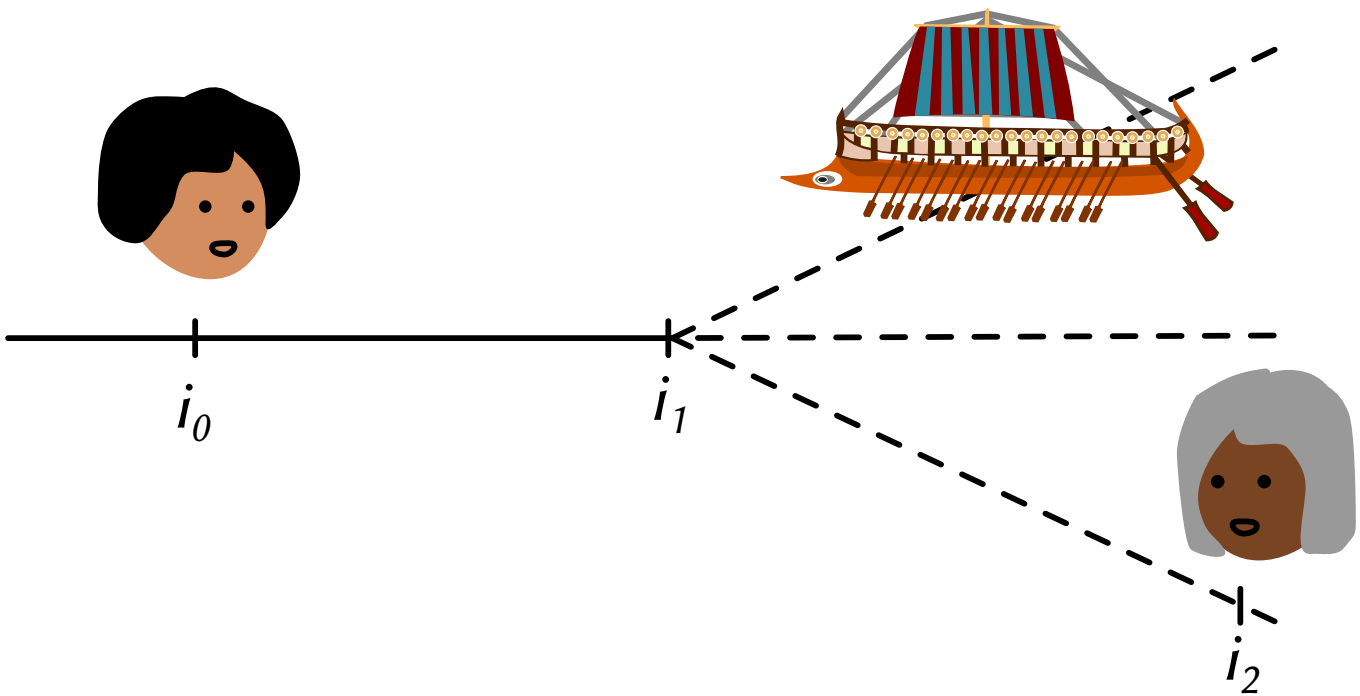

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  - In many languages, the past is marked by the same TAM expression as counterfactuality.
  - How do counterfactuality and future relate to modal expressions such as *must* and *can*?

Puzzle I: Daakaka TAM markers

	enclitic	proclitic	monosyllabic
Pos. Realis	*=m*	*mw=*	*mwe/mV*
Neg. Realis			*to*
Pos. Potential	*=p*	*w=*	*wV*
Neg. Potential	*=n*		*nV*
Distal	*=t*	*t=*	*tV*
(Open Polarity			*doo)*
(Change of State			*bwet)*

Daakaka realis

(2) *Na=m vyan stoa.*
1s=REAL go store
a. ‘I went to the store.’
b. ‘I’ve been to the store.’
c. ‘I go to the store.’ (on a regular basis)

Daakaka potential

(3) *Eya ma ka: "Da=p lyung vyan pyan!"*
white-eye REAL say 1D.IN=POT bathe go under
'The white-eye [bird] said: "Let's dive!" '

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(5) *bat-en ka wa pe~pyo vyen*
head-3S.POSS ASR POT REDUP~white probably
'its head is white, I think'

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live=NM ATT yesterday DIST quiet
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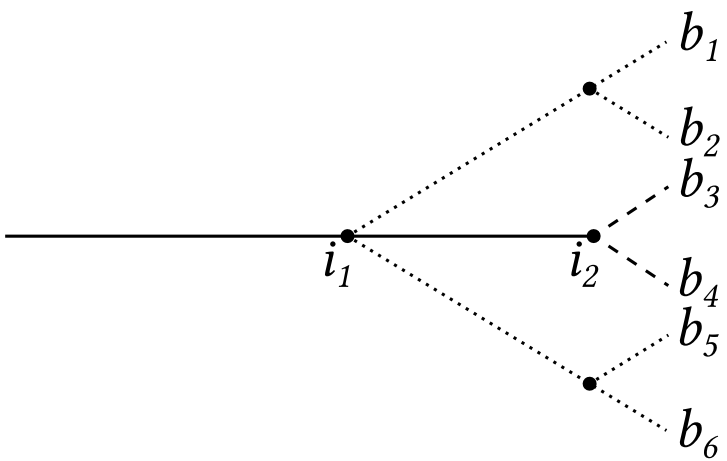
(8) *ka ko=p pwer tevy-an yaapu en=te, te bili ka*
COMP 2SG=POT stay side.of-3SG.POSS man DEM=MED DISC time say
s-amaa mani nyoo tu puo.
CL3-2D.POSS money 3PL DIST be.plentiful
"If you had married this man, you would have been very rich."

Summary: Daakaka moods

- Realis: actual events of the present or past
- Potential: future events, possibilities of the present
- Distal: actual (discontinuous) past,[1] counterfactuality

[1] von Prince (2017)

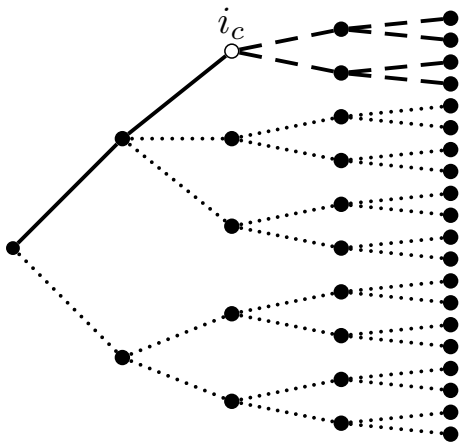
Unrestricted branching time



The actual, the counterfactual and the possible

The precedence relation generates the following three-way distinction:

(9) a. the actual (past or present): $\{i | i \leq i_c\}$
b. the counterfactual (past, present or future): $\{i | i \not\leq i_c, i_c \not< i\}$
c. the possible (future): $\{i | i_c < i\}$



The Daakaka TAM meanings

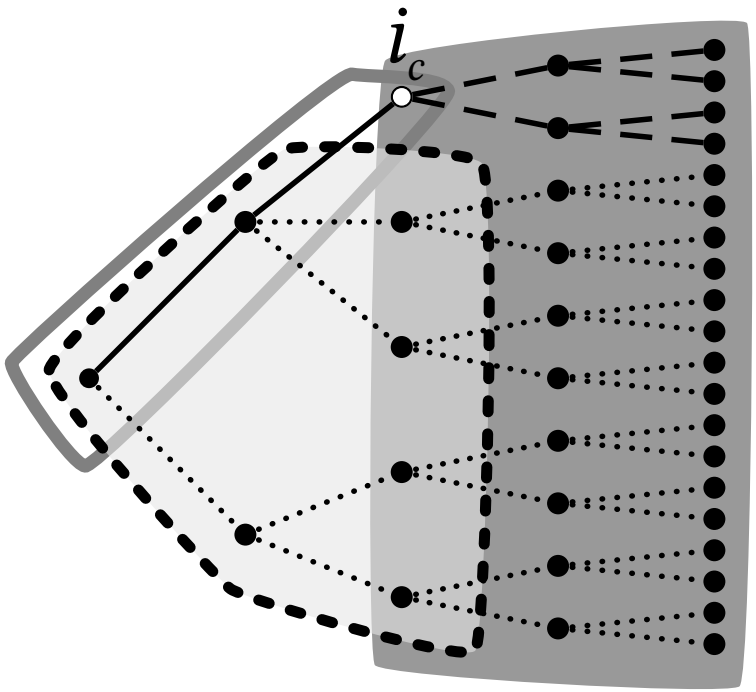


Figure: The meanings of the Daakaka realis (grey outline); potential (shaded dark grey); and the distal (dotted outline).

From von Prince *et al.* (2018).

Interim conclusion

The tripartite branching-time frame can model more complex modal-temporal distinctions and precisely account for cross-linguistic differences.

Puzzle II: past and counterfactuality

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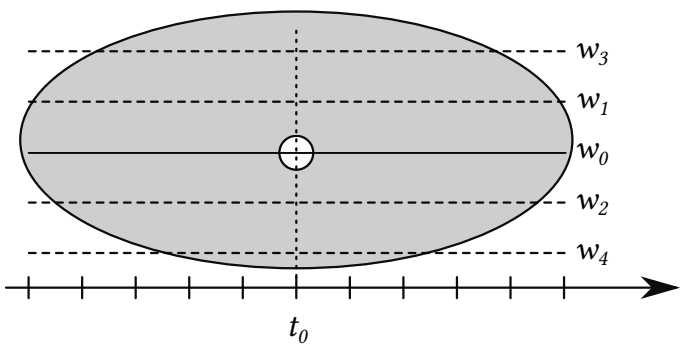
- English Simple Past is used here without a reference to the past.
- The sentence as a counterfactual implicature: Öslem is not training hard enough now/is unlikely to do so in the future.

Remoteness-based approaches

(11) If Öslem trained harder, she would be stronger.



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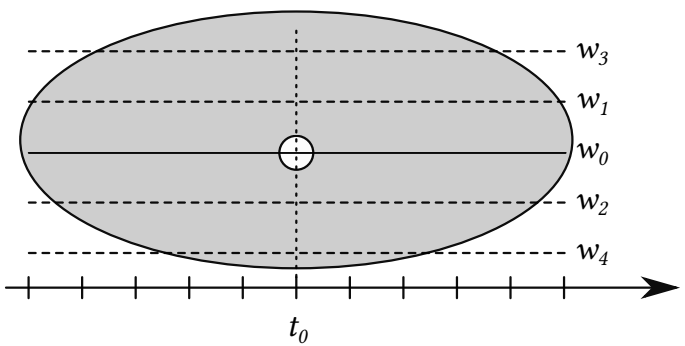
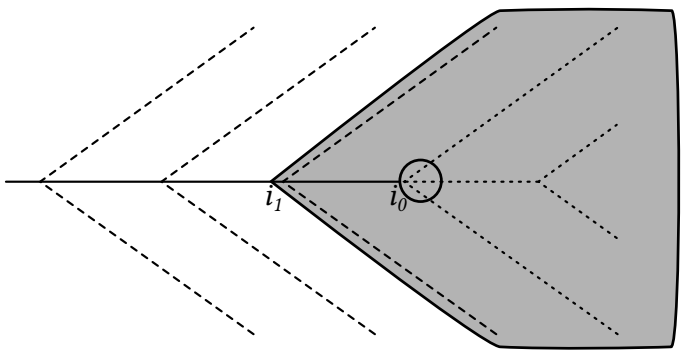


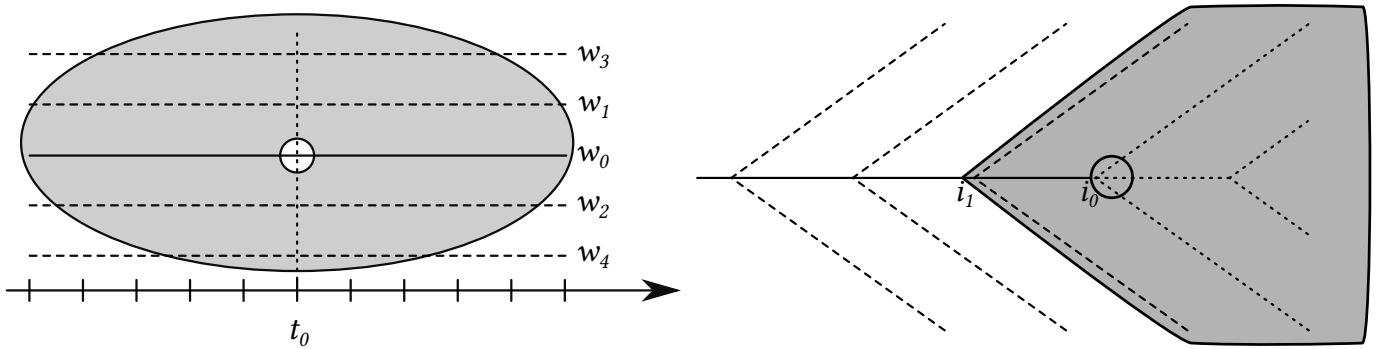
- This family of approaches (e. g. Iatridou, 2000) tends to overgenerate or undergenerate possible interpretations.

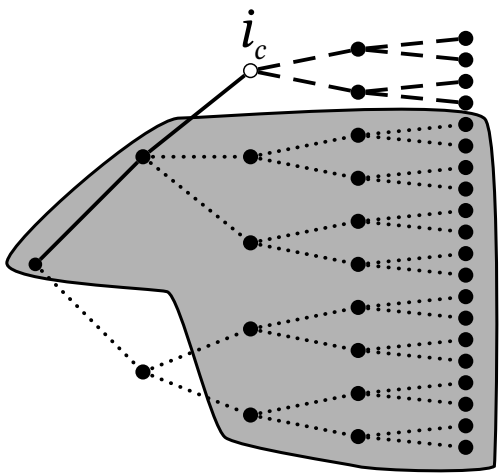
Backshifting approaches



- This family of approaches (e. g. Ippolito, 2013) relies on complex syntactic gymnastics (cf. Romero, 2014).
- It also does not provide a way to derive the counterfactual interpretation of counterfactual statements.

Proposal: a different lexical definition of ESP





The counterfactual implicature

(12) If Aisha had taken the train, she would have arrived at 3pm.
$\rightsquigarrow$ Aisha did not take the train.

(13) If Jones had taken arsenic, he would have shown just exactly those symptoms which he does in fact show.

Counterfactual implicatures: failure to address the QUD

(14) Q and A are trying to figure out when Aisha arrived. A knows that she did not take the train, but that she had considered taking the train at 9am.

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⇝ Aisha did not take the train.

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...is similar to ...

(15) Q: How tall is Tracy?

A: Her identical twin Stacy is one meter tall.

⇝ Tracy's height is about one meter.

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- Therefore, the answer in (16) does not directly address this question, and the addressee has to figure out why the speaker would say this.
- One plausible interpretation in most contexts is that the counterfactual worlds mentioned are a good enough proxy for the actual world.

Interim conclusions

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- The counterfactuality implicature can be derived as a failure to address the QUD directly.

Puzzle III: epistemic modality and tense

(17) Esra must have been be in her office. (epistemic)

(18) Everyone must go to their office now. (deontic)

(19) Esra had to be in her office by 4. (deontic)

(20) Esra was in her office.

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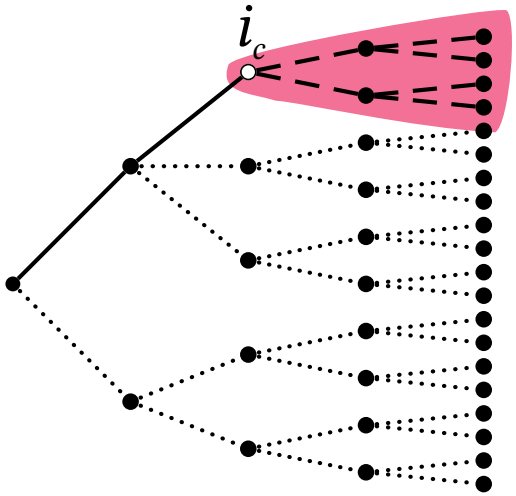
2. The weakness of *must*.

The epistemic/root distinction



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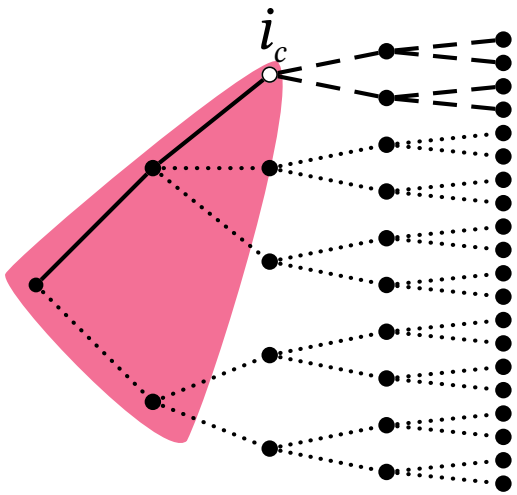

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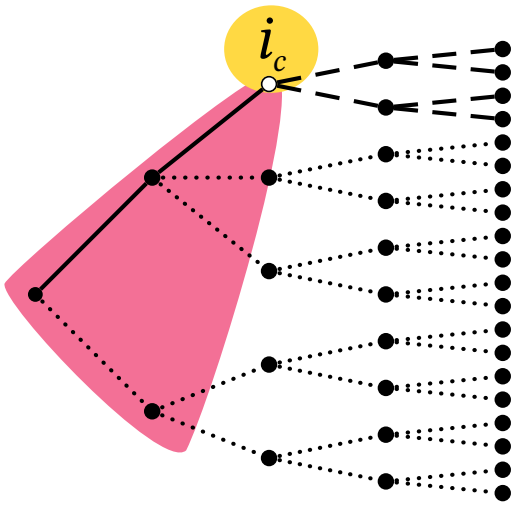
⇒Epistemic modality is a quantification over both actual and counterfactual indices.

A matter of perspective



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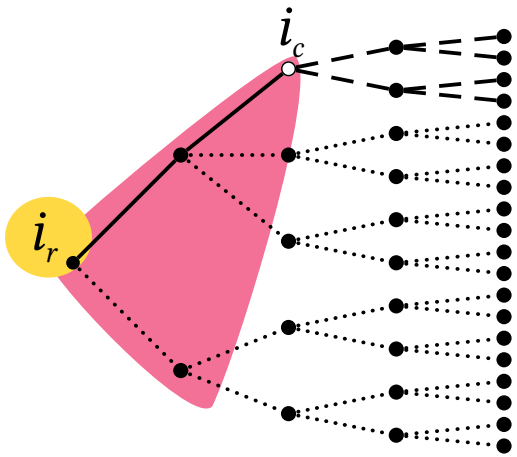

(24) Esra had to be in her office by 4. (deontic)

⇒Epistemic modality is a quantification over both actual and counterfactual indices relative to the topic/reference time. (cf. Condoravdi, 2002)

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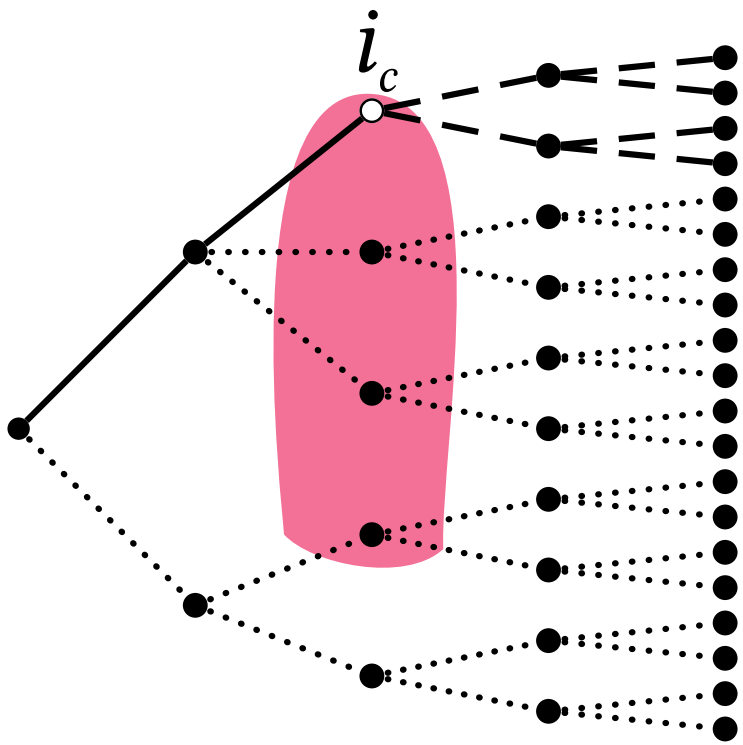
  - Lassiter (2016): proposes "a new model that embeds an existing scalar theory into a probabilistic model of informational dynamics structured around questions and answers".

The proposal: another clash with the QUD

(26) Q: #? Where must Esra be?
Q: Where is Esra?
A: Esra must be in her office.



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- Yet, even though the assertion is stronger than the simple sentence *Georgia smoked after dinner yesterday*, the speaker commitment appears weaker.
- Violation of Grice's maxim of relation: The QUD is specifically about yesterday. The answer is not. So even though the answer implies an actual answer to the question, it does not represent one itself.

Interim conclusions

- Similar to counterfactual conditionals, utterances qualified by *must* usually fail to directly address the QUD.

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- This is because *must* refers to both actual and counterfactual indices, but most QUDs are about actual indices only.
- The inference is one of epistemic uncertainty or indirect evidence.

Conclusions

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- In contexts that are concerned with actual indices, modal expressions create inferences.
- Quantification over counterfactual indices leads to the counterfactual implicature.
- Quantification over both actual and non-actual indices creates an implicature of ignorance, the essence of epistemic modality.

Thank you!

Definition: simultaneity

1. Every index i has a time value $t(i)$.
2. There is a strict linear order on time values, such that for every pair $t(i), t(i')$ either $t(i) = t(i')$ or $t(i) < t(i')$ or $t(i') < t(i)$.
3. For all i, i' if $i < i'$ then $t(i) < t(i')$.

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