False beliefs and related notions in cross-linguistic comparison

Kilu von Prince

February 06, 2025, False Beliefs

Heinrich Heine
Universität
Düsseldorf

Theoretical considerations
○ ○ ○ ○ ○ ○ ○
○ ○

Cross-linguistic relations
○ ○ ○ ○ ○ ○
○ ○ ○ ○

Contrafactive verbs
○ ○ ○ ○

Conclusion
○ ○

Overview

Epistemic distance

- A contrafactive statement requires a certain distance from the current epistemic state of the speaker.

Epistemic distance

- A contrafactive statement requires a certain distance from the current epistemic state of the speaker.
- Either the belief-holder needs to be somebody else; *she contras ice is/were warm*;

Theoretical considerations
○○○○○○
○○

Cross-linguistic relations
○○○○○○

Contrafactive verbs
○○○○

Conclusion
○○

The contrafactive gap

Epistemic distance

- A contrafactive statement requires a certain distance from the current epistemic state of the speaker.
- Either the belief-holder needs to be somebody else; *she contras ice is/were warm*;
- Or the belief was held by the speaker at a different moment in time *I contraed ice is/were warm*.

Epistemic distance

- A contrafactive statement requires a certain distance from the current epistemic state of the speaker.
- Either the belief-holder needs to be somebody else; *she contras ice is/were warm*;
- Or the belief was held by the speaker at a different moment in time *I contraed ice is/were warm*.
- A contrafactive propositional-attitude verb would necessarily have a gappy paradigm excluding first person forms of the present (#*I contra ice is warm*.)

Epistemic distance

- A contrafactive statement requires a certain distance from the current epistemic state of the speaker.
- Either the belief-holder needs to be somebody else; *she contras ice is/were warm*;
- Or the belief was held by the speaker at a different moment in time *I contraed ice is/were warm*.
- A contrafactive propositional-attitude verb would necessarily have a gappy paradigm excluding first person forms of the present (#*I contra ice is warm*.)
- Linguistically, then, the lexical verb meaning might not be the optimal place to encode epistemic distance.

False beliefs and related linguistic contexts

I consider false beliefs as related to at least the following linguistic contexts:

1. evidentiality
2. reported speech
3. counterfactuality

False beliefs and related linguistic contexts

I consider false beliefs as related to at least the following linguistic contexts:

1. evidentiality
2. reported speech
3. counterfactuality

Theoretical considerations
⚪⚫⚪⚪⚪⚪
⚪⚪

Cross-linguistic relations
⚪⚪⚪⚪⚪⚪
⚪⚪⚪⚪

Contrafactive verbs
⚪⚪⚪⚪

Conclusion
⚪⚪

Contrafactivity and counterfactuality

Contrafactivity vs. Counterfactuality

- Contrafactive statement: A statement which presupposes that the prejacent is false (in the actual world) (Strohmaier & Wimmer, 2025).

Contrafactivity vs. Counterfactuality
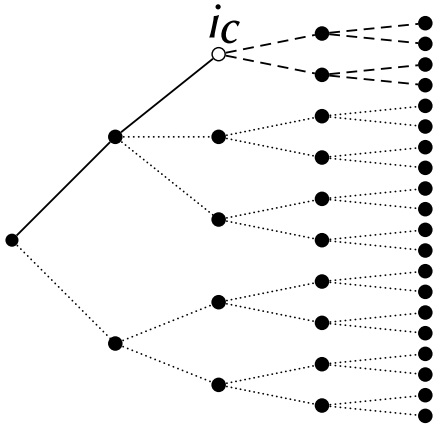
- Contrafactive statement: A statement which presupposes that the prejacent is false (in the actual world) (Strohmaier & Wimmer, 2025).
- Counterfactual statement: A statement about counterfactual indices (von Prince, 2019).

Theoretical considerations
○○●○○○
○○
Cross-linguistic relations
○○○○○○

Contrafactive verbs
○○○○

Conclusion
○○

Contrafactivity and counterfactuality

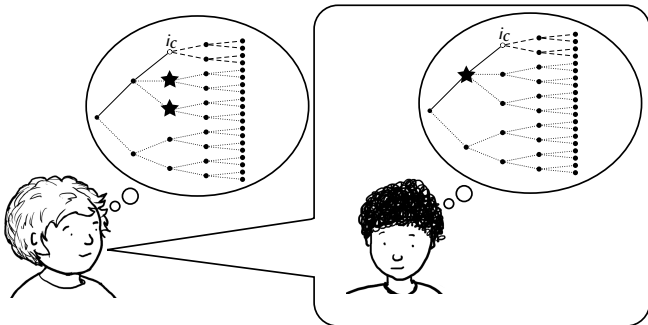# Counterfactuality as a concept

Contrafactivity and counterfactuality

Counterfactual expressions in false-belief reports

In reporting false beliefs, we often use counterfactual expressions:

(1) *Sie denkt, die Erde wäre/sei flach.*
she thinks the earth be.KONJII/KONJI flat
"she thinks the earth is/were flat."

(2) *Ich dachte, es würde anbrennen.*
"I thought it would burn."

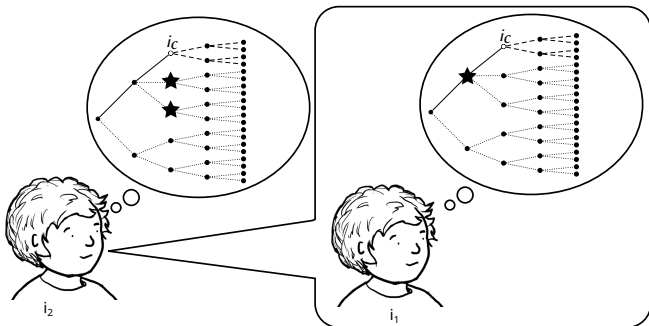# False beliefs as counterfactual contexts

*Sie glaubt, die Erde **wäre/sei** flach.*
"She thinks the earth is/were flat."

Theoretical considerations
○○○○○○●
○○

Cross-linguistic relations
○○○○○○
○○○○

Contrafactive verbs
○○○○

Conclusion
○○

Contrafactivity and counterfactuality

False beliefs as counterfactual contexts

*Ich dachte das Telefon **wäre** kaputt.*
"I thought the phone was/were broken."

False beliefs, deceptive perceptions, and impossible desires

Counterfactual contexts I

from von Prince (2024), based on Yong (2016)

1. Counterfactual conditionals, including:
   1. Regular counterfactual conditionals: *If I had known better, I would have started earlier*, *If you tried harder, you could do better*
   2. Concessive counterfactual conditionals: *Even if we had ordered more pizza, the kids would still have been hungry.*
   3. Conditionals with condition elided or expressed through non-clausal phrases: *I wouldn't do this*; *In that case, I would leave sooner*

2. Counterfactual necessity and possibility, including:
   1. Counterfactual necessity: *I should have started earlier*.
   2. Counterfactual possibility: *We could have won*.

3. Optatives: *If (only) you could see us now!*

⋮

False beliefs, deceptive perceptions, and impossible desires

Counterfactual contexts II

④ Counterfactual object clauses expressing the following:
  ① False beliefs: *she thought he was at home*, *I believed them to be right*.
  ② Deceptive perceptions: *the wood looks as if it were moving*;
  ③ Impossible desires of the present or unfulfilled needs of the past: *I wish it were true*, *I wanted to go (but didn't/but no longer plan to)*.

⑤ Frustrative and inconsequential contexts, often translated into English with *almost*.

False beliefs, deceptive perceptions, and impossible desires

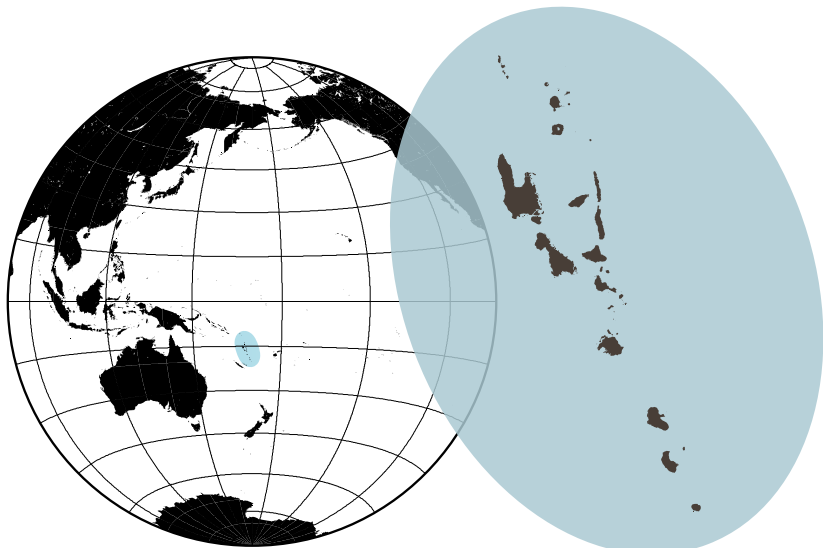# Counterfactual object clauses

1. False beliefs: *she thought he was at home, I believed them to be right*.
2. Deceptive perceptions: *the wood looks as if it were moving*;
3. Impossible desires of the present or unfulfilled needs of the past: *I wish it were true, I wanted to go (but didn't/but no longer plan to)*.

Vanuatu

Mood-based systems: Ambrym

Ambrym languages

Emyotungan

Sesivi

Theoretical considerations   Cross-linguistic relations   Contrafactive verbs   Conclusion
○   ○○○○○○   ○○○○   ○○
○○○○○○   ○○●○○○
○○   ○○○○

Mood-based systems: Ambrym

Daakaka predicate structure

SUBJ.AGR	(=)TAM	(AUX)	(REDUP-)	**Verb**	(-RES)	(=TRANS)
na/ko/ ...	*=m*, ...	*du/pwer*	...	...	...	*=ne*

Table: Structure of the finite verbal complex in Daakaka

(3) *na=m   yungpan=ne   wye*
     1SG=REAL thirsty=TRANS water
     "I'm thirsty for water."

Mood-based systems: Ambrym

Daakaka TAM system

	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)*

Table: The Daakaka TAM system

Daakaka I

from von Prince (2024)

(4) *ka*   *we eli buluwu wa ge myane tomo te*   **tu**
SUBCONJ POT dig hole   POT like with   rat   CONJ DIST

vu
good

"if he had dug a hole like the rat, it would have been good"

(5) **ko**=*m*   *ongane ma ge*   *myane uli-sye*   **te**
2SG=REAL hear   REAL be.like with   skin-3S.POSS DIST

pwer
stay

"it feels as if it had a skin" (exp50:36)

Mood-based systems: Ambrym

▶ Daakaka II

(6) *te   yaapu=an   ma dimye ka   **te** mea*
    CONJ big.man=DEF REAL think MOD.COMP DIST jump
    vyan a=te   te   ma mea usili
    go   LOC=MED CONJ REAL jump follow
    "her husband thought that she had jumped there
    and he jumped after her" (sto47:72)

Theoretical considerations
○○○○○○
○○

Cross-linguistic relations
○○○○○●
○○○○

Contrafactive verbs
○○○○

Conclusion
○○

Mood-based systems: Ambrym

Daakie

from Krifka (2016)

(7) *kye-m deme ka* **te** *we* *mee* *gon*
3PC-RE think CP.NR DST fruit.TR dragonplum FOC
ngi-ye
FOC-PROX
"They thought that they were just dragonplum fruits"
(Wili1.030)

(8) *mo* **gotó**-*ne ka* **te** *mese baabap ten*
RE make-TR CP.NR DST sick very much
"He **pretended** to be very sick", translation
(Aesop094)

English is more lexeme-based than Daakie in the case of 8.

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○
●○○○○

Contrafactive verbs
○○○○

Conclusion
○○

Lexeme-based systems: Mandarin

Mandarin

_____

derivative work of Mandarin in China.png by ASDFGHJ. Author Kanguole, based on Language Atlas of China, by Stephen Adolphe Wurm, Rong Li, Theo Baumann and Mei W. Lee, Longman, 1987.

Counterfactuality

There are various conditional complementizers, most of which are neutral wrt modality, but some of which predominantly introduce counterfactual conditionals.

- zero
- 假使 *jiǎshǐ*
- 如果 (说) *rúguǒ (shuō)*
- 假如 *jiǎrú*
- 万一 *wànyī* (if by any chance, just in case)
- ...的话 *de huà*
- 除非 *chúfēi* (only if, unless)
- 要是 *yàoshi* if only
- 要不是 *yàobushi* "if it hadn't been for"

Lexeme-based systems: Mandarin

◗ Propositional attitudes

Ye & Hsu (2024) find different levels of "epistemic evidentiality" for the following verbs:

- 考虑 *kǎolǜ*: consider (factive)
- 认为 *rènwéi*: think, believe
- 觉得 *juéde*: feel, think
- 想 *xiǎng*: feel, think
- 以为 *yǐwéi*: think erroneously (per lexical entry in Wenlin dictionary)

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○
○○○●○○

Contrafactive verbs
○○○○

Conclusion
○○

Lexeme-based systems: Mandarin

Deceptive perceptions

- 好像 *hǎoxiàng*: like
- 似乎 *sìhū*: as if

Theoretical considerations
○ ○○○○○
○○

Cross-linguistic relations
○○○○○○
○○○○○

Contrafactive verbs
●○○○

Conclusion
○○

Contrafactive verbs

The roles of verbs in expressing counterfactuality may be easily ignored. In fact, it is a widely acknowledged truth that different verbs may show different frequencies in CFs. For example in English, the event introduced by "wish" is more likely to be interpreted as a CF than "hope". (Yong, 2016: 117)

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○
○○○○○○

Contrafactive verbs
○●○○

Conclusion
○○

Germanic

Behedyt (2005: 27) proposes the following propositional-attitude verbs as having a counterfactual interpretation:

- English *imagine* (dismissed by Holton 2017)

Germanic

Behedyt (2005: 27) proposes the following propositional-attitude verbs as having a counterfactual interpretation:

- English *imagine* (dismissed by Holton 2017)
- English *fancy* (dismissed by Holton 2017)

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○
○○○○

Contrafactive verbs
○●○○

Conclusion
○○

Germanic

Behedyt (2005: 27) proposes the following propositional-attitude verbs as having a counterfactual interpretation:

- English *imagine* (dismissed by Holton 2017)
- English *fancy* (dismissed by Holton 2017)
- Dutch *verkeerdelijk denken* (German *fälschlicherweise annehmen*), "wrongly assume" (not a single lexeme)

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○
○○○○

Contrafactive verbs
○●○○

Conclusion
○○

Germanic

Behedyt (2005: 27) proposes the following propositional-attitude verbs as having a counterfactual interpretation:

- English *imagine* (dismissed by Holton 2017)
- English *fancy* (dismissed by Holton 2017)
- Dutch *verkeerdelijk denken* (German *fälschlicherweise annehmen*), "wrongly assume" (not a single lexeme)
- Dutch *zich inbeelden* (German *sich einbilden*) → not a bad candidate

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○

Contrafactive verbs
○○●○

Conclusion
○○

Wishes

Yong (2016: 117) proposes the following verbs as introducing (primarily) counterfactual/impossible wishes and propositions:

- English *wish*

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○

Contrafactive verbs
○○●○

Conclusion
○○

Wishes

Yong (2016: 117) proposes the following verbs as introducing (primarily) counterfactual/impossible wishes and propositions:

- English *wish*
- English *dream*

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○

Contrafactive verbs
○○●○

Conclusion
○○

Wishes

Yong (2016: 117) proposes the following verbs as introducing (primarily) counterfactual/impossible wishes and propositions:

- English *wish*
- English *dream*
- Mavea *imte*

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○
○○○○○○

Contrafactive verbs
○○●○

Conclusion
○○

Wishes

Yong (2016: 117) proposes the following verbs as introducing (primarily) counterfactual/impossible wishes and propositions:

- English *wish*
- English *dream*
- Mavea *imte*

Wishes

Yong (2016: 117) proposes the following verbs as introducing (primarily) counterfactual/impossible wishes and propositions:

- English *wish*
- English *dream*
- Mavea *imte*

(13) *Imte i-l-maur...*
      wish 3SG.IRR-IPFV-alive
      "I wish he were alive..." (Guérin, 2011)

◗ Mavea *imte*

(14) *imte ka-v   ka-v́   a   v́   alu-na*
      if   1SG.IRR-say 1SG.IRR-go to-3SG.POSS then FUT
      ro   me [...]   m̋   auri rarua i-isav́ ai
      [...] life 3PL.DL 3SG.IRR-how
      "Supposed I had stayed with him, [...] how would our
      life have been?" (VG20171047.056-058, described in
      von Prince *et al.* 2018).

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○
○○○○○○

Contrafactive verbs
○○○○

Conclusion
●○

Conclusions

- Languages have many potential means to express epistemic distance from a given proposition.

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○
○○○○○○

Contrafactive verbs
○○○○

Conclusion
●○

◗ Conclusions

- Languages have many potential means to express epistemic distance from a given proposition.
- The lexical verb meaning is not the most obvious choice for it, because it would create a gappy paradigm (at least pragmatically).

Conclusions

- Languages have many potential means to express epistemic distance from a given proposition.
- The lexical verb meaning is not the most obvious choice for it, because it would create a gappy paradigm (at least pragmatically).
- Many languages use tense/aspect/mood marking on the embedded clause and/or the embedding verb.

Theoretical considerations
○ ○○○○○
○○

Cross-linguistic relations
○○○○○○

Contrafactive verbs
○○○○

Conclusion
●○

Conclusions

- Languages have many potential means to express epistemic distance from a given proposition.
- The lexical verb meaning is not the most obvious choice for it, because it would create a gappy paradigm (at least pragmatically).
- Many languages use tense/aspect/mood marking on the embedded clause and/or the embedding verb.
- Languages where tense/aspect/mood marking is less prominent might rely on lexical meanings to a greater extent.

Theoretical considerations
○
○○○○○○
○○

Cross-linguistic relations
○○○○○○
○○○○○○

Contrafactive verbs
○○○○

Conclusion
○●

Thank you!

A note about universal claims

> *No natural language has contrafactive attitude verbs.*
> (*Strohmaier & Wimmer, 2025*)

Has anyone checked every single language for this?

Counterfactual expressions

- I believe that an utterance such as *peace would be nice* is an assertion about counterfactual indices (those indices in which peace exists are nice).

Counterfactual expressions

- I believe that an utterance such as *peace would be nice* is an assertion about counterfactual indices (those indices in which peace exists are nice).

- This does not commit us to statements about the actual world (neither *there is no peace*, nor *in reality peace isn't nice*.)

Counterfactual expressions

- I believe that an utterance such as *peace would be nice* is an assertion about counterfactual indices (those indices in which peace exists are nice).

- This does not commit us to statements about the actual world (neither *there is no peace*, nor *in reality peace isn't nice*.)

- Counterfactual contexts are primarily expressed by (special combinations of) tense/aspect/mood markers, special complementizers, or adverbs (Yong, 2016; von Prince, 2024).

Counterfactual expressions

- I believe that an utterance such as *peace would be nice* is an assertion about counterfactual indices (those indices in which peace exists are nice).

- This does not commit us to statements about the actual world (neither *there is no peace*, nor *in reality peace isn't nice*.)

- Counterfactual contexts are primarily expressed by (special combinations of) tense/aspect/mood markers, special complementizers, or adverbs (Yong, 2016; von Prince, 2024).

- Subordinating verbs that require counterfactual complement clauses are rare, and mostly associated with wishes.

Bibliography I

Behedyt, Griet. 2005. The present tense with future time reference in English and Dutch. *In:* Hollebrandse, Bart, Van Hout, Angeliek, & Vet, Co (eds), *Crosslinguistic views on tense, aspect and modality*. Cahiers Chronos. Amsterdam: Rodopi.

Guérin, Valérie. 2011. *A grammar of Maˇvea: An Oceanic language of Vanuatu*. Honolulu: University of Hawai'i Press.

Holton, Richard. 2017. I—facts, factives, and contrafactives. *Aristotelian society supplementary volume*, **91**(1), 245–266.

Krifka, Manfred. 2016. Realis and non-realis modalities in Daakie (Ambrym, Vanuatu). *Pages 546–565 of:* Moroney, Mary, Little, Carol-Rose, Collard, Jacob, & Burgdorf, Dan (eds), *Proceedings of SALT 26*. Linguistic Society of America.

Bibliography II

von Prince, Kilu. 2019. Counterfactuality and past. *Linguistics and philosophy*, May, 577–615.

von Prince, Kilu. 2024. Counterfactuality and mood. *Annual reviews*, **11**.

von Prince, Kilu, Krajinović, Ana, Krifka, Manfred, Guérin, Valérie, & Franjieh, Michael. 2018. Mapping irreality: Storyboards for eliciting TAM contexts. *In:* Gattnar, Anja, Hörnig, Robin, & Störzer, Melanie (eds), *Proceedings of linguistic evidence 2018*.

Strohmaier, David, & Wimmer, Simon. 2025. Contrafactives, learnability, and production. *Experiments in linguistic meaning*, **3**, 395–410.

Bibliography III

Ye, Yaoru, & Hsu, Yu-Yin. 2024. Native speakers' judgment of the epistemic evidentiality of synonym verbs of "think" in Mandarin: A corpus-based study of *renwei*, *yiwei*, *juede*, *kaolü*, and *xiang*. *Pages 301–315 of:* Dong, Minghui, Hong, Jia-Fei, Lin, Jingxia, & Jin, Peng (eds), *Chinese lexical semantics*. Singapore: Springer Nature Singapore.

Yong, Qian. 2016. *A typology of counterfactual clauses*. Ph.D. thesis, City University of Hongkong.