

# Encoding negative bias in Kipsigis belief reports

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- This paper describes and analyzes the interpretation of two belief verbs in Kipsigis (Nilo-Saharan; Kalenjin).
- The Kipsigis verbs *pwaat* (1a) and *par* (1b) both translate to 'think'.

- (1) a. i-**pwaat**-e kaameε-nyɔɔn kole aa-mnyon-i.  
3-think-IPFV mother-1SG C 1SG-be.sick-IPFV  
'My mother thinks that I'm sick.'
- b. ∅-**par**-e kaameε-nyɔɔn aa-mnyon-i.  
3-think-IPFV mother-1SG 1SG-be.sick-IPFV  
'My mother thinks that I'm sick.'

- However, use of *par* indicates that the speaker views the reported belief as false or poorly evidenced, while *pwaat* is neutral in this respect.
- (2) You have no idea if I'm sick or not; the issue is unsettled. You walk up to a group of people and hear me speaking.

∅-**par**-e      kaameε-nyʊʊn aa-mnyon-i.  
3-think-IPFV mother-1SG    1SG-be.sick-IPFV

'My mother thinks that I'm sick.'

- In (2), use of *par* strongly suggests that the speaker isn't actually sick, while *pwaat* leaves the issue more open.

- The focus of this paper is two-fold:
  - 1) Describes the interpretation of *pwaat* vs. *par*
  - 2) Offers an analysis of these differences that spans the semantics-pragmatics interface (following Glass 2020)

# Outline of the presentation

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Overview of belief reports

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- Background on Kipsigis

- Non-1st person belief holders

- 1st person belief holders

- Formal characteristics of *par*'s interpretation

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## Overview of belief reports

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## Semantics of belief reports

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- Belief reports can be schematized as  $x$  *thinks*  $p$  where  $x$  is the belief holder and  $p$  is the embedded belief.
- The semantic contribution of belief reports is generally straightforward: simply that some individual  $x$  has a belief  $p$ .
  - Semantic denotations of 'think' make no direct claims about whether or not  $p$  is true.

## Pragmatics of belief reports

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- Pragmatically, however, hearers reason about a number of possibilities, including:
  - how the speaker views  $p$ ,
  - how reliable the belief holder  $x$  is,
  - and how  $p$  should be incorporated with the Common Ground. (i.e. the set of propositions that all interlocutors agree upon).



## Pragmatics of belief reports

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- For instance, if  $p$  is implausible or  $x$  is unreliable, then  $p$  doesn't enter the Common Ground.
- (3) Linus—who's known to hallucinate—thinks that **he saw a yellow elephant in the distance.**  
→  $p$  doesn't enter the Common Ground

## Pragmatics of belief reports

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- Yet if  $p$  is plausible and  $x$  is reliable, then  $p$  might enter the Common Ground.
- (4) Linus—who's known to be trustworthy—thinks that **he saw a grey elephant in the distance.**  
→  $p$  can enter the Common Ground
- Evidence that  $p$  can enter the Common Ground comes from the felicitous continuation in (5), which refers anaphorically to elements in  $p$ .
- (5) He's not sure where the elephant came from, but he knows that it was really big!

## What Kipsigis can tell us

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- To summarize,  $x$  *thinks*  $p$  is semantically neutral on whether or not  $p$  is true, but it can convey  $p$  given appropriate contextual assumptions.
- The Kipsigis construction with *par* blocks this possibility, which triggers additional inferences about why the speaker made this choice.
- In this way, Kipsigis provides a window into the semantics and pragmatics of belief reports and epistemic modality more broadly.

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- Nilo-Saharan language of the Kalenjin subgroup spoken in western Kenya
- V1 with postverbal word order flexibility determined by information structure (Bossi & Diercks 2019)
- Data come from my fieldwork with a speaker based in CA.
  - Elicited using the contexts in Glass (2020)



## Syntax of belief reports

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- *Par* and *pwaat* both mean 'think', but they involve slightly different syntactic complementation strategies.
  - *Pwaat* requires the complementizer *kole* (6a), while *par* can't occur with *kole* (6b).

- (6) a. i-**pwaat**-e kaameε-nyʃʃn \*(**kole**) aa-mnyon-i.  
3-think-IPFV mother-1SG C 1SG-be.sick-IPFV  
'My mother thinks that I'm sick.'
- b. ∅-**par**-e kaameε-nyʃʃn (\***kole**) aa-mnyon-i.  
3-think-IPFV mother-1SG C 1SG-be.sick-IPFV  
'My mother thinks that I'm sick.'

- I assume that the interpretive differences between *par* and *pwaat* stem from something other than the presence vs. absence of *kole*, as there's no reason why the absence of *kole* would give rise to the specific effects associated with *par*.
  - See Driemel & Kouneli (2021) for detailed analysis of the syntax and semantics of *kole* sentences in Kipsigis.

## Interpretive effects of *par*

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- Because *par* is a belief verb, its effect on the discourse depends on who the belief holder is—in particular, whether they are the speaker or someone else.
  - For this reason, I describe sentences with non-1st person belief holders first, then consider 1st person belief holders.



## Non-1st person belief holders

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- For non-1st person belief holders, use of *par* indicates:
  - that  $p$  is false,
  - that the speaker is biased against  $p$ , or
  - that  $x$  is unreliable.

(7) We all know that I'm healthy, but my mother thinks that I'm sick because I fooled her to skip school.<sup>1</sup>

a. #? i-**pwaat**-e kaamεε-nyōōn kole α-mnyon-i.  
3-think-IPFV mother-1SG C 1SG-be.sick-IPFV  
'My mother thinks that I'm sick.'

b. ∅-**par**-e kaamεε-nyōōn α-mnyon-i.  
3-think-IPFV mother-1SG 1SG-be.sick-IPFV  
'My mother thinks that I'm sick.'

- (7b) is preferred here, since it highlights that the mother's belief is false.
  - (7a) is less appropriate in this context because it "gives the impression that the mother could be right or wrong."

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<sup>1</sup>I use #? to indicate strong dispreference—rather than outright infelicity—as speakers can choose to use *pwaat* if they wish to appear neutral.

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- In fact, *par* is a natural choice even when only part of *p* is false.
- (8) My friend Lydia invented a famous app, so people think she earned millions from it. Actually, although Lydia never made any money from her app, she inherited millions from her parents.

∅-**par**-e      piik    mogoriot    Lidia amʷn    ɛn app  
3-think-IPFV people rich.person L.    because in app  
lakini mogoriot    amʷn    ɛn siikiik-yik.  
but rich.person because in parents-her  
'People think that Lydia's rich because of the app, but she's  
rich because of her parents.'

## The speaker is biased against p

- (9) We turn on Kass TV and see a journalist of unknown political affiliation discussing the upcoming election.
- a. i-**pwaat**-e    Jεsika   kole   ∅-sindanisi-e   εεn   lewenisiet.  
3-think-IPFV   Jessica C   3-win-IPFV   in   election  
'Jessica thinks that she will win the election.'
- b. # ∅-**par**-e    Jεsika   ∅-sindanisi-e   εεn   lewenisiet.  
3-think-IPFV   Jessica   3-win-IPFV   in   election  
'Jessica thinks that she will win the election.'
- An impartial journalist wouldn't say (9b), since it suggests that the journalist doubts that Jessica will win.
    - "It sounds like the journalist is mocking the candidate."

## The speaker is biased against p

- By introducing explicit bias into the context, speakers' felicity judgements flip; in these cases, sentences like (10b) are ideal.

(10) We turn on Kass TV and see a biased political pundit who believes that Jessica will lose the upcoming election.

a. #? i-**pwaat**-e    Jεsika   kole   ∅-sindanisi-e   εεn  
3-think-IPFV Jessica C    3-win-IPFV    in  
lewenisiet.  
election

'Jessica thinks that she will win the election.'

b. ∅-**par**-e    Jεsika   ∅-sindanisi-e   εεn   lewenisiet.  
3-think-IPFV Jessica 3-win-IPFV    in   election  
'Jessica thinks that she will win the election.'

## The speaker is biased against p

- The same pattern of speaker bias is seen with 2nd person belief holders.

(11) During an interview, a presidential candidate says *Atinye komong'unet ne oo kole kipelisie i en lewenisiet* 'I have a lot of faith that we will win the election.' An impartial journalist replies:

- ii-**pwaat**-e kole i-pelisie-i en lewenisiet  
2SG-think-IPFV C 2SG-win-IPFV in election  
'(So) you think that you'll win the election.'
- # i-**par**-e i-pelisie-i en lewenisiet.  
2SG-think-IPFV 2SG-win-IPFV in election  
'(So) you think that you'll win the election.'

- (12) We walk up to some people at a party and hear them talking about who has and hasn't arrived. We have no idea if Arap Ruto is here, nor any idea why Arap Bett has the beliefs that he does.

maa-ngen koto ka-ko-it Arap Ruto anan tomo  
NEG.1SG-know if PST-3-arrive son.of Ruto or not.yet  
lakini i-pwaaat-e Arap Beet kole ka-ko-it.  
but 3-think-IPFV son.of B. C PST-3-arrive  
'I don't know if Arap Ruto has arrived yet, but Arap Bett thinks that he has.'

- Given (12), the speaker is likely to assume that Arap Ruto has arrived, since they have no reason to doubt Arap Bett's reliability.

- In the same context, (13) is infelicitous because the speaker has no information that would allow them to judge Arap Bett's reliability.

(13) # maa-ngen koto ka-ko-it Arap Ruto anan tomo  
NEG.1SG-know if PST-3-arrive son.of Ruto or not.yet  
lakini ∅-par-e Arap Beet ka-ko-it.  
but 3-think-IPFV son.of B. PST-3-arrive  
'I don't know if Arap Ruto has arrived yet, but Arap Bett  
thinks that he has.'



- However, when the speaker has reason to doubt x's reliability, *par* becomes a very natural choice.

(14) Arap Bett is drunk and is acting confused. I have no idea if Arap Ruto is here or not, but I have reason to doubt Arap Bett's reliability.

maa-ngen      koto kaa-ko-it      Arap Ruto anan tomo  
NEG.1SG-know if      PST-3-arrive son.of R.      or      not.yet  
lakini  $\emptyset$ -par-e      Arap Beet kaa-ko-it.  
but      3-think-IPFV son.of B.      PST-3-arrive  
'I don't know if Arap Ruto has arrived yet, but Arap Bett  
thinks that he has.'

## 1st person belief holders

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- For 1st person belief holders, *par* has different interpretive effects **depending on the tense of the belief predicate**.
- In the past tense, use of *par* indicates that  $p$  is false.
- In the present tense, *par* is used to embed beliefs that the speaker already assumes to be part of the Common Ground.

## Past tense: *p* is false

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- Speakers use *par* with a 1st person belief holder in the past tense when they thought *p* was true but have since learned that *p* is false.

(15) You went to school because you thought there was a meeting, but it was actually cancelled. When you get home, your mom asks why you went to school.

- a. #? *kaa-pwaat-e*      *kole mii tuiyeet ra.*  
PST.1SG-think-IPFV C    COP meeting today  
'I thought there was a meeting today.'
- b. *kaa-par-e*      *mii tuiyeet ra.*  
PST.1SG-think-IPFV COP meeting today  
'I thought there was a meeting today.'

## Present tense: p is already in the Common Ground

- In the present tense, speakers use *par* with a 1st person belief holder to indicate that they think *p* is already in the Common Ground.
- (16) Church meetings are always loud, which we both know. We hear lots of noise, and I ask what it is. You respond:

α-**par**-e            mii tuiyet ra.

1SG-think-IPFV C   COP   meeting today

'I think there's a meeting today.'

## Present tense: p is already in the Common Ground

- (17) I arrive home and see a guest. I don't know who the guest is, so I ask my mother who they are. She replies:

α-**par**-e            abuleyaanit.

1SG-think-IPFV uncle

'It's your uncle.' (Lit: 'I think that it's the uncle.')

- Speakers comment that *par* in sentences like (16) - (17) suggests that the interlocutor should already know p.

## Present tense: p is already in the Common Ground

- (18) Arap Ruto is in charge of the linguistics department. I'm planning to go to Kenya and need permission to do so. I talk to my advisor, and she says:
- $\alpha$ -**pwaat**-i kole yooche ii-ng'oolool-chi Arap Ruto.  
1SG-think-IPFV C should 2SG-speak-APPL son.of R.  
'I think that you should speak to Arap Ruto.'
  - #  $\alpha$ -**par**-e yooche ii-ng'oolool-chi Arap Ruto.  
1SG-think-IPFV should 2SG-speak-APPL son.of R.  
'I think that you should speak to Arap Ruto.'
- It sounds odd for an advisor to use *par* here because it feels like they're reprimanding their interlocutor for not already speaking to Arap Ruto or not knowing to do this.

## Formal characteristics of *par*'s interpretation

- To summarize, there are several interpretive effects associated with *par*, including:
  - that  $p$  is false,
  - that the speaker is biased against  $p$ ,
  - that  $x$  is unreliable, or
  - that  $p$  is already in the Common Ground.
- This section shows that these effects project like presuppositions and are reinforceable and cancellable like implicatures.

## Interpretive effects of *par* project

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- When  $p$  is true, *par* is infelicitous—even in a yes-no question.

(19) You told your family three months ago that you'd be home tomorrow. You're checking to make sure they remember.

a. toos o-**pwaat**-i      kole a-nyoon-e      kaa  
MOD 2PL-think-IPFV C      1SG-come-IPFV home

karon-i?

tomorrow-Q

'Do you (pl) think that I'm coming home tomorrow?'

b. # toos o-**par**-e      a-nyoon-e      kaa  
MOD 2PL-think-IPFV 1SG-come-IPFV home

karon-i?

tomorrow-Q

'Do you (pl) think that I'm coming home tomorrow?'



## Interpretive effects of *par* project

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- Consultants report that *par* is only appropriate “if you’re not coming, but they think you are” as in (20).

(20) You’re definitely not coming home tomorrow, but your family seems to think you are.

a. #? toos o-**pwaat**-i      kole α-nyoon-e      kaa  
MOD 1PL-think-IPFV C      1SG-come-IPFV home  
karon-i?

tomorrow-Q

‘Do you think that I’m coming home tomorrow?’

b. toos o-**par**-e      α-nyoon-e      kaa karon-i?  
MOD 1PL-think-IPFV 1SG-come-IPFV home tomorrow-Q

‘Do you think that I’m coming home tomorrow?’

## Interpretive effects of *par* behave like presuppositions

- *Par*'s interpretive effects also project from the antecedent of a conditional, though I don't include these data here for space.
- This type of projection is a hallmark of **presupposition**.
- However, the interpretive effects associated with *par* also behave like implicatures, in that they're reinforceable and cancellable.

## Interpretive effects of *par* are reinforceable

- Speakers can reinforce the falsity of  $p$  without redundancy.

(21) We all know that I'm perfectly healthy. But my mother thinks that I'm sick because I fooled her to skip school.

∅-**par**-e      kaamεε-nyʊʊn    α-mnyon-i      lakini  
3-think-IPFV mother-my      1SG-be.sick-IPFV but  
maa-mnyon-i.      Kaa-ng'al-e      si      maa-we  
NEG.1SG-be.sick-IPFV PST.1SG-lie-IPFV so.that NEG.1SG-go  
sʊgʊl.  
school

'My mother thinks that I'm sick, but I'm not sick. I was lying to not go to school.'

## Interpretive effects of *par* are reinforceable

- The unreliability of *x* is similarly reinforceable.

(22) Arap Bett is very drunk and is acting confused. I don't know if Arap Ruto is here or not, but I have reason to doubt Bett's reliability.

∅-**par**-e      Arap Bett kaa-ko-it      Arap Ruto lakini  
3-think-IPFV son.of B.    PST-3-arrive son.of R.    but  
maa-pwaat-e      kole kaa-ko-it.    ∅-poogit-i      Arap  
NEG.1SG-think-IPFV C    PST-3-arrive 3-be.drunk-IPFV son.of  
Bett. Maa-yon-i      che    ∅-mwa-e.  
B.    NEG.1SG-believe-IPFV REL.PL 3-say-IPFV

'Arap Bett thinks that Arap Ruto has arrived, but I don't think that he has. Arap Bett is drunk. I don't believe what he says.'

## Interpretive effects of *par* are cancellable

- The falsity of  $p$  can also be cancelled without contradiction.

(23) My friend Lydia invented a famous app, and people think she made millions from it. Actually, although my friend never made any money from her app, she inherited money from her parents.

∅-**par**-e piik mogoriot Lydia ako εεν iman ko  
3-think-IPFV people rich.person L. and in truth 3  
mogoriot. Lakini moo mogoriot kiin ko-alda app.  
rich.person but NEG rich.person when 3-sell app  
Kii-goi-chi siigiik-chik rabımık.  
PST-give-APPL parents-her money

'People think that Lydia's rich and she actually is. But she's not rich from selling the app. Her parents gave her the money.'

## Interpretive effects of *par* behave like implicatures

- The reinforceability and cancellability of *par*'s interpretive effects are indicative of **implicature**.
- In this way, an analysis of *par* must account for both its presuppositional and implicational behaviors.

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- Following the analysis of Mandarin *yǐwéi* in Glass (2020), I propose an account of *par*, which spans the semantics-pragmatics interface.
- Semantically, *par* imposes a **postsupposition** that *p* not be added to the Common Ground.
- Pragmatically, speakers reason about why *p* must not be added to the Common Ground, which **implicates** that *p* is false, *x* is unreliable, etc.



- This bipartite analysis captures the wide range of interpretive effects associated with *par*, while requiring minimal semantic differences between *par* and *pwaat*.
- It also explains why *par*'s interpretive effects behave like presuppositions and implicatures: because both types of machinery are at work.

- I assume a framework in which sentences are updates to the Common Ground (i.e. the set of propositions that all interlocutors agree upon; Karttunen 1974; Stalnaker 1979).
- When a speaker utters the sentence in (24), the proposition *The speaker had to take their pet anteater to the vet today* is added to the Common Ground.

(24) I had to take my pet anteater to the vet today.

- In this framework, presupposition can be modeled as a requirement on the Common Ground **before** a sentence can be felicitously uttered (Stalnaker 1979).
- In order for a speaker to felicitously utter (24), their pet anteater's existence must already be in the Common Ground.

(24) I had to take my pet anteater to the vet today.

- Unlike presupposition, I suggest that *par* requires the Common Ground to look a particular way **after** a sentence is uttered.
  - After the utterance of a belief report with *par*, the Common Ground must be compatible with  $\neg p$ .
- In other words, *par* indicates that  $p$  must not be added to the Common Ground.
- This process is known as **postsupposition** (Brasoveanu 2009; Lauer 2009), since it shares characteristics with presupposition but imposes requirements on the Common Ground after an utterance.

- For concreteness, consider (25)—repeated from (7b).

(25)  $\emptyset$ -**par**-e      kaameε-nyʊʊn aα-mnyon-i.  
3-think-IPFV mother-1SG    1SG-be.sick-IPFV  
'My mother thinks that I'm sick.'

- The at-issue content of (25) asserts that the speaker's mother has a particular belief—without making any claims about whether or not the belief is true.
- However, due to *par*'s postsupposition, (25) is defined only if the Common Ground after its utterance is compatible with the proposition *The speaker isn't sick* (i.e.  $\neg p$ ).
  - The postsuppositional content of *par* explains why its interpretive effects project.

- Note that *par*'s postsupposition doesn't directly give rise to the specific interpretive effects described in this talk, namely:
  - that  $p$  is false,
  - that the speaker is biased against  $p$ ,
  - that  $x$  is unreliable, or
  - that  $p$  is already in the Common Ground.
- *Par* simply requires that  $p$  not be added to the Common Ground after the belief report is uttered.
- These specific inferences arise pragmatically as a result of interlocutors reasoning about **why**  $p$  must not be added to the Common Ground.

- To be more precise, by preventing  $p$  from being added to the Common Ground, a speaker's use of *par* over the neutral alternative *pwaat* triggers context-sensitive pragmatic reasoning about why the speaker made this choice.
- This reasoning can take the variety of forms seen in this talk.
  - Perhaps the speaker knows  $p$  to be false, has reason to doubt  $p$ , finds  $x$  unreliable, or believes  $p$  to already be part of the Common Ground.

- Consider (25) again, which suggests that the speaker isn't actually sick.

(25)  $\emptyset$ -**par**-e      kaameε-nyʊʊn αα-mnyon-i.  
3-think-IPFV mother-1SG      1SG-be.sick-IPFV  
'My mother thinks that I'm sick.'

- Assuming that:
  - The speaker is being cooperative (Grice 1989).
  - The speaker knows whether or not they're sick.
  - If they're sick, they shouldn't object to *p* becoming Common Ground.
- Then, interlocutors reason that:
  - By using *par*, the speaker indicates that they don't want *p* to become Common Ground.
  - Therefore, the speaker must not believe they're sick; *p* must be false and the mother's belief must be incorrect.



- The other inferences triggered by *par* relate to the ways in which interlocutors reason about a speaker's relationship to the reported belief.
- When the belief isn't about the speaker as in (25), interlocutors can't necessarily assume that the speaker knows the truth or falsity of the reported belief.
  - In these cases, interlocutors assume instead that the speaker is biased against *p* in some way or views *x* as unreliable, depending on the context.
- The specific interpretive effects triggered by *par* arise as implicatures, which captures their reinforceability and cancellability.

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- Kipsigis *pwaat* and *par* both mean 'think', though use of *par* indicates that the speaker is negatively biased against the reported belief.
- The interpretive effects associated with *par* and their formal characteristics fall out of my analysis, which spans the semantics-pragmatics interface.
  - *Par* triggers a postsupposition that  $p$  not be added to the Common Ground.
  - Speakers reason about why this must be the case, which gives rise to *par*'s specific effects.
- In documenting and analyzing this construction in Kipsigis, this paper adds to a growing body of work on negatively biased belief verbs (e.g. Glass 2020; Anvari et al. 2019) and postsupposition.

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