Decomposing logophoric pronouns: a presuppositional account of logophoric dependencies*

Itai Bassi Imke Driemel Abigail Anne Bimpeh Silvia Silleresi

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Abstract

Logophoric pronouns in West-African languages occur in attitude environments and are anaphorically linked to an attitude holder in a superordinate clause. Existing accounts capture this dependency by treating a logophoric pronoun as a simplex variable that is obligatorily bound from the edge of an embedded attitude clause. Culy (1994) and Bimpeh and Sode (2021), however, pointed out that logophoric pronouns in Ewe do not behave like obligatorily bound variables, allowing both sloppy (bound) as well as strict (non-bound) readings in focus contexts involving 'only' and ellipsis. We strengthen this line of criticism by providing novel cross-linguistic data which indicates that logophoric pronouns in Ewe, Igbo and Yoruba support strict readings. We offer an alternative formal account to existing approaches which builds on Bimpeh et al. (2022) and can capture both strict and sloppy interpretations, including hitherto undescribed varieties of strict readings. The main novelty involves decomposition of logophoric pronouns into two syntactic components at LF—a variable and a semantic presuppositional feature LOG which can be ignored in ellipsis and focus sites, following similar ideas in the literature on pronominal features (Sauerland 2013). Thus, logophors are essentially no different from other pronouns, in terms of their syntactic and semantic make up.

1 Introduction

Logophoric pronouns in some West-African languages are special anaphoric elements which typically occur in attitude contexts, and must refer back to the attitude holder (Clements 1975). In Ewe, for example, the logophoric pronoun (henceforth LOGP) *yè* normally appears in attitude ascriptions like in (1). For convenience the relationship between LOGP and its antecedent is represented with indexation.[1]

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[1]Glossing abbreviations follow the Leipzig glossing rules with the addition of LOGP = logophoric pronoun, ORDP = ordinary pronoun, RP = resumptive pronoun, PREP = preposition, RED = reduplication.

(1) Kòfí$_1$ bé **yè**$_1$ dzó. **Ewe**
Kofi say LOGP left
'Kofi said that he left.' (Clements 1975)

Ewe's LOGP is restricted to this kind of environment; in particular, it cannot be used in simple unembedded sentences to refer to an antecedent introduced in the previous sentence (or made contextually-salient otherwise). For instance, if Afi is the topic of conversation and we mention her having been at the party, then (2a) cannot be used as a follow-up; in such cases the ordinary 3rd person pronoun (henceforth ORDP) *é* must be used (2b).

(2) a. ***yè**$_1$ dzó **Ewe**
LOGP leave.
'She left.'

b. **é**$_1$ dzó
ORDP leave.
'She left.' (Pearson 2015: 78)

Clements (1975), one of the first to systematically study the phenomenon, thus characterizes Ewe's LOGP *yè* as an item "used exclusively to designate the person whose speech, thoughts, feelings or general state of consciousness are reported." In the literature since the 70's, the term 'logophoricity' has been applied to describe elements with a similar function of encoding sensitivity to the attitude of some perspective-holder (see Hagège 1974, Charnavel 2020a for French; Koopman and Sportiche 1989 for Abe; Nikitina 2012 for Wan; Kaiser 2018 for Finnish; Park 2018 for Korean; Sundaresan 2018 for Tamil; Kiemtoré 2022 for Jula; Newkirk 2019 for Ibibio; Schlenker 1999 for Amharic; and Sells 1987, Culy 1994, Stirling 1994, Güldemann 2003, Deal 2020 for cross-linguistic studies).

How is the dependency between LOGP and its antecedent encoded in the grammar? This paper is an attempt to advance towards an answer to this question, from the angle of the well-known strict-sloppy ambiguity of pronominal reference. More specifically, our discussion and analysis will gear towards explaining why LOGPs allow strict readings in ellipsis and focus contexts (cf. Culy 1994, Bimpeh and Sode 2021).

As an overview, we provide new data from three languages—Ewe, Yoruba and Igbo—that confirm that LOGPs in these languages are ambiguous between sloppy and strict interpretations, and we explain why the existence of the strict reading is problematic for current approaches (von Stechow 2003, Pearson 2015, a.o.). Our work also provides the first cross-linguistic study on *de se* readings of LOGPs which includes mistaken identity scenarios across several attitude predicates. We will account for the problematic generalizations, including new predictions, with a novel theory of the syntax-semantics interface of LOGPs. The main novelty is a decomposition of logophoric pronouns into two syntactic components at Logical Form (LF)—a variable and a semantic feature LOG which induces a presupposition, like other semantic features.

The paper is organized as follows. Section 2 provides general background on the basic distribution and interpretation of logophors in Ewe, Yoruba and Igbo. Section 3 reviews existing accounts of LOGPs in the formal literature. Section 4 presents our findings on strict and sloppy interpretations, and shows why they require modification of the existing accounts. Section 5 presents our new proposal for a syntax-semantics of LOGPs that can capture strict readings, including hitherto undescribed flavours of strict readings. Section 6 expands the proposal and accounts for long-distance LOGP dependencies as well as for the relationship between LOGP

and the 1st-person pronoun in our languages. Section 7 discusses LOGPs in connection to theories of exempt anaphora.

2 Logophors and their distribution and interpretation

In this paper, we focus on three languages which have been observed to display logophoric pronouns: Ewe, Yoruba, and Igbo. This section is organized as follows: In section 2.1 we present the main distributional pattern of LOGPs in the languages under investigation. Section 2.2 is devoted to a discussion of the so-called *de se-de re* distinction in connection to logophors. Section 2.3 presents the language profile of each language.

Unless indicated otherwise, all data in this paper come from original fieldwork. We elicited data from three Ewe speakers (two Anlo and one Ewedome), two Yoruba speakers and four Igbo speakers. All data was elicited via multiple Zoom sessions with each speaker, transcribed live by the experimenters and double-checked by the speakers. The elicitation language was English. Speakers' spontaneous comments on the reasoning behind their responses were also noted.[2]

2.1 Obligatory co-reference with the attitude holder

In (3), we present data for the Ewe LOGP *yè* embedded under the attitude predicates 'think', 'say', 'want', and 'hope'.[3] As is indicated by the indexation, *yè* must co-refer with the attitude holder in the matrix clause. In other words, it cannot co-refer with a salient individual in the context.

(3) *Logophors in **Ewe***

a. Kòfí$_1$ súsú bé **yè**$_{1/*2}$ á dè Àfí.
Kofi think that LOGP IRR marry Afi
'Kofi thinks that he will marry Afi.'

b. Kòfí$_1$ gblɔ̀ bé **yè**$_{1/*2}$ á dè Àfí.
Kofi say that LOGP IRR marry Afi
'Kofi says that he will marry Afi.'

c. Kòfí$_1$ dʒí bé **yè**$_{1/*2}$ á dè Àfí.
Kofi want that LOGP IRR marry Afi
'Kofi wants to marry Afi.'

[2]Given that we tested the distribution of LOGP and ORDP across several predicates, the actual number of test items per data point was never more than 2. As for *de se* / *de re* readings (section 2), strict/sloppy identity (section 4) and multiple embeddings (section 6.1), we tested the distribution of logophors and pronouns embedded under the verbs *say, think* and *hope* consistently with all our consultants. The verbs for *want* were tested with all speakers for de se readings. We also tested with the verbs for *promise* in all three languages (not reported). For strict unknown identity (section 5.3), we only elicited judgements with the verbs for *think*. For the data in section 7, we consulted one speaker per language.

[3]Although tense in Ewe (as well as in most Kwa languages) is not overtly marked, Ewe displays an irrealis marker *a* which expresses the possiblility of an event occuring in the future (Essegbey 2008). The irrealis marker *a* can be optionally added in (3a) and (3b) to express such a meaning. In (3c) and (3d), however, the marker occurs obligatorily. The environments where the irrealis marker occurs obligatorily roughly match the ones known in English as complements of control verbs; see also the discussion in Grano and Lotven (2019) for Gengbe, an Ewe dialect spoken in Togo.

d. Kòkú$_1$ lè mɔ́-kpɔ́-m bé **yè**$_{1/*2}$ á dè Àfí.
Koku COP path-see-PROG that LOGP IRR marry Afi
'Koku hopes that he will marry Afi.'

Yoruba and Igbo have LOGPs that exhibit comparable distributional properties to those of Ewe from above (Manfredi 1987, Hyman and Comrie 1981, Adésolá 2005, Lawal 2006). In (4) and (5), we present data parallel to the Ewe data in (3).[4]

(4) *Logophors in **Yoruba***

a. Adé$_1$ rò wípé **òun**$_{1/*2}$ fẹ́ Ọlá.
Ade think that LOGP marry Ola
'Ade thinks that he married Ola.'

b. Adé$_1$ sọ wípé **òun**$_{1/*2}$ fẹ́ Ọlá.
Ade say that LOGP marry Ola
'Ade said that he married Ola.'

c. Adé$_1$ fẹ́ (wí)pé **òun**$_{1/*2}$ fẹ́ Ọlá
Ade want that LOGP marry Ola
'Ade wants to marry Ola.'

d. Adé$_1$ ń rètí wípé **òun**$_{1/*2}$ máa fẹ́ Ọlá.
Ade PROG hope that LOGP FUT marry Ola
'Ade hopes that he will marry Ola.'

(5) *Logophors in **Igbo***

a. Ézè$_1$ chèrè nà **yá**$_{1/*2}$ lụ́rụ́ Àdá.
Eze think that LOGP marry Ada
'Eze thought that he married Ada.'

b. Ézè$_1$ sịrì nà **yá**$_{1/*2}$ lụ́rụ́ Àdá.
Eze say that LOGP marry Ada
'Eze said that he married Ada.'

c. Ézè$_1$ chọ̀rọ̀ nà **yá**$_{1/*2}$ gà à-lụ́ Àdá.
Eze want that LOGP FUT PTCP-marry Ada
'Eze wants to marry Ada.'

d. Ézè$_1$ nwèrè ò-lìlè-ányá nà **yá**$_{1/*2}$ gà à-lụ́ Àdá.
Eze have NOM-look-eyes that LOGP FUT PTCP-marry Ada
'Eze is hopeful that he will marry Ada.'

All three languages show identical co-reference patterns. The results of our elicitation sessions confirm previous reports in the literature. In the next section, we will report on another trademark property of logophors: obligatory *de se* readings.

[4]In contrast to Ewe, the forms for LOGP in Yoruba and Igbo are taken from the paradigm of strong pronouns. Hence, the forms themselves also occur in unembedded environments. The strong form *òun* in Yoruba is used in emphatic environments, while the strong form *yá* in Igbo is used additionally in object position (Pulleybank 1986, Manfredi 1987, Amaechi 2020).

2.2 The *de se-de re* distinction

For the elicitation of the data in this section, we used a binary acceptability judgment task designed with joint presentation for two target sentences (one with LOGP and one ORDP) to be judged against *de re* contexts: speakers were asked to express their acceptability judgments on both target sentences, but they were free to accept as felicitous both sentences, one sentence or none. Additionally, consultants were asked to judge the same target sentences against (equally complex) *de se* scenarios (results not reported) to confirm our methodology and the data in section 2.1.

2.2.1 *de se*-only interpretation of logophors

It falls beyond the scope of this paper to provide a complete overview of the literature on LOGPs.[5] One property, however, that we wish to mention in this section (and will be integrated into the analysis later) is the *de se* reading of LOGPs. The so-called *de se-de re* distinction of pronominal reference in attitude contexts has to do with whether the attitude holder recognizes themselves as the real referent of the pronoun (Lewis 1979, Chierchia 1989, Kaplan 1989, Schlenker 1999, Pearson 2015, Park 2018, Patel-Grosz 2020, a.o.). Recently, Bimpeh et al. (2022) found evidence that LOGPs in Ewe, Yoruba and Igbo must meet this 'self-awareness' requirement. Specifically, we showed that LOGPs (but not ORDPs) are infelicitous in 'mistaken identity' scenarios as in (6), in which Donald Duck is referring to someone who, unbeknownst to Donald, is actually him.

(6) *Mistaken Identity Context:* (Bimpeh et al. 2022)
Donald Duck (DD) went to the grocery store to buy flour. He mistakenly put sugar in his cart. DD then saw a trail of sugar going up and down the aisles and thought that someone's bag had a hole in it and looked around for the guy. DD says: "I wonder who is losing sugar; certainly, the guy who is losing sugar is stupid, as he does not check his bag". Later he says: "Is it me the stupid guy who is losing sugar?" "No, because I did not buy sugar but flour".

a. Donald Duck súsú bé **#yè / é** dzɔ̀mòví. **Ewe**
Donald Duck think that LOGP / ORDP stupid.person
'Donald Duck thinks that he is stupid.'

b. Donald Duck chèrè nà **#yá / ọ́** bṳ̀ ónyéńzúzù. **Igbo**
Donald Duck think that LOGP / ORDP COP stupid.person
'Donald Duck thinks that he is stupid.'

c. Donald Duck rò pé **#òun / ó** jẹ́ òmùgọ̀. **Yoruba**
Donald Duck think that LOGP / ORDP COP stupid.person
'Donald Duck thinks that he is stupid.'

As with 'think' (6), logophors embedded under 'say' and 'hope' can only be read *de se*, highly suggested by the infelicity in a mistaken identity scenario in (7) and (8).

[5]Nor do we intend to cover in any depth the connection bet LOGPs in West-African and other phenomena sometimes discussed under the general rubric of 'logophoricity': perspectival anaphora (Sundaresan 2018), exempt anaphora (Charnavel 2020a), and perhaps Indexical Shift (Deal 2020). But see section 7 for a comparison to the phenomenon of exempt anaphors.

(7) *Mistaken Identity Context:* (Bimpeh et al. 2022)
Elmo goes to visit Big Bird. While there, Big Bird shows him old paintings he found from back when Elmo was living there with him. After looking at several pictures, Elmo does not recognize one of the paintings which is particularly pretty. Elmo says: "I wonder who painted this. Certainly, the person who painted is a good painter". Later he says: "Is it me the good painter who painted this? No, because I am not very talented in painting".

a. Elmo bé **#yè / é** nyé nùtálá nyùìé a dé. **Ewe**
Elmo say LOGP / ORDP is thing.draw.one-who good INDF
'Elmo said that he is a good painter.'

b. Elmo sị̀ nà **#yá / ọ́** nà-ésè íhé ǹké ọ́má. **Igbo**
Elmo say that LOGP / ORDP IPFV-paint thing nke good
'Elmo said that he is a good painter.'

c. Elmo so pé **#òún / ó** jẹ́ akunlé tí ó dára. **Yoruba**
Elmo say that LOGP / ORDP is painter REL RP good
'Elmo said that he is a good painter.'

(8) *Mistaken Identity Context:*
Goofy is so drunk that he has forgotten he is a candidate in the election. He watches someone on TV and finds that that person is a terrific candidate, who should definitely be elected. Unbeknownst to Goofy, the candidate he is watching on TV is Goofy himself.

a. Goofy lè mɔ́-kpɔ́-m bé **#yè / é** à ɖù àkɔ̀-dádá lá dzí.
Goofy COP path-see-PROG that LOGP / ORDP will win vote-cast DEF post
'Goofy hopes that he will win the election.' **Ewe**

b. Goofy nà èlé ánya nà **#yá / ọ́** gà è-mérí n' àtúmvóòtù áhù.
Goofy has look eye that LOGP / ORDP FUT PTCP-win in election DEM
'Goofy hopes that he will win the election.' **Igbo**

c. Goofy ń rètí pé **#òun / ó** yoo borí nínú ìbò náà.
Goofy PROG hope that LOGP / ORDP FUT win in election DET
'Goofy hopes that he will win the election.' **Yoruba**

We take it then that LOGPs in these languages have a requirement for *de se* readings: LOGP can only refer to the attitude holder's 'recognized self'.

2.2.2 A note on methodology and conflicting generalizations

Our claim that LOGPs only have *de se* readings is controversial. While it converges with the results in Bimpeh (2019) for Ewe as well as with Adésolá (2005) and Anand (2006) for Yoruba (we are not aware of a previous discussion of *de se-de re* with respect to Igbo), Pearson (2015) by contrast reports that LOGP in Ewe also supports a *de re* reading, as most of the speakers in her study judged LOGP as felicitous and true in mistaken identity scenarios (see also O'Neill 2015, Satık 2021). It is important to try to clarify the nature of the disagreement, and to this end we now comment about the methodology we used to obtain our reults in (6)-(8). We explain, in particular, how it differs from studies that arrived at conflicting conclusions to ours.

Our technique to elicit *de re* readings is different from previous work on two points. First, as is clear from (6)-(8), and following Bimpeh (2023)'s idea, we let our speakers judge sentences

not just with LOGP but also with a minimally different variant with the ordinary 3sg pronoun (ORDP). This gave the speakers the opportunity to create a baseline, and it also allowed us to verify that speakers understood the context (they were asked to express their acceptability judgments on both versions, and were free to accept both sentences, one sentence or none). We think this is highly relevant, as mistaken identity contexts are rather difficult to take in (especially for non-linguists/semanticists). With the exception of Bimpeh (2023), previous work (Pearson 2015, O'Neill 2015, Satık 2020, 2021) did not test the ORDP version in mistaken-identity scenarios to establish a baseline. The fact that our speakers all accepted the ORDP version but rejected the LOGP version suggests that only the former is compatible with a *de re* reference.[6]

Second, most of our mistaken-identity scenarios made sure that the target sentences are false on a *de se* reading. In the mistaken identity context in (6), for example, it is explicitely mentioned that Donald Duck does not self-ascribe stupidity. ("Is it me the stupid guy who is losing sugar? No because I did not buy sugar but flour.") No previous work we are aware of (Pearson 2015, O'Neill 2015, Satık 2020, 2021, Bimpeh 2023) made it unambiguously clear in the description of the context that a *de se* interpretation is false. We believe it is important do to so, in order to make sure that upon judging the LOGP sentence, speakers do not apply some charity principle and mentally modify the mistaken-identity context ever so slightly so as to make it possible for the sentence to be true on a *de se* reading. Whenever our speakers were asked if the sentence is true or false against a mistaken-identity context that made it sufficiently clear that a *de se* interpretation is false, our speakers indicated to us that the sentence is false.[7]

2.3 Language profiles

All three languages are spoken in West Africa and belong to the Niger-Congo language families. Ewe (indigenously pronounced Eʋe) is a Niger-Congo language of the Kwa group that is a member of the larger unit of closely related languages known as the Gbe languages. According to Capo (2010), Ameka (1991), Gbe 'voice / language' refers to a dialect cluster comprising Gen, Aja, Xwla-xweda (Phla-Pherá), Fon, and Ewe. Speakers of the Gbe languages inhabit the Volta and Oti regions of Ghana, the southern part of Togo, the southern part of Benin, as well as parts of Ogun and Lagos state, Nigeria. Ewe is a cover term used to refer to a group of (sub)dialects spoken in the Volta and Oti regions of Ghana by about 2.5 million people, and in the southern part of Togo by approximately 1 million people.

[6]The one-on-one elicitation method used in Bimpeh (2019) achieved consistent results indicating exclusively-*de se* interpretation of LOGPs, which align with our findings. The two questionnaire studies presented in Bimpeh (2023), however, revealed several surprising results from this perspective, the most surprising of which is that the baseline with ORDP was rejected by subjects over half of the times (ORDP was judged infelicitous in mistaken identity scenarios 65.7% of the time). Bimpeh (2023: 127) concludes that "a possible explanation [for the descrepancy in results between Bimpeh (2023) and Bimpeh (2019)–our addition] is that participants were mostly confused since they are not used to such scenarios". The difference between one-on-one elicitation (the current study and Bimpeh 2019) and questionnaires (Bimpeh 2023) is that with the former, consultants can more comfortably be familiarized with the rather unusual mistaken identity contexts, and ask for clarification if necessary.

[7]Given that Pearson 2015 and other works reached the opposite conclusion to ours for Ewe (using different methodology), a reviewer suggests that one cannot rule out the possibility that there is a dialect split or cross-speaker variation in Ewe. On this point we side with Pearson (2022) who contends that it is unclear what sort of evidence in the input could trigger the acquisition of different grammars by different speakers on the *de re* property of LOGPs. Moreover, we hope that our methods for eliminating possible confounds will prove useful in clarifying the empirical picture (for Ewe). But if it turns out that a genuine variation is what underlies the disagreement in the literature, then our analysis from hereon should be taken to apply only to those speakers (like ours) who only accept *de se* readings of LOGPs; if there are speakers whose grammar truly allows *de re* construals of LOGP, our account would have to be enriched with further mechanisms to accommodate them.

Yoruba is a dialect continuum spoken in the area that covers Western Nigeria and Lagos, the Ilorin province of Northern Nigeria, parts of Benin, Sierra Leone, Cote D'Ivoire and the Gambia. The language belongs to the Benue-Congo language family and is spoken by 44.6 million speakers (Eberhard et al. 2020). According to Bamgboṣe (1966), Yoruba comprises about twenty dialects such as Ijèbú, Egbá, Ijèsà, Oyó, Owó, Ondó, each of which differs considerably from the other phonologically, and lexically. There is a standard variety of Yoruba, based on the Oyó dialect, called Koine which is used for the purpose of education, writing, and contact between persons of different dialects.

Igbo is the principal native language of the Igbo people, an ethnic group from Southeastern Nigeria, and the second most populous indigenous language of that area. Other Igbo speaking areas include Equitorial Guinea and Cameroon. The Igbos are one of the three largest ethnic groups in Nigeria (Awde and Wambu 1999). They are predominately located in five states namely, Anambra, Imo, Ebonyi, Abia, and Enugu. A significant number of Igbo communities can also be found in neighbouring states such as Rivers, Asaba , as well as the commercial centre of the country i.e., Lagos (Awde and Wambu 1999). The language belongs to the Benue-Congo language family and is spoken by 2.2 million speakers (Eberhard et al. 2020). There are dozens of geographical dialects. These dialects differ in certain grammatical, lexical and phonological details (Emenanjo 2015). The standard dialect is based mainly on Owerri, Umuahia and Onitsha dialects.

3 Current accounts of logophoric pronouns

In the formal semantic literature on LOGPs, it has become standard to capture their basic distributional facts—namely, the requirement for (*de se*)-coreference with the attitude holder—by assuming that LOGPs are simplex bound variables, bound from the left periphery of complement clauses. This is the view taken for example by Schlenker (2003), von Stechow (2004), Heim (2005), Pearson (2015). We will call this the SIMPLEX BINDING approach to LOGPs. Let us briefly go over how this approach works, as it will later be criticized based on the availability of strict readings of LOGPs. We use the account in Pearson (2015) to illustrate the approach.[8]

Pearson (2015), following von Stechow (2003), assumes that a LOGP is like a standard pronoun in being interpreted as a bare variable (via an assignment function as usual), but it comes with a syntactic feature LOG whose purpose is to make sure that that variable ends up being bound by a λ-operator at the edge of the embedded clause (technically by feature 'checking' between [LOG] and the matching λ). To illustrate, the LF representation of *Kofi says that* LOGP *will marry Afi* is in (9a), where [LOG] enforces index matching between the variable and the binder at the edge of the CP (the boldfaced λ operator). This syntax is coupled with a semantics that assigns the embedded clause a property meaning (type $\langle \mathtt{e,st} \rangle$), and an appropriate meaning for attitude predicates like *say* which involves quantification over Centered Worlds (Lewis 1979), see (9b).

[8]There are differences in implementation between Pearson's proposal and the other works cited above, but those differences are immaterial for us in so far as we are merely interested in the Simplex Binding assumption that these accounts are all committed to.

(9) *Simplex Binding account of* LOGP *(based on Pearson 2015)*

a. Syntax:
Kofi says that [$\boldsymbol{\lambda x_1}\,\lambda w\,\underbrace{\boldsymbol{x_1/{}^{*}x_{2,[\textbf{LOG}]}}}_{\text{LogP}}$ will marry Afi]

b. Semantics:
$[\![\text{say}]\!]^w = \lambda P \lambda x.\ \forall \langle w', x' \rangle \in \text{SAY}_{x,w},\ P(x')(w') = 1.$
$\text{SAY}_{x,w} := \{\langle w', x' \rangle$: what x says in w is true in w' and x identifies themselves as x' in $w'\}$

In (9a), the fact that [LOG] requires x_1 to be bound by λx_1 makes sure that LOGP ends up referring to the attitude holder's recognized self (the 'Logophoric Center'), and this yields obligatory *de se* coreference with the attitude holder. The paraphrase of the resulting meaning is in (10).

(10) $[\![(9a)]\!] \approx$ *In all worlds in which what Kofi says is true, the person Kofi identifies as himself in those worlds marries Afi.* *De se Reading*

In the next section, we will lay out the data set which questions the theory that was presented in this section.

4 Strict readings of logophors

The Simplex Binding approach to LOGPs makes an incorrect prediction about the possible readings of LOGP with respect to the strict-sloppy ambiguity. Namely, Simplex Binding predicts that LOGP cannot have a strict reading in sentences with *only* and in ellipsis. The prediction comes about on standard assumptions about semantic interpretation, namely that bound-variable representations (λ-binding at LF) translate to sloppy readings in focus and ellipsis environments (Ross 1967, Partee 1973, Sag 1976, Williams 1977, Reinhart 1983, Heim and Kratzer 1998).

The prediction is not borne out: LOGPs in our languages do admit strict readings (alongside sloppy readings as expected). The problem has already been highlighted by Culy (1994) and Bimpeh and Sode (2021) for Ewe, and here we provide comparable cross-linguistic data from Ewe, Yoruba and Igbo confirming this conclusion.

4.1 Strict readings across Ewe, Yoruba, and Igbo

In (11)-(12), we show that in environments involving *only* (association with focus), there is both sloppy and, crucially, strict readings for LOGP. We used a binary acceptability judgment task designed with joint presentation for both strict and sloppy interpretations of the target sentence: speakers were asked to express their acceptability judgments on both paraphrases (one *strict* and one *sloppy*), but they were free to accept as felicitous both sentences, one sentence or none. In each language, the paraphrases were accepted as felicitous interpretations of the target sentence.

(11) *Strict/sloppy readings with 'only' in* ***Ewe*** (Bassi et al. 2023)

Élì kò yé súsú bé **yè** ɖùdzí lè àwù-dódó ƒé hòʋíʋlí mè.
Eli only FOC think that LOGP win in dress-wear POSS contest inside
'Only Eli thinks that he won the costume contest.'

a. $\rightsquigarrow_{sloppy}$ No one$_j$ but Eli thinks **they**$_j$ won the costume contest.

b. $\rightsquigarrow_{strict}$ No one but Eli$_i$ thinks **he**$_i$(=Eli) won the costume contest.

(12) *Strict/sloppy readings with 'only' in **Igbo*** (Bassi et al. 2023)

Náāníˋ Ézè chèrè nà **yá** mérìrì nà ásòmpì igósì ákwá.
only Eze think that LOGP win PREP contest show clothes
'Only Ézè thinks that he won the costume contest.'

a. $\rightsquigarrow_{sloppy}$ Eze thinks that he(Eze) won the costume contest, and Aki doesn't think that he**(=Aki)** won the costume contest, and Ada doesn't think that she**(=Ada)** won the costume contest.

b. $\rightsquigarrow_{strict}$ Eze thinks that he(Eze) won the costume contest, and Aki doesn't think that he**(=Eze)** won the costume contest, and Ada doesn't think that he**(=Eze)** won the costume contest.

(13) *Strict/sloppy readings with 'only' in **Yoruba*** (Bassi et al. 2023)

Adé nìkan ni ó rò wípé **òun** máa tayọ nínú ìdíje asọ náà.
Ade only FOC RP think that LOGP FUT win inside contest clothes DET
'Only Adé thinks that he will win the costume contest.'

a. $\rightsquigarrow_{sloppy}$ Ade thinks that he(Ade) will win the costume contest, and Niyi doesn't think that he**(=Niyi)** will win the costume contest, and Ọla doesn't think that she**(=Ọla)** will win the costume contest.

b. $\rightsquigarrow_{strict}$ Ade thinks that he(Ade) will win the costume contest, and Niyi doesn't think that he**(=Ade)** will win the costume contest, and Ọla doesn't think that he**(=Ade)** will win the costume contest.

This section showed the availability of strict readings for logophors in the context of 'only'. Other relevant environments are ellipsis configurations, to which we will turn in the next section.

4.2 Extension to ellipsis scenarios

To investigate strict and sloppy identity in ellipsis environments, we did not make use of VP-ellipsis, as this type of ellipsis is not found in our languages. Argument ellipsis is also not an option. As shown in (14), an ellipsis configuration involving *gblɔ̀* 'say' in Ewe requires an overt pronoun if the matrix verb is not elided in the second conjunct.

(14) *No argument ellipsis with 'say' in **Ewe***

Élì gblɔ̀ bé tsì lè dzàdzà-m, éyé Édèm hã gblɔ̀ *(é).
Eli say that water be fall.RED-PROG and Edem too said 3SG
'Eli said it is raining, and Edem said it, too.'

To our surprise, we also encountered difficulties when testing with stripping configurations, at least for the 'say'/'think'-type verbs. For example, not all of our consultant accepted (15).

(15) *Stripping with 'say' in **Ewe***

%Élì gblɔ̀ bé tsì lè dzàdzà-m, éyé Édèm hã
Eli say that water be fall.RED-PROG and Edem too.
'Eli said it is raining, and Edem did, too.'

We did not encounter such difficulties with the verb 'hope', that is stripping was accepted by all of our consultants for each language. Thus, we demonstrate the availability of strict (and sloppy) readings with logophors embedded under 'hope', which is shown for Ewe in (16), for Igbo in (17), and for Yoruba in (18).

(16) *Strict/sloppy readings with ellipsis in **Ewe***

Élì lè mɔ́-kpɔ́-m bé **yè** á ɖè Àblá. Yàó hã.
Eli COP path-see-PROG that LOGP IRR marry Abla. Yao too.
'Eli hopes that he(=**Eli**) will marry Abla. **Yao** does, too.'

a. $\rightsquigarrow_{sloppy}$ Yao$_j$ hopes that **Yao**$_j$ will marry Abla.

b. $\rightsquigarrow_{strict}$ Yao$_j$ hopes that **Eli**$_i$ will marry Abla.

(17) *Strict/sloppy readings with ellipsis in **Igbo***

Ézè nwè-rè òlìlèányá nà **yá** ga e-mérì nà ásòmpì igósì ákwá. Ma
Eze be-RED hope that LOGP FUT PTCP-win PREP contest show clothes also
Ada kwa.
Ada too
'Eze is hopeful that he will win the costume contest. Ada is, too.'

a. $\rightsquigarrow_{sloppy}$ Eze hopes that he(=Eze) will win the costume contest, and Ada also hopes that **she(=Ada)** will win the costume contest.

b. $\rightsquigarrow_{strict}$ Eze hopes that he(=Eze) will win the costume contest, and Ada also hopes that **he(=Eze)** will win the costume contest.

(18) *Strict/sloppy readings with ellipsis in **Yoruba***

Adé ń rētí wípé **òun** máa tayọ nínú ìdíje asọ náà. Ati Ọla pelu.
Ade PROG hope that LOGP FUT win inside contest clothes DET and Ola also
'Ade hopes that he will win the costume contest and Ọla does, too.'

a. $\rightsquigarrow_{sloppy}$ Ade hopes that he(=Ade) will win the costume contest, and Ọla also hopes that **she(=Ọla)** will win the costume contest.

b. $\rightsquigarrow_{strict}$ Ade hopes that he(=Ade) will win the costume contest, and Ọla also hopes that **he(=Ade)** will win the costume contest.

In this section, we enriched our observations considering strict readings of logophors in focus constructions with ellipsis configurations. The next section will lay out the main problem for standard approaches to *de se* dependencies.

4.3 The analytical problem

To show in more detail why strict readings of LOGP are theoretically problematic, consider first ellipsis. The usual assumption is that ellipsis requires semantic identity ('Parallelism') between the elided phrase and an antecedent phrase (Keenan 1971, Sag 1976, Williams 1977, Tancredi 1992, Rooth 1992a, Fiengo and May 1994, Takahashi and Fox 2005, Merchant 2019, a.o.). The Ewe sentence in (16), for instance, is schematically analyzed as in (19) (grey material indicates ellipsis).

(19) *Schematic analysis of (16)*

a. *Antecedent clause*:

Eli hopes [$\boldsymbol{\lambda x_2}$ ... that $\boldsymbol{yè_{2[log]}}$ will marry Abla]

b. *Ellipsis clause*:

Yao hopes [$\boldsymbol{\lambda x_2}$ ... that $\boldsymbol{yè_{2[log]}}$ will marry Abla], too.

Because of the Simplex Binding assumption, the two LOGPs—the overt and the elided one—must be bound by the edge of their respective embedded clauses. This produces a sloppy reading: Yao hopes (*de se*) that he himself will marry Abla. Simplex Binding permits no other representation that both respects the identity condition on ellipsis and can produce a strict reading.

The cases with *only*, for instance in (11), present a similar binding problem. To show this we need to be specific about the analysis of *only* in Ewe, Yoruba and Igbo, but any sensible analysis will do. Concretely, we assume—also for the purpose of preparing the grounds for our proposal later—that these sentences involve the computation of Focus Alternatives, similar to what is widely assumed for English *only* (cf. Rooth 1992b, Fox and Katzir 2011). A schematic analysis of (11) is shown in (20). The subject *Eli* is marked with the feature FOC(US) which generates focus alternatives—structures gotten by substituting *Eli* with some (relevant) individual. *Only* negates the alternatives.

(20) *Schematic analysis of (11)*

a. *LF*:
Only $\big[\text{Eli}_{[\text{FOC}]}$ hopes [$\lambda x_{2[log]}$ ... that $\boldsymbol{yè}_{2[log]}$ will marry Abla] $\big]$

b. *Focus Alternatives*:
$\{\big[$Koku hopes [$\lambda x_{2[log]}$ ... that $\boldsymbol{yè}_{2[log]}$ will marry Abla]$\big]$,
$\big[$Kofi hopes [$\lambda x_{2[log]}$ ... that $\boldsymbol{yè}_{2[log]}$ will marry Abla]$\big]$, ... $\}$

With these alternatives the sloppy reading is accounted for: because *yè* is λ-bound, in each of the alternatives the position of *yè* is co-valued (*de se*) with the relevant alternative to Eli. The strict reading, however, requires a different representation, one which appears to be at odds with Simplex Binding, where the value of *yè* would remain constant across all alternatives and pick out Eli.

Something, then, must be changed in the theory. The dilemma we are faced with can be stated as in (21).

(21) LOGP's Dilemma:

If LOGPs have to be bound variables, how are strict readings possible? If they don't, how to ensure LOGP's obligatory (*de se*) coreference with the attitude holder?

In the next section we turn to our perspective on the dilemma. We will suggest to tie the problem to a very similar-looking problem: the existence of strict readings of locally-bound reflexive anaphors. This will inform our proposal to capture the (*de se*) co-reference requirement of LOGPs with a richer structure than the kind assumed by Simplex Binding.

5 Proposal

5.1 Inspiration: strict readings of reflexive anaphors

Reflexive anaphors, e.g. English *self*-pronouns in local configurations, exhibit strict readings in ellipsis and focus environments (Sag 1976, Fiengo and May 1994, Hestvik 1995, McKillen 2016, a.o.). We will dedicate some space in this section for discussing this issue, since it will be the basis on which we build our solution to strict logophors.

(22) Mary defended **herself** before her lawyer did [~~VP~~].

a. *Strict*: ... 'before her lawyer defended **Mary**'.

b. *Sloppy*: ... 'before her lawyer$_2$ defended **himself$_2$/herself$_2$**'.

(23) Only MARY defended **herself**.

a. *Strict*: 'No one else defended **Mary**'.

b. *Sloppy*: 'No one else defended **themselves**'.

Binding Principle A says that reflexive anaphors must be locally bound to an antecedent. But the existence of strict readings poses a problem for some influential theories of this local-binding requirement, i.e. those found in Reinhart 1983, Heim and Kratzer 1998 and others, according to which "locally bound" necessarily means interpreted as a locally-bound variable (i.e. coindexed with a local-enough λ-operator). If reflexives must be bound in that sense, they are falsely predicted to produce only sloppy readings in strict-sloppy configurations.

What should be the theory of Principle A, then, and how can strict readings be generated? Sauerland (2013), followed by McKillen (2016) and Bruening (2021), proposed that reflexive anaphors are not elements that must be λ-bound. The restriction that they be co-valued with a local antecedent is encoded in a different way, via an identity presupposition imposed by *-self*, a presupposition which moreover can be suspended when computing focus alternatives and ellipsis identity.

This view is summarized below. A *-self* local anaphor consists of two syntactic parts: a referential index pro_i, and a feature SELF, see (24a)-(24b). SELF has semantic contribution: it imposes a presupposition which restricts the reference of pro_i to be identical to that of a co-argument of the predicate, effectively deriving the locality restriction of Principle A, see (24c).[9] The index can however remain free; there is no λ-binding requirement on it. Strict readings are derived on the crucial assumption that SELF's contribution can be ignored when calculating focus alternatives and the identity requirement on ellipsis, as shown in (25) for focus alternatives.

(24) *A presuppositional account of reflexives and Binding Principle A*

a. *herself*$_1 \equiv [pro_i$ SELF$]$

b. *Possible LFs for* **Mary defended herself**:
(i) Mary defended $[pro_i$ SELF$]$ (pro_i free)

[9]This contribution of SELF can be thought of as an implementation of the theory of Principle A by Pollard and Sag (1992) and Reinhart and Reuland (1993) that a *self*-reflexive in a verbal argument position reflexive-marks a predicate.

(ii) Mary λ_1 [t_1 defended [pro_i SELF]] (pro_i bound)

c. $[\![\text{SELF}]\!] = \lambda x \lambda R \lambda y : x = y.\ R(y,x)$.[10]

(25) *Strict readings:* SELF*'s contribution can be ignored in focus alternatives (Sauerland 2013)*

a. *Possible LF for* (23):
only [MARY$_F$ defended [her$_1$ SELF]]

b. *Focus Alternatives*:
{ [Sue defended [her$_1$ ~~SELF~~]],
[Ana defended [her$_1$ ~~SELF~~]], ... }

Due to SELF's contribution to the ordinary meaning of the prejacent (the sister of *only* in (25a)), which can't be ignored, the reference of *her*$_1$ must be the same as *Mary*, its co-argument. And since *her*$_1$ isn't bound by the subject in the alternatives, it refers to Mary across all the alternatives. The resulting meaning is the strict reading.

Sauerland (2013) proposed that the behavior of SELF is an instance of a general pattern also affecting pronominal ϕ-features (gender, number, person): the presuppositions of pronominal ϕ-features on bound variables can be ignored across alternatives (see also Jacobson 2012, McKillen 2016, Sudo and Spathas 2020, Bruening 2021, Bassi 2021 for variants of this idea). This explains cases of 'Fake Features' on bound pronouns:

(26) a. Only I did **my** homework. (Heim 2008, Kratzer 2009)
$\rightsquigarrow$ *bound reading:* No one other than me did **their** own homework.

b. Only Mary did **her** homework.
$\rightsquigarrow$ *bound reading:* No one other than Mary, **male or female**, did their own homework.

Assuming that SELF is in fact a pronominal feature, just like NUMBER, GENDER, PERSON (these all modify a referential variable and add a presuppositional restriction on its value), the behavior of reflexives in focus and ellipsis can be unified with the behavior of ϕ-features under the single hypothesis in (27).

(27) **Hypothesis**: Presuppositions coming from pronominal features may be ignored when computing focus alternatives and ellipsis identity.[11]

Our proposal to capture strict readings of LOGPs, to which we turn next, is inspired by Sauerland's (2013) approach to strict reflexives and Principle A. In a nutshell, we propose that LOGP contains a presuppositional pronominal feature, LOG, which encodes the de se property

[10] This entry is from McKillen (2016: p.91)'s implementation of Sauerland 2013's theory. Sauerland actually proposed that SELF directly composes with the predicate (rather than with the variable-part), after covert "incorporation", i.e. movement from its pronoun-internal position onto the predicate. See Sportiche (2023) and Charnavel and Sportiche (2023) for arguments against the incorporation idea (which we believe don't affect McKillen's implementation).

[11] An obvious question is what explains or derives (27) from more prior principles. This is an important question, although one about which we have little to say in this article (cf. Sauerland 2013, Bassi 2021 for different ideas). See more in fn.16.

of LOGPs but whose contribution can be ignored when computing focus alternatives, since it is subject to the hypothesis in (27).[12]

5.2 A decompositional approach to logophoric dependencies

Our proposal to capture strict readings of LOGPs, which we lay out in this section, extends Sauerland (2013)'s account of strict reflexives and Principle A to the theory of logophoric pronouns. As an overview, we propose that the logophoric pronoun (in Ewe, Yoruba and Igbo) underlyingly consists of two syntactic pieces: **LOGP ≡ [LOG *pro*$_i$]**. *pro*$_i$ is a variable (over Individual Concepts) with no binding requirements: it may be free or λ-bound. LOG is a semantic feature that restricts the reference of LOGP to the Logophoric Center of the embedded clause, and this produces the (*de se*) coreference property of LOGPs.[13] Strict readings are possible because LOG's semantic contribution can be suspended when computing focus and ellipsis identity, similar to SELF and other pronominal features.

If our analysis is correct, then LOGPs are essentially no different from other pronouns at LF, containing a variable-part plus semantic features. In this section we spell out the details of the analysis and how it captures basic strict readings. Then we will demonstrate in section 5.3 that our decompositional view further predicts subtle and so far undescribed varieties of strict readings of LOGPs.

5.2.1 The meaning of LOGP and derivation of basic sentences

Let us unfold the theory in steps. To start, consider a basic Ewe example without *only* or ellipsis, as in (29).

[12] A reviewer asks in what sense the LOG feature can be counted as a pronominal feature. As we will lay out in the next section, our denotation for LOG adds a presuppositional restriction on the value of a variable – in that sense it matches what has been proposed about the semantics of ϕ-features (and *self*, see (24c)). Syntactically, there is evidence that logophors trigger dedicated logophoric agreement on the verb in languages like Ibibio, shown for the logophor *imọ* in (28a). Hence, the LOG feature behaves morpho-syntactically like other ϕ-features in this respect.

(28) *Logophoric agreement in Ibibio* (Newkirk 2019)

a. Ekpe$_i$ a-bo ke **imọ$_i$** **ì**-ma **í**-to Udo.
Ekpe 3SG-say C **LOG** **LOG**-PST **LOG**-hit Udo
'Ekpe says that he hit Udo.'

b. Ekpe$_i$ a-bo ke **anye**$_{i/k}$ **a**-diyọ̃ọ̃ ikwo ikwo mfọnmfọn.
Ekpe 3SG-say C **3SG** **3SG**-know sing song well
'Ekpe says that he sings well.'

While this property cannot be investigated in the languages which we focus on in this paper since Ewe, Yoruba and Igbo do not display subject verb agreement in general, we note here that in the languages which do display subject verb agreement and logophors, dedicated inflectional morphology is attested, as one would expect from a pronominal feature.

[13] Our proposal implies that LOGP is strictly more complex than the ordinary 3rd person pronoun (ORDP): the latter lacks LOG feature and consists of just the variable *pro*$_i$. This allows ORDP to refer to any (contextually-salient) individual concept. Admittedly, there is little direct evidence from the morphology of LOGP for this layered structure. Nevertheless, we would like to point out two facts that could be taken as some evidence for it. First, note that in Ewe, Yoruba, and Igbo ORDP is made up of a single segment, being strictly less complex (segmentally) than LOGP; cf (6). Second, in Ewe and Yoruba one can observe that, at least when disregarding tonal information, LOGP segmentally contains ORDP (Ewe: LOGP ***yè***, ORDP ***é***; Yoruba: LOGP ***òun***, ORDP ***ó***). These considerations lend some plausability to our proposal that LOGP contains ORDP in the underlying syntax.

(29) Élì súsú bé **yè** ɖùdzí. **Ewe**
Eli think that **LOGP** win
'Eli$_1$ thinks that he$_1^{de\text{-}se}$ won.'

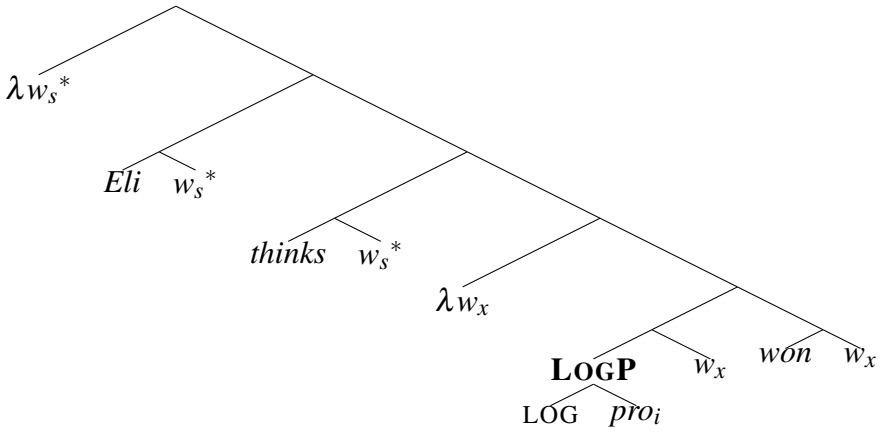
Some background assumptions have to be put in place before we get to the core idea. Our analysis is embedded within the CENTERED WORLDS framework (Lewis 1979 and followers), already alluded to earlier, for representing *de se* readings. In this framework attitude ascriptions involve reference to centered worlds, which are world-individual pairs. A Lewis-inspired semantics for a sentence like (29) is given in (30). 'w_x' is shorthand for the pair $< w,x >$, and BEL is a set of such pairs.

(30) $[\![(29)]\!] = \forall w_x \in \text{BEL}_{Eli}$, *x won in w*.
$\text{BEL}_h \coloneqq \{w_x$: *w* is compatible with *h*'s beliefs and *x* is an individual in *w* who, if *h* was put into *x*'s place, *h* would not experience any difference to what they take to actually be the case.$\}$

In other words, the *x* coordinate in each centered world in BEL_h is an individual who *h* identifies as themselves in *w*. We will sometimes call *x* the 'Center' of w_x.

The goal now is to derive (30) compositionally. The LF-syntax we offer for (29) is given in (31). It relies on a framework where variables over worlds—in the current setting, centered worlds—are represented in the structure and saturate argument slots in the denotation of verbal and nominal predicates (see e.g. von Fintel and Heim 2011, Percus 2000).[14] Note that we make the (non-standard) assumption that not just predicates, but also referential terms such as proper names (*Eli*) come with a world argument.

(31) *LF of (29)*



We reserve the symbol 'w_s*' for centered-world variables that are bound from matrix positions (i.e., not by attitude verbs); they are intended to represent pairs of the actual world (w^*) and the actual speaker of the sentence (*s*). We will say more about matrix-bound centered-worlds in section 6.2, for now they will not play much role.

Sample denotations that fit this structure are supplied in (32). $[\![Eli]\!]$ is an Individual Concept—a function from centered-worlds to individuals.[15] We notate with 's' the semantic type

[14]The account of the main issue of this paper does not crucially depend on syntactically-represented world pronouns; it could be cast with a framework that encodes the information about worlds in the semantics alone. World pronouns will however become necessary in section 6.1.

of centered-worlds.

(32) a. $[\![Eli]\!] = \lambda w_x$. the person in w (who x knows as) named 'Eli'. (*type* $\langle \mathtt{s},\mathtt{e}\rangle$)

b. $[\![win]\!] = \lambda w_x.\lambda z.$ z wins in w. (*type* $\langle \mathtt{s},\mathtt{et}\rangle$)

With this in place, our central innovation has to do with the structure and interpretation of the logophoric pronoun itself. LOGP consists of two elements, each of which contributes to intepretation separately. pro_i is a variable over individual concepts (type $\langle \mathtt{s},\mathtt{e}\rangle$), and just like the typical pronoun, it can be bound or free; if free, its value needs to be supplied or accommodated from context (e.g. by some salient definite description).

It is LOG, however, which effectively restricts pro_i to pick out the Logophoric Center of the embedded clause. It does so by way of a presupposition. Formally, LOG's denotation is in (33) (we employ the notation of Heim and Kratzer 1998 for encoding partial functions, where the part between a colon and a dot defines the domain of the function and is meant to model presuppositional information).

(33) $[\![\text{LOG}]\!]^g = \lambda f_{\langle \mathtt{s},\mathtt{e}\rangle}.\ \lambda_{w_x} :\ \underbrace{f(w_x) = x}_{presupposition}\ .\ x$ (*type* $\langle \mathtt{se},\mathtt{se}\rangle$)

According to (33), $\text{LOG}(f)$ is a function from centered-worlds to their Center, defined only for those w_x whose Center equals $f(w_x)$.[16]

(34) $[\![\ \text{LOGP}]\!]^g = [\![\text{LOG}]\!]^g([\![pro_i]\!]^g) =\ [\lambda_{w_x} : [\![pro_i]\!]^g(w_x) = x.\ x]$

Essentially, LOGP constrains the individual-concept that pro_1 stands for to be one which maps the local evaluation worlds to their Center. We might call the meaning of LOGP a 'restricted Center concept', since it maps each centered world onto its Center whenever defined.

Attitude predicates relate a proposition to an individual by quantifying universally over some set of Centered-worlds; *think*, in particular, encodes quantification over BEL—the set of doxastically accessible centered-worlds. We need an entry for such predicates that can handle partial propositions in its scope, since LOGP introduces partiality in the embedded clause through

[15] In Lewis 1979 there are no transworld objects: every individual inhabits only one world, and individuals have *Counterparts* in other worlds. The individual concept in (32a) is thus not a 'Rigid Designator' (Kripke 1980), as the actual Eli has different Eli-counterparts in other worlds. In section 6.1 we will say more about how individuals are related to their Counterparts in other worlds via *Counterpart Functions*.

[16] The function denoted by LOG can be classified as 'purely-presuppositional' in the terminology of Sauerland (2013). Informally, an element is purely-presuppositional if it adds nothing but a presupposition to the meaning (i.e. it doesn't add anything to the assertive/at-issue dimension of meaning). Formally, this notion can be defined as in (i).

(i) A functor F of type $\langle \tau, \tau \rangle$ is *purely presuppositional* iff for every $f, \overrightarrow{\alpha}$ such that $\text{F}(f)(\overrightarrow{\alpha})$ is defined, $f(\overrightarrow{\alpha})$ is defined too and $\text{F}(f)(\overrightarrow{\alpha}) = f(\overrightarrow{\alpha})$. (adapted from Sauerland 2013:167)

$[\![\text{LOG}]\!]$ is purely-presuppositional according to this definition because $[\![\text{LOG}]\!](f)$ is of the same type as f and outputs the same value as f wherever defined.

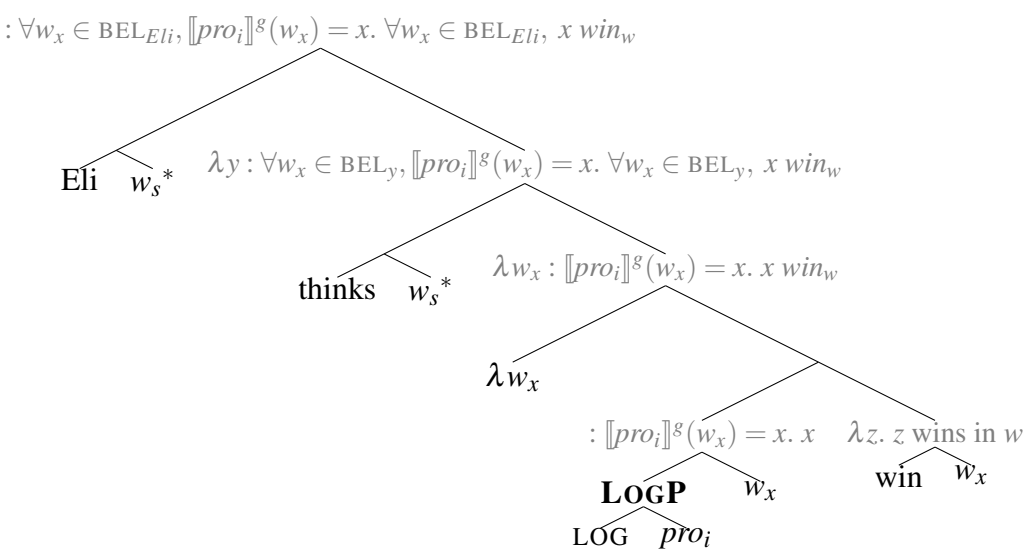
Sauerland proposed that the class of items that can be ignored in the computation of focus alternatives is identified with the purely-presuppositional items, but McKillen (2016) and Bassi (2021) point out purely-presuppositional items such as *again* which cannot be similarly ignored in alternatives. We therefore restrict the hypothesis in (27)) about what content can be suspended in focus alternatives to only apply to ϕ-features, of which LOG is one.

LOG's presupposition. The entry in (35), after Karttunen 1974 and Heim 1992, says that presuppositions of the embedded clause project universally to BEL.

(35) $[\![\text{think}_{w_s*}]\!]^g = \lambda p_{\langle \mathtt{s},\mathtt{t}\rangle} \lambda y : \forall w_x \in \text{BEL}_y,\ p(w_x)$ is defined.
$\forall w_x \in \text{BEL}_y,\ p(w_x) = 1$.[17]

A full composition is given in (36). The assertion part of the top line (the part after the dot) capture the desired *de se*-dependency between LOGP and the attitude holder (cf. (30)). Notably, the fact that LOGP is *de se*-bound to the attitude holder is obtained here less directly than in the Simplex Binding approach (cf. section 3).

(36)



The presupposition part of the result in (36) mentions a free Individual-Concept pronoun, pro_1, whose value needs to be recovered from context (perhaps by some contextually-salient description). Not just any contextually-salient concept will do, of course; only those which result in a presuppositional statement that can be safely accommodated. One successful resolution for pro_1 is simply the CENTER concept in (37a), which results in a trivial presupposition and which we assume is salient in any context; another is the concept in (37b), assuming it's common ground that Eli knows himself as 'Eli'. Some possibilities are out in most natural contexts since they would incur a presupposition failure, e.g. (37c); and others are heavily context-dependent, for instance (37d) which would satisfy the presupposition only in contexts where Eli identifies himself as the person wearing the red costume. This nicety will become relevant later.

(37) *Options for the value of* pro$_i$ *in (36)*

a. ✓ $[\![pro_i]\!]^g = \lambda w_x.\ x$. (the CENTER-concept)

b. ✓ $[\![pro_i]\!]^g = \lambda w_x.$ the person in w named 'Eli'

c. ✗ $[\![pro_i]\!]^g = \lambda w_x.$ the person in w named 'Ann'

d. $[\![pro_i]\!]^g = \lambda w_x.$ the person in w who is wearing the red costume in w.

[17] LOGPs are of course licensed not just in belief ascriptions but in all range of attitudes. Similar lexical entries to (35) thus need to be written for predicates of speech, desire, hopes etc. All that matters for our purposes is that for each such predicate the domain of quantification will be a set of centered-worlds.

Now that we have shown how to derive obligatory *de se* readings from the presupposition that the LOG-feature introduces, we can turn to the discussion of strict readings, which will be done in the next section.

5.2.2 Strict readings by ignoring LOG from alternatives

So far we merely replicated the basic result already obtained by Simplex Binding, just in a more complicated way. But now consider again an example that brings strict-sloppy ambiguity to light, as in when *only* is added. We repeat example (11) in an abbreviated form in (38), with which we will exemplify our analysis.

(38) Élì kò yé súsú bé **yè** ɖùdzí. **Ewe**
Eli only FOC think that LOGP win
'Only Eli thinks that he won.'

a. $\rightsquigarrow_{sloppy}$ No one$_j$ but Eli thinks **they**$_j$ won.

b. $\rightsquigarrow_{strict}$ No one but Eli$_i$ thinks **he**$_i$(=Eli) won.

We continue to analyze these constructions as involving computation of focus alternatives triggered by a focus feature on the subject, as represented in (39a). For concreteness we take alternatives to be syntactic objects, LFs (Fox and Katzir 2011). *only* says that the prejacent (its sister) is true and all the alternatives are false.[18] Now if LOG contributes its meaning across the focus alternatives, as represented in (39b), we are still short of deriving anything but a sloppy reading for this sentence. The reason is that LOG in each alternative will restrict LOGP to be the Center of the relevant worlds and therefore LOGP ends up (*de se*-) bound in each alternative by the respective attitude holder (thus a value for *pro*$_i$ that would be compatible with the presupposition of LOG across alternatives in (39) is the CENTER-concept in (37a)).

(39) a. LF: Only $\left[\text{Eli}_{[\textbf{FOC}]}\right.$ thinks λw_x [[$_{\text{LOGP}}$ **[LOG *pro*$_i$]**$_{w_x}$] won$_{w_x}$] $\left.\right]$

b. Alt's: $\{$ Kofi thinks λw_x [[$_{\text{LOGP}}$ **[LOG *pro*$_i$]**$_{w_x}$] won$_{w_x}$] ,
Koku thinks λw_x [[$_{\text{LOGP}}$ **[LOG *pro*$_i$]**$_{w_x}$] won$_{w_x}$] , ...$\}$

But, as previewed in section 5.1, we assume that LOG, being a pronominal semantic feature, is subject to the hypothesis in (27) and thus can be ignored when computing focus alternatives, like SELF and 'fake' ϕ-features on bound pronouns. We implement this by letting LOG be deleted from the tier of alternatives (though not from the prejacent). The relevant derivation is in (40).

(40) *Analysis of (38) with* LOG *deleted from alternatives*[19]

a. LF: Only $\left[\text{Eli}_{[\textbf{FOC}]}\right.$ thinks λw_x [[$_{\text{LOGP}}$ **[LOG *pro*$_i$]**$_{w_x}$] won$_{w_x}$] $\left.\right]$

b. Alt's: $\{$ Kofi thinks λw_x [[$_{\text{LOGP}}$ **[~~LOG~~ *pro*$_i$]**$_{w_x}$] won$_{w_x}$] ,
Koku thinks λw_x [[$_{\text{LOGP}}$ **[~~LOG~~ *pro*$_i$]**$_{w_x}$] won$_{w_x}$] , ...$\}$

[18] We evidently assume in (39a) that *only* scopes at LF over the whole rest of the clause. This is done for simplicity's sake. We could instead adopt the bi-partite structure *[[only DP$_{Foc}$] VP]* (Wagner 2006, a.o.), wher *only* forms a constituent with its focused associate (the subject). Our main proposal isn't affected by this choice, as long as the subject DP formally triggers focus alternatives.

[19] The deletion operation is adopted to simplify the presentation. Instead of syntactically deleting LOG across alternatives, we could neutralize its meaning by postulating (as in Sauerland 2013) that the meaning of a semantic feature can be reset in the alternatives to the total-identity function $[\lambda f.f]$. Both implementations capture the idea the LOG's contribution is ignored in alternatives.

The value of the free pro_i remains constant across the alternatives in (40b). The interpretation of this configuration is given in (41). Since LOG is active only in the prejacent, the relevant presupposition is absent in the alternatives. This paves the path towards the strict reading.

(41) *The Interpretation of the prejacent and alternatives in (40)*

a. *Prejacent*:
$: \underbrace{\forall w_x \in \text{BEL}_{Eli}, [\![pro_i]\!]^g(w_x) = x}_{presupposition}. \forall w_x \in \text{BEL}_{Eli},\ x\ win_w$

b. *Alternatives*: $\{\ \forall w_x \in \text{BEL}_{Koku},\ [\![pro_i]\!]^g(w_x)\ win_w\ ,\ \forall w_x \in \text{BEL}_{Kofi},\ [\![pro_i]\!]^g(w_x)\ win_w\ , ...\}$

The interpretation of the prejacent and the alternatives depends, of course, on the value chosen for pro_i. To obtain the strict reading, all that is required is to have pro_i represent a concept that Eli as well as all of his alternatives (Koku, Kofi,...) mentally associate with Eli. If, for example, it is common ground that everyone knows Eli by the name 'Eli', then the value for pro_i in (37b) results in the correct strict reading.[20]

This concludes our basic proposal of the strict reading of LOGPs. As for the sloppy reading, we mentioned above a way to capture it with the very same LF, by setting the value of pro_i to the CENTER concept, $[\lambda w_x.\ x]$. Another option with a similar result is to bind pro_i directly to the matrix subject, as in the representation in (42). Since the binding dependency persists across the alternatives, the value of pro_i co-varies in alternatives with the respective attitude holder (whether or not LOG is ignored in alternatives).[21]

(42) *Sloppy reading through binding* pro_i

a. LF: Only $\left[\text{Eli}_{[\textbf{FOC}]}\ \boldsymbol{\lambda_i}\ [[\boldsymbol{t_i}]_{w_s*}\ \text{thinks}\ \lambda w_x\ [\ [_{\text{LOGP}}\ [\text{LOG}\ \boldsymbol{pro_i}]_{w_x}\ ]\ \text{won}_{w_x}\ ]]\ \right]$

b. Alt's: $\{$ Kofi $\boldsymbol{\lambda_i}\ [[\boldsymbol{t_i}]_{w_s*}\ \text{thinks}\ \lambda w_x\ [\ [_{\text{LOGP}}\ [\sout{\text{LOG}}\ \boldsymbol{pro_i}]_{w_x}\ ]\ \text{won}_{w_x}\ ]]$, Koku $\boldsymbol{\lambda_i}\ [[\boldsymbol{t_i}]_{w_s*}\ \text{thinks}\ \lambda w_x\ [\ [_{\text{LOGP}}\ [\sout{\text{LOG}}\ \boldsymbol{pro_i}]_{w_x}\ ]\ \text{won}_{w_x}\ ]]\ , ...\}$

5.3 The Strict-unknown reading

Our proposal makes a further correct prediction about a subtle strict reading, which in turn supports our decompositional analysis of LOGP. The prediction is that a strict reading is possible

[20] What if a context furnishes no suitable description that could be the value of pro_i in this derivation? Our predictions might change. Imagine we cook up a context where it is impossible to find any (salient) description which is vivid enough in the minds (i.e., across the doxastically-accessible worlds) of Eli and of all his relevant alternatives. In such a context, we predict that sentence (38) would not support the strict reading—even if intuitively the intended reference of LOGP across the alternative is Eli (we thank Amir Anvari (p.c.) for raising a similar point to us). We think, however, that finding convincing cases of such contexts is not trivial, as there is arguably always *some* concept that can be accommodated whose reference in the minds of the relevant individuals would be the matrix subject. In the absence of independently justifiable constraints on what concepts can be accommodated in a context, it is not clear how to cook up the relevant scenarios. Since we weren't able to construct one, we could not test the prediction.

[21] Although there are differences in predicted readings between these various options. In particular, the representation in (42) is predicted to produce a sloppy reading even in contexts where one (or more) of the alternatives to Eli doesn't recognize themselves as being named the way they are. If Koku for example doesn't think of himself as the person named 'Koku', (42) is predicted to produce a sloppy reading which entails that Koku doesn't think that the person called 'Koku'—whoever that person is in Koku's mind—won. We haven't tested whether such a complicated reading exists. Note that such a reading is predicted to be available only if LOG is ignored in alternatives.

for our sentences even when the relevant alternatives to Eli (Koku, Kofi...) are not acquainted with the referent of LOGP through the description 'the guy called Eli'. They only need to know him through some (shared) description, if it is salient enough. Put differently, the contextually-salient concept that pro_i stands for does not have to be associated with who the alternative attitude holders believe is Eli.

The prediction is borne out. In the scenario in (43), Koku and Kofi are acquainted with a certain man in a red costume, but do not know it is Eli. We call it a STRICT-UNKNOWN scenario.

(43) *Context for strict unknown identity (**Ewe**):*
There is a costume contest. Eli, a participant who was wearing a red costume, overhears the judges of the contest debating, and concludes from what he hears that he is going to be declared as the winner. Koku and Kofi, who watched the costume show, are wrong about the identity of the man with the red costume; they don't know it was Eli. (They might even disagree among themselves who it was.) But they don't think that he, whoever he is, will win.

Élì kò yé súsú bé **yè** ɖùdzí lè àwù-dódó ƒé hòʋíʋlí mè.
Eli only FOC think that LOGP win in dress-wear POSS contest inside
'Only Eli thinks that he won the costume contest.'

Our Ewe consultants judged the sentence felicitous and true in the scenario. The sentence entails that Koku and Kofi don't think that the man in the red costume won—despite their lack of awareness that it is Eli.

The facts hold in Igbo and Yoruba as well. In Strict-Unknown scenarios, LOGP *yá* in Igbo and LOGP *òun* in Yoruba are felicitous, see (44) and (45).

(44) *Context for strict unknown identity (**Igbo**):*
A costume contest is about to end. Eze, a participant in the contest who was wearing a red costume, really hopes that he won. Aki and Ada, who are watching the costume show, are actually wrong about the identity of the man who put up a red costume; they don't know it was Eze. (They might even disagree among themselves who it was.) But what they do know is that the performance of the man with the red costume was extraordinarily good, and they hope that he will be declared as the winner.

Náāníị Ézè chèrè nà **yá** mérìrì nà ásòmpì igósì ákwá.
only Eze think that LOGP win PREP contest show clothes
'Only Eze thinks that he won the costume contest.'

(45) *Context for strict unknown identity (**Yoruba**):*
There is a costume contest. Ade, a participant who was wearing a red costume, overhears the judges of the contest debating, and concludes from what he hears that he is going to be declared as the winner. Niyi and Ọla, who are also contestants in the costume show, are wrong about the identity of the man with the red costume; they don't know it was Ade. (They might even disagree among themselves who it was.) But they don't think that he, whoever he is, will win.

Adé nìkan ni ó rò wípé **òun** máa tayọ nínú ìdíje asọ náà.
Adé only FOC RP think that LOGP FUT win inside contest clothes DET
'Only Ade thinks that he will win the costume contest.'

The reason we predict LOGPs to be licensed in strict-unknown cases is because the value for pro_i in our LF configuration, repeated in (46), can be resolved to the concept in (47) (=(37d)). This concept, which is obviously salient in the context, refers to Eli in Eli's mind, but not to who Koku and Kofi associate with the description 'Eli' (since they don't know that the man in the red costume is Eli).

(46) a. LF: Only $\left[\ \text{Eli}_{[\mathbf{F}]}$ thinks $\lambda w_x\ [\ [_{\text{LOGP}}\ \mathbf{[\sout{LOG}\ pro_i]}_{w_x}\ ]\ \text{won}_{w_x}\ ]\ \right]$

b. Alt's: $\Big\{$ Kofi thinks $\lambda w_x\ [\ [_{\text{LOGP}}\ \mathbf{[\sout{LOG}\ pro_i]}_{w_x}\ ]\ \text{won}_{w_x}\ ]$,
Koku thinks $\lambda w_x\ [\ [_{\text{LOGP}}\ \mathbf{[\sout{LOG}\ pro_i]}_{w_x}\ ]\ \text{won}_{w_x}\ ]$, ...$\Big\}$

(47) $[\![pro_i]\!]^g = \lambda w_x$. the person in w who is wearing the red costume in w.

As one of our consultants emphasized, if Eli does not know that he is the man in the red costume, the target sentence in (43) is not felicitous. Thus, the attitude holder in the prejacent (*Eli* in the Ewe example) still has to be familiar with himself as the man in the red costume. This is expected for the same reason that *de re* readings of LOGPs are out in basic sentences (cf. section 2.2): LOG's presupposition in the prejacent (which cannot be ignored in focus contexts) imposes the *de se* (self-recognition) condition on the use of LOGP.

5.4 Strict Ellipsis

We have applied our analysis to sentences with focus and *only*, though earlier we saw that strict readings for LOGPs show up in ellipsis constructions as well. We use (48), repeated from (16), as the example to extend our analysis to ellipsis constructions.

(48) Élì lè mɔ́-kpɔ́-m bé **yè** á ɖè Àblá. Yàó hã. **Ewe**
Eli COP path-see-PROG that LOGP IRR marry Abla. Yao too.
'Eli hopes that he(=**Eli**) will marry Abla. **Yao** does too.'

a. $\rightsquigarrow_{sloppy}$ Yao$_j$ hopes that **Yao**$_j$ will marry Abla.

b. $\rightsquigarrow_{strict}$ Yao$_j$ hopes that **Eli**$_i$ will marry Abla.

Ellipsis licensing requires an antecedent with a parallel meaning. We follow Tancredi (1992), Rooth (1992a), Takahashi and Fox (2005), Merchant (2019) and many others in linking the Parallelism requirement to the theory of Focus:

(49) **Parallelism requirement on ellipsis**: To license ellipsis of some phrase, the phrase must be contained in a sentence E whose Focus Alternatives have a member E' such that $[\![E']\!] = [\![\text{ANT}]\!]$,
where ANT is a sentence uttered in the nearby discourse.

Let us see how the special status of LOG as a pronominal feature in our theory helps with the strict reading in ellipsis. We will adopt a version of Sauerland 2013's proposal on alternatives to work for ellipsis. We stipulate that presuppositions coming from pronominal features in an antecedent ANT may be ignored for the purpose of computing the identity statement for ellipsis. Thus, we replace (49) with (50):

(50) **Parallelism for ellipsis, 2nd version**: To license ellipsis of some phrase, the phrase must be contained in a sentence E whose Focus Alternatives have a member E' such that $[\![E']\!] = [\![\textbf{ANT*}]\!]$,
where ANT* is just like the uttered ANT except that pronominal features in ANT may be removed from ANT*.

Parallelism is satisfied if what gets elided in our cases is not a LOGP but the more deficient ORDP: a pronoun with the same referential core pro_i but without the LOG feature.

(51) a. Antecedent clause LF:
Eli hopes λw_x [[$_{\text{LOGP}}$ **[LOG** $\boldsymbol{pro_i}$**]**$_{w_x}$] marries$_{w_x}$ Abla$_{w_x}$]

b. Ellipsis clause LF:
Yao$_{[\textbf{FOC}]}$ hopes λw_x [[$_{\text{ORDP}}$ **[** $\boldsymbol{pro_i}$**]**$_{w_x}$] marries$_{w_x}$ Abla$_{w_x}$]

The two clauses satisfy our version of the Parallelism requirement, as follows. One of the focus alternatives of the Ellipsis clause in (51b) is the one where *Yao* is replaced by *Eli*, in (52).

(52) *A member of the focus alternatives of (51b)*:
Eli hopes λw_x [[$_{\text{ORDP}}$ **[** $\boldsymbol{pro_i}$**]**$_{w_x}$] marries$_{w_x}$ Abla$_{w_x}$]

Indeed, (52) can be derived from (51a) by removing the feature LOG, and therefore it is an appropriate ANT*. Ellipsis is consequently licensed by the condition in (50).

The actual antecedent, ANT (=(51a)) contains a free individual-concept pro_i, which also occurs in the clause that contains the ellipsis, (51b). The meaning of ANT is in (53).

(53) *The meaning of* ANT *(51a)*:
$: \forall w_x \in \text{BEL}_{Eli}, [\![pro_i]\!]^g(w_x) = x.\ \ \forall w_x \in \text{HOPE}_{Eli},\ x\ marries_w\ Abla_w$

Like before, because we have a LOGP in ANT, the value of pro_i is restricted by the LOG feature to be an individual concept that Eli associates with himself. The ellipsis clause must then contain the same concept. It could be, for example, "the person called 'Eli'", if both Eli and Yao associate this person with Eli.

As for the sloppy reading, again it can be derived via a couple of routes. For one, the sloppy reading will result from the LF in (51b) if we set the value of pro_i to be the CENTER concept $[\lambda w_x.\ x]$. Second, we could have the ellipsis site contain a full LOGP rather than the impoverished ORDP i.e. the two embedded subjects can be form-identical. Then the occurrence of LOG in the ellipsis site will force LOGP to refer back to Yao. A third option is to bind pro_i directly to the matrix subject, similar to what we had in (42).

6 Further consequences of the account

This section explores consequences of our theory regarding two properties of logophors: their ability to take long-distance antecedents in multiple attitude sentences (section 6.1), and their complementary distribution with the 1st-person pronoun (section 6.2). The account we offer in section 6.2 captures an observation which, as far as we know, has not received adequate attention in the formal literature, namely why LOGPs cannot be anteceded by 1st-person attitude holders (Hagège 1974, Hyman and Comrie 1981).

6.1 Long-distance antecedents

In this subsection, we analyze the ability of logophors to take long-distance antecedents. As we show in (54)-(56), LOGPs embedded under more than one attitude predicate can co-refer with either the local attitude holder or the more distant attitude holder. Overall, the co-reference patterns are stable across attitude predicates and languages.[22] Our observations are in line with what has been reported for Ewe and Yoruba in previous literature (Clements 1975, Manfredi 1987, Pearson 2015, Anand 2006). We further contribute multiple embedding data from Igbo, which patterns with Yoruba and Ewe.

(54) *Multiple embeddings in **Ewe***

a. Kòkú$_1$ súsú bé Kòfí$_2$ bé **yè**$_{1/2}$ dè Àfí.
Koku think that Kofi say LOGP marry Afi
'Koku thinks that Kofi said that he married Afi.'

b. Kòkú$_1$ súsú bé Kòfí$_2$ dʒí bé **yè**$_{1/2}$ á dè Àfí.
Koku think that Kofi want that LOGP IRR marry Afi
'Koku thinks that Kofi wants to marry Afi.'

c. Kòkú$_1$ súsú bé Kòfí$_2$ le mɔ́-kpɔ́-m bé **yè**$_{1/2}$ á dè Àfí.
Koku think that Kofi COP path-see-PROG that LOGP IRR marry Afi
'Koku thinks that Kofi hopes that he will marry Afi.'

(55) *Multiple embeddings in **Yoruba***[23]

a. Adé$_1$ rò wípé Olú$_2$ sọ wípé **òun**$_{1/2}$ nifẹ́ Ọlá.
Ade think that Olu say that LOGP have.love Ola
'Ade thinks that Olu said that he loves Ola.'

b. Adé$_1$ rò wípé Olú$_2$ fẹ́ wípé **òun**$_{1/2}$ máa fẹ́ Ọlá.
Ade think that Olu want that LOGP FUT marry Ola
'Ade thinks that Olu wants to marry Ola.'

c. Adé$_1$ rò wípé Olú$_2$ ń rètí wípé **òun**$_{1/2}$ máa fẹ́ Ọlá.
Ade think that Olu PROG hope that LOGP FUT marry Ola
'Ade thinks that Olu hopes that he will marry Ola.'

[22] There was one exception. For the multiple embedding including 'want' in Igbo (56b), one of our consultants did not accept the co-reference reading with the long distance antecedent.

[23] We note in passing that for (55b) both of our consultants mentioned that repeating the complementizer *wípé* seems odd. They prefered the use of another complementizer (*pékí*) in the more embedded position.

(56) *Multiple embeddings in* ***Igbo***

a. Ézè$_1$ chèrè nà Úchè$_2$ sị̀ nà **yá**$_{1/2}$ hụ̀rụ̀ Àdá n'ányá.
Eze think that Uche say that LOGP see Ada P=eye
'Eze thinks that Uche said that he loves Ada.'

b. Ézè$_1$ chèrè nà Úchè$_2$ chọ̀rọ̀ ka **yá**$_{\%1/2}$ lu-o Àdá.
Eze think that Uche want that LOGP marry-FUT Ada
'Eze thinks that Uche wants to marry Ada.'

c. Ézè$_1$ chèrè nà Úchè$_2$ nwèrè o-lì-lè-ányá nà **yá**$_{1/2}$ gà à-lú Àdá.
Eze think that Uche have NOM-RED-look-eyes that LOGP FUT PTCP-marry Ada
'Eze thinks that Uche hopes that he will marry Ada.'

We account for the option of LOGPs to take long-distance antecedents by letting the centered-world variable that is fed as argument to a LOGP be bound non-locally. Taking sentence (54b) as representative, we assume that it can (schematically) correspond either to representation (57a) or to representation (57b) ($w_x{}'$ abbreviates the pair $<w', x'>$). But (57a) will be modified presently.

(57) a. Koku thinks λ_{w_x} that Kofi wants $\lambda_{w_x{}'}$ [[LOG pro_i]$_{\underline{\boldsymbol{w_x}}}$ marry$_{w_x{}'}$ Afi]

b. Koku thinks λ_{w_x} that Kofi wants $\lambda_{w_x{}'}$ [[LOG pro_i]$_{\underline{\boldsymbol{w_x{}'}}}$ marry$_{w_x{}'}$ Afi]

LF (57a) is intended to capture the long-distance reading. The meaning our system assigns to it is in (58). Remember that because of LOG's contribution, LOGP$_{w_x}$ refers to x, the Center of the worlds bound by the matrix attitude verb. That dependency is responsible for the (*de se*) co-reference with the matrix subject.

(58) *Interpretation of (57a)*:
$\forall w_x \in \text{BEL}_{Koku}[\forall w_x{}' \in \text{WANT}_{Kofi_{w_x}}[x \text{ marries Afi in } w']]$[24]

There is a problem though. The predicate *marry* (*Afi*) in the most embedded clause is evaluated in worlds w', i.e. in the (best) worlds which satisfy what-Koku-desires-according-to-Kofi, and not in worlds w; this must be so in order to avoid vacuous binding of $w_x{}'$ in (57a) (and in light of arguments put forth in Percus 2000). LOGP, however, refers to an individual who inhabits w. This is a problem if we stick to a Lewis-based system with no transworld individuals (see footnote 15): it does not make sense to apply a predicate of individuals in one world to an individual that exists in another world.

[24]More pedantically, the interpretation also has a presuppositional component. Since the presupposition trigger LOG is embedded under two attitude predicates, and assuming as standard that presuppositions under an attitude predicate like *want* project to the belief worlds of its attitude holder (Heim 1992), what we get as the presupposition of (57a) is:

(59) Presupposition: $\forall w_x \in \text{BEL}_{Koku}[\forall w_x{}' \in \text{BEL}_{Kofi_{w_x}}[[\![pro]\!]^g(w_x) = x]]$

This contains vacuous binding of $w_x{}'$, so it can be shortened to the simpler: $\forall w_x \in \text{BEL}_{Koku}[[\![pro]\!]^g(w_x) = x]$. Many concepts for pro_i will result in a satisfaction of this presupposition, for instance the CENTER-concept $[\lambda w_x.\ x]$.

We amend this problem by enriching our representations to include Counterpart functions. Individuals occupy only one possible world, but can be related to individuals in other worlds via Counterpart functions, which are in turn determined by some suitable Acquaintance function. In a nutshell, the Counterpart solution amounts to a device that transforms x in (58) into a counterpart of it that lives in w'. At the end of this section we show that the solution can capture certain mixed *de se-de re* readings of LOGPs, pointed out by Pearson (2015).

The Counterpart technology—or its parallels in other systems, noteably Concept Generators—is independently needed to account for certain *de re* puzzles (see Quine 1956, Lewis 1968, Percus and Sauerland 2003, Charlow and Sharvit 2014 a.o.). Our implementation below is based on the proposal in Sauerland (2018) to encode counterpart functions as operators that ajoing to individual-denoting phrases.

To start, we define acquaintance functions. These, adopting the spirit of Sauerland (2018)'s suggestion, are functions that relate an individual to another by some suitable description from a first-person perspective.

(60) **Acquaintance Function**. A function f of type $\langle \mathtt{e},\mathtt{e}\rangle$ is an *Acquaintance Function* iff there is a definite description of individuals δ containing a first-person pronoun ($[\![\delta]\!]$ is of type $\langle \mathtt{s},\mathtt{e}\rangle$, an individual concept) such that for every w_x in the domain of $[\![\delta]\!]$, $[\![\delta]\!](w_x) = f(x)$.

Take for instance the 1st-person-pronoun-containing description δ='my math teacher', defined in (61). Many actual individuals are acquainted with many other (world-mate) individuals through this description. When John utters this description, it refers to John's math teacher. The acquaintance function that corresponds to (61) then maps John to John's math teacher, and in general it maps any individual x for which the description is defined (i.e. any x who knows someone as their math teacher), to the individual who fits this description for x.

(61) $[\![\text{my math teacher}]\!] = \lambda w_x$. the person in w who x knows as x's math teacher.

The special case of *belief-based* acquaintance functions is defined in (62). These guarantee a value for any doxastic alternative of the individuals in their domain.

(62) **Belief-based Acquaintance Function**. An Acquaintance Function f is *belief-based* iff $\forall h \in dom(f)[\forall w_x \in \text{BEL}_h[x \in dom(f)]]$.

Informally, an acquaintance function f is belief-based if it preserves the underlying acquaintance relationship, through which perspective-holders are familiar with acquaintants, across all of their doxastic alternatives. Where x is a doxastic alternative of some attitude holder h, $f(x)$ is the individual that x is linked to via the same description that h is acquianted with $f(h)$.

Now we can explicate the notion of (acquaintance-based) Counterpart. The Counterpart of y via f for x in w, notated $CPRT^f_{w_x}(y)$, is the individual in w who x is linked to through the belief-based acquaintence function f which links x's 'source' (the attitude holder) to y.

(63) **Counterpart**. $CPRT^f_{w_x}(y)$ is defined only if f is a belief-based acquaintence function and $f(h) = y$, where h is the individual that $w_x \in \text{BEL}_h$.[25]
If defined, $CPRT^f_{w_x}(y) = f(x)$.

Observe that if y and x are world-mates, then $CPRT^{f}_{w_x}(y) = y$ for any f (if defined).

Counterparts are f-dependent, so we cannot in general talk about 'the counterpart of y in w' simpliciter. After all, individuals can become known to others via many different descriptions. The same individual y can thus have different counterparts in one and the same doxastically-accessible world. Within our system, $CPRT^{f^1}_{w_x}(y) \not\equiv CPRT^{f^2}_{w_x}(y)$ when f^1 and f^2 are two different belief-based acquaintance functions. This is at the core of recent solutions to *de re* puzzles of individual-denoting phrases inside attitude contexts. For instance, a sentence like *John thinks Mary is a spy* uttered in a context where John is acquainted with Mary through two different descriptions, could be represented either as in (64a) or (64b)—and one of them could be true while the other false.

(64) a. λ_{w_s*} John thinks λ_{w_x} [$\boldsymbol{CPRT^{f1}_{w_x}}$(Mary$_{w_s*}$)] is a spy
E.g. John thinks: "My math teacher is a spy"

b. λ_{w_s*} John thinks λ_{w_x} [$\boldsymbol{CPRT^{f2}_{w_x}}$(Mary$_{w_s*}$)] is a spy
E.g. John thinks: "The person I saw at the beach is a spy"

Having acquired the necessary tools, let us go back to the issue with (57a) and (58). We replace the LF in (57a) with the one in (65), which just adjoins a *CPRT* operator to the LOGP:

(65) Koku thinks λ_{w_x} Kofi$_{w_x}$ wants $\lambda_{w_x'}$ [$\boldsymbol{CPRT^{f}_{w_x}}$([LOG pro_i]$_{w_x}$) marry$_{w_x'}$ Afi][26]

As before, [LOG pro_i]$_{w_x}$ is constrained to refer to x, the Center of w (and $[\![pro_i]\!]^g$ can be whatever concept ensuring this, e.g. the CENTER-concept [$\lambda w_x.\, x$]). This encodes long-distance reference to its antecedent, the matrix subject Koku. But now this x is mapped, with the help of the CPRT operator, to an inhabitant of w':

(66) In (65), $[\![CPRT^{f}_{w_x}([\text{LOG } pro_i]_{w_x})]\!] = [\![CPRT^{f}_{w_x}]\!](x) = f(x')$,
defined only if $f(h) = x$, where h is the individual that $w_x' \in \text{BEL}_h$.

'h' here refers to Kofi$_{w_x}$, the source of w_x'. The interepretation of the whole structure is in (67). Note that the definedness conditions (the presupposition) of (67) are the way they are because of how presuppositions project under attitude predicates to the BEL set of the attitude holder (see fn. 24).

(67) *Interpretation of (65)*:
$\forall w_x \in \text{BEL}_{Koku}[\forall w_x' \in \text{WANT}_{Kofi_{w_x}}$ [$CPRT^{f}_{w_x}(x)$ marries Afi in w']],
defined only if $\forall w_x \in \text{BEL}_{Koku}[f(Kofi_{w_x}) = x]$.

[25]This formulation implies that there is only ever one 'source' for a centered-world, i.e. that there is no w_x in the BEL set of two different individuals. This assumption is defensible in so far as we hold that no two individuals have identical experiences and beliefs about the world (cf. the definition of BEL in (30)). It thus ignores metaphysical edge cases such as the two-gods scenario discussed in Lewis (1979: p.520).

[26]Also the DP *Afi* may be appended with some suitable CPRT operator in (65), and in fact it must be appended with one if this DP is not evaluated at w_x'. That would be the case on some *de re* reading of *Afi*, e.g. if the attitude holders in this sentence are not acquainted with Afi through the name 'Afi'. The same goes for the embedded attitude holder *Kofi* if it needs to be read *de re* with respect to the beliefs of the matrix attitude holder *Koku*. We ignore these possibilities to keep the discussion as simple as possible.

Since the most embedded subject now refers to an inhabitant of w', namely $f(x')$, the necessary condition for predication is met: the predicate (*marry Afi*) and its argument are evaluated in w'. This solves the issue we had with (57a).

The meaning in (67) is of course underspecified until we supply a value to the belief-based acquaintance function f. If, for example, Koku thinks that Kofi is prosaically acquainted with him through the description 'the person that I know as "Koku"', and it is this description which underlies f, then $CPRT^{f}_{w_x{}'}(x)$ is the person in w' who Kofi (across Koku's belief-worlds) knows as 'the person who is called Koku'. The resulting truth conditions would be in (68).

(68) *Possible construal of (67)*:
$\forall w_x \in \text{BEL}_{Koku}[\forall w_x{}' \in \text{WANT}_{Kofi_{w_x}}$ [the person in w' that x' knows as "Koku" marries Afi in w']].
Defined only if $\forall w_x \in \text{BEL}_{Koku}[\text{the person}_w$ who Kofi_w knows as "Koku" $= x]$.

But there could be other options. Imagine a scenario where Kofi knows Koku only through the description 'my math teacher'—or at least, that this is what Koku believes to be the case. That is, Koku thinks "this guy Kofi doesn't know that my name is "Koku", he only knows me as his math teacher". This scenario specifies a different counterpart function than before, and the resulting construal is now:

(69) *Another possible construal of (67)*:
$\forall w_x \in \text{BEL}_{Koku}[\forall w_x{}' \in \text{WANT}_{Kofi_{w_x}}$ [the person in w' that x' knows as his math teacher marries Afi in w']].
Defined if $\forall w_x \in \text{BEL}_{Koku}[\text{the person}_w\ \text{Kofi}_w$ knows as his math teacher $= x]$.

The upshot is that long-distance configurations allow for an interesting hybrid reading of LOGP: when LOGP is bound from long distance, it refers *de se* to its 'antecedent' (the matrix attitude holder), but it can be read in various *de re* ways with respect to intervening attitude holders. The discussion in Pearson (2015: 111) implies that this prediction is correct: Pearson argues that a long-distance-bound LOGP is read *de se* with respect to the attitude of the matrix attitude holder and *de re* with respect to the attitude of the embedded attitude holder.[27]

6.2 Competition between LOGP and the 1st person pronoun

Our analysis doesn't yet succeed in predicting that logophors' distribution is restricted to the complements of attitude predicates. Consider:

(70) ***yè**$_1$ dzó **Ewe**
LOGP leave
'I left. / He left.' (Pearson 2015: 78)

On some assumptions which we elaborate on below, our approach currently predicts that (70) is grammatical and that the LOGP refers to the speaker of the utterance, i.e. that (70) has means "I left". But LOGPs in our languages cannot refer to the actual speaker. Instead, there is a dedicated 1st person pronoun. An Ewe example:

[27] Although, Pearson (2015: 112) mentions later in passing that LOGPs in such sentences need not be construed *de se* with respect to the matrix attitude holder. For us, *de se* with respect to the matrix holder is a necessity.

(71) **mè**$_1$ dzó **Ewe**
I leave
'I left.'

Existing accounts by Heim (2005), von Stechow (2004) and Pearson (2015) avoid this problem with a syntactic stipulation: LOGPs are licensed only when bound by attitude predicates (see section 3 for the details). In principle we can adopt this strategy as well and specify that the centered-world argument of a LOGP must only be bound by an attitude verb, otherwise the structure is ill-formed. But we would like to offer an alternative that doesn't require such a syntactic restriction and relies instead on a competition+blocking principle. In a nutshell, LOGP competes and loses to a 1ST-person pronoun whenever the latter can be used without change of meaning.

Below we flesh out the details of the proposal, which uses the competiiton principle *Maximize Presupposition*!. We will then show that the proposal has an empirical advantage over the abovementioned existing accounts by explaining a hitherto unexplained generalization: LOGPs cannot be anteceded by 1st-person attitude holders (Hagège 1974, Hyman and Comrie 1981).

(72) a. *mè súsú bé **yè** dzó. **Ewe**[29]
I think that **LOGP** leave
'I think that I left.'

b. mè súsú bé **mè** dzó.
I think that **I** leave
'I think that I left.'

Let's begin by specifying the assumptions that lead to the prediction that (70) should be grammatical and mean 'I left'. Recall that LOGP refers to a restricted Center concept:

(73) a. $[\![\text{LOG}]\!]^g = \lambda f_{\langle \mathtt{s},\mathtt{e}\rangle}.\ \lambda_{w_x} : f(w_x) = x.\ x$

b. $[\![\text{LOGP}]\!]^g = [\![\text{LOG}]\!]^g([\![pro_i]\!]^g) = [\lambda_{w_x} : [\![pro_i]\!]^g(w_x) = x.\ x]$

Nothing prohibits the representation in (74a) for (70), which yields the proposition in (74b) as its semantic value. Once an appropriate value for pro_i is supplied, (74b) can be simplified to (74c).

(74) a. $\lambda w_s{}^*\ \left[[_{\text{LOGP}}\ \text{LOG}\ \text{pro}_i]_{w_s{}^*}\ \text{left}_{w_s{}^*}\right]$

b. $[\![(74a)]\!] = [\lambda_{w_x} : [\![pro_i]\!]^g(w_x) = x.\ x \text{ left in } w.]$

c. $\lambda_{w_x}.\ x \text{ left in } w.$

This boils down to the proposition that the speaker left, on the assumption that the Center of matrix centered-worlds (=those bound by the most matrix binder) is the speaker. We can concretize this assumption with a discourse rule like (75) relating the meaning of sentences to contexts in which they can be appropriately uttered by speakers. The notions of Common Ground and Context Set in (75a) are adapted versions of their familiar predecessors from the works of Stalnaker (Stalnaker 1978, a.o.).

[29]Pearson (2015: p.97, fn.26) and Bimpeh (2023: :32, fn.7) both mention dialects of Ewe which allow LOGP to be anteceded by first-person pronoun, although the robustness of that data is not clear due to insufficient accessability to speakers of those dialects. We weren't able to verify that claim independently, but if correct, our account does not apply to such dialects.

(75) a. A context is *appropriate* for a sentence ϕ if it determines a Context Set C of centered worlds, such that $C = \{w_s{}^* : w^*$ is compatible with the Common Ground in C and ***s* is the speaker of ϕ** in that context$\}$.

b. A sentence ϕ uttered in context C by speaker s is True in a world $w* \in C$ iff $[\![\phi]\!]^{g,C}(w_s{}^*) = 1$.

As previewed, we want to derive the infelicity of (70) as the result of competition with (71). In order to be concrete about the competition mechanism, we need an analysis of 1st-person pronouns. We take the 1st-person pronoun, as represented in (76), to contain a variable and a semantic feature 1ST whose job is essentially to restrict the variable's value to be the speaker. This much is fairly standard (Heim 2008, Charnavel 2019, a.o.), and in (77a) we formalize it within the semantics we developed so far. 1ST denotes a purely-presuppositional function very similar to LOG, but it imposes the additional presupposition (underlined) that the centered-world of evaluation must be a member of the global Context Set, as defined in (75a).

(76) *LF of first-person pronoun*: $[_{1\text{STP}}\ 1\text{ST}\ \text{pro}_i]$

(77) a. $[\![1\text{ST}]\!]^{g,C} = \lambda f_{\langle \mathtt{s},\mathtt{e}\rangle}.\ \lambda_{w_x} : f(w_x) = x \underline{\wedge\ w_x \in C}.\ x$

b. $[\![1\text{STP}]\!]^{g,C} = [\![1\text{ST}]\!]^{g,C}([\![pro_i]\!]^{g,C}) = [\lambda_{w_x} : [\![pro_i]\!]^{g,C}(w_x) = x \underline{\wedge\ w_x \in C}.\ x]$

When 1ST is applied to the variable pro_i, the result in (77b) is a restricted Center concept defined only for 'actual' world-speaker pairs, so to speak. This ensures that the first-person pronoun picks out the actual speaker.[30]

Below is a derivation of the meaning of (71) 'I left'. The LF representation in (78a) yields the proposition in (78b) as its semantic value, and once an appropriate value for pro_i is accommodated, (78b) can be simplified to (78c).

(78) 'I left.'

a. $\lambda w_s{}^*\ \left[[_{1\text{STP}}\ 1\text{ST}\ \text{pro}_i]_{w_s{}^*}\ \text{left}_{w_s{}^*}\right]$

b. $[\![(78a)]\!]^{g,C} = [\lambda_{w_x} : [\![pro_i]\!]^{g}(w_x) = x \underline{\wedge\ w_x \in C}.\ x$ left in w.$]$

c. $\lambda_{w_x} : \underline{w_x \in C}.\ x$ left in w.

The resulting partial proposition in (78c) is defined only for worlds in the global Context Set (in the sense defined in (75a)). Thus, it has a stronger presupposition—a strictly smaller domain—than the LOGP version of that sentence, see (74c). But when defined, both (74c) and (78c) have the exact same assertive content and therefore convey the same information: the speaker left. A situation where two alternative propositions have the same assertive content but one has a stronger presupposition is generally taken to feed the competition principle *Maximize Presupposition!* (Heim 1991, Percus 2006, Sauerland 2008, Schlenker 2012), with the consequence that the presuppositionally weaker alternative is blocked.

[30]This analysis of course is not applicable to languages with Indexical Shifting, as the 1st-person pronoun can also pick out attitude holders in those languages. In fact, if our analysis is to be extended to indexical shifting languages, then the first person pronoun in those languages can be analyzed the way we analyze LOGPs in West-African (and moreover indexical shifting languages would have to be assumed to lack a pronoun with the syntax and semantics in (76)-(77)).

(79) *Maximize Presupposition!*. Don't use a sentence ϕ in context C if there is an alternative sentence ψ of ϕ such that the following are all met:
(i) ψ has stronger presuppositions than ϕ ($[\![\psi]\!]$'s domain is smaller than $[\![\phi]\!]$'s);
(ii) ψ's presuppositions are met in C (i.e. ${w_s}^* \in dom([\![\psi]\!]^C)$ for all ${w_s}^* \in C$);
(iii) ψ is contextually equivalent to ϕ ($\phi \equiv_C \psi$).

We assume that 1STP is formally an alternative to LOGP and therefore *Maximize Presupposition!* dictates that a sentence with LOGP cannot be used to refer to the speaker, as the 1STP version always blocks it.[31]

We now show that this novel account makes good predictions for the distribution of LOGP and 1STP in embedded positions. First, consider two available LF representations and their assigned interpretations for the sentence *John thinks that I left*, in (80). The two LFs differ only in the evaluation world for the embedded 1STP. For easier readability, below we shorten '[$_{1\text{STP}}$ 1ST pro$_i$]' to '1STP', and we leave out the part '$[\![pro_i]\!]^g(w_x) = x$' in the descriptions of the presupposition.

(80) 'John thinks that I left'.

a. $\lambda_{{w_s}^*}$ John thinks λ_{w_x} [1STP$_{\boldsymbol{w_s}^*}$ left]
$\lambda_{{w_s}^*}$: $\underline{{w_s}^* \in C}$. $\forall w_x \in \text{BEL}_{John}[\boldsymbol{s}$ *left in* $w]$

b. $\lambda_{{w_s}^*}$ John thinks λ_{w_x} [1STP$_{\boldsymbol{w_x}}$ left]
$\lambda_{{w_s}^*}$: $\underline{\forall w_x \in \text{BEL}_{John}[w_x \in C]}$. $\forall w_x \in \text{BEL}_{John}[\boldsymbol{x}$ *left in* $w]$

Representation (80a) is one where 1STP refers to the actual speaker, as desired for languages like English and Ewe.[32] As for (80b), it might seem at first to produce a wrong meaning identical to *John*$_1$ *thinks he*$_1$ *left*, because 1STP is evaluated at the worlds bound by John's beliefs; but on a closer look (80b) turns out to be semantically pathological. Specifically, the underlined presupposition, that John's belief-worlds are all worlds of the global Context Set (equivalently: $\text{BEL}_{John} \subseteq C$), is unsatisfiable.[33] Given how C is defined in (75a) to be a set of centered-worlds whose Center is the speaker, that presupposition can't be met unless *John* refers to the actual speaker. Third person phrases however aren't normally used to refer to the speaker, and if this is taken to be a hard-and-fast constraint, (80b) is deemed to incur a systematic presupposition failure. Only (80a) is an acceptable represerntation, then.

Things change if we replace 'John' in (80) with a first-person pronoun as the attitude holder. Now the result becomes coherent, as the predicted presupposition amounts to the claim $\text{BEL}_{speaker} \subseteq C$:

(81) 'I think I left'.
$\lambda_{{w_s}^*}$ I think λ_{w_x} [1STP$_{\boldsymbol{w_x}}$ left]
$\lambda_{{w_s}^*}$: $\underline{\forall w_x \in \text{BEL}_{\boldsymbol{s}}[w_x \in C]}$. $\forall w_x \in \text{BEL}_s[\boldsymbol{x}$ *left in* $w]$

[31] *Maximize Presupposition!* has been invoked to explain certain inferences arising from the use of the presuppositionally weaker alternative as cases of Anti-presupopositions (Percus 2006). In our case, however, no Anti-presupposition can be derived from a use of unembedded LOGP because the relevant presupposition of 1STP is always met.

[32] There is a caveat—officially, (80a) is not quite a correct LF and needs a little fix. In light of the discussion in section 6.1, we need a Counterpart operator to adjoin to the embedded 1STP subject, since the evaluation world for 1STP is not bound locally. We gloss over this irrelevant detail for current purposes.

[33] This presupposition results from the restriction imposed locally by 1STP$_{\boldsymbol{w_x}}$, namely $w_x \in C$, which projects universally into the BEL set of the attitude holder (as presupposition normally do in this environment, see (35)).

The underlined statement is contextually trivial given how we defined *C* in (75a). Specifically, *C* encodes a set of worlds compatible with every proposition in the Common Ground, which is the set of propositions that are presupposed by all participants in the conversation. The speaker is a participant in the conversation, so $\text{BEL}_{speaker}$ can only contain worlds that are in *C*. If there were a world in $\text{BEL}_{speaker}$ but not in *C*, that would be a world compatible with the beliefs of one participant in the conversation (the speaker) but is not compatible with the shared beliefs of all the participants in the conversation; that's a contradiction. The presupposition of (81) is thus contextually trivial and the whole proposition captures the correct truth conditions.

We can now proceed to explain the crucial piece of data about 1st-person antecedents, repeated from (72a) (the facts hold in Yoruba and Igbo as well):

(82) LOGP*s cannot be anteceded by 1st-person attitude holders*:

a. *mè súsú bé **yè** dzó. **Ewe**
I think that **LOGP** leave
'I think that I left.'

b. mè súsú bé **mè** dzó.
I think that **I** leave
'I think that I left.'

We just saw that our system successfully predicts the truth conditions of (82b). Why is (82a) not acceptable with the same meaning? The answer is that (82b) blocks (82a) by *Maximize Presupposition!*, just like (78c) blocked (74c) in basic sentences. Specifically, (82a) delivers the right truth conditions but lacks the presuppposition introduced by 1ST. Compare (81) with (83):

(83) 'I think LOGP left'.
λ_{w_s*} I think λ_{w_x} [LOGP_{w_x} left]
λ_{w_s*}. $\forall w_x \in \text{BEL}_s$[*x left in w*]

Because (81) and (83) have the same assertive content but the former has a stronger presupposition, the latter is blocked by *Maximize Presupposition!*.

While the *Maximize Presupposition!*-based account explains (82), it is difficult to see how the existing Simplex Binding accounts (section 3) of the dependency between LOGPs and their antecedent can capture it, without further stipulations. If LOGPs are syntactically required to be bound by an attitude verb, additional mechanisms are needed to ensure that a 1st-person subject is not a possible antecedent.[34]

7 Logophors vs. exempt anaphors

The notion of logophoricity has played an important role in analyses of so-called exempt anaphora (Sells 1987, Reinhart and Reuland 1993, Charnavel 2020a,b). In this section, we will briefly discuss to what extent logophoric pronouns in West-African languages and exempt

[34]The logic of the account of (82) leads us to expect that LOGPs are fine with 2nd-person antecedents. While this is correct for Ewe (Clements 1975, Bimpeh 2023) and other languages (see Hyman and Comrie 1981, Stirling 1993, Nikitina 2012), it appears to not be true for all logophoric languages (see e.g., Kiemtoré 2022). We leave this issue unresolved for now and hope to revisit it in a future occasion.

anaphors can be captured with the same analysis. Our preliminary conclusion is that they should not receive the same analysis.

First let us consider some properties that exempt anaphora share with logophoric pronouns. For one, strict readings are attested for exempt anaphors (see Lebeaux 1984, Reinhart and Reuland 1993, Charnavel 2020a). This is shown with VP-ellipsis and English *himself* acting as an exempt anaphor in (84).

(84) John$_1$ thought there were some pictures of **himself**$_1$ inside, and Bill did, too.

$\rightsquigarrow_{sloppy}$ Bill thought that there were some pictures of himself inside too.

$\rightsquigarrow_{strict}$ Bill thought that there were some pictures of John inside too.

(Lebeaux 1984: 346)

Moreover, exempt anaphors can only receive *de se* readings, as is exemplified by the contexts in (85) and (86), taken from Chierchia (1989). The exempt anaphor is licensed in a *de se* context in (85), but is infelicitous in the mistaken identity context set up in (86).

(85) *Context de se:* Kaplan sees a man in the mirror with his pants on fire. After a while he realizes for obvious reasons that the man in the mirror is he himself. Kaplan thinks: "My pants are on fire."

a. Kaplan thinks that his pants are on fire. *de re/de se*

b. Kaplan believes that he **himself** has pants on fire. *de se*

(86) *Context non de se:* Kaplan sees a man in the mirror with his pants on fire. The man happens to be Kaplan himself but he doesn't realize this. Kaplan thinks: "His pants are on fire."

a. Kaplan thinks that his pants are on fire. *de re/de se*

b. #Kaplan believes that he **himself** has pants on fire. *de se*

Charnavel (2020a,b) proposes that exempt anaphors should be considered a subcase of local anaphors, thereby capitalizing on the observation that they show identical morphological realization. The exempt status is derived by the assumption that anaphors can be bound by a silent covert pronoun which is introduced by a silent logophoric operator, shown in (87).[35] This pronoun is co-indexed with the antecedent, and thus can trigger strict or sloppy readings. Based on Charnavel and Sportiche (2016), Charnavel develops an analysis in which both pronoun and operator form a clausal projection (notated here LGP) which is merged at the periphery of the binding domain for Condition A (*YP* in (87a)). The operator in (87b) ensures obligatory *de se* readings.

(87) Charnavel (2020b: 9,36)

a. ... DP$_i$ ... [$_{YP}$ [$_{\text{LGP}}$ pro$_{log-i}$ OP$_{log}$ [$_{\alpha}$ ... ANAPHOR$_i$ ...]]]

b. $[\![\text{OP}_{log}]\!] = \lambda\alpha\lambda x.\alpha$ from x's perspective

[35] We discuss the account by Charnavel (2020a,b) here specifically, but note that there are many versions of a silent operator account which have been proposed for logophors in particular (Koopman and Sportiche 1989, Speas 2004, Safir 2004, Adésolá 2005), but also PRO (Chierchia 1989), exempt anaphors and logophors (Anand 2006, Baker and Ikawa 2022), indexiphors (Deal 2018) and perspectival anaphora (Sundaresan 2018).

While an analysis of logophoric pronouns in our languages in terms of exempt anaphors along the lines of Charnavel's (2020a, 2020b) theory cannot a-priori be ruled out, we think that there are two central problems with it. The first one comes from the morphology of logophors. The elegance of Charnavel's theory stems from the fact that exempt anaphors are subsumed under standard local anaphora in languages like English, French, Japanese etc. This is desirable as they share the morphology with local anaphora in these languages. However, at least in Ewe and Yoruba, the reflexive pronoun looks radically different from the logophoric pronoun, shown in (88) and (89).[36] Hence, it is not clear what would motivate a unification of the grammar of LOGPs with that of a exempt anaphors in these languages.

(88) *Reflexives in Ewe* (Clements 1975)

a. Kòkú kpɔ́ **é-dòkùì / *yè**.
Koku saw **3SG-REFL / *LOGP**
'Koku saw himself.'

b. Kòkú bé yè kpɔ́ yè-dókùì.
Koku say LOG see LOG-REFL
'Koku said that he saw himself.'

(89) *Reflexives in Yoruba* (Lawal 2006)

a. Taiwo féron **araare**.
Taiwo like **REFL**
'Taiwo likes himself.'

b. *Taiwo féron **óun**.
Taiwo like **LOGP**
'Taiwo likes himself.'

The second problem we see in unifying logophors with exempt anaphors is based on the syntactic and semantic distribution. The licensing conditions of LOGPs appear to be different in complex ways from those of exempt anaphors. Specifically, LOGPs seem to be more narrowly licensed. For example, it is known that an exempt anaphor in English need not necessarily be c-commanded by a suitable antecedent (Ross 1970, Lebeaux 1984, Charnavel 2020a: chapter 1.1), as is shown in (90).

(90) *Exempt anaphor in English*
Mary's anger sometimes turns against **herself**.

In the same position, however, the logophoric pronoun in Ewe is unacceptable (91a). Instead, either the strong 3rd person pronoun (91b) or a reflexive (91c) is used.[37]

[36] In Igbo, the form of the logophor *yá* is identical to the morphological form of the pronoun in object position (see also footnote 4). Reflexives like 'herself' are formed by *ònwé* + *yá* (Uchechukwu 2011). While this could signal that the reflexive and the logophor share a morpheme, it is more likely that the *yá* in *ònwé yá* is simply the pronoun marked for accusative, similar to English *her-self*.

[37] We note that the fact that Ewe has both LOGP and and what can presumably be classified as an exempt anaphor in (91c) strengthens the suspicion that they are not exactly the same creature.

(91) *Probing for exempt anaphor in Ewe* (fieldwork)

a. *Kòfí ƒé dzìkú lè ɤèɤíɤí-áɗé-wó-mè trɔ́-ná ɗé **yè** ŋùtɔ́ dzi.
Kofi POSS anger be times-INDEF-PL-inside turn-HAB onto **LOGP** body top
'Kofi's anger sometimes turns against himself.'

b. Kòfí ƒé dzìkú lè ɤèɤíɤí-áɗé-wó-mè trɔ́-ná ɗé **éyà** ŋùtɔ́ dzí.
Kofi POSS anger be times-INDEF-PL-inside turn-HAB onto **3SG** body top
'Kofi's anger sometimes turns against himself.'

c. Kòfí ƒé dzìkú lè ɤèɤíɤí-áɗé-wó-mè trɔ́-ná ɗé **édókùì** dzi.
Kofi POSS anger be times-INDEF-PL-inside turn-HAB onto **REFL** top
'Kofi's anger sometimes turns against himself.'

A similar observation can be made for LOGP in Yoruba. In contrast to the English exempt anaphor, the logophoric pronoun is unacceptable in the same position (92a). Instead the pronoun is used (which in this example is assimilated to the preceding vowel), see (92b).

(92) *Probing for exempt anaphor in Yoruba* (fieldwork)

a. *ìbúnú u Kọ́lá má kóbá **óun** nígbàmíràm
anger POSS Kola do affect **LOGP** sometimes
'Kola's anger sometimes turns against himself.'

b. ìbúnú u Kọ́lá má kóbá **a** nígbàmíràm
anger POSS Kola do affect **3SG** sometimes
'Kola's anger sometimes turns against himself.'

The distributional differences align with a recent study by Baker and Ikawa (2022) (B&I) which compares a West-African type logophor (Ibibio *ímọ̀*) with an exempt anaphor (Japanese *zibun*) across various environments. They encounter several differences between the two types, one is related to the distribution. Concretely, they observe that Japanese *zibun*, but not Ibibio *ímọ̀*, is licensed in a root clause if an adjunct like 'according to X' or 'in X's opinion' is present, see (93).

(93) *Logophor vs. exempt anaphor* (Baker and Ikawa 2022: 33)

a. Ke akikere Okon, Emem / ***ímọ̀*** i-ma i-due. *Ibibio*
in thought Okon, Emem / **LOGP** 3.LOG-PST-3.LOG-guilty
'In Okon$_i$'s opinion, Emem/he$_i$ was guilty.'

b. Taroo-ni.yoruto **zibun**-wa waruku-nai-?(n(o)-da-)soo-da. *Japanese*
Taroo-according.to **self**-TOP bad-NEG-no-COP-EVID-COP
'According to Taroo$_i$, self$_i$ is not bad.'

The Ewe logophor *yè* patterns with the logophor in Ibibio and not with the exempt anaphor in Japanese, as the following examples show.[38]

[38]The unacceptability of *yè* in (95b) is not due to the fact that the logophor is accompanied by a focus marker since a focused logophor is in principle possible, see the example in (94), taken from Bimpeh (2023: 162).

(95) *B&I context (93) in Ewe* (fieldwork)

a. Lè Òkón$_1$ ƒé sùsú mè lá, **Kòfí / é$_{1/2}$ / *yè** xɔ̀sè bé yè nyá
in Okon POSS mind inside TOP **Kofi / 3SG / LOGP** believe that LOG know
àgbàlè.
book
'In Okon's mind, Kofi/he believes he is smart.'

b. Lè Òkón$_1$ ƒé sùsú mè lá, **éyà yé / *yè yé** nyé àmè sì
in Okon POSS mind inside TOP **3SG FOC / LOGP FOC** is person REL
nyá nú lè Xéxé lá mè.
know thing LOC world DEF inside
'In Okon's mind, he is the smartest person in the world.'

Constructions akin to (95a) produce similar results in Yoruba (96) and Igbo (97). While the ordinary pronoun is licensed, the logophor was not fully accepted by our speakers.

(96) *B&I context (93) in Yoruba* (fieldwork)

a. Ni ọkan Kọ́la, **ó** nigbagbo wipe òun gbon.
in mind Kola **3SG** believe that LOG smart
'In Kola's mind, he believes he is smart.'

b.?? Ni ọkan Kọ́la, **òun** nigbagbo wipe òun gbon.
in mind Kola **LOG** believe that LOG smart
'In Kola's mind, he believes he is smart.'
Comment: It is marked. In fact, speakers might have difficulty parsing it and connecting the reference.

(97) *B&I context (93) in Igbo* (fieldwork)

a. N'uche Okon, **ọ́** kwere ne yá ma ihe.
PREP=mind Okon **3SG** believe that LOG know thing
'In Okon's mind, he believes he is smart.'

b.?? N'uche Okon, **yá** kwere ne yá ma ihe.
PREP=mind Okon **LOG** believe that LOG know thing
'In Kola's mind, he believes he is smart.'
Comment: It sounds degraded to me.

In light of such data, a proposal along the lines of Charnavel (2020a,b) would have to explain why the silent logophoric operator, proposed in (87), which (locally) binds English/French/Japanese exempt anaphora cannot appear in the same environments to bind the LOGP in Ewe/Yoruba/Igbo. We leave the development of a unifying theory to future work.

(94) Mary be **yè** **yé** dzó.
Mary say **LOGP FOC** leave
'Mary said it was she who left.'

8 Conclusion

This paper provided evidence that logophoric pronouns (LOGPs) in Ewe, Yoruba and Igbo support both strict and sloppy readings in ellipsis configurations and in sentences with *only* (following observations in Culy 1994 and Bimpeh and Sode 2021), and offered a formal analysis that could capture this behavior. The account supplants existing accounts of LOGPs with the idea that LOGPs are pronouns that contain a semantic feature LOG in charge of encoding the *de se*-reference to the attitude holder (following Bimpeh et al. 2022), but whose contribution can be ignored at the level of focus alternatives. We argued that the theory correctly predicts novel strict readings ('Strict Unknown') of LOGPs, as well as for long-distance dependencies and for a restriction on the occurrence of LOGP with 1st-person antecedents.

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