Disjointness inferences in logophoric contexts: on the competition of pronouns in attitude reports*

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Pronouns commonly give rise to disjointness inferences about their referents in simple clauses, and about their antecedents in embedded ones. Focusing on languages with logophoric pronouns, this paper explore further the various disjointness patterns that these languages give rise to, and the competition mechanism behind them. Expanding on Schlenker (2003), I provide cross-linguistic evidence that logophoric pronouns are non-indexical first personal elements that compete with other pronouns in the person paradigm, and that indexicality is best understood as a feature distinct from Person. Coupled with the appropriate competition mechanism (*Maximize Presupposition!*, Heim 1991), the present proposal is shown to be able to derive a wide range of patterns about the distribution of logophoric pronouns and, potentially, shifted indexicals, while providing us with important insights about the featural composition of the pronouns themselves which, we argue (after Nevins (2007) and Harbour 2011, 2013), is binary.

Keywords: Pronouns, disjointness effects, logophors, person features, indexicals, attitude reports, alternatives, Maximize Presupposition!

1 Introduction

Pronouns often give rise to disjointness inferences about their referent (Marty 2017, 2018 i.a.); for instance, the use of a third person pronoun in English to refer either to the current speaker (1a) or addressee (1b) results in infelicity.

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*Acknowledgements to be added.

(1) *Context: John is speaking to Mary.*

    a.   He is happy.
         ⇝ The referent of *he* is not the actual speaker or addressee.

    b.   She is happy.
         ⇝ The referent of *she* is not the actual speaker or addressee.

<div align="right">(adapted from Schlenker 2005: (18))</div>

In embedded contexts, however, no such inference arises: under attitude verbs such as *say*, third person pronouns are able to refer to the reported author or to another, salient male individual, (2), resulting in a well-known ambiguity.

(2)   John$_i$ said that he$_{\{i/j\}}$ is happy.

As famously observed by Kaplan (1989), this ambiguity cannot be resolved by replacing the third person pronon by a first person one: indexicals being directly referential, they unambiguously refer to the speaker *s* (3a) or addressee *a* (3b) of the utterance context.

(3)   a.   John$_i$ said that I$_{\{\#i/\#j/s\}}$ am happy.

       b.   John$_i$ said to Mary$_j$ that you$_{\{\#i/\#j/a\}}$ are happy.

However, this restriction is by no means universal and seems to depend on the pronouns available in a given language. A case in point are logophoric pronouns from the Niger-Congo and Chadic families found in Africa: these languages have an additional pronominal form in their paradigm dedicated to refer to the reported speaker in attitude environments (Hagège 1974; Clements 1975; Koopman and Sportiche 1989; Culy 1994a i.a.):[1]

(4)   Kofi be **yè**   dzo
        Kofi say **LOG** leave
        'Kofi$_i$ said that he$_{\{i/\#j\}}$ left'

<div align="right">[Ewe (Niger-Congo), Clements 1975]</div>

In these languages, we observe a restriction about the use of standard third person pronouns: they cannot co-refer with the attitude holder introduced in the matrix sentence.

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[1] Here is a list of the glossing conventions used in this paper: IMPF = imperfective aspect, LOG = logophor, PRFVE = perfective aspect, QUOT = quotative particle, REP = reportative, 1 = first person, 2 = second person, 3 = third person, ABS = absolutive, ACC = accusative, AUX = auxiliary, COMP = complementizer, COP = copula, DAT = dative, DEF = definite, DEM = demonstrative, ERG = ergative, F = feminine, FOC = focus, FUT = future, IMP = imperative, INS = instrumental, INTR = intransitive, IRR = irrealis, M = masculine, NEG = negative, NOM = nominative, OBJ = object, OBL = oblique, PFV = perfective, PL = plural, POSS = possessive, PRF = perfect, PROG = progressive, PRS = present, PST = past, SBJV = subjunctive, SG = singular.

(5)   Kofi be **e** dzo
       Kofi say **3SG** leave
       'Kofi$_i$ said that he$_{\{\#i/j\}}$ left'

[Ewe, Clements 1975]

This paper aims at exploring this restriction and accounting for it in terms of pronominal competition. Building on and expanding a proposal by Schlenker 1999, 2003, the central idea explored here is that, contrary to what has been assumed in much of the previous literature on the subject (Koopman and Sportiche 1989; Heim 2001; Adesola 2005; Pearson 2015; Deal 2018 a.o.), logophoric pronouns are essentially first-personal elements that do not require anchoring to the actual utterance context, i.e. non-indexical first personal pronouns. The drive behind the kind of restriction illustrated in (5), we argue, is therefore not binding, but competition with other forms in a given paradigm. This competition arises at the level of the respective presuppositions encoded on the pronouns themselves, the use of which is regulated by Heim (1991) *Maximize Presupposition!* Principle, which adjudicates between forms of different presuppositional strength. This requires an adequate characterization of the semantic contribution of a logophoric form in a given language, which aligns with the other entries commonly assumed for first, second and third personal pronouns. We therefore propose to analyze logophoric first-person forms as the spellout of a featural bundle [+AUTHOR, -ACTUAL] that directly compete with standard first-person forms, which are [+AUTHOR, +ACTUAL]. Such semantic uniformity allows us to derive a large number of attested and unattested distribution patterns for logophoric elements. Our proposal has various consequences, most notably concerning i) the adequate characterization of indexical vs non-indexical elements in a given language, ii) the metrics by which competition can arise in a given paradigm and the corresponding alternatives (Katzir 2007; Fox and Katzir 2011), and iii) the featural composition of pronouns, which we argue have to be represented as bundles of bivalent features of similar complexity across a given paradigm in order for competition to take place (Harbour 2013, 2016).

    The remainder of this paper is structured as follows. §2 introduces logophoric systems and their various typological instantiations across languages. §3 offers an overview of the main formal analyses proposed so far to account for the phenomenon, highlighting the respective challenges they face. §4 exposes our proposal, first introducing Schlenker (2003)'s system in §4.1 and then expanding it in §4.2-4.5. §5 illustrates how the present theory is able to derive the data at stake, while §6 is an attempt to extend the theory to a similar phenomenon, shifted indexicals; §7 concludes.

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2 Logophoric pronouns: main features

This section introduces logophoric pronouns and their properties, including their distributional restriction to a discourse-level logophoric domain (§2.1), their preference for *de se* interpretation (§2.2), and their ability to license agreement mismatches (§2.3).

2.1 Distribution and licensing

In many Sub-Saharan languages, a dedicated pronominal form is used in attitude reports to cross-reference the author of the report:[2]

(6) a. Oumar Anta **inyemɛn** waa be gi
     Oumar Anta **LOG.ACC** seen AUX said
     'Oumar$_i$ said that Anta had seen him$_i$'

   b. Oumar Anta **won** waa be gi
     Oumar Anta **3SG.ACC** seen AUX said
     'Oumar$_i$ said that Anta had seen him$_{*i/k}$'
                    [Donno Sɔ (Niger-Congo, Dogon; Mali), Culy 1994a: (1)]

In some cases, the logophoric form can be realized as a verbal affix, as in the language Akoose (Niger-Congo, Bantu; Cameroon):

(7) a. à hɔbé ă á-kàg
     3SG said REP 3SG-should.go
     'He$_i$ said he$_{*i/j}$ should go.'

   b. à hɔbé ă mə-kàg
     3SG said REP LOG-should.go
     'He$_i$ said he$_{i/*j}$ should go.'

                                        [Akoose, Hedinger 1984: 95]

The distribution of logophoric forms is somewhat restricted, being confined to a certain class of syntactic-semantic environment, namely, finite clauses involving attitude predicates, creating what I will call from now on a "logophoric context". As first noted by Culy (1994a), out of a sample of 48 logophoric languages, 29 would allow LPs to

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[2] In this paper, I use the terms 'logophoric pronoun', 'logophoric form' and 'logophor' interchangeably to refer to the elements traditionally designated as such in the seminal sense of Hagège (1974), and not to other forms that have been labeled 'logophors' with different theoretical implications in the generative literature, such as long-distance anaphors (i. e., anaphors that seem not to obey the 'condition A' principle of Binding Theory; see Kuno (1987), Reinhart and Reuland (1993), Charnavel and Sportiche (2016) i.a.). For typological arguments that the former class is not reducible to the latter, see among others Culy (1994a) and Dimmendaal (2001); for theoretical arguments, see Bassi et al. (2023).

appear under *say*, while only a subset of this group (13) would allow LPs to appear under *think*; the same goes for *know*, where LPs are licensed for another subset of 6 languages out of the sample. This allows Culy (1994a) to conclude that LPs are licensed by a hierarchically-ordered set of attitude predicates forming an implicational scale: if a given language licenses LPs under any element in the scale, then it must also license them under any element to its right.[3]

(8) **A hierarchy of logophoric licensers** [Culy 1994a: (10)]
    speech < thought < knowledge < direct perception

However, these conditions should not be taken as imposing locality constraints on the licensing of logophoric forms. Although logophoric pronouns mainly occur in syntactic contexts involving one finite embedded clause in which the LP/SI cross-references another NP introduced in the matrix clause, they are able to co-refer to elements in more than one clause up in multiple-embedding configurations:

(9) Marie be Kofi xɔse   be   yè na yè cadeau.
     Mary say Kofi believe COMP LOG give LOG gift
     'Mary$_i$ said that Kofi$_j$ believed that LOG$_{i/j}$ gave LOG$_{i/j}$ a gift.'
                                                      [Ewe, Pearson 2015: (86)]

(10) ŋalaŋ   yim-go   ka: Tulo: ne: ka: yi ŋa   mana-m
     Malang.M think-PRFVE COMP Tulo.F say COMP LOG PROG.have house-LNK
       kude.
       big
     'Malang$_i$ thinks that Tuloo$_j$ said that LOG$_{i/j}$ has a big house.'
                         [Tangale (Afro-Asiatic: Chadic, Nigeria), Haida 2009: (12)]

What is more, as noted by e.g. Hagège (1974), Stirling (1993) and Dimmendaal (2001), LPs in some languages can retrieve their antecedent from the global, discourse context, or even a nearby clause. This is exemplified in (11) from the seminal work on LPs by Hagège (1974): The informant introduces a topic for the subsequent sentences (*the ancestors*) that a logophoric pronoun can pick up as referent, about 13 minutes after the antecedent was uttered:

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[3] It is unclear why Culy (1994a) includes the class of 'direct perception' verbs within his hierarchy, since he explicitly mentions that no language seems to license LPs under this category. I am reproducing the original proposal, without modifications.

(11) Sà:rà dús   sò
      LOG scattered thus
      'They (the ancestors) thus scattered.'
                      [Tuburi (Niger-Congo), Hagège 1974, cited in Stirling 1993: 263]

Analogous data can be provided for Moru (Nilo-Saharan) and Engenni (Niger-Congo) (Dimmendaal, 2001), Ewe (Bimpeh 2019, Bimpeh et al. 2022), Ainu (Bugaeva, 2008), among other languages. The logophoric domain thus appears to be broader than that of the embedded sentence, a logophoric form being able to retrive its reference globally, wihtin the discourse context.

2.2 *De se* interpretation

Attitudes *de se* are a distinct subtype of attitudes that involve first-personal or 'self-locating' beliefs (Perry 1977; Lewis 1979; Chierchia 1989). Typically, the content of a *de se* attitude can be felicitously attributed to an agent if they relate to that content in a first-personal way, i.e., recognize that they are the experiencer of that content. As first observed by Clements (1975) for Ewe, and later confirmed for related languages as well (Schlenker 1999, 2003; Bimpeh 2019; Bimpeh and Sode 2021; Bimpeh et al. 2022, 2023), LPs unambiguously express *de se* reports[4], rendering them infelicitous in non-*de se* scenarios in which the attitude holder is unaware that the content of the report is about himself, as (12) and (13) illustrate for Ewe and Ibibio, respectively:

(12) *Context: an Asian woman was declared missing from a party touring the Eldgjá volcanic region in south Iceland after getting off the party's bus to freshen up. She only hopped off the bus briefly, but had also changed her clothes - and her fellow travelers did not recognize her when she climbed back on again to continue the party's journey. When the details of the missing person were issued, the woman reportedly didn't recognize her own description [woman with a pink sweater] and unwittingly joined the search party for herself.*

   a. Asia nyɔnu la   xɔese   be   é   bú
       Asian woman DEF believe.3SG COMP 3SG be
       'The asian woman_i believes that she_i is lost.'   ✗ *de se*

   b. #Asia nyɔnu la   xɔese   be   yè   bú
       Asian woman DEF believe.3SG COMP LOG be
       'The asian woman_i believes that she_i is lost.'   ✓ *de se*
                                                       [Ewe, Bimpeh 2019: (15-16)]

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[4] However, LPs in Ewe and Yoruba have been reported to be compatible with a *de re* interpretation (Pearson 2015; Adesola 2005) However, such readings are contested, at least for (varieties of) Ewe and Yoruba (see Bimpeh 2019, Bassi et al. 2023).

(13) *Context: Ekpe sings on occasion, but will never admit that he is any good. So one time, during one of his performances, you record him without his knowledge. Some time later, you play back the recording to him without telling him who is singing. Ekpe doesn't recognize himself in the recording, and comments "he sings well."*

    a. Ekpe a-bo   ke   anye a-diyono ikwo ikwo mfonmfon
        Ekpe 3SG-say COMP 3SG 3SG-know sing song well
        'Ekpe$_i$ said that he$_{i,j}$ sings well.'   ✗ *de se*

    b. #Ekpe a-bo   ke   imo i-me   i-diyono   ikwo ikwo mfonmfon
        Ekpe 3SG-say COMP LOG LOG-PRS LOG-know sing song well
        'Ekpe$_i$ said that he$_i$ sings well.'   ✓ *de se*
        [Ibibio (Niger-Congo; Southern Nigeria), Newkirk 2019: (11)]

2.3 Agreement mismatches

An important feature of logophors is that they license agreement mismatches. This was already illustrated in §2.1 with the language Karimojong, in which third person pronouns can trigger first-person agreement in logophoric contexts; in yet other languages, it is the logophor itself that triggers the mismatch, as illustrated in (14)-(64) for Donno Sɔ:

(14) Anta inyemɛ yogo   bojɛ-m   gi
      Anta LOG   tomorrow go.PROG-1SG say.PST
      'Anta$_i$ said that she$_i$ is going tomorrow.'
                    [Adapted from Culy 1994b: (19a)]

(15) a. Oumar inyemɛ jɛmbɔ   paza **bolum** miñ   tagi
         Oumar LOG   sack.DEF drop left.1SG 1SG.OBJ inform.PST
         'Oumar$_i$ told me that he$_i$ had left without the sack.'

    b. Oumar ma   jɛmbɔ   paza **boli** miñ   tagi
         Oumar 1SG.SBJV sack.DEF drop left.3SG 1SG.OBJ inform.PST
         'Oumar$_i$ told me that I had left without the sack.'
                      [Donno Sɔ, Culy 1994b: (20)]

In (14)-(15a), the embedded verb is inflected for the first person, in spite of the agreement controller being the logophoric form *inyemɛ*, and not a first person pronoun. Moreover, note that first person agreement for the embedded verb is optional here, and that 'standard', third person agreement as in (15b) results in a disjoint reading, in which the

agent of leaving and Oumar have to be distinct individuals. Another example is given in (16) for Ibibio (Cross-River, Nigeria); interestingly, note that the logophoric agreement marker is syncretic with the first person agreement marker, cf. table 1.

(16) a. Ekpe a-bo   ke   imo ì-ma   í-to   Udo
          Eke   3SG.say COMP LOG LOG-PST LOG-hit Udo
          'Ekpe_i says that he_i hit Udo.'

      b. ommo e-ke   e-bo   ke   mmimo ì-ma   ì-kot   nwet
          3PL 3PL-PST 3PL-say COMP LOG.PL 1PL-PST 1PL-read book
          'They_i said that they_i read a book.'
                                    [Ibibio, adapted from Newkirk 2019: (1a)-(5)]

Person	Subject pronouns	Object pronouns	Subject agreement	Object agreement
1SG	ami	mien	n-	n-
1PL	nnyin	nnyin	i-	i-
LOG.SG	imo	imo	i-	i-
LOG.PL	mmimo	mmimo	i-	i-

Table 1: Ibibio pronouns (Newkirk, 2019, 310)

In yet some other subset of languages, one can find a dedicated logophoric agreement morphology surfacing on the verb with singular antecedents only; with plural antecedents, agreement morphology has to be first person, just like in Donno So or Ibibio. This is the case of languages Ekpeye and Efik (all three Cross-River, Nigeria and Cameroon): in Ekpeye, singular third- and second-person antecedents will be cross-referenced with the logophor *yá*, while plural antecedents will license the form *à*, which is also the first person exclusive marker :

(17) a. ù-kà   bú   yá'   zè
          3SG-say.PST   COMP.NON1   LOG.SG   go.PST
          'He_i said that he_i went.'

      b. ù-kà-ɓɛ   bú   à-zè
          3SG-say.PST-PL COMP.NON1 1PL-go.PST
          'They_i said that they_i went.'
                        [Ekpeye, adapted Curnow 2002: (27)-(29), after Clark 1972]

à can be used both in matrix and embedded clauses to cross-refer a group of entities including the speaker but excluding the addressee. This is illustrated in example (18a),

which shows that the prefix can take first person antecedents, provided another complementizer (marked for first person) is used; when the prefix *ní* is added, as in (18b), an inclusive reading obtains, which can also be used in its logophoric form with this inclusive meaning as in (18c) (suggesting that (17b) above as an exclusive meaning):

(18) a. à-kà   méní   à-zè
          1PL-say.PST COMP.1SG 1PL-go.PST
          'We$_i$ (exclusive) said that we$_i$ went.'

      b. à-kà-ní   méní   à-zè-ní
          1PL-say.PST-INCL COMP.1SG 1PL-go.PST-INCL
          'We$_i$ (inclusive) said that we$_i$ went.'

      c. ù-kà-ɓɛ   bú   à-zè-ní
          3SG-say.PST-PL COMP.NON1 1PL-go.PST-INCL
          'They$_i$ said that they$_i$ went (and the addressee was part of *they*).'
          [Ekpeye, adapted from Curnow 2002: (31)-(34), after Clark 1972]

Under standard assumptions about the semantics of first person, the data above is quite surprising: it seems that logophoricity and indexicality are conflated in languages such as Donno Sɔ, Ibibio and Ekpeye, in which first-personal markers appear in spite of being anteceded by non-actual speakers. This tight relationship between the two categories have, in our opinion, been underexplored, and no existing theory of logophoricity that we are aware of can account for these facts.

3   Previous analyses

In this section, the most prominent analyses of logophoric pronouns are introduced: the standard binding analysis (§3.1), as well as a more recent account by Bassi et al. (2023) (§3.2). We discuss these analyses in turn and show that both fail to capture the full range of data presented in §2, ultimately calling for a different analysis.

3.1   The standard binding analysis

Under the standard binding analysis, logophoric pronouns are obligatorily-bound elements consisting of an individual variable (Koopman and Sportiche 1989; Heim 2002; von Stechow 2003; Anand 2006; Baker 2008; Pearson 2015; Deal 2018 i.a.). Most of these analyses are framed within an intensional system whereby attitude verbs are viewed as quantifiers over centered worlds, i. e. world-individual pairs conceived as tuples of type $\langle s, e \rangle$ (Lewis 1979, Chierchia 1989 a. o.). Within such a system, LPs are considered a special kind of pronoun that unambiguously pick up the center of the

world it is evaluated against, i. e. the individual that the referent takes himself to be in the world of evaluation. Its main inspiration are the treatment of the silent pronominal *PRO* in sentences such as (19a), that Chierchia (1989) analyses as in (19c), where *PRO* is bound by the closest individual λ-abstractor at the left edge of the attitude verb:

(19) a. John wants to learn how to dive-roll.

   b. $[\lambda w_1.[w_1 \text{ John wants } [\lambda w_2.\lambda x_3.[w_2 \text{ PRO}_3 \text{ to learn how to dive-roll }]]]]$

   c. $[\![\text{ PRO to learn how to dive-roll }]\!]^{g,c} = 1$ iff $\lambda w.\lambda x.x$ learns how to dive-roll in w

   d. $[\![\text{ John wants PRO to learn how to dive-roll }]\!]^{g,c} = 1$ iff $\lambda w.\forall < w',y >\in$ $\text{WANT}_{John,w}$, y learns how to dive-roll in w'.

In words, the sentence will be true iff in all the worlds compatible with what John wants in w, the individual he takes himself to be in those worlds w' (the center of each of those worlds) leans how to dive-roll in w'. Intuitively, it seems possible to treat LPs in an analogous fashion: since they always denote the agent of the attitude of saying/believing (the logophoric center), one can posit that they also unambiguously denote the center of the embedded proposition, much like *PRO*. This line of analysis is pursued by von Stechow (2002, 2003), Heim (2002) and Pearson (2015) a. o., who assume (in different flavors) that much like control predicates, attitude verbs also introduce λ-abstractors for individuals in the left of their complements, and that LPs come endowed with a syntactic feature LOG that forces them to be bound by this abstractor. To illustrate, the Ewe sentence in (4) willl be interpreted as in (20c):

(4) Kofi be **yè** dzo
   Kofi say **LOG** leave
   'Kofi$_i$ said that he$_{i/*j}$ left.'

(20) a. $[\lambda w_1.[w_1 \text{ Kofi said}_{[log]} \text{ that } [\lambda x^2_{[log]}.\lambda w_3.[w_3 \text{ LOG}^2_{[log]} \text{ left }]]]]$

   b. $[\![\text{ LOG left }]\!]^{g,c} = \lambda w.\lambda x.x$ left in w

   c. $[\![\text{ Kofi said that LOG left }]\!]^{g,c} = \lambda w.\forall < w',y >\in \text{SAY}_{K,w}, y$ left in w'

This analysis ensures the *de se* interpretation of the LP: since the pronoun is obligatory bound by the individual abstractor, it will unambiguously denote the center of the world-individual pair, that is, the individual that Kofi identifies himself with in his *SAY*-worlds counterparts, ruling out both non-coreferential and *de re* readings of LOG.

   This analyses has two important shortcomings, related to the fact that they all assume the logophor to be an obligatorily bound variable. The first concerns the fact that logophors are able to take long-distance and/or discourse antecendents and therefore,

cannot be syntactially bound in the sense required here, as illustrated by the examples (9)-(11). A related problem, discussed in detail by Bassi et al. (2023) (see §3.2 below), is the fact that, at least in languages Yoruba, Ewe and Ibibio, logophors are able to license 'sloppy' readings in focus-sensitive environments, such as under ellipsis or under the scope of focus-associated *only*, (21)-(22):

(21) Élì lè mʉ-kpʉ-m bé yè á dè Àblá. Yàó hã.
      Eli COP path-see-PROG COMP LOG IRR marry Abla. Yao too.
      'Eli$_i$ hopes that he$_i$ will Marry Abla. Yao$_j$ does ⟨ ... ⟩ too.'
      ✓ Yao hopes that Yao will marry Abla, too. (sloppy reading)
      ✓'Yao hopes that Eli will marry Abla, too. (strict reading)

(22) Élì kò yé súsú bé yè dùdzí lè àwù-dódó fé hòwíwlí
      Eli only FOC think COMP LOG win in-dress wear POSS contest

        mè.
        inside
      'Only Eli thinks that he won the costume contest.'
      ✓ No one$_i$ but Eli think they$_i$ won the costume contest. (sloppy reading)
      ✓ No one but Eli$_j$ think he$_j$ won the costume contest. (strict reading)
                                                    [Bassi et al. 2023: (13)-(9)]

As Bassi et al. (2023) argue, the standard binding account does not predict such readings: the logophor being in each case an obligatory bound variable, there is no way for it to be free in either the elided clause or in the focus alternatives:

(23) **LF of (21):** Eli$_i$ hopes [$\lambda x^2_{[log]}$ that LOG$^2_{[log]}$ will Marry Abla]. Yao$_j$ does ⟨ hope [$\lambda x^2_{[log]}$ that LOG$^2_{[log]}$ will Marry Abla ⟩ too.'

(24) **LF of (22):**
      a. Only Eli$_{[F]}$ thinks [$\lambda x^2_{[log]}$ that LOG$^2_{[log]}$ won the costume contest].
      b. ALT(22a): $\left\{ \begin{array}{l} \text{Koku}_{[F]} \text{ thinks } [\lambda x^2_{[log]} \text{ that LOG}^2_{[log]} \text{ won the costume contest}]. \\ \text{Kofi}_{[F]} \text{ thinks } [\lambda x^2_{[log]} \text{ that LOG}^2_{[log]} \text{ won the costume contest}]. \\ ... \end{array} \right\}$

From this, Bassi et al. (2023) conclude that the binding theory of LPs fail to account for such cases and therefore should be amended. The take home message is that logophors cannot be satisfactorily analyzed as obligatorily-bound variables.

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3.2 An alternative account: Bassi et al. (2023)

Building on examples such as (21)-(22) illustrating that logophoric pronouns in Ewe, Yoruba and Igbo can systematically eschew binding locality effects under focus, Bassi et al. (2023) propose a system in which logophors are presuppositionally-restricted variables. Their proposal draws on a solution by Sauerland (2013) to account for analogous data involving strict readings of reflexive anaphors, which can exhibit the same interpretive properties in focus-sensitive contexts (McKillen, 2016). Bassi et al. (2023) take this common behavior of LPs and SELF-anaphors as a support that ϕ-features can be ignored during the computation of focus alternatives (Spathas 2009; Jacobson 2012; Sauerland 2013 a.o.); they assume that LPs are complex elements composed of two different syntactic pieces: a feature LOG, and a variable *pro*. The latter is a variable over individuals concepts (of type $\langle s, e \rangle$) that can either be bound or free, while the former is a presuppositional feature that enforces reference to the attitude holder (the speaker coordinate of the index, in the present system's terms), ensuring *de se* readings. In Bassi et al. (2023)'s system, which is fully extensional, world variables are present in the syntax and come with every individual or predicate type. A sentence such as (25) has the following truth conditions:

(25)   a.   Eli$_i$ thinks that LOG$_i$ won.

   b. $\llbracket (25)a \rrbracket = \forall w_x \in Dox_{Eli}, x$ won in w.

   c. $\llbracket \text{Eli} \rrbracket = \lambda w_x.$ The person in w named 'Eli'.

   d. $\llbracket \text{win} \rrbracket = \lambda w_x.\lambda z.\ z$ wins in w.

   e. $\llbracket \text{LOG} \rrbracket^g = \lambda f_{\langle s,e \rangle}.\lambda w_x : f(w_x) = x.x$

   f. $\llbracket \text{LOGP} \rrbracket^g = \llbracket \text{LOG} \rrbracket^g(\llbracket pro_i \rrbracket^g) = [\lambda w_x : \llbracket pro_i \rrbracket^g(w_x) = x.x]$

The denotation of LOG is a presuppositional function from world-center pairs to their center, i.e. that individual which the attitude holder takes himself to be in w. Since the 'center-mapping' function that is the presupposition of LOG can be ignored during the computation of focus alternatives, this derives strict readings of LPs in both ellipsis and *only*-contexts.

   The analysis of Bassi et al. (2023) bears numerous similarities with the system we adopt in §4. It equally makes use of presuppositional entries for person, and also seeks to wire the meaning of logophors directly within the lexical entries of the pronoun. I take this to be a virtue, since it allows to straightforwardly capture the fact (rarely mentioned in the literature) that LPs can have matrix uses: in such cases, the presupposition carried by LPs is simply accommodated, deriving the semantics of standard embedded reported speech. Another similarity relates to the representation of world variables in the syntax: this is required, so the individual variable associated with the world variable always

denote the *center* of that world, and not some other inhabitant of it. Note that this is very similar to the system we will adopt in (4), where it is assumed that attitude verbs quantify over contexts represented with context variables on the pronouns; context pronouns are simply finer-grained coordinates.

However, an important difference lies in the entries assumed for LPs themselves. While, for Bassi et al. (2023), the LP is a variable augmented with a LOG feature, in the present system, it is a first-person element specified with an -ACTUAL feature (see §4.5). The featural makeup of pronouns is therefore different in the two theories, LPs being considered first-personal elements only in the present approach. As we will see, this point will prove crucial to derive the agreement patterns illustrated in §(2.3), in which logophors trigger first-person agreement on embedded verbs, as in (15) repeated here:

(15) a. Oumar inyemɛ jɛmbɔ   paza **bolum**   miñ   tagi
          Oumar LOG   sack.DEF drop left.1SG 1SG.OBJ inform.PST
          'Oumar$_i$ told me that he$_i$ had left without the sack.'

      b. Oumar ma   jɛmbɔ   paza **boli**   miñ   tagi
          Oumar 1SG.SBJV sack.DEF drop left.3SG 1SG.OBJ inform.PST
          'Oumar$_i$ told me that I had left without the sack.'

                                                          [Culy 1994b: (20)]

Under standard accounts of agreement, in which features of the target are inherited from or shared by the controller, first-person marking on the embedded verb argues for a different featural makeup for logophors, which we set out to introduce in the next section.

4   Proposal: logophors as non-indexical first persons

In this section, I lay out my proposal, which in many respect follows the system outlined in Schlenker (2003), with important modifications. I follow Schlenker (2003) in treating logophors as inherently first person pronouns that differ in their binding potential under certain atttitude verbs; crucially, however, what regulates this is not a person specification per se - as the entries in (28)-(29) have it - but rather, a contextual feature ± ACTUAL, distinct from person. This divergence will be shown to have important consequences, most notably about the competition mechanism that regulates the distribution of logophoric elements, as well as for deriving the different attested logophoric systems and their restrictions (§5).

4.1 Schlenker's system: logophors as first person elements

Schlenker's proposal (extended in Schlenker 2011) can be viewed as an variant of the binding account of logophors, with an important difference, on which the present proposal also capitalizes: in his system, logophoric pronouns are not variables augmented with a LOG feature, but first person forms. This brings logophoric pronouns very close to shiftable indexicals (see §6). This idea is implemented using two crucial features: i) context variables are represented in the syntax and introduced by the pronouns themselves, and ii) attitude verbs are able to quantify over these context variables (of type k), as in (26):[5]

(26) **Monstrous semantics for *say***
$[\![\text{ say }]\!]^g = \lambda c_k.\lambda p_{\langle k,t \rangle}.\lambda x_e.\forall c'$ compatible with what x says in c, $p(c') = 1$

Crucially, pronouns differ according to which which kind of context variable they are specified with: while standard, first person pronouns will be specified with a dedicated variable c^*, logophoric (first person) pronouns (as well as shiftable indexicals in languages that have them) will be specified with a standard variable c_i. By the assumption in (27), c^* is a variable that cannot be bound.

(27) **Assumption about context variables**

    a. c^* is a free variable that always denotes the context of the actual speech act;

    b.   No other context variable can be free.   [Schlenker 2011: (72)]

Accordingly, the lexical entries for first person and logophoric pronouns in a logophoric language will be as in (28)-(29), in which each pronoun is endowed with a dedicated person feature that semantically encodes a presupposition about the context they have to be interpreted against:

(28)   a.   I $= [x_i [+\text{AUTHOR}(c^*)]]$

      b.   LOG $= [x_i [+\text{AUTHOR}(c_i)]]$

---

[5] Note that contexts here are not primitive elements, but (in the spirit of Kaplan 1989) tuples of coordinates of the form $\langle s, a, w, t, l \rangle$, containing a speaker, an addressee, a world, a time and a location variable - although we will ignore most of them in what follows. This brings contexts close to indexes or circumstances of evaluation (c.p. Zimmermann 1991, Von Stechow and Zimmermann 2005, Anand 2006)

(29) a. $[\![I]\!]^g = \lambda c : c = c^*.\ s(c)$

   b. $[\![\text{LOG}]\!]^g = \lambda c.\ s(c)$

Consequently, while the variable c^* will always allow the pronoun it is associated to to refer to the utterance context, the logophor context variable will be bound by the attidue verb, returning the center/author of the attitude, i.e. the individual the binder takes himself to be in c:

(30) a. $[\![$ John says that I am a hero $]\!]^g = 1 \Leftrightarrow \forall c'$ compatible with what John says in c^*, $s(c^*)$ is a hero in c'.

   b. $[\![$ John says that LOG is a hero $]\!]^g = 1 \Leftrightarrow \forall c'$ compatible with what John says in c^*, $s(c')$ is a hero in c'.

However, granting quantification over contexts for attitude verbs uniformly will not derive the adequate typology, since this would wrongly predict logophors to appear under any attitude verb, contrary to fact. As a consequence, Schlenker (2011) proposes to amend the system by positing accessibility restrictions directly within the lexical entries of verbs themselves (i.e., in the kind of abstractor they are able to introduce): in addition to fully "monstrous" attitude verbs such as (26), languages also allow various verbs with different quantificational profiles in their lexicon: for instance, a logophoric language that falls within Culy's hierarchy exemplified in (8) would also dispose of attitude verbs such as (31) that allow for world-individual (*de se*) quantification, but not context quantification - and therefore, unable to bind logophors:

(31) **Non-monstrous semantics for *think***
   $[\![$ think $]\!]^g = \lambda c_k.\lambda p_{\langle k,t\rangle}.\lambda x_e.\forall w'$ compatible with what x thinks in c, $\forall c'$ s.t. $w(c') = w'$, $p(c') = 1$

Accordingly, such an attitude verb will be able to bind the center of the worlds that it quantifies over, while being unable to bind the logophor variable $s(c)$. This allows Schlenker (2011) to parametrize the system and allow for cross-linguistic variation: it is expected that in a logophoric language L with both kinds of attitude verbs such as (26) and (31), logophoric pronouns should appear only under the former and be infelicitous under the latter, matching Culy's observations about logophoric licensors (§2.1).

4.2   The morphosemantics of person and the ACTUAL feature

As it stands, however, the system of Schlenker (2003) is not sufficiently explicit about the internal composition of pronouns, and about how the contextual restriction on (non-)indexical pronouns comes about. In what follows, my aim is to bring this system in line

with current approaches about the morphosemantics of person features, and propose a precise characterization of the contextual restriction as a kind of feature distinct from person.

Following Harley and Ritter (2002), McGinnis (2005), Nevins (2007), Sauerland (2008b) and Sauerland and Bobaljik (2022), among many others, I assume that the person domain makes use of two primitive features, ± AUTHOR and ± PARTICIPANT (abbreviated as ± AUTH and ± PART) which compose in a restricted manner to yield attested paradigms across languages (where 1, 2, 3 stand for the respective persons).[6] In line with most current research in the semantics of person (Cooper 1983; Heim 2008; Sauerland 2008b; Stokke 2010; Sudo 2012; Charnavel 2019 a.o.)[7], I take person features to be interpreted as presuppositions, i.e. partial functions of type $\langle e, e \rangle$ restricting the domain of interpretation of the expression they are associated with (the pronoun itself being treated as a variable, cf. Heim and Kratzer 1998).

(32) a. $[\![\text{AUTHOR}]\!]^g = \lambda c . \lambda x : s(c) \sqsubseteq x . x$

b. $[\![\text{PART}]\!]^g = \lambda c . \lambda x : s(c) \sqsubseteq x \vee a(c) \sqsubseteq x . x$

The PART feature denotes a function from contexts to a (partial) function from individuals to individuals that has to include or be equal to the speaker or addressee, while the AUTHOR feature has to include or be equal to the speaker exclusively. The inclusion relation $\sqsubseteq$ is motivated by the fact that these entries can be pluralized when combined with number features, cf. Sauerland and Bobaljik (2022). Person features compose on a person head in the syntax to form pronominal bundles in a given paradigm. Here is a standard tripartition, e.g. English:

(33) a. 1st: [+AUTH, +PART]

b. 2nd: [-AUTH, +PART]

c. 3rd: [-AUTH, -PART]

Following i.a. Noyer (1992), Harbour (2003, 2011, 2013), Nevins (2007, 2011), and Watanabe (2013), I take person features to be binary,rather than privative. This will have important consequences about the competition mechanism discussed in §4.5, and I will argue that bivalence is required in order to derive the correct distribution of logophoric

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[6] Contrary to other person inventories, such as those found in Zwicky (1977), Noyer (1992) or Harley and Ritter (2002), we posit no privative [+ HEARER] feature for the 2nd person. This is a way to address Zwicky's 1977 observation that person inventories of the form 1 | 1+2, 2 | 3, in which the inclusive first person is conflated with second person in the morphology, are unattested across languages (see Harbour 2016: 71 *sqq.*, as well as Sauerland and Bobaljik 2022 for discussion).

[7] See however Harbour (2016) and Sauerland and Bobaljik (2022) for closely related proposal that do not take person features to be inherently presuppositional; we come back to this issue in §4.5.

vs other forms in the paradigms discussed here. I also assume that negative features are interpreted trivially: a negatively specified feature will consequently have no semantic import and therefore, no presupposition (cf. Jeretič et al. 2023 for an analogous proposal of number features). As a consequence, person features form a scale based on semantic markedness (Sauerland, 2008b); each feature in the scale is entailed by the features above it. Crucial for our purposes is that the meaning of the AUTHOR feature be a subset of the PART feature; this asymmetry derives a monotonic scale on which a mechanism of strengthening takes place (see §4.4).

Pronouns themselves are complex structures; pronominal indices are of type $\langle k, e \rangle$ (that is, individual concepts of sorts, cf. Von Fintel and Heim 2011) and combine with a context pronoun c of type k. The resulting structure combines with any of the person bundles exposed in (33):[8]

(35)   a. $\left[pro_{\langle k,e \rangle} \; c_{i_k} \right]_e$

     b. $\left[\text{AUTH}_{\langle e,e \rangle} \left[pro_{\langle k,e \rangle} \; c_{i_k} \right] \right]_e$

(36)   a. $[\![1\text{st}_n \; c_i]\!]^g = \begin{cases} g(n)(g(c_i)) \text{ if } s(c) \sqsubseteq g(n)(g(c_i)) \\ \quad \text{undefined otherwise} \end{cases}$

     b. $[\![2\text{nd}_n \; c_i]\!]^g = \begin{cases} g(n)(g(c_i)) \text{ if } s(c) \sqsubseteq g(n)(g(c_i)) \lor a(c) \sqsubseteq g(n)(g(c_i)) \\ \quad \text{undefined otherwise} \end{cases}$

     c. $[\![3\text{rd}_n \; c_i]\!]^g = g(n)(g(c_i))$

In addition to the person features in (33), I am proposing that languages make use of an additional ± ACTUAL feature distinct from person, and that (absence of) lexicalization of this feature in person paradigms correctly captures the difference between logophoric and non-logophoric languages. The ACTUAL feature, as it names indicates, is an indexical feature that restricts the evaluation of the contextual variable of pronouns to the actual context of utterance, ensuring that the referent of the variable *pro* is included or equals a participant coordinate (author or addressee) of this context. Of type $\langle k, k \rangle$, it takes a contextual pronoun c_i and identifies it with the context of utterance, c^*:

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[8] As it is standard, pronouns are interpreted as functions from indices on variables to individuals *via* the following rule (Heim and Kratzer, 1998):

(34)   **Pronouns and trace rule**   [Heim and Kratzer 1998, Heim 2008]
    If α is a pronoun or a trace, n is a pronominal index, g an assignment, then

    a. $\alpha_n \in dom([\![\cdot]\!]^g)$ iff $n \in dom(g)$;

    b.   If $\alpha_n \in dom([\![\cdot]\!]^g)$, then $[\![\alpha]\!]^g = g(n)$.

   In what follows, I'll be using the lighter notation used in (36).

(37) **The ACTUAL feature**
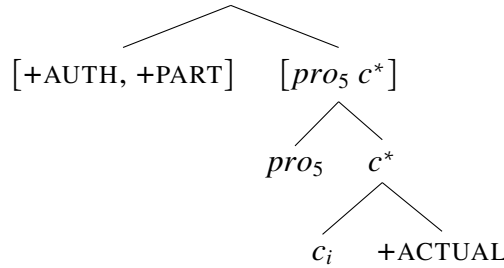$$[\![+\textsc{actual}]\!]^g = \lambda c : c = c^*.c$$

The feature ACTUAL is therefore a "purely presuppositional" element in the terms of Sauerland (2013), because its meaning is the identity function on the domain D_k that is a subset of the full set of entities of that type, i.e. the actual context c^*.

In light of this, consider English-like pronominal systems, in which first and second person pronouns are genuinely indexical and cannot cross-refer the author or addressee of an embedded attitude. In order to capture their indexicality, I posit that the feature system of such languages are addtionally specified with +ACTUAL:

(38) a.   1st: [+AUTH, +PART, +ACTUAL]

     b.   2nd: [-AUTH, +PART, +ACTUAL]

     c.   3rd: [-AUTH, -PART, -ACTUAL]

The first person pronoun in English will have the structure in (39), consisting of the pronoun and its numeral index, the +ACTUAL feature, and the [+AUTHOR, +PART] feature bundle. Application of +ACTUAL ensures that the context variable denotes the utterance context.[9]

(39) **Structure of an indexical 1P pronoun (e.g., English)**

(40) a. $[\![c_i]\!]^g([\![+\textsc{actual}]\!]^g) = g(c^*)$

     b. $[\![pro_5]\!]^g([\![c^*]\!]^g) = g(5)(g(c^*))$

     c. $[\![[+\textsc{auth}, +\textsc{part}]]\!]^g([\![[pro_5\ c^*]]\!]^g) = g(5)(g(c^*))$ iff $\begin{cases} s(c^*) \sqsubseteq g(5)(g(c^*)) \\ \text{undefined otherwise} \end{cases}$
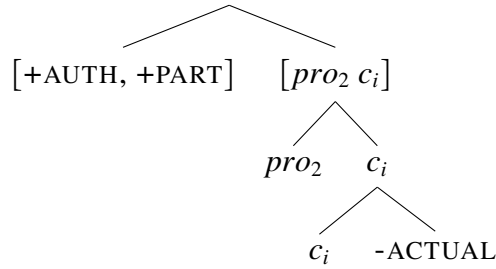
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[9] For readability, we endow context variables with alphabetical indexes $i, j, k...$ and pronouns with numerical indexes. However, this is just a notational variant, and bears no consequence on the ontology of indexes assumed here.

The entry above yields a 'genuine' first person indexical, which can only be felicitously used iff (i) the value of its index is in g's domain, and (ii) the context variable c^* it contains includes the speaker of c^*, the actual speaker.

4.3 Logophoric systems and logophoric agreement

We are now fully equipped to deal with pronominal systems like that of Gokana or Ewe introduced above: these share a common basis with English-like systems, with the important difference that in addition to 'genuine' first person forms, they also make available one (or more; see §5) additional logophoric pronoun which is specified with -ACTUAL; as a consequence, its context pronoun is not required to be identified with the context of utterance, and is able to be bound by the attitude verb. In this view, a logophoric pronoun is therefore a strictly non-indexical first person.

(41) **Structure of a speaker logophor**

(42) a. $[\![c_i]\!]^g([\![\text{-ACTUAL}]\!]^g) = g(c_i)$

b. $[\![pro_2]\!]^g([\![c_i]\!]^g) = g(2)(g(c_i))$

c. $[\![\text{+AUTH, +PART}]\!]^g([\![[pro_2\ c_i]]\!]^g) = g(2)(g(c_i))$ iff $\begin{cases} s(c_i) \sqsubseteq g(2)(g(c_i)) \\ \text{undefined otherwise} \end{cases}$

Acordingly, the full pronominal set of a language like Wan (which has speaker logophors) will consist of the following features:

(43) a. 1st: [+AUTH, +PART, +ACTUAL]

b. LOG: [+AUTH, +PART, -ACTUAL]

c. 2nd: [-AUTH, +PART, -ACTUAL]

d. 3rd: [-AUTH, -PART, -ACTUAL]

Note that the feature matrix of the second person is specified with -ACTUAL, allowing second person in Wan to refer to non-actual addressees; we come back to this in §5.3.

As a consequence, a logophoric report in such a language will be represented as follows:

(44)　a.　Kofi$_i$ said LOG$_i$ am happy.

　　　b.　　Kofi said $\lambda c_i \, [pro_2 \, c_i]$ am happy

　　　c.　$[\![(44b)]\!]^g = 1 \Leftrightarrow \forall c_i$ compatible with what Kofi said in c^*, $s(c_i)$ is happy in c_i.

In addition to correctly capturing the *de se* truth-conditions of logophoric reports such as (44), the proposed theory has two immediate advantages. The first is that ± ACTUAL, being decoupled from person features, can compose in different ways in the person domain and its valence is therefore parametric, allowing us to derive a wide range of systems (see §5). Another advantage comes from the fact of LOG forms being, at their core, first-personal elements. The first-personal nature of LPs as an hypothesis to explain their distribution and evolution is not new (Westermann 1907; Clements 1975); it was invoked notably by Faltz (1985) to explain, among other things, the fact that in the Anlo dialect of Ewe, the first person form *ye* is used both as the first-person logophor and as the first person singular genitive clitic in matrix clauses (Faltz 1985; pp. 261 *sqq*), suggesting a common first-personal origin.

Beyond the conceptual advantage of not positing an additional feature LOG in the person domain, a first-person treatment of logophoric pronouns is also able to deal with the apparent agreement mismatches introduced in §2.3. Recall that in some languages such as Donno Sɔ, Ibibio, Ekpeye and Efik, logophors are able to trigger first person agreement on the embedded verb:

(15)　a.　Oumar inyemɛ jɛmbɔ　paza **bolum**　miñ　　tagi
　　　　　Oumar LOG　　sack.DEF drop left.1SG 1SG.OBJ inform.PST
　　　　　'Oumar$_i$ told me that he$_i$ had left without the sack.'

　　　b.　Oumar ma　　　jɛmbɔ　paza **boli**　miñ　　tagi
　　　　　Oumar 1SG.SBJV sack.DEF drop left.3SG 1SG.OBJ inform.PST
　　　　　'Oumar$_i$ told me that I had left without the sack.'

<div align="right">[Culy 1994b: (20)]</div>

Under the view that agreement requires feature sharing or subsumption (Frampton and Gutmann 2000; Pesetsky and Torrego 2007; Ackema and Neeleman 2013; Haug and Nikitina 2016 i.a.), the explanation for the Donno Sɔ and Ibibio patterns follows straightforwardly: logophors being featurally specified as first-personal elements, the presence

of first person agreement on the target embedded verb is expected, reflecting the features of their controller.

Remember from §2.3 above that some systems exhibit logophoric agreement that is syncretic with the first person plural: in the singular, a dedicated logophoric agreement morpheme appears on the embedded verb. It was the cases for languages Ibibio and Ekpeye, with examples repeated here:

(16) a. Ekpe a-bo   ke   imo ì-ma   í-to   Udo
        Eke 3SG.say COMP LOG LOG-PST LOG-hit Udo
        'Ekpe$_i$ says that he$_i$ hit Udo.'

     b. ommo e-ke   e-bo   ke   mmimo ì-ma   ì-kot   nwet
        3PL   3PL-PST 3PL-say COMP LOG.PL 1PL-PST 1PL-read book
        'They$_i$ said that they$_i$ read a book.'

                                        [Ibibio, adapted from Newkirk 2019: (1a)-(5)]

We need just to assume that for languages such as Ibibio, agreement markers are syncretic between first person plurals and logophors:[10]

(45) a. [+AUTHOR, +PART, +ACTUAL, +SG] ⇔ /n-/

     b. [+AUTHOR, +PART, +ACTUAL, -SG] ⇔ /i-/

     c. [+AUTHOR, +PART, -ACTUAL, ±SG] ⇔ /i-/

The Subset Principle of Halle (1997) will consequently ensure that, in a language such as Ibibio, logophoric marking (and not first-person marking) appears regardless of number in cases in which the features of its controller contains -ACTUAL:

(46) **Subset Principle (Halle, 1997, 428)**

     a. The phonological exponent of a Vocabulary Item is inserted into a position if the item matches all or a subset of the features specified in the terminal morpheme;

     b. Insertion does not take place if the Vocabulary Item contains features not present in the morpheme;

     c. Where several Vocabulary Items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.

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[10] Arguably, the label ±SG for representing number features is incorrect: see Harbour 2007, 2011, 2014.

The case of Ekpeye, which shows an alternation between a dedicated logophoric marker in the singular and a syncretic first person/logophoric marker in the plural is more complex:

(17) a. ù-kà   bú   yá'   zè
        3SG-say.PST COMP.NON1 LOG.SG go.PST
        'He$_i$ said that he$_i$ went.'

    b. ù-kà-ɓɛ   bú   à-zè
        3SG-say.PST-PL COMP.NON1 1PL-go.PST
        'They$_i$ said that they$_i$ went.'
                    [Ekpeye, adapted Curnow 2002: (27)-(29), after Clark 1972]

A solution presents itselfs if we assume that Ekpeye agreement morphemes differ with respect to number: the singular logophoric agreement morpheme has a distinct exponent from the first person (which seems to be zero marking), while in the plural logophoric and first person exponents are syncretic.

(47) a. $[+\text{AUTHOR}, +\text{PART}, -\text{ACTUAL}, +\text{SG}] \Leftrightarrow \varnothing$

    b. $[+\text{AUTHOR}, +\text{PART}, \pm\text{ACTUAL}, -\text{SG}] \Leftrightarrow$ /à-/

Again, as argued in §2.3, such syncretisms between the first person exclusive marker and the logophoric form strongly suggests that both share an inherent first person feature. This vindicates an approach of logophoric elements being inhrently first-person, *contra* alternatives analyses treating them as third person *plus* a logophoric feature, as in the vast majority of accounts discussed in §3, including that of Bassi et al. (2023), which take logophors to be third person pronons augmented with a LOG feature (see §4.5 below).

4.4   Featural presupposition maximization

The present analysis also allows us to straightforwardly capture the disjointness effects mentioned in §1 in terms of anti-presuppositions over person features. Laid out in informal, Gricean terms, the idea is quite simple: when reporting what someone said, a speaker *s* of a logophoric language *L* is expected to use a first-person form whenever the reported speaker (the subject of the matrix clause) is intended to co-refer with the subject of the embedded clause. If the speaker uses a 3rd person form instead, then they antipresuppose that both forms do not co-refer, so their referents must be distinct individuals or, rather, distinct *centers*, i.e. context-individual pairs.

   The first ingredient needed to derive these inferences is the competition mechanism itself: since competition occurs at the level of features and that features are presuppositional, I take it to be Heim's *Maximize Presupposition!*, (48):

(48) **Maximize Presupposition! (standard version; to be revised)**
Do not use ϕ in context C[11] if there is a $\psi \in \text{ALT}(\phi)$ s.t.

a. the presuppositions of ψ and ϕ are satisfied within C;

b. $[\![\psi]\!]^C = [\![\phi]\!]^C$, and

c. the presupposition of ψ (ψ_π) asymmetrically entails the presupposition of ϕ (ϕ_π).

Taken as a pragmatic filtering condition on utterances, the principle states that, given a presuppositional element ϕ that has a set of alternatives $\text{ALT}(\phi)$, speakers should prefer to use any member of that set ψ if it is (i) presuppositionally stronger, and (ii) true in the context of utterance. If a competent and cooperative speaker were to utter ϕ under those conditions, then the hearer would consistently infer that she did not utter the presuppositionally stronger ψ on purpose, and that the speaker does not know whether ψ is the case or not: in other words, the utterance of ϕ would give raise to an *antipresupposition* (Percus, 2006). It is commonly accepted that this inference is eventually strengthened somehow, leading the hearer to infer that the speaker does not believe ψ to be true (Spector 2003; Sauerland 2004b, 2004a; Chemla 2008 i.a.).

As it stands, *MP* is expected to drive competition between pronominal forms, as illustrated in (1) repeated here:

(1) *Context: John is speaking to Mary.*

a. He is happy.
⇝ The referent of *he* is not the actual speaker or addressee.

(adapted from Schlenker 2005: (18))

b. $\text{ALT}(1) = \left\{ \begin{array}{c} \text{I am happy} \\ \text{you are happy} \end{array} \right\}$
⇝ the referent of *he* and John must be distinct individuals.

That this inference is a genuine antipresuppositions (i.e., inferences derived from the non-use of presuppositional elements in a given context) is verified by the fact that they do not project in universally-quantified sentences, as other antipresuppositions do (Sauerland, 2008a); just as in (49a), the presupposition of the plural feature associated with *his sisters* is compatible with one of the students having only one sister, in (49b) the presupposition associated with the person feature of *he* is compatible with an interpretation in which the denotation of *every assistant* includes the speaker.

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[11] In what follows, following standard usage, I use capital C here to denote the stalnakerian context set (Stalnaker, 1974), that is, the set of all possible worlds compatible with the *common ground*, that is, the set of all possible propositions compatible with what the interlocutors in a conversation believe/take for granted and not subject for further discussion. This is to be contrasted with the Kaplanian context c used so far.

(49) a. Every student$_i$ should invite his$_i$ sisters (and therefore, John$_i$ should invite his$_i$ sister).   [Sauerland 2008a; (31b)]

    b. Every assistant$_i$ likes when he$_i$ is done writing a chapter (including me$_i$).

Since, however, we are interested in the kind of inferences triggered in attitude reports environments, we will need to give an account of person presupposition projection in complex sentences. Following Heim (1992), I will consider that sentences of the form *x believes that p* have to be analyzed as context updates relativized to doxastic alternatives (Hintikka, 1969), and sentences of the form *x says that p* as updates relativized to SAY-compatible alternatives. Thus, a sentence like (50a) will be analyzed as involving an attitude verb *say* quantifiying over *say*-alternatives of Kofi; upon assertion, the common ground *CG* will be updated with the context-worlds compatible with those in which Kofi said that he fell, provided that *Kofi* and *he* are co-referential, triggering the antipresupposition in (50d).

(50) a. Kofi$_5$ said that 3SG$_5$ fell.

    b. Kofi$_5$ said that $[pro_5\ c_i]$ fell.

    c. For any common ground *CG*, *CG* + *Kofi$_5$ said that he$_5$ fell* = $\{c_i \in CG : \forall c_i$ compatible with what Kofi said in $c^*, g(5)(g(c_i))$ fell in $c_i\}$.

    d. **Antipresupposition of (50a) (with epistemic step):**
        $\leadsto \forall c_i$ compatible with what Kofi said in $c^*, [s(c_i) \notin g(5)(g(c_i)) \wedge a(c_i) \notin g(5)(g(c_i))]$.
        $\leadsto$ The referent of *he* is not a participant in the reported context c_i.

The antipresupposition here forces participants to derive a disjointness inference that excludes reference to participants of the reported context when a 3SGform is used.

    The principle of *MP!* in (48) needs to be refined, however, because we ultimately want the presuppositions of pronouns to be computed not only against the set of the *actual* context and common ground, but the set of possible contexts that the attitude verb quantifies over. Here we follow a suggestion by Stalnaker (2014) to understand the common ground not merely as a set of possible worlds, but as a set of K(aplanian)-contexts - that is, centered worlds containing time and place parameters as well. The relevant competition mechanism for antipresuppositions should be adjusted in order to refer to this augmented notion of common ground, the set of all possible K-contexts κ:

(51) *Maximize presupposition!* **(relativized to possible contexts)**
    Do not use ϕ with respect to the current common ground *C* and assignment *g* if $\exists \psi \in \text{ALT}(\phi)$ such that

a. $\forall c \in C, \phi \in dom(\llbracket \cdot \rrbracket^{g,c,C})$ and $\psi \in dom(\llbracket \cdot \rrbracket^{g,c,C})$

b. $\forall c \in C, \llbracket \phi \rrbracket^{g,c,C} = \llbracket \psi \rrbracket^{g,c,C}$, and

c. $\forall c \in \kappa$, if $\psi \in dom(\llbracket \cdot \rrbracket^{g,c,C})$, then $\phi \in dom(\llbracket \cdot \rrbracket^{g,c,C})$, but not the other way around.

This revised statement of *MP!* allows us to enforce competition among alternative utterances with different presuppositional strenghts across possible contexts κ, thought of the set of possible contexts c: for two alternatives ϕ and ψ, using ϕ over ψ will be infelicitous if i) both have their respective presuppositions satisfied in C, ii) both are denotationally equivalent, and iii) the presuppositions of ψ asymettrically entails the presuppositions of ϕ across every possible context $c \in \kappa$.

4.5 Alternatives in the featural domain

A crucial component of the *MP!*-based approach to antipresupposition (as well as other implicature-related phenomena) is the definition of the alternative set ALT, over which the inference mechanism operates. Most of the proposals in the literature follow neo-griceans accounts such as that of Horn (1972) and Gazdar (1979) in positing scales, in which elements of a given scale are ordered with respect to one another in a monotonic fashion. On these accounts, *MP!*-based inferences can be predicted to arise because the presupposition triggers they involve are scalemates, and any utterance of the weaker element of the scale is likely to generate an antipresupposition about the stronger element. Howewer, as argued forcefully by Katzir (2007) and Fox and Katzir (2011), scalar approaches to alternatives give raise to considerable problems, the most prominent of which being their very nature and origin: where do they come from? In order to avoid this problem (as well as related ones), I follow Rouillard and Schwarz (2017) in adopting Katzir (2007)'s theory of structural alternatives for the presuppositional domain. In Katzir's account, structural complexity plays a crucial role in determining what counts as an alternative for a given sentence ϕ; the set of formal alternatives ALT(ϕ), represented in (52) will consist in that set of alternatives that are at-most-as-complex as ϕ, which are created by replacing constituents of ϕ with elements in the subsitution source of the language, (53):

(52)   ALT$(\phi) = \{\psi : \psi \lesssim \phi\}$

(53)   **Substitution source for alternatives**   [Breheny et al. 2018: (7)]
        An item α is in the Substitution Source of a sentence ϕ in c if

a. α is a constituent that is salient in c (e.g. by virtue of having been mentioned); or

b. α is a subconstituent of ϕ; or

c. α is in the lexicon.

This felicitously derives the fact that structurally more complex alternatives of a sentence S are generally not part in the alternative domain ALT(ϕ) and therefore, cannot be negated during implicature computation.

Since they rely on structural complexity to describe the inferential potential of linguistic objects, the Katzirian view on alternatives can be viewed as a test for probing the syntactic structure of the elements that compete in a given language. Looking into our feature matrices for pronouns, we can therefore see that our system ensures that the pronominal forms of a language with speaker logpophors such as (43) are of equal complexity, allowing them to be alternatives to each other and therefore compete by the algorithm outlined in (51).

(43)   a.   1st: [+AUTH, +PART, +ACTUAL]

b.   LOG: [+AUTH, +PART, -ACTUAL]

c.   2nd: [-AUTH, +PART, -ACTUAL]

d.   3rd: [-AUTH, -PART, -ACTUAL]

However, while they are of equal syntactic complexity, these bundles differ with respect to their semantic strength: as (54) illustrates, the more a form will be specified with a positively-valenced feature, the stronger its presuppositional restrictions will be; per (51), the choice of a form with a weaker presupposition will trigger an antipresupposition about stronger forms, resulting in disjointness inferences.

(54)   a. $[\![\text{[+AUTH, +PART, +ACTUAL]}]\!]^g = \lambda c.\lambda x : s(c^*) \sqsubseteq x.x(c)$

b. $[\![\text{[+AUTH, +PART, -ACTUAL]}]\!]^g = \lambda c.\lambda x : s(c) \sqsubseteq x.x(c)$

c. $[\![\text{[-AUTH, +PART, -ACTUAL]}]\!]^g = \lambda c.\lambda x : s(c) \sqsubseteq x \vee a(c) \sqsubseteq x.x(c)$

d. $[\![\text{[-AUTH, -PART, -ACTUAL]}]\!]^g = \lambda c.\lambda x.x(c).$

Note that a featural representation of the same paradigm with privative features would eschew the complexity algorithm and, as a consequence, would predict no disjointness inference to arise, contrary to fact: this is essentially because privativity at the level of features obliterate the distinction between negative specification and absence of a feature (Harbour, 2013).

(55) a. 1st: [AUTH, PART, ACTUAL]

b. LOG: [AUTH, PART]

c. 2nd: PART

d. 3rd: ∅

In such a paradigm, pronouns get increasingly more complex as they are specified with more features, preventing the more complex 1st and LOG to count as alternatives to 3rd, or the 1st person to count as an alternative to LOG (see §5.1) and therefore, have their presuppositions be negated by *MP!*.[12] The Katzirian conception of alternatives thus provides us with an indirect argument for the valence vs. privativity of features.

Relatedly, adopting a complexity-based approach to pronominal anaphora also argues against a treatment of logophoric elements being elements of increased complexity with respect to other pronouns in a given paradigm. This view is tacitly adopted in most of the previous literature (e.g., von Stechow 2002, 2003) and explicitly defended in Bassi et al. (2023) (see Bassi et al. 2023, fn. 13), in which logophors are taken to be 3rd-personal elements augmented with a LOG feature, as in Table 2:

Logophoric paradigms	Present system	Bassi et al. (2023) system
1st	[+AUTH, +PART, +ACTUAL]	1
LOG	[+AUTH, +PART, -ACTUAL]	[3, LOG]
2nd	[-AUTH, +PART, -ACTUAL]	2
3rd	[-AUTH, -PART, -ACTUAL]	3

Table 2: A comparison of the featural hierarchies of both systems.

Again, assuming the logophor to be a strictly more complex form than other pronouns in the paradigm rules the former as a potential alternative to the latter, *de facto* excluding it from competition and blocking effects, such as those discussed above, which provide direct evidence that the logophor competes not only with the 3rd person, but also with 1st and 2nd, as discussed in in §(5.1) and §5.2.

To summarize, we have argued in this section that logphoric first person pronouns are best analyzed as inherently first person forms, albeit specified with a [-ACTUAL] feature; those directly compete with third person forms (and first, see §5.1) in attitude

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[12] Note that an alternative privative solution would be to allow the syntax to represent a semantically vacuous - but syntactically contentful - PERSON feature on the 3rd person; this is essentially the strategy pursued by Alexiadou et al. (2024), on the basis of the (un)availability of generic readings in presence/absence of definite determiners in Romance and Germanic languages. The choice of one or the other solution therefore depends on one's own take about arguments for or against feature privativy; for a review of these arguments, see notably Harbour (2013).

reports due to the principle *Maximize Presupposition!*, the latter being presuppositionally weaker than the former. We also established, on the basis of a proven alternative metrics, that an adequate characterization of this competition mechanism requires us to adopt a bivalent conception of person features, as proposed by Nevins (2007) and Harbour (2011), 2013 i.a.; this proves superior to alternative, privative accounts that either view logophors as obligatorily-bound variables (von Stechow 2002, Pearson 2015 i.a.) or third persons specified with a LOG feature (Bassi et al., 2023). In the following sections, we expand on our proposal by looking at further distributional restrictions that logophoric pronouns are subject to across languages.

5 Deriving the typology of inferences

In this section, we introduce additional data about further restrictions observed in various logophoric systems, and show that our account is able to account for all of them: cases of 'first-person blocking', about restrictions of logophors depending on the features of their controller (§5.1); the ability for second person pronouns to serve as controllers (§5.2), and the referential restrictions of second-person pronouns in logophoric systems (§5.3).

5.1 First person blocking

As initially noted by Hyman and Comrie (1981) for Gokana, logophoric pronouns generally cannot take 1st person pronouns as antecedents. In other words, for a given speech report, when the reported and current speaker are one and the same individual, a logophor cannot be used.[13] We refer to this as the *1-LOG pattern:

(56) a. mm kɔ   mm dɔ
          1SG said 1SG fell
          'I$_i$ said I$_i$ fell'

      b. #mm kɔ   mm dɔ-ɛ
          1SG   said 1SG fell-LOG
          'I$_i$ said I$_i$ fell'   [Gokana, Hyman and Comrie 1981: (11)]

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[13] Hyman and Comrie (1981) make a less stronger claim, stating only that (56a) is preferred over (56b).

(57) a. Kofí ŋa   bə   yi   lɔ   Áma
          Kofi know COMP LOG love Ama
          'Kofi$_i$ knows that he$_{i/*j}$ loves Ama'

      b. #ɱə ŋa   bə   yi   lɔ   Áma
          1SG know COMP LOG love Ama
          Intended: 'I$_i$ know that I$_i$ love Ama'
                [Danyi Ewe (Niger-Congo, Togo); O'Neill 2015: (3a, c)]

A similar pattern can be found in Wan (Niger-Congo, Ivory Coast; Nikitina 2012a), various varieties of Ewe (Pearson 2015, Bimpeh 2019), as well as Ibibio (Newkirk, 2019). This is correctly predicted by the present account: in cases in which the antecedent is first person and refers to the current speaker, a first person must be used in the embedded sentence, on pains of triggering the disjointness inference in (58c) (in which '$\rightsquigarrow^{\#}$' indicates that the resulting inference is irremediably odd in that context):

(58) a. #I$_3$ know that LOG$_3$ love Ama.

      b. ALT(58a) = I$_3$ know that I$_3$ love Ama.

      c. (58a) $\rightsquigarrow^{\#}$ $\forall c' \in$ SAY$(s(c^*), w(c^*))[s(c^*) \not\sqsubseteq g(3)(g(c'))]$.

      d. (58a) $\rightsquigarrow^{\#}$ The referent of LOG is not the actual speaker.

Since the feature set of the first person asymmetrically entails that of LOG, any utterance of LOG in a context such as that of (58a) where $g(3)(g(c')) = s(c^*)$ will trigger the inference in (58c) and therefore be perceived as deviant; as a consequence, LOG cannot be used here. Note that this kind of blocking actually provides evidence that the computation of anaphoric patterns seem to be guided solely by a blind mechanism of competition between elements of distinct presuppositional strenght (Heim 1991; Magri 2009, 2011), and not by general requirements of informativity: if that were the case, in a context where the referents of both 1 and LOG were intended to refer to the same individual, we should not predict the disjointness inference to go through in case LOG is used, contrary to fact.

5.2 Second person antecedents

Another interesting typological fact that our theory can derive concerns second person antecedents in logophoric domains. Logophoric languages exhibit a special case of 'person neutralization' between third and second person; as a consequence, logophors can take second person antecedents as well as third, with singular and plural number features alike. As already discussed, first person antecedence is excluded:

29

(59) a. là gé ɓà súglù é lɔ
        2SG said LOG.SG Manioc DEF ate
        'You$_i$ said you$_i$ had eaten the manioc.'

    b. à gé mɔ kú má
        2PL said LOG.PL house EQUAT
        'You$_i$ said it was your$_i$ house.'   [Wan, Nikitina 2012a: (5a, b)]

The phenomenon is actually broader, extending to various other reference-tracking systems, such as those found in the Sino-Tibetan languages Jingpho (Zu, 2018) and Newar (Coppock and Wechsler, 2018), as well as languages from the Himalayas, the Caucasus, the Andes, and Highlands New Guinea (San Roque et al., 2017).

    On the present account, the pattern in (59) is correctly predicted: it is expected that a sentence where the author of the embedded speech event is referred to using a 2nd person pronoun will be infelicitous, regardless of what his discourse status in the actual context is; a logophor should be used instead because it is presuppositionally stronger - which is just what we observe. The generalization is the following: if a language L realizes the AUTHOR feature on a morphologically distinctive element in the pronominal paradigm, then this element has to be used whenever co-reference with the reported speaker is intended:

(60) **Author reference obtains whenever possible**
    If L lexicalizes AUTHOR, then in configurations such as [2SG$_n$... *say* [2SG$_n$... ϕ]], then $\leadsto \forall c' \in \text{SAY}(a(c^*), w(c^*))[s(c^*) \not\sharp g(n)(g(c')) \wedge s(c') \not\sharp g(n)(g(c'))]$.

The generalization predicts that the sentence (61a) has the alternatives in (61b); consequently, uttering (61a) will trigger the antipresupposition in (61c):

(61) a. $^{\#}$You$_1$ know that you$_1$ love Ama.

    b. ALT(61a) = $\left\{ \begin{array}{l} \text{You}_1 \text{ know that I}_1 \text{ love Ama.} \\ \text{You}_1 \text{ know that LOG}_1 \text{ love Ama.} \end{array} \right\}$

    c. (61a) $\leadsto^{\#} \forall c' \in \text{SAY}(a(c^*), w(c^*))[s(c^*) \not\sharp g(1)(g(c')) \wedge s(c') \not\sharp g(1)(g(c'))]$.

    d. (61a) $\leadsto^{\#}$ The referent of *you* is not a speaker in either contexts.

Since the actual addressee is co-referential with the reported speaker, a non-actual first person form must be used; using the second person triggers the inference that both are disjoint in reference, contrary to fact.[14]

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[14] A reviewer brought to my attention the case of language Jula (Niger-Congo, Mande: Burkina Faso, Ivory Coast and Mali), which does not seem to obey (60):

5.3 Encoding of reported addressees

A major locus of variation in logophoric languages concerns the ability of second person pronouns to cross-reference reported addressees in addition to actual ones. For instance, Wan allows second person pronouns to refer to reported addressees:

(63) è gé zò ɓé **là ɓà** pólì
3SG said come then 2SG LOG.SG wash
'She$_i$ said come and wash me$_i$.' [Wan, Nikitina 2012a: (18)]

In other words, the second person in Wan is logophoric. Analogous patterns can be found for the languages Aghem (Hyman and Watters 1979; Butler 2009), Mundang (Hagège, 1974), Engenni (Thomas, 1978), and Akoose (Hedinger, 1984) (all Niger-Congo). However, in some other languages, including Ewe and Donno Sɔ, second person marking always refer to actual addressees and cannot be used for reported addressees - third person must be used in that case. This is illustrated in (64)-(65):

(64) Be indvembe velaa uñ tembeliñ giya
3PL LOG.PL come 2SG.OBJ found.NEG.1PL said.3PL
'They$_i$ said that they$_i$ didn't find you when they$_i$ came.'
[Culy 1994b: (6b), after Kervran and Prost 1986]

(65) Kofi gblɔ na wo bè yè-a-dyi ga-a na wo
Kofi speak to 3PL COMP LOG-T-seek money-D for 3PL
'Kofi$_i$ said to them$_j$ that he$_i$ would seek the money for them$_j$.'
[Nikitina 2012a: (23), after Clements 1975]

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(62) #i ye a fɔ ko ale facɛ na-na
2SG PFV 3SG say COMP 3EMP father come-PFV
Intended: 'You$_i$ said that your$_i$ father has come.' [Jula, Kiemtoré 2022: 213, (28b)]

Here, the emphatic third person form *ale*, which can be used as a logophor in Jula complex clauses headed by *ko*, cannot take a second person pronoun as antecedent, thus escaping the generalization in (60). I would like to suggest that this is possibly due to the fact that *ale* is not a genuine logophor, but (as emphasized by the author himself in his gloss) a third person pronoun with an emphatic meaning that is merely 'recruited' in logophoric contexts. As a consequence, it might be the case that *ale* bears no +AUTHOR feature at all, therefore not entering competition as in example (59). This is actually corroborated by Kiemtoré (2022), who comments this example as follows: "Recall that there is no restriction on the person features of the source DP within *ko*-clause complementation. Therefore, the infelicity of the sentences in [(62)] is due to a clash in person-feature between *ale* and the source DP. The former being a third-person pronoun, it cannot take first and second-person DP as antecedents." We should therefore not expect languages with 'indirect logophors' such as Jula to obey the pattern captured by (60).

In (64), the second-person object is indexical and cannot refer to the reported addresse; such reference can only be achieved by using third person, as in English or Ewe, which (65) illustrates. This seems to suggest that, at least in those languages, pronominal paradigms differ with respect to which feature they lexicalize, and on which form. More precisely, languages such as Wan and those such as Ewe differ in the valence of ±ACTUAL feature, restricting or not its referent to the current speech act participants:

(66) **Featural system with speaker LOG and +ACTUAL 2P**

    a.   1st: [+AUTH, +PART, +ACTUAL]

    b.   LOG: [+AUTH, +PART, -ACTUAL]

    c.   2nd: [-AUTH, +PART, **+ACTUAL**]

    d.   3rd: [-AUTH, -PART, -ACTUAL]

As a consequence, languages with systems such as (66) possess two 'genuine' indexical forms with different person specifications, alongside a full-fledged LOG form.

Conversely, if the feature ACTUAL is able to lexicalize on different persons, one should expect to find languages that have +ACTUAL first person alongside -ACTUAL second person: although typologically rare, such languages are indeed attested. Goemai and Mupun (West Chadic, Nigeria), for instance, have LOG addressees:

(67)   k'wal yin gwa   goe   tu   ji
       talk   say SG.M.LOG.2 OBLIG kill SG.M.LOG.1
       'He$_i$ said he$_j$ should kill him$_i$'
       (lit. 'He$_i$ said you$_j$ should kill me$_i$')

                                                  [Goemai, Hellwig 2006: 219]

(68)   n-sat   n-wur   nə   **gwar**   ji
       1SG-say PREP-3SG COMP **2SG.LOG** come
       'I told him$_i$ that he$_i$ should come'
       (lit. 'I told him that 2SG.LOG should come.')

                                              [Mupun, Frajzyngier 1997: (35)]

Since both Goemai and Mupun exhibit both classes of logophoric pronouns (first and second person), we can capture their paradigm with the following person hierarchy:

(69) **Featural system with speaker and addressee LOGs**

a. 1st: [+AUTH, +PART, +ACTUAL]

b. LOG1: [+AUTH, +PART, -ACTUAL]

c. LOG2: [-AUTH, +PART, -ACTUAL]

d. 2nd: [-AUTH, +PART, +ACTUAL]

e. 3rd: [-AUTH, -PART, -ACTUAL]

Note that it is predicted that for a paradigm such as (69), the second person can only be used in logophoric contexts to denote actual addressees, as example (70) confirms:

(70) n-sat   n-wur   nə   **wur** ji
     1SG-say PREP-3SG COMP **2SG** come
     'I told him that you$_{a(c*)}$ should come.'

[Mupun, Frajzyngier 1997: (36)]

Last, one can find languages with LOG addressees, but no LOG authors. This is the case of West Chadic language Pero:

(71) ca   peemu   ta   kayu   laa   mu   mijiba
     say.PST LOG.2SG FUT drive away man DEM stranger
     '[He] said that he$_{a(c')}$ is going to drive the stranger away.'
     (lit. '[He] said that you$_{a(c')}$ are going to drive the stranger away.')

[Frajzyngier 1985: (23b)]

The Pero pattern can be described with the following hierarchy:

(72) **Featural system with addressee LOG only**

   a. 1st: [+AUTH, +PART, +ACTUAL]

   b. LOG2: [-AUTH, +PART, -ACTUAL]

   c. 2nd: [-AUTH, +PART, +ACTUAL]

   d. 3rd: [-AUTH, -PART, -ACTUAL]

Let us conclude this section by noting that the paradigms described in (69) and (72) are extremely rare, to be found only in languages pertaining to the Chadic branch (Nikitina, 2012b). One can conclude froom this that morphologically overt encoding of reported addressees seems to be severely restricted, and no language seems to use a dedicated form for logophoric addressees while allowing the first person to be specified with -ACTUAL, leaving the following featural pattern unattested:

(73) **An unattested featural hierarchy**

    a.   1st: [+AUTH, +PART, -ACTUAL]

    b.   LOG2: [-AUTH, +PART, -ACTUAL]

    c.   2nd: [-AUTH, +PART, +ACTUAL]

    d.   3rd: [-AUTH, -PART, -ACTUAL]

It therefore seems that (positive or negative) lexicalization of ACTUAL in a given paradigm depends on its valence on other forms: [-AUTH, +PART, -ACTUAL] (a second-person logophor) cannot be lexicalized if the language does not already have an indexical first person ([+AUTH, +PART, +ACTUAL]) in its paradigm. Why it is so, however, is still unclear - one may speculate that such a lexicalization might be functionally sub-optimal, due to the relative underspecification of elements such as [-AUTH, +PART, -ACTUAL], preventing them to 'single out' referents that are the most needed in linguistic exchange, such as the speaker vs. non-actual addressees.

6 Extension to shifted indexicals

The present account being an extension and refinement of Schlenker (2003), it is natural to think whether the above arguments could also be applied to a similar - though typologically unrelated - phenomenon, shifted indexicals; indeed, shifted indexicals were the primary data Schlenker (2003) set out to account for. In this section, we provide an overview of the phenomenon of shifted indexicals, before trying to account for the main points of data using the present system.

6.1 Indexical shift: the phenomenon

In some languages, first and second person pronouns can receive a logophoric interpretation in complex finite clauses. This is illustrated in (74) for Zazaki (Indo-Iranian, Eastern Turkey):

(74)   Hɛsen-i   mɪ-ra   va kɛ   **ɛz**   dɛwletia
        Hesen-OBL 1SG-OBL say COMP **1SG.NOM** rich.be.PRS
        'Hesen$_i$ tells me$_{s(c)}$ that he$_{i/s(c)}$ is rich.'

                                                  [Zazaki, Anand and Nevins 2004: (4)]

In (74), the nominative first person *ɛz* embedded under *va* '*say*' can either refer to *Hesen* or the utterance speaker. Use of such 'shiftable indexicals' (henceforth, SIs), has been reported for languages pertaining to different, typologically unrelated families, ranging from Semitic (Amharic, Schlenker 1999, 2003, LaTerza et al. 2015; Ethiopia Tigrinya,

Spadine 2020; Eritrea Tigrinya, personal fieldwork) to Athabaskan (Slave, Rice 1986) and Turkic (Turkish, Şener and Şener 2011, Özyıldız 2012, Oguz et al. 2020; Uyghur, Sudo 2012, Shklovsky and Sudo 2014, Wang 2023; Chuvash, Knyazev 2022). Here, too, morphological variation exists, allowing different surface realizations of shifted indexicality: for instance, in some Turkic languages, only agreement markers on the verb can be shifted; if the corresponding pronouns that control person agreement on the verb are overt, the shifted interpretation is not available anymore.[15]

(75) Alsu **pro** ber kajčan da miŋga bag-m-a-s-mɣn diep
      Alsu **pro** one when nPCL 1SG.DAT look.at-NEG-ST-POT-1SG COMP

      bel-ä
      know.ST-IMPF

      'Alsu$_i$ knows that **I**$_i$ would never look at **me**$_{s(c)}$'

      [Mishar Tatar (Turkic), Podobryaev 2014: (210)]

(76) a. boris man-a **pro** san-ba ëçl-e-p te-ze kala-rj-ə
          boris I.OBJ **pro** 2SG-INS work-NPST-1SG say-COMP say-PST-3SG
          'Boris$_i$ told me that I / he$_i$ will work with you$_{a(c)}$.'

      b. boris man-a ep san-ba ëçl-e-p te-ze kala-rj-ə
          boris I.OBJ I.NOM 2SG-INS work-NPST-1SG say-COMP say-PST-3SG
          'Boris$_i$ told me that I / *he$_i$ will work with you$_{a(c)}$.'

      [Poshkart Chuvash (Turkic), Knyazev 2022: (28)]

Just like logophoric pronouns, SIs are licensed in complex finite clauses headed by attitude verbs (Anand 2006; Oshima 2006; Sundaresan 2012, 2018; Deal 2020); like logophors, their distribution does not seem to be restricted by locality restrictions (Park 2014; Deal 2020; Spadine 2020) and like them, they trigger agreement mismatches (Ganenkov and Bogomolova 2021; Ganenkov 2021; Knyazev 2022); last, they are preferably interpreted *de se*, just like logophoric pronouns (Schlenker 2003, Anand 2006, Deal 2020 a.o.).[16] In these languages, too, disjointness inferences about the identity of reported speakers arise when standard 3rd person forms are used *in lieu* of a shifty 1st person form. This is illustrated below for the language Tigrinya, spoken in Eritrea:

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[15] Examples (75)-(76) are not uncontroversial: Deal (2020), for instance, provides arguments for treating them as instances of a phenomenon distinct from indexical shift. See Deal 2020: ch. 5 for discussion.

[16] Although variation exists, just like for logophors (see §2.2); some languages allow some of their indexicals to be read *de re* in attitude reports, such as the locative indexical *kine* 'here' in Nez Perce (Deal, 2019). However, there is no consensus about how these readings should be derived; see Pearson (2015) and Bassi et al. (2023) for proposals about logophors, and Deal (2020); pp. 66 *sqq* for shifted indexicals.

(77) a. Kidane kə-xɛyəd   dɛliɛ   ʔallɛxu   ʔilu   (nɛyru)
          Kidane COMP-IMPF.leave PRF.want.1SG AUX.1SG say.3SG.M AUX.3SG.M
          'Kidane*i* said that he*i* wanted to leave.'

      b. Kidane kə-xɛyəd   dɛliu   ʔallo   ʔilu
          Kidane COMP-IMPF.leave PRF.want.3SG.M AUX.3SG.M say.3SG.M
          (nɛyru)
          AUX.3SG.M
          'Kidane*i* said that he*∗i/j* wanted to leave.'

                                              [Eritrea Tigrinya (Semitic), personal fieldwork]

In (77a), the first person markings on both the embedded verb *dɛliɛ* and auxiliary *ʔallɛxu*
can refer either to the actual speaker or to the reported speaker, John (which is actually
the preferred interpretation). As (77b) illustrates, a 3rd person pronoun cannot be used
to cross-reference the author of the report.[17]

_____

[17] I am aware of two languages for which variation is observed in this respect. Consider the following ex-
amples from Farsi (Iranian; Iran) and Tsez (Northeast-Caucasian; Dagestan), both languages in which
indexical shift is a possibility. In those, 3rd person reference to reported speakers is allowed, as (79)
and (81) illustrate:

(78) Leila be Mina goft   barat   ketab xaridam
      Leila to Mina say.PST for-2SG book   buy.PST-1SG
      'Leila*i* told Mina*j* that I*i,s(c∗)* bought a book for you*j,a(c∗)*.'

(79) Leila be Mina goft   *pro* asabanie
      Leila to Mina say.PST *pro* angry-is-3SG
      'Leila*i* told Mina*j* that she*i* is angry.'

                                                        (Farsi, Anvari 2020: (18)-(57))

(80) Irbahin-ä   di   ʕayibiyaw   yoł=ƛin   eƛi-x
      Ibrahim-ERG   1SG.ABS   wrong/foolish be.PRS-QUOT say-PRS
      'Ibrahim*i* says that I*i,s(c∗)* am wrong.'

(81) Irbahin-ä   za   ʕayibiyaw   yoł=ƛin   eƛi-x
      Ibrahim-ERG   DEM.ABS   wrong/foolish be.PRS-QUOT say-PRS
      'Ibrahim*i* says that he*i,j* was wrong.'

                                                        (Tsez, Polinsky 2015: (27)-(58))
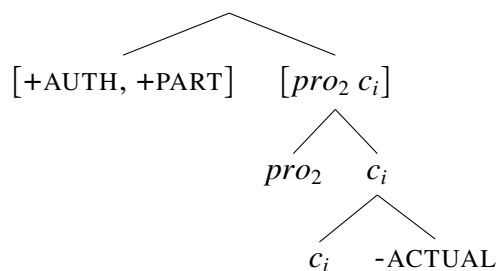

In those contexts, it seems that no inference about the reported speaker can be derived from the em-
bedded use of third person, just as it would be in English. This is ultimately a problem for the present
account, which would require an additional component to cope with this data. However, as mentioned
by Anvari (2019) himself on his discussion of Anand (2006) Zazaki data, cross-linguistic variation is

In light of this, it is therefore natural to assume (following the original proposal of Schlenker 2003) that such 'shiftable indexicals' are logophoric forms in the sense defined above, that is, first and/or second person elements specified with a -ACTUAL feature.

6.2 Deriving shiftable indexicals systems

According to the present theory, languages with shiftable first or second pronouns make use of the exact same set of person features as logophoric languages:

(82) **Structure of shiftable 1P indexical**

(83) **Featural system of languages with 1P/2P shiftable indexicals**

    a.   1st: [+AUTH, +PART, -ACTUAL]

    b.   2nd: [-AUTH, +PART, -ACTUAL]

    c.   3rd: [-AUTH, -PART, -ACTUAL]

In the present theory, shiftable first (and second) person forms have exactly the same morphosemantic makeup as logophors: crucially, logophoric languages differ from SI-systems in that in the former, the first person is the result of the morphological spellout of a bundle containing +ACTUAL on a separate lexical form, whereas on the latter it is fully syncretic.

Of importance, note that this sytem predicts global optionality in shifting, since every person-specified element will always be able to obtain its reference via the matrix context pronoun, or the embedded one. We take this to be a welcome result, considering

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expected here, allowing for different referential strategies in attitude reports, as the full typological landscape of the phenomenon is still to be established. About Tsez, note that Polinsky (2015) only provides the example (81) involving a demonstrative, without providing its counterpart involving no pronoun (the way Tsez usually encodes 3rd person, see Polinsky 2015, p. 22). It might the case that embedded clauses with silent subjects showing third person agreement on the embedded verb (and not first person) trigger a disjointness inference, just as (76) does; this requires to be investigated further.

that indexical shift is by and large an optional phenomenon (cf. Sundaresan 2018). Second, by parametrizing which indexicals can shift in a given language and which verbs can bind context pronouns in their complements, we are able to capture various patterns of attested variation. For instance, mirroring the data of §5.3, the language Dene (Athabasakan; Northwest Territories, Canada)[18], 1st person is shiftable but 2nd person is not, (84):

(84) Simon rásereyineht'u hadi
      Simon 2SG.hit.1SG   3SG.say
      'Simon$_i$ said that you$_{a(c*)}$ hit him$_i$.'

[Dene, Rice 1986: (53)]

This provides evidence that this language actually makes use of a very similar feature system that the one observed for Ewe, in which 2nd person is specified with +ACTUAL, whereas 1st person is -ACTUAL:

(85) **Featural system with -ACTUAL 1P and +ACTUAL 2P**

   a. 1st: [+AUTH, +PART, **-ACTUAL**]

   b. 2nd: [-AUTH, +PART, **+ACTUAL**]

   c. 3rd: [-AUTH, -PART, -ACTUAL]

Can we observe more analogous variation in the two systems? As a matter of fact, we can: just like we find languages with only addressee logophors, but no speaker logophors, we find languages that have shifty second person, but unshifty first person; in these languages, such as Adioukrou and Obolo, second person pronouns can denote non-actual addressees, and first person are restricted to current speakers:

(86) li   dad   wɛl   nɛnɛ **ɔny** ùsr   ir   el
      3SG.F say.PST 3PL DEM **2SG** build.IMP 3SG.OBJ house
      'She$_i$ said to them$_j$ you$_j$ build her$_i$ a house.'
      (lit. 'She$_i$ said to them$_j$ you$_j$ build me$_i$ a house.)

[Adioukrou (Kwa; Ivory Coast), Hill 1995: (8)]

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[18] The language is also called *Slave*, but its speakers tend to prefer the former denomination. I thank Amy Rose Deal for mentioning this to me.

(87) òg̀wú úgâ   ókêkitó   ító íkíbé gwúñ kàñ   ɔmɔ ìkâtùmú
      DEM mother be crying.PST cry say child 3SG.POSS 3SG tell.PST.NEG

      ìnyí òwù yê   íbé òwù kàgɔɔk   ífìt yì
      give 2SG INTR say 2SG follow.NEG play play

      'The mother$_i$ was crying and said: "My$_i$ child$_j$, did I$_i$ not tell you$_j$ not to join this
      dance group"?'
      (lit. 'The mother$_i$ was crying and said her$_i$ child$_j$, did she$_i$ not tell you$_j$ not to join
      this dance group?')

(88) òg̀wú énêrìeeñ òbê,   òwù 'nga   kàñ   'mgbɔ kèyí ìrè 'mbùbàn,
      DEM man   say.PST 2SG mother 3SG.POSS time DEM be curse

      tap   nyî   ɔmɔ
      put.IMP give.IMP 3SG

      'The man$_i$ said "Mother$_j$, this time (even if) you$_j$ curse me$_i$..."'
      (lit. 'The man$_i$ said his$_i$ mother$_j$, this time (even if) you$_j$ curse him$_i$...')
              [Obolo (Niger-Congo; Cameroon and Nigeria), Aaron 1992: (22)-(23)]

The featural specification of the 2nd person in Adioukrou and Obolo is therefore similar
to that found in the system of Pero, with the exception that these languages do not lex-
icalize the bundle corresponding to [-AUTH, +PART, **-ACTUAL**] on a dedicated lexical
element distinct from 2nd person:

(89) **Featural system with +ACTUAL 1P + -actual 2P**

      a. 1st: [+AUTH, +PART, **+ACTUAL**]

      b. 2nd: [-AUTH, +PART, **-ACTUAL**]

      c. 3rd: [-AUTH, -PART, -ACTUAL]

It is worth highlighting that this last pattern is not predicted by current operator-based
approaches to indexical shift (Anand and Nevins 2004; Anand 2006; Deal 2013, 2020
and much subsequent literature). In those, shifting of indexicals is induced by the pres-
ence of a 'monstrous' operator 👻 in the embedded clause, which rewrites the Kaplanian
context coordinates of a context-sensitive expression α with the values of the *index*, or
circumstances of evaluation, consisting of a similar set of coordinates (c.p. Zimmer-
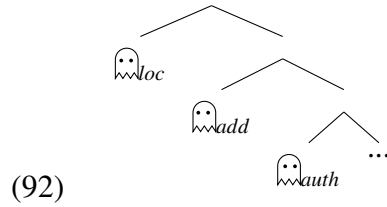mann 1991, Von Stechow and Zimmermann 2005, Anand 2006):

(90) $[\![👻\, \alpha]\!]^{g,c,i} = [\![\alpha]\!]^{g,i,i}$

Depending on the language, the operator is generally taken to be introduced in clausal
complements headed by attitude verbs such as *say*, which then allows the first (and

second) person in embedded clauses to refer to the reported speaker and addressee, respectively:

(91) a. $[\![👻\,\text{I}]\!]^{g,c,i} = [\![\text{I}]\!]^{g,i,i} = s(i)$

b. $[\![👻\,\text{you}]\!]^{g,c,i} = [\![\text{I}]\!]^{g,i,i} = a(i)$

c. $[\![\text{Yesterday Rojda said to Bill that } 👻\ [\text{ I am angry at you }]]\!]^{g,c,i} = 1 \Leftrightarrow \forall i'$ compatible with what Rojda said in i, then the speaker in i' is angry at the addressee in i'.

In order to capture the aforementioned typological data, more sophisticated variations of the system have been proposed. Deal (2020), for instance, proposes to expand the typology of 👻 so as they come into different varieties, depending on the kind of context parameter they can shift. She adopts a 'cartographic' approach where each operator appears in a dedicated position within the functional sequence:

(92)

Lexical bundling is allowed between two adjacent operators within the hierarchy, but not between non-adjacent classes of 👻 within the sequence. For instance, the entire sequence can be bundled together to form the primitive 👻 that shifts all indexicals within its scope, (93a); similarly, $👻_{add}$ and $👻_{auth}$ can be bundled together to yield a $👻_{pers}$ that only shifts person indexicals, (93b). However, the system is designed so as to rule out any operator that would shift only the *addressee* while leaving the *author* coordinate untouched, as in (93d):

(93) **Varieties of shifty operators (Deal, 2020)**

a. $[\![👻\,\alpha]\!]^{g,c,i} = [\![\alpha]\!]^{g,i,i}$ (attested in Matses)

b. $[\![👻_{pers}\,\alpha]\!]^{g,c,i} = [\![\alpha]\!]^{g,<\mathbf{s(i)},\,\mathbf{a(i)},l(c),t(c)>,i}$ (attested in Uyghur)

c. $[\![👻_{auth}\,\alpha]\!]^{g,c,i} = [\![\alpha]\!]^{g,<\mathbf{s(i)},a(c),l(c),t(c)>,i}$ (attested in Slave)

d. $[\![👻_{add}\,\alpha]\!]^{g,c,i} = [\![\alpha]\!]^{g,<s(c),\mathbf{a(i)},l(c),t(c)>,i}$ (unattested?)

However, the Adioukrou and Obolo data outlined above would precisely require an operator of this kind, allowing shifting of 2SG while leaving 1SG unaffected; on the present approach, however, it is expected that [±ACTUAL] might be able to parametrize on different persons with no such restrictions, therefore carpturing the patterns in (86) and (87) for SI-systems, and those in (68)-(71) for logophoric systems.

7 Conclusion

The present paper, conceived as an extension and elaboration of a proposal by Schlenker (2003), defends the idea that logophoric pronouns are not special elements in a given paradigm, consisting e.g. of a 3rd person augmented with a 'logophoric' feature, the status of which among the typology of features is less than straightforward, but rather first (or second) person pronouns that are strictly non-indexical in the Kaplanian sense. In addition to recasting logophoric elements within the continuity of the person domain, the present account offers numerous empirical advantages, allowing for fine-grained combination of features that capture the attested paradigms in the language at stake. The analysis of the competition mechanism behind the disjointness effects that we initially set out to accout for at the beginning of this paper also offers indirect arguments for a bivalent (vs. privative) conception of features, which it is argued is necessary if the competition mechanism behind these effects appeals to a Katzirian notion of alternatives.

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