# Shifty implicatures
# Explaining the cross-linguistic distribution of pronouns in speech reports

David Blunier, Université de Genève

☠ This is a draft, comments much welcome: david.blunier@unige.ch ☠

April 2, 2022

Some languages do not readily make use of the direct-indirect speech distinction when it comes to report what someone previously said; as a consequence, they rely on other strategies in order to identify the various referents introduced in discourse and their roles in the report - speaker, addressee, (non)participant. Some languages can 'shift' indexicals, such as *I* and *you*, and use them anaphorically to refer to participants of the speech event being reported (Schlenker 2003, Deal 2020); other languages use dedicated 'logophoric' pronouns in the same fashion. A fact about logophoric languages is that, in speech reports, the use of a 3rd person form to refer to the author of the report is prohibited, giving rise to a disjointness or 'anti-coreference' effect (Hyman and Comrie 1981; Nikitina 2012). An interesting observation that has often gone unnoticed in the previous literature is that the same generalization holds for languages displaying obligatory indexical shift, suggesting that the two phenomena should be given a uniform account. This contribution aims at providing a solid cross-linguistic basis for this generalization, as well as providing an explanation for the disjointness inference in pragmatic terms. More precisely, I argue that this type of 'reporting disjointness' stems from the computation of a mandatory implicature at the presuppositional level of person features (Sauerland 2007, Marty 2017 i.a.), giving rise to oddity effects in speech environments. Altogether with the aforementioned generalization, the present proposal is shown to be able to correclty derive distribution patterns of shifted vs unshifted pronouns in optional shifting languages such as Farsi and Tsez, as well as in languages using long-distance reflexives, like Korean.

## 1 Introduction

In a wide variety of languages, first and second person pronouns - indexicals in the terminology of Kaplan (1989) - can be used anaphorically to refer to arguments of the matrix clause:

(1) jon jəgna nə-ñña yi-l-all
John hero COP-1SG.S 3SG.M.S-say-AUX.3SG.M.S
John$_i$ says that he$_i$ is a hero (Amharic: Schlenker 1999)

(2) Hɛsen-i mɨ-ra va kɛ ɛz dɛwletia
Hesen-OBL 1SG-OBL say COMP 1SG.NOM rich.be.PRS
Hesen$_i$ tells me$_{Spk}$ that he$_{i,Spk}$ is rich (Zazaki: Anand and Nevins 2004)

In (1), the first person marker *ñ̃ñ̃* does not refer to the utterance speaker, but to the reported speaker, *John*. Something similar occurs in (2), where the nominative first person *ɛz* embedded under *va* '*say*' can either refer to *Hesen* or the utterance speaker. This phenomenon, known as indexical shift (henceforth, IS), has been reported for a wide variety of languages pertaining to different families, ranging from Semitic (Amharic, Tigrinya) to Athabaskan (Slave) and Turkic (Uyghur, Chuvash). Languages differ as to which elements undergo shifting: some languages allow for 1st person shifting only (Slave, Rice 1986), others allow 1st and 2nd person to shift (Uyghur, Shklovsky and Sudo 2014), and some allow for all indexicals to shift without restrictions (Matses, Ludwig et al. 2010; Munro et al. 2012). Languages also vary as to whether indexical shift is optional, as in Uyghur (Shklovsky and Sudo, 2014) or Navajo (Speas, 1999), or obligatory, as in Zazaki (Anand and Nevins 2004; Anand 2006). An interesting observation that has often been overlooked about those languages[1] is that, whenever indexical shift is obligatory, the use of a 3rd person form in speech reports triggers a disjointness inference. The generalization can be stated the following way:

(3) **Disjointness inference in shifty contexts**
In languages where indexical shift is obligatory, embedded 3rd person proforms under verbs of speech cannot co-refer with the author of the report.

More precisely, whenever a language *L* allows for its indexicals to shift under a shifting-licensing predicate, using a 3rd person form in lieu of an indexical will give rise the inference that their referents are distinct individuals. An early observation of this can be found in Speas (1999) for Navajo, as illustrated in (4):

(4) a. ndoolnish ní
3SG.S.work 3SG.S.say
'He$_i$ says he$_{*i/j}$ will work'

b. ndeeshnish ní
1SG.S.work 3SG.S.say
'He$_i$ says he$_i$ will work'
'He says I will work'

c. nizhdoolnish jiní
4SG.S.work 4SG.S.say
'He$_i$ says he$_i$ will work'

(Speas 1999; (3))

In (4)a above, the use of a third person agreement marker on the embedded *say* verb triggers disjoint reference; the only way to have the embedded person marker to refer to the author of the speech report is to use first person agreement, as in (4)b, or a dedicated so-called fourth person marker, (4)c.

[1] A notable exception being Anvari (2020).

A similar pattern can be found in Erythrea Tigrinya, a semitic language that allows shifting of first and second person pronouns under verbs of speech:

(5) a. Kidane kə-xɛyəd dɛliɛ ʔallɛxu ʔiłu (nɛyru)
Kidane COMP-IMPF.leave PRF.want.1SG AUX.1SG say.3SG.M AUX.3SG.M
'He$_i$ said that he$_i$ wanted to leave'

b. Kidane kə-xɛyəd dɛliu ʔallo ʔiłu (nɛyru)
Kidane COMP-IMPF.leave PRF.want.3SG.M AUX.3SG.M say.3SG.M AUX.3SG.M
'He$_i$ said that he$_{*i/j}$ wanted to leave'

(6) a. Sɛgɛn (ʔanɛ) ħabt-ɛy jəfɛtu-wa (ʔijɛ) ʔiła
Segen 1SG sister.POSS.1SG love.IMPF.1SG.-OBJ.3SG.F COP.1SG say.PRF.3SG.F
'Segen$_i$ said that she$_{i/*j}$ loves her$_{i/*j}$ sister'

b. Sɛgɛn (nsa) ħabt-a təfɛtu-wa (ʔija) ʔiła
Segen 3SG.F sister.POSS.3SG.F love.IMPF.3SG.F.-OBJ.3SG.F COP.3SG.F say.PRF.3SG.F
'Segen$_i$ said that she$_{*i/j}$ loves her$_{*i/j}$ sister'

The above data is reminiscent of similar patterns of disjoint reference in languages with logophoric pronouns; in Ewe, for instance, the use of the 3rd person pronoun *e* instead of the logophoric form *yè* indicates that its referent is not the reported speaker, Kofi, but some other, salient male individual:

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

b. Kofi be e dzo
Kofi say 3SG leave
'Kofi$_i$ said that he$_{*i/j}$ left'

(Ewe, Clements 1975)

Most of the current literature on indexical shift has the patterns in (4) and (5)-(6) explained by positing a so-called 'monster operator' 👻 that shifts the kaplanian context coordinates, allowing indexicals to obtain their reference via the embedded context (Anand and Nevins 2004; Anand 2006; Deal 2020). However, even the most worked-out versions of the theory cannot straightforwardly account for the disjointness effects illustrated above: why would the possibility of a shifted reading of an indexical preclude the use of a 3rd person form in order to refer to the same individual in the same context, when shifting is obligatory? Why does obligatoriness and disjointness interact the way they do? Last, how is the striking similarity between shifty and logophoric languages to be explained?

This piece aims at providing an answer to these questions. More precisely, I will argue that the disjointness effects observed in the data above can be accounted for in terms of mandatory implicatures over person features, triggered by the use of a 3rd person form in shifted contexts. Informally, the idea is quite simple: when reporting what someone said, a speaker *s* of an indexical shifting language *LIS* is expected to use a first-person form whenever the reported speaker (the subject of the matrix clause) co-refers with the subject of the embedded clause. If the speaker uses a 3rd person form instead, then she implicates that this is not the case that both forms co-refer, so their referents must be distinct individuals. The core of my analysis hinges on the assumption that those implicatures are grammatical (Chierchia 2006; Fox 2007; Magri 2011; Chierchia et al. 2012; Marty 2017 a.m.o.), triggered by the presence of an exhaustification operator EXH that interacts with the monster operator 👻 in embedded sentences, and that this interaction is responsible for giving rise to disjointness inferences.

The present paper is structured as follows. After having further illustrated indexical shift and the most popular account of it on the market, namely, the monster-based theory of Anand (2006) and Deal (2020) (§2), I set out to expose the theory of mandatory implicatures of Magri (2009, 2011) and its application to disjointness effects by Marty (2017, Marty 2018) to derive anti-presuppositions as implicatures (§3). I then go on to show how their proposal, if supplemented with the proper semantics for person features, can account for disjointness effects in speech reports. Last, I further attempt to motivate the present proposal by showing that it can successfully be applied to logophoric languages, shedding new light on the interaction between indexicals and logophors in languages like Aghem or Donno So (§5). §**??** concludes.

# 2 Indexical shift

Indexical shift occurs in a language *L* when *L* allows one or more indexicals to obtain their reference in a context distinct from that of the actual utterance. Shifted indexicality is traditionally disallowed in languages like English, as (8) shows:[2]

(8) a. #Otto$^{i}$ said that I$_{i}$ am a fool

b. Otto$^{i}$ said that he$_{i}$ was a fool

As Kaplan (1989) observed, without inserting quotation marks, there is no possible reading of (8a) with the meaning of (8b); the two are about different individuals. Most importantly, there can be no anaphoric reading linking the indexical *I* to the matrix subject, *Otto*; *I* rigidly refers to the speaker. Kaplan (1989) established his 'logic of demonstratives' on purely analytical grounds, motivated by his own reflections on English, and had it for granted that no language could possibly exist that would use (8a) to express (8b). However, a number of empirical studies have since proven Kaplan wrong: some languages do, as our Tigrinya examples repeated below show:

[2] Here and throughout the paper, I apply Barwise notation, where novel discourse referents introduce an index, noted as a superscript, and to which pronouns can be co-indexed to, yielding co-reference (notated with a subscript).

(9) a. Kidane kə-xɛyəd dɛliɛ ʔallɛxu ʔiłu (nɛyru)
Kidane COMP-IMPF.leave PRF.want.1SG AUX.1SG say.3SG.M AUX.3SG.M
'He$_i$ said that he$_{i,*spk}$ wanted to leave'

b. Sɛgɛn (ʔanɛ) ħabt-ɛy jəfɛtu-wa (ʔijɛ)
Segen 1SG sister.POSS.1SG love.IMPF.1SG.-OBJ.3SG.F COP.1SG
ʔiła
say.PRF.3SG.F
'Segen$_i$ said that she$_{i,*spk}$ loves her$_{i,*spk}$ sister'

In the sentences above, the first person indexicals can only refer to the matrix subject, and not to the utterance speaker. Moreover, it seems that this is not an intrinsic feature of nominative first person forms, since the possessive in 9b is shifted as well, suggesting that all indexicals within the same embedded clause get their value from the reported context - the *shift together* effect. In order to capture this, a fruitful line of research, pioneered by Anand and Nevins (2004), suggested that the shifting of indexicals may be induced by the presence of a monster operator 👻 in the embedded clause. The semantics of this operator are straightforward: it rewrites the kaplanian context coordinates of a contex-sensitive expression $\alpha$ - a tuple of parameters consisting of a speaker *s*, an addressee *ad*, a world *w*, a time *t* and a location *l* - with the values of the *index*, or circumstances of evaluation[3]:

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

Depending on the language, the operator is generally taken to be introduced 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:

(11) $[\![ \text{👻}\ \text{1st} ]\!]^{g,c,i} = [\![ \text{1st} ]\!]^{g,i,i} = \textit{speaker(i)}$

The above semantics for 'shifted' 1st person allow us to capture the intended meaning of an embedded 1st person under *ʔiła* 'say' in Tigrinya:

(12) $[\![$ Segen said 👻 I love my sister $]\!]^{g,c,i} = 1$ iff $\forall i'$ compatible with what Segen said in *i* and in which Segen identifies as the speaker in *i*, then the speaker in *i'* loves her own sister in *i'*.

Once the 👻 is inserted, all indexicals within its scope will thus inherit the value of the embedded context; this captures the shift-together effect alluded to above. Another benefit of the present theory is that it readily provides an explanation as to why no indexical shift can be observed in simple clauses[4], the monster operator being restricted to embedded contexts headed by speech verbs such as *say*[5].
However, the theory predicts nothing whatsoever regarding the disjointness inferences introduced in the previous section; this is so because 👻 is predicted to affect only the

[3] On the classical bipartition of index and context within philosophy of language and formal semantics, see Lewis (1980), Ninan (2010).
[4] Although some Giorgian (Kartvelian, Thivierge 2021) as well as Kurmanji (Indo-Iranian, Koev 2013) data seem to suggest that matrix indexical shift is available in those languages.
[5] Again, variation based on predicate type is attested across shifty languages: most languages allow it under *say*, some under *think*, and a very few under *know*, suggesting here again an implicational tendency; see Deal 2020 and references therein.

reference of indexical elements, and crucially not that of 3rd person pronouns (which, in traditional Heim & Kratzer-style formal semantic theory, have their value specified not through the context, but via the assignment function $g$). It therefore predicts that, even in a language where indexical shift is obligatory, reference to the embedded speaker / matrix subject would be possible using a 3rd person element, which seems empirically incorrect. In what follows, I would like to suggest that this impossibility stems from the interaction between the presence of the operator 🫥 in speech reports and the mandatory computation of implicatures at the embedded level, to which I now turn in the next section.

# 3 Disjointness effects as implicatures

In this section, I first lay out the key components of my analysis, which is the theory of mandatory implicatures developed by Magri (2009, 2011) and applied to disjointness effects by Marty (2017, 2018). I then go on to show how can their account be applied to our indexical shift data.

## 3.1 Mandatory implicatures

The theory of implicatures in Magri (2009, 2011) aims at accounting for the fact that sentences such as (13) sound odd and cannot seem to be rescued in any way:

(13) #Some Italians come from a warm country.

Presumably, this is because the utterance of (13) triggers the scalar implicature that the stronger statement (14) is assumed by the speaker to be false:

(14) All italians come from a warm country.

However, this inference is in blatant contradiction with common knowledge, which assumes that all Italians come from the same warm country. This represents a serious challenge for the Gricean program, which considers implicatures to be inferences triggered by concerns of informativity: an implicature can arise if a statement $\phi$ was chosen over its more informative counterpart $\psi$, deriving the implicature that $\neg\psi$. However, if $\phi$ and $\psi$ are statements of equal informativity given common knowledge, the implicature is predicted no to arise, contrary to what happens in cases exemplified with the pair above. In other terms, no Gricean theory can explain why a sentence like (13) sounds irremediably odd, regardless of the context it is uttered in.

Magri's (2009, 2011) system was designed to account for this observation. He proposes that implicatures are derived in a grammatical fashion (Chierchia 2004, 2006; Fox 2007, Fox and Katzir 2011, Chierchia et al. 2012 i.a.) by an exhaustivity operator EXH, which can be applied recursively during the derivation of logical forms. Specifically, the meaning of EXH is akin to that of *only*: it takes as input a set of propositions, the set EXCL of all excludable and contextually relevant alternatives of some sentence $\phi$, and negates that set:

(15) $[\![ \text{EXH}\phi ]\!] = \phi \wedge \forall\psi[\psi \in \text{EXCL}(\phi) \rightarrow \neg\psi]$

Since EXH is part of the grammar, it can be inserted in every position which requires a proposition as an argument; that is, in complex sentences, EXH can be inserted both at the matrix and embedded levels. Furthermore, Magri (2011) stipulates that EXH is always present at the matrix level, thus hardwiring Grice's 1975 Relevance Maxim in the semantics. Since what is asserted has to be relevant, this ensures that the prejacent of EXH is always relevant.

Since EXH applies to a pre-determined set of alternatives and yields its negation, something needs to be said about what counts as an alternative to begin with. Magri (2009) defines alternatives as follows:

(16) **Scalar alternatives** (Magri 2009: (25))
The set ALT($\phi$) contains all and only those sentences $\psi$ that can be obtained from $\phi$ by replacing one or more scalar items in $\phi$ with their Horn-mates.

The set EXCL($\phi$) of excludable alternatives of $\phi$ can be simply taken to be the set of logically non-weaker alternatives to $\phi$, i.e. the set of alternatives entailing $\phi$ that are not entailed by it (bearing in mind that it leads to some well-known problems, which is the reason ultimately Magri (2009) does not adopt this definition; see also Fox 2007, Marty 2017, Breheny et al. 2018):

(17) $[\![ \text{EXCL}\phi ]\!] = \{\psi \in \text{ALT}(\phi) : \psi \rightarrow \phi, \phi \nrightarrow \psi\}$

Last, Magri (2009) posits the two following hypotheses regarding the computation of implicatures:

(18) **Blindness Hypothesis**
The notion of entailment relevant for the definition of the exhaustivity operator EXH is that of logical entailment rather than that of entailment given common knowledge $W_{ck}$ (the set of wolds in which propositions entailed by common knowledge are true, n.a.).

(19) **Mismatch Hypothesis**
If the blind strengthened meaning of a sentence $\phi$ is a contradiction given common knowledge (i.e. $\text{EXH}(\phi) \cap W_{ck} = \emptyset$), then sentence $\phi$ sounds odd.

The *Blindness Hypothesis* (BH) ensures that implicatures derived via EXH are blind to common knowledge. The *Mismatch Hypothesis* states that if the strenghtened meaning resulting from the application of EXH in a given context contradicts another, relevant alternative in the same context, the resulting implicature will result in oddness. Note that, as Magri 2009: 260 sqq.) notes, the *Mismatch Hypothesis* follows from the assumption, adopted here, that implicatures in contexts as in (13) are *mandatory*. This will play a crucial role for our discussion of disjointness inferences below.

We now have all the ingredients to account for the oddness of sentence (13) above. Consider first the set of alternatives for the sentence; since the quantifier *some* forms a scale

altogether with its other Horn-mate *all* of the form $<$ *some, all* $>$, then it follows that, since '*all* $\phi$ is true' asymettrically entails that '*some* $\phi$ is true', (14) is part of the excludable set of alternatives of (13). Upon utterance of (13), EXH derives the implicature that (14) is false, and does so in a blind fashion; for it is common knowledge that all Italians come from the same country, but this is definitely not so as a consequence of the meaning of *some* and *all*, where *all* entails *some* but the opposite does not hold. Recall that implicatures arise because of informativity requirements; if two sentences contextually entail each other, as it is the case here, the speaker has no reason to choose one alternative over the other (this was the reasoning behind both Hawkin's 1991 and Heim's 2001 intuitions regarding presuppositions). Crucially, if common knowledge was taken into account, the two sentences would be equally informative, and the implicature could not be derived. *Per* the Blindness Hypothesis, an utterance of (13) triggers the implicature that *some but not all Italians come from a warm country*. But by the Mismatch Hypothesis, this is in contradiction with common knowledge; hence, (13) is perceived as odd.

## 3.2 Implicatures over phi-features

Magri's cases discussed above primarily consist in proposition-based implicatures. Can it be extended to sub-sentential components, and more precisely, to nominal expressions like pronouns? In what follows, I will try to argue that it can. Marty (2017, 2018) already observed that similar oddity effects arise in the nominal domain. Consider the following example:

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

a. #John is happy.

b. I am happy.

c. #Mary is happy.

d. You are happy.

(adapted from Marty 2017: (80))

While in that context, both *John* and *I* refer to the speaker, and *Mary* and *you* to the addressee, sentences involving proper names instead of indexicals are perceived as deviant. Marty (2017) convincingly argues that the sentence

(21) John is happy

uttered in a context where John is the speaker is perceived as odd because the use of the DP *John* triggers the implicature that it is not the case that the speaker ($s_c$) and the addressee ($ad_c$) are happy in $c$, the context of utterance:

(22) $\neg$ ($s_c$ is happy) $\wedge$ $\neg$ ($ad_c$ is happy)

However, the implicature contradicts common knowledge, since participants know that John is the speaker; as a consequence, the sentence sounds odd, and cannot be uttered felicitously in that context.

### 3.2.1 Person features and presuppositions

Crucial here is to specify how the alternatives can be determined, so they can correctly be selected by the implicature-deriving mechanism. Here, instead of adopting Marty's (2017) theory of structurally-defined alternatives (Katzir 2007, Fox and Katzir 2011), I stick to Magri's 2009 original proposal in terms of Horn scales. I follow Sauerland (2007, 2008) in assuming that person features form a scale, and that the relevant alternatives are selected among members of the set of person features that a given language lexically encodes. Following Harbour (2016), I assume that the following features are active across languages (where 1, 2, 3 stand for persons):

(23) a. 1: [+ PART(ICIPANT), + AUTHOR]

b. 2: [+ PART(ICIPANT)]

c. 3: []

The first person is the most specified, consisiting of a [+ PART] and a [+ AUTHOR] features. The second person is less specified, consisting only of a [+ PART] feature. Last, I assume that the 3rd person is underspecified, as traditionally assumed in most accounts of person since at least Benveniste (1966). Note that a key component of this hierarchy is that it is both *asymmetric* (features entail lower features in the hierarchy) and *nonnovel* (every feature projects onto the higher levels).[6]
In line with most current research in the semantics of person (Cooper 1983; Heim 2008; Sauerland 2008; Stokke 2010; Sudo 2012; Charnavel 2019 a.o.), I consider person features to be interpreted as presuppositions, i.e. partial functions of type $< e, e >$ that restrict the domain of interpretation of the expression they are associated with (the pronoun itself being treated as a variable, cf. Heim and Kratzer 1998);

(24) a. $[\![ 1 ]\!]^{g,c,i} = \lambda x : x \in s(c).x$

b. $[\![ 2 ]\!]^{g,c,i} = \lambda x : x \in s(c) \vee a(c).x$

c. $[\![ 3 ]\!]^{g,c,i} = \lambda x.x$

Last, following Sauerland (2008), I assume that features are ranked in terms of semantic markedness: a given feature in the hierarchy will semantically entail all the features below it, according to the following principle:

(25) **Semantic markedness condition for features** (Sauerland 2008; 60)
Let $\phi, \psi$ be features. If $\phi \rightarrow \psi$, $\phi$ is semantically more maked than $\psi$.

Since person features are organized in a scale, the system outlined above predicts that their use will trigger implicatures; specifically, the use of a feature *F* in the scale will trigger the implicature that the stronger, i.e. higher ranked alternative *F'* does not hold. Thus, in a plain conversation, utterance of (26a) in a context where the speaker wants to convey something about himself is infelicitous:

[6] Contrary to other person inventories, no privative [+ HEARER] feature is posited 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.).

(26) a. #He is hungry.

b. ALT(3) = $\left\{ \begin{array}{c} 1 \\ 2 \end{array} \right\}$

c. EXH(26a) = $\left\{ \begin{array}{c} \neg\ (s_c \text{ is hungry}) \\ \neg\ (ad_c \text{ is hungry}) \end{array} \right\}$

d. $\rightsquigarrow$ *he* does not refer to the utterance speaker or hearer.

Which is exactly what happens with our example (21) above.[7]

# 4 Implicatures and shiftiness

## 4.1 Obligatory indexical shift

Consider now a language with obligatory indexical shift, like Erythrea Tigrinya. Whenever a speech report is made, co-reference between matrix and embedded subjects (the author of the reported speech act) has to be expressed with a shifty first person, on pain of triggering a disjointness inference:

(5) a. Kidane kə-xɛyəd dɛliɛ ʔallɛxu ʔiłu (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 ʔiłu (nɛyru)
Kidane COMP-IMPF.leave PRF.want.3SG.M AUX.3SG.M say.3SG.M AUX.3SG.M
'Kidane$_i$ said that he$_{*i/j}$ wanted to leave'

I would like to propose that this inference is derived from the conjoint application of both the monster operator 👻 and EXH at the embedded level. Recall that, since Tigrinya is an obligatory shifting language, the insertion of 👻 is mandatory under *ʔiłu* '*say*', with the effect that the embedded first person coordinate is shifted towards that of the reported speaker, Kidane. This yields the following pseudo-LF for a sentence like (5b):

[7] Note that it is assumed here that a proper name like *John*, as any other name, is interpreted as 3rd person, which in the system advocated for here means devoid of person features. An interesting issue regards whether the present proposal predicts an asymmetry between nouns and 3rd person pronouns that could feed EXH. I predict that it will, although our scale-based reasoning will be of no help here. A way to ensure that 3rd person pronouns should be preferred over proper names under denotational equivalence would be to adopt Meyer's (2014, 2015) *Efficiency* axiom, which captures Grice's insight that simpler descriptions should be preferred over more complex ones:

(27) **Efficiency** (Meyer 2015; (6))
An LF $\phi$ is ruled out if there is a distinct competitor $\psi$ such that

a. $\psi < \phi$

b. $[\![\psi]\!] \equiv [\![\phi]\!]$

Where '$<$' stands for structurally strictly simpler in Katzir's 2007 sense. For similar proposals about definite descriptions and names, see Schlenker 2005a, 2005b.

(28) Kidane$^i$ said 👻 I$_i$ want to leave

Consider now an utterance of the following sentence:

(29) [$_\phi$ Kidane$^i$ said [$_\psi$ he$_i$ wanted to leave ]]

Since *say* is present, so is the context-shifting operator:

(30) [$_\phi$ Kidane$^i$ said 👻 [$_\psi$ he$_i$ wanted to leave ]]

Note that, since this is an embedded sentence, EXH applies at both levels, matrix and embedded. At the matrix level, EXH triggers the now familiar mandatory implicature that the matrix subject does not refer to the actual speaker in the context of utterance, which (following Schlenker 2003) I henceforth notate as *c**:

(31) a. $\text{ALT}(\phi) = \left\{ \begin{array}{l} s_{c*} \text{ said } \psi \\ a_{c*} \text{ said } \psi \end{array} \right\}$

b. $[\![\text{EXH}(\phi)]\!] = \text{Kidane said } \psi \wedge \neg \left\{ \begin{array}{l} s_{c*} \text{ said } \psi \\ a_{c*} \text{ said } \psi \end{array} \right\}$

c. $\rightsquigarrow \text{Kidane} \neq s_{c*} \vee a_{c*}$ (*per* logical reasoning over 31b)

At the embedded level, EXH also applies, but so does the monster 👻, which is required due to the presence of *say*. As a consequence, the meaning of the alternatives that EXH takes into account is now specified with respect to the reported context, noted *c*, and not with respect to the utterance context *c**. This triggers the following implicature:

(32) a. $\text{ALT}(👻\,\psi) = \left\{ \begin{array}{l} s_c \text{ wanted to leave} \\ a_c \text{ wanted to leave} \end{array} \right\}$

b. $[\![\text{EXH}(👻\,\psi)]\!] = 3\text{SG wanted to leave} \wedge \neg \left\{ \begin{array}{l} s_c \text{ wanted to leave} \\ a_c \text{ wanted to leave} \end{array} \right\}$

c. $\rightsquigarrow 3\text{SG} \neq s_c \vee a_c$ (*per* logical reasoning over 32b)

d. $\rightsquigarrow 3\text{SG} \neq \text{Kidane}$ (*per* logical reasoning over substitution of co-referential terms)

Which derives the disjointness inference. Note that, crucially, the presence of 👻 in the structure allows EXH to locally derive the implicature that *he* is neither the speaker nor hearer of the *shifted* context. Together with the implicature derived from matrix EXH that *Kidane* refers neither to the actual speaker or addressee, one arrives to the conclusion that the referents of *he* and *Kidane* must be distinct individuals.
By way of comparison, consider the same sentence in English:

(33) [$_\phi$ John$^i$ said [$_\psi$ *he*$_i$ wanted to leave ]]

The computation of the matrix sentence $\phi$ will be analogous to its Tigrinyan counterpart:

(34) a. $\text{ALT}(\phi) = \left\{ \begin{array}{l} s_{c*} \text{ said } \psi \\ a_{c*} \text{ said } \psi \end{array} \right\}$

b. $[\![\text{EXH}(\phi)]\!] = \text{John said } \psi \wedge \neg \left\{ \begin{array}{l} s_{c*} \text{ said } \psi \\ a_{c*} \text{ said } \psi \end{array} \right\}$

c. $\rightsquigarrow \text{John} \neq s_{c*} \vee a_{c*}$

However, at the embedded level, the relevant alternatives for $\psi$ will be different from those in (32) since, in English, *say* does not introduce any 👻. The set ALT of excludable alternatives for $\phi$ will only contain those alternatives in which the first and second person are rigidly specified for the context of utterance $c*$, as their respective semantics have it, deriving the implicature that the referent of *he* is neither the current speaker or addressee. Note that this is the very same implicature that is derived from the matrix sentence, rendering the application of EXH at the embedded level vacuous. Crucially, this implicature does not contradict common knowledge, under the assumption that *he* and *John* refer to the same individual; the sentence is therefore not perceived as odd under the coreferential reading, and no disjointness inference is derived.

(35) a. $\text{ALT}(\psi) = \left\{ \begin{array}{l} s_{c*} \text{ wanted to leave} \\ a_{c*} \text{ wanted to leave} \end{array} \right\}$

b. $[\![\text{EXH}(\psi)]\!] = 3\text{SG wanted to leave} \wedge \neg \left\{ \begin{array}{l} s_{c*} \text{ wanted to leave} \\ a_{c*} \text{ wanted to leave} \end{array} \right\}$

c. $\rightsquigarrow 3\text{SG} \neq s_{c*} \vee a_{c*}$ (= 34c)

## 4.2 Optional indexical shift

Our theory thus predict that, in languages in which the insertion of both EXH and the monster operator at the embedded level is mandatory - i.e., in obligatory shifting languages, the use of a 3rd person form instead of a 1st person will give rise to disjointness inferences. Conversely, in a language where no 👻 is available, no such inference will be derived. Interestingly, our theory also predicts that the same pattern will be observed in a language in which the insertion of 👻 is optional, which is indeed borne out by the data. Consider the following examples from Farsi (Iranian; Iran) and Tsez (Northeast-Caucasian; Dagestan), both languages in which indexical shift is optional. In those, 3rd person reference to reported speakers is allowed, as (38) and (39) illustrate:

(36) 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$_{i,Spk}$ bought a book for you$_{j,Add}$'
(Farsi, Anvari 2020: (18))

(37) Irbahin-ä di ʕayibiyaw yoł=ƛin eƛi-x
Ibrahim-ERG 1SG.ABS wrong/foolish be.PRS-QUOT say-PRS
'Ibrahim$_i$ says that I$_{i,Spk}$ am wrong'
(Tsez, Polinsky 2015: (27))

(38) 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: (57))

(39) 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: (58))

Our theory predicts that those languages will behave like non-shifty languages like English since, by assumption, optional shifting languages are ambiguous when it comes to speech reports: they allow standard, indexical readings as well as shifted readings. A more theoretical way of putting this is that they always have the possibility to generate two kind of LFs:

(40) a. John$^i$ say... 👻 I$_i$ am a hero (indexical parse)

b. John$^i$ say... I$_{Spk}$ am a hero (shifted parse)

But why then would not a shifted parse of, say, (**??**) above give rise to the inference that Ibrahim is not the reported speaker, as in Tigrinya? Our theory predicts that it can, since EXH can be inserted; however, this will not give rise to any oddity effect, since the strengthened meaning of (**??**)b will always be compatible with the strengthened meaning of a non-shifted, indexical parse of the same sentence, preventing speakers and hearers alike to safely draw the disjointness inference. By ways of illustration, take the following sentence, with intended coreference between *Ibrahim* and *he*:

(41) $[_\phi$ Ibrahim$^i$ said $[_\psi$ he$_i$ is wrong $]]$

This sentence has a counterpart with a 👻 inserted by *say*:

(42) $[_\phi$ Ibrahim$^i$ said $[_\psi$ 👻 he$_i$ is wrong $]]$

The aternatives that can be fed to EXH are thus the following, depending on which LF is selected:

(43) ALT(41) = $\left\{ \begin{array}{l} \text{Ibrahim said 1SG is wrong} \\ \text{Ibrahim said 2SG is wrong} \end{array} \right\}$

(44) ALT(42) = $\left\{ \begin{array}{l} \text{Ibrahim said 👻 1SG is wrong} \\ \text{Ibrahim said 👻 2SG is wrong} \end{array} \right\}$

Why are these alternatives not lumped together? Recall that in order to be selected by EXH, alternatives must be asymmetric, i.e. an alternative $\psi$ to an element $\phi$ can only be taken as such if $\phi \rightarrow \psi$, but the reverse does not hold. Crucially, no such relation holds between a shifted first or second person pronoun and its non-shifted, indexical counterpart. They are equally informative, albeit valued in different contexts; the standard indexical is valued by the global context of utterance, and the shifted one by the local, matrix context, due to the shifted coordinates induced by 👻. Applying EXH to these LFs yield the following result:

(45) a. $[\![\text{EXH (41)}]\!] = 3\text{SG} \wedge \neg \left\{ \begin{array}{c} s_{c*} \\ a_{c*} \end{array} \right\}$

b. $[\![\text{EXH (42)}]\!] = 3\text{SG} \wedge \neg \left\{ \begin{array}{c} s_{c} \\ a_{c} \end{array} \right\}$

Since the sentence is ambiguous, both derivations are compatible with the following inference:

(46) $\rightsquigarrow he \neq (s_{c*} \wedge a_{c*}) \vee he \neq (s_c \wedge a_c)$

Leaving open the possibility that 3SG refers either to the reported speaker or the utterance speaker. The strengthened meaning of (42) cannot therefore be perceived as odd, since there always is a context compatible with a parse of the same sentence with a non-shifted meaning. This precludes any oddity effect, and therefore any disjointness inference.

## 4.3 More complex cases: the monster bleeds EXH

Would all this amount to the conclusion that optional shifting languages behave strictly like English? Not quite. Consider (47):

(47) *Context: John is speaking to Mary*

a. #John is working too much.

b. #Fred said that John is working too much.

Both sentences are perceived as odd, by the reasoning outlined in §3. However, it seems that this generalization does not hold in optional shifting languages:

(48) *Sajjad to Qazal:*
Leila be Mina goft Sajjad **azat** asabaniye
Leila to Mina say.PST Sajjad from.2SG angry.be.3SG
✓ 'Leila$_i$ told Mina$_j$ that Sajjad is angry at her$_j$'
✗ 'Leila$_i$ told Mina$_j$ that Sajjad is angry at Qazal'
(Farsi, Anvari 2020: (42))

As Anvari (2020) notes, although Farsi is an optional shifting language, the configuration above forces indexical shift to obtain, as the infelicitous, non-shifted parse of the same sentence indicates. What is interesting here is the fact that the utterance speaker, Sajjad, can be referred to using a 3rd person NP, *Sajjad*, which is otherwise prohibited in matrix sentences: a speaker cannot normally refer to herself using a 3rd person element, for the reasons laid out above.[8]

According to the present theory, the above data can be explained as follows: since the second person indexical marker *azat* is shifted, the structure in (48) features a 👻 in its embedded clause. Consequently, a 1SG element in its scope would obligatorily be shifted

[8] Anvari (2020) explains the infelicity of a speaker referring to herself using 3rd person by positing a dedicated pragmatic constraint, which he dubs *ban against illeism*. If the present approach is correct, our theory derives this constraint without further ado. I refer the interested reader to the original paper for a full-blown comparison.

as well, referring to the embedded speaker, Leila, and not to Sajjad; therefore, a 3SG element can be inserted in order to refer to the utterance speaker, thus salvaging the intended interpretation of (48).

What deserves to be noted is that the use of a 3SG element to refer to the utterance speaker can precisely obtain because of the absence of disjointness inference in a structure like (48): due to the presence of the 👻, no inference about the utterance speaker's referent can be derived locally by the use of a 3rd person NP like *Sajjad*, confirming Anvari's intuition that indexical shift precludes the 'ban against illeism' to take place. Put it differently, the presence of 👻 destroys the environment in which the inference about the utterance context would have taken place - it *bleeds* EXH.[9] When no shifting takes place - for instance, when the sentence does not feature any indexicals whatsoever -, the BAI is enforced, and a 3SG element cannot refer to the utterance speaker. This is illustrated in (49):

(49) *Sajjad to Qazal:*
#Leila be Mina goft Sajjad **azash** asabaniye
Leila to Mina say.PST Sajjad from.3SG angry.be.3SG
*Intended:* 'Leila$_i$ told Mina$_j$ that Sajjad is angry at her$_j$'
(Farsi, Anvari 2020: (45))

The same constraint holds for pronouns, as the following illustrates:

(50) Leila be Mina goft barat ketab xaride
Leila to Mina told for.2SG book bought.3SG
✗ 'Leila$_i$ told Mina$_j$ that she$_i$ bought her$_j$ a book.'
✓ 'Leila$_i$ told Mina$_j$ that she$_k$ bought her$_j$ a book.'
✓ 'Leila$_i$ told Mina$_j$ that she$_{i,k}$ bought you a book.'
(Farsi, Anvari 2020: (55))

The above sentence only has two readings available, depending on the presence vs absence of 👻 in the structure. Whenever 👻 is inserted, the 2SG element *barat* shifts towards the reported addressee, Mina. If so, then the 3SG element *xaride* cannot refer to the embedded speaker, Leila: it has to refer to some other, salient individual. On the other hand, whenever no monster is present and *barat* refers to the utterance addressee, the disjointness inference does not obtain, and the 3SG element is free to refer back to Leila or some other individual. This can be explained by our theory if we assume that the oddness associated with the computation of the implicature over the 3SG element disappears within the context created by the 👻. This is illustrated below:

(51) **Parse with monster, indexical shift induced: disjoint local reference**

a. $[_{\phi}\ sp_{c*}$ ... $ad_{c*}$ ... Leila$^{i}$ to Mina$^{j}$ say $[_{\psi}$ 👻 $2\text{SG}_{j}$ ... $3\text{SG}_{*i,k}\ ]]$

b. $[\![\text{EXH}\ (👻\ \psi)]\!] = 3\text{SG} \wedge \neg \left\{ \begin{array}{c} s_c \\ a_c \end{array} \right\}$

c. $\rightsquigarrow$ the referent of 3SG is neither the local speaker (Leila) nor the local addressee (Mina)

d. $\rightsquigarrow$ the referent of 3SG is compatible with the utterance speaker or addressee.

[9] Here, I am borrowing Anvari's terminology, who imports the terms *bleeding* and *feeding* from phonology.

(52) **Parse without monster, no indexical shift: no disjoint local reference**

a. $[_{\phi}\ sp_{c*}$ ... $ad_{c*}$ ... Leila$^{i}$ to Mina$^{j}$ say $[_{\psi}\ 2\text{SG}_{*j,ad(c*)}$ ... $3\text{SG}_{i,k}\ ]]$

b. $[\![\text{EXH}\ (\psi)]\!] = 3\text{SG} \wedge \neg \left\{ \begin{array}{c} s_{c*} \\ a_{c*} \end{array} \right\}$

c. $\rightsquigarrow$ the referent of 3SG is neither the utterance speaker or addressee

d. $\rightsquigarrow$ the referent of 3SG is compatible with the local speaker (Leila) or the local addressee (Mina)

However, in configurations where shifting cannot obtain at all, e.g. under predicates such as *fekr-kardan* 'think', no such inference is derived, as (53) illustrates:

(53) *Sajjad to Qazal:*
#Leila fek-kard Sajjad asabaniye
Leila think.PST Sajjad angry.be.3SG
'Leila thought that Sajjad was angry'

(Farsi, Anvari 2020: (47))

In (53), the predicate *fek-kard* 'thinks' does not license indexical shift; it is thus expected that the use of 3rd person NP *Sajjad* to refer to the utterance speaker will trigger our familiar disjointness inference and, as a result, will sound odd in that context. The context-shift brought about by 👻, however, allows for the interpretation of the sentence *cum* its implicature to be felicitous.
Disjointness inferences in optional shifting configurations are thus successfully derived within the present framework. As such, the phenomenon is expected to be observed in other languages, a prediction that seems borne out, since similar patterns can be observed in Korean, another optional shifting language:

(54) *John to Mary:*
Tom-i Sue-eykey **ku**-ka **ne**-lul cohahanta-ko malhayssta.
Tom-NOM Sue-to **3SG**-NOM **2SG**-ACC like-COMP say-PST
'Tom$_i$ said to Sue$_j$ that he$_{*i,k}$ likes you$_{j,*Ad}$'

(Korean, Park 2014: (18))

The use of a 3rd person pronoun under 👻 gives rise to the disjointness inference that *he* and the reported speaker, Tom, are distinct individuals.

# 5 Deriving anti-logophoricity

In this section, I show how our implicature-based analysis can successfully derive the distribution of pronouns in languages that make use of logophoric pronouns in speech reports. Logophoric languages have a distinct set of 3rd person proforms that are used in embedded contexts under verbs of speech (Clements 1975, Hyman and Comrie 1981, Sells 1987, Culy 1994). Crucially, when used, those pronouns cannot pick up a referent distinct from the reported speaker, or 'logophoric center', in the sense of Sells (1987). However, when a regular, third person pronoun is used in the same environment, a disjointness effect arises, and both referents are interpreted as distinct. This is illustrated in the following examples:

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

b. Kofi be e dzo
Kofi say 3SG leave
'Kofi$_i$ said that he$_{*i/j}$ left'

(Ewe, Clements 1975)

(55) 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, Culy 1994: (1))

(56) a. Nnsɨni dzɛ enyɨa é bvʉ nù
Nsem say COMP LOG fall FOC
'Nsen$_i$ said that she$_i$ fell'

b. Nnsɨni dzɛ enyɨa ù bvʉ nù
Nsem say COMP 3SG fall FOC
'Nsen$_i$ said that she$_{*i/j}$ fell'

(Aghem, Butler 2009: (10-11))

These effects can straightforwardly be captured using the same implicature-based reasoning outlined above. In order to consistently maintain the required asymmetry needed to feed EXH at the level of alternatives, let us assume that, instead of being specified with a dedicated feature, logophors lack a feature that first person pronominals have: a feature [ACTUAL], which 1st person pronouns come specified with.[10] Thus, logophoric languages are assumed to make use of the following feature set:

(57) a. 1st: [PART, AUTHOR, ACTUAL]

b. LOG: [PART, AUTHOR]

c. 2nd: [PART]

d. 3rd: []

(58) a. $[\![ \text{1st} ]\!]^{g,c,i} = \lambda x : x \in s(c).x$

b. $[\![ \text{LOG} ]\!]^{g,c,i} = \lambda x : x \in s(i).x$

c. $[\![ \text{2nd} ]\!]^{g,c,i} = \lambda x : x \in a(c) \vee a(i).x$

d. $[\![ \text{3rd} ]\!]^{g,c,i} = \lambda x.x$

[10] The [ACTUAL] feature is inspired from Schlenker (2003), and closely resembles his [+ AUTHOR*].

This hierarchy, as well as its corresponding semantics,[11] retains the two main features of that proposed in Harbour (2016), *nonnovelty* and *asymmettry*. Note that 2nd person is only specified with a [PART] feature, lacking an [ACTUAL] feature, an asymmetry that will be essential in accounting for the data below.

Take example (7). What we observe is that the use of a standard 3rd person form in the logophoric environment introduced by *be 'say'* implies that the two referents are distinct individuals. This goes as follows: upon utterance of (7)b, its meaning is strengthened by EXH, which negates its logically non-weaker alternatives. As a consequence, it is assumed that *Kofi* and *e* must denote distinct individuals. More precisely, the utterance of (7) will trigger the following implicature at the matrix level:

(59) $[_{\phi}$ Kofi$^{i}$ said $[_{\psi}$ he$_{i}$ left $]]$

(60) a. $\text{ALT}(\phi) = \left\{ \begin{array}{c} 1 \text{ said } \psi \\ 2 \text{ said } \psi \\ \text{LOG said } \psi \end{array} \right\}$

b. $[\![\text{EXH}(\phi)]\!] = \text{Kofi said } \psi \wedge \neg \left\{ \begin{array}{c} s_{c*} \text{ said } \psi \\ a_{c*} \text{ said } \psi \\ s_i \text{ said } \psi \end{array} \right\}$

c. $\rightsquigarrow \text{Kofi} \neq \left\{ \begin{array}{c} s_{c*} \\ a_{c*} \\ s_i \end{array} \right\}$

At the embedded level, EXH applies, triggering the implicature that the referent of *e* is neither the utterance speaker (or addressee), nor the reported speaker, deriving the disjoint inference that *e* and *Kofi* denote distinct individuals:

(61) a. $\text{ALT}(\phi) = \left\{ \begin{array}{c} 1 \text{ left} \\ 2 \text{ left} \\ \text{LOG left} \end{array} \right\}$

b. $[\![\text{EXH}(\phi)]\!] = 3\text{SG left} \wedge \neg \left\{ \begin{array}{c} s_{c*} \text{ left} \\ a_{c*} \text{ left} \\ s_i \text{ left} \end{array} \right\}$

c. $\rightsquigarrow \text{Kofi} \neq \left\{ \begin{array}{c} s_{c*} \\ a_{c*} \\ s_i \end{array} \right\}$

d. $\rightsquigarrow 3\text{SG} \neq \text{Kofi}$

[11] Now, the proposed lexical entry for the logophor cannot be quite right, for if it was specified to refer to the speaker of the index, we would expect to see logophors being licensed by other index-shifting devices, such as modals; this prediction is not borne out, as logophors seem to apppear in speech and thought reports only. A satisfying analysis of the semantics of logophors should have something to say about the relationship between these forms and the speech reports environments they seem to be restricted to, an highly interesting issue that we cannot address here. On the peculiar semantic nature of speech reports, see a.o. Brasoveanu and Farkas (2007), Spronck and Nikitina (2019), and Bary and Maier (2021).

## 5.1 Deriving more complex cases

Another typological observation that our theory can account for is the following. As noted by Hyman and Comrie (1981) for Gokana, logophoric pronouns 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[12]:

(62) 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))

A similar pattern can be found in Wan (Niger-Congo, Ivory Coast), Danyi Ewe (Niger-Congo, Togo), as well as Ibibio (Niger-Congo, Southern Nigeria):

(63) a. ŋ gé doo nà ŋ gà
1SG said QUOT 1SG.PRF PRF go
'I said that I am gone'

b. è gé doo ɓà ŋ gà
3SG said QUOT LOG.SG PRF go
'$He_i$ says $he_{i/*j}$ is gone'

(Wan, Nikitina 2012: (6), (25))

(64) a. Kofí ŋa bə yi lɔ Áma
Kofi know COMP LOG love Ama
'$Kofi_i$ knows that $he_{i/*j}$ loves Ama'

b. #ŋŋə ŋa bə yi lɔ Áma
1SG know COMP LOG love Ama
Intended: '$I_i$ know that $I_i$ love Ama'

(Danyi Ewe, O'Neill 2015: (3a, c))

(65) a. #ŋ-ké bò ké ì-mà í-kót ŋwèt
1SG-PST say COMP LOG-PST LOG-read book
Intended: '$I_i$ said that $I_i$ read a book'

b. #ì-ké bò ké mmìmɔ ì-mà í-kót ŋwèt
1SG-PST say COMP LOG.PL LOG-PST LOG-read book
Intended: '$We_i$ said that $we_i$ read a book'

(Ibibio, Newkirk 2017: (10), (12))

This pattern is correctly predicted by the implicature account, given the asymmetrical hierarchy of features posited in (57): in cases like 62a and 63a, i.e. in cases where the

[12] Hyman and Comrie (1981) make a less stronger claim, stating only that (62a) is preferred over (62b).

antecedent is first person (refers to the current speaker), a first person must be used in the embedded sentence. If a logophor is used instead (as in 62b, 64b), since the feature set of 1st person is semantically more marked than that of LOG, then it ensues that LOG $\nrightarrow$ 1st, which upon utterance of LOG triggers the mandatory implicature that $[\![\text{LOG}]\!] \neq [\![\text{1st}]\!]$. But since it is common knowledge that $[\![\text{LOG}]\!] = [\![\text{1st}]\!]$, the sentence sounds odd in that context.

Another interesting typological fact predicted by the present account concerns the use of 2nd person in logophoric environments. In some languages, logophoric contexts exhibit a special case of 'person neutralization' between third and second person; as a consequence, logophoric pronouns can take second person antecedents as well as third, with singular and plural number features alike. As mentioned above, in those languages, first person antecedence is excluded:

(66) a. #oò kɔ oò dɔ
2SG said 2SG fell
'You$_i$ said you$_i$ fell'

b. oò kɔ oò dɔ-ɛ
2SG said 2SG fell-LOG
'You$_i$ said you$_i$ fell'

(Gokana, Hyman and Comrie 1981: (10))[13]

(67) 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 2012: (5a, b))

(68) ə ŋa bə yi lɔ Áma
2SG know COMP LOG love Ama
'You$_i$ know that you$_i$ love Ama'

(Danyi Ewe, O'Neill 2015: (3b))

(69) a. à-ké bò ké ìmɔ ì-mà í-kót ŋwèt
2SG-PST say COMP LOG LOG-PST LOG-read book
'You$_i$ said that you$_i$ read a book'

b. è-ké bò ké mmìmɔ ì-mà í-kót ŋwèt
2PL-PST say COMP LOG.PL LOG-PST LOG-read book
'You$_i$ said that you$_i$ read a book'

(Ibibio, Newkirk 2017: (9), (11))

[13] Again, Hyman and Comrie (1981) merely indicate that (66b) is preferred to (66a).

Again, this kind of distribution between first vs non-first as antecedents for logophors is predicted in the current framework. Consider the hierarchy in (57), which assumes a downward-entailing asymmetric relation between LOG and 2nd - the featural set of 2nd being a subset of that of LOG. Consequently, LOG $\rightarrow$ 2nd and 2nd $\not\rightarrow$ LOG, which allows for the following implicature to be derived:

(70) a. ALT (2nd) = $\left\{ \begin{array}{c} 1 \\ \text{LOG} \end{array} \right\}$

b. $[\![\text{EXH (2nd)}]\!] = ad_{c*} \wedge \neg \left\{ \begin{array}{c} s_{c*} \\ s_i \end{array} \right\}$

c. $\rightsquigarrow ad_{c*} \neq \left\{ \begin{array}{c} s_{c*} \\ s_i \end{array} \right\}$

The implicature results in the assumption that the referent is neither the author of the embedded speech event, nor the author of the current speech event. It is thus expected that a sentence where the author of the embedded speech event is referred to using a 2nd person would be infelicitous; a logophor should be used instead - which is just what we observe in (67)-(69) above. In these, the 2nd person and the logophor are coreferential, the addressee of the utterance context also being the reported speaker. When the two referents coincide, a 2nd person cannot be used on pains of triggering a disjointness inference, as in (66a).

Note that the hierarchy in (57) makes another prediction: that the 2nd person could be used to denote non-actual addressees, being not specified with an [ACTUAL] feature. This prediction is borne out: in (71) and (72), logophors are used to refer to the reported speaker, and 2nd person indexicals refer to the reported addressee:

(71) 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 2012: (18))

(72) a. wìzɨn 'vʉ ndzɛ à wɨn enyɨa **é** ŋgé 'lɨghá **wò**
woman that said to him COMP LOG much like 2SG
'The woman$_i$ said to him$_j$ that she$_i$ liked him$_j$ a lot' (lit. 'The woman$_i$ said to him$_j$ that LOG$_i$ liked you$_j$ a lot)

b. bɨghà 'vʉ n'lɛlɔ tɔm wɔ kɨmàʔsɔ à wì enyɨa **é** zɨghà tɨn **wò**
guy that looked wrote hither letter to wife COMP LOG left forever 2SG
'That guy$_i$ wrote a letter to his wife$_j$ that he$_i$ had left her$_j$ forever' (lit. 'That guy$_i$ wrote a letter to his wife$_j$ that LOG$_i$ had left you$_j$ forever')

(Aghem, Hyman and Watters 1979: 203, 205, cited in Butler 2009: (24-25))

The data above is quite interesting when compared to indexical shifting languages discussed in the previous section, since the second person in examples (71) and (72) is

'shifty' in a similar sense. What this suggests is that logophoric languages have somehow grammaticalized a version of the monster operator 👻 that shifts the embedded speaker coordinates (Deal, 2020), allowing a 'division of anaphoric labour' in which reference to embedded speech context participants is mediated by a dedicated logophoric form, thus confining the 1st person to genuine indexical uses.

## 5.2 More bleeding cases

Some languages, however, make use of both logophoric elements and a shifting operator. Korean is such a language: it can optionally shift indexicals (73), but also make use of a long-distance reflexive form *caki* with logophoric properties (Yang 1983; Yoon 1989; Kim and Yoon 2009) (74):

(73) Tom-i Sue-eykey nay-ka ne-lul cohahanta-ko malhayssta.
Tom-NOM Sue-to 1SG-NOM 2SG-ACC like-COMP say-PST
'Tom$_i$ said to Sue$_j$ that I$_{i,Spk}$ like you$_{j,Add}$'
(Korean, Park 2014: (5))

(74) John-i somaychiki-ka caki-uy cikap-ul hwumchy-ess-tako
John-NOM pickpocket-NOM caki-GEN purse-ACC steal-PST-COMP
malhay-ss-ta.
say-PST-DECL
'John$_i$ said that the pickpocket stole his$_i$ purse.'
(Korean, Park 2014: (22))

We observe that the interaction between *caki* and the shifty readings of indexicals in complex sentences exhibits the same properties as optional shifting languages: whenever *caki* is used in order to refer to the reported speaker, the shifted reading of indexicals is not available anymore.

(75) *Context: John and Mary are having a conversation.*
Tom-i Sue-eykey caki-ka ne-lul cohahanta-ko malhayssta.
Tom-NOM Sue-to caki-NOM 2SG-ACC like-COMP say-PST
'Tom$_i$ said to Sue$_j$ that he$_i$ likes you$_{Mary,*j}$'
(Korean, Park 2014: (24))

What happens here is that the reflexive *caki* somehow blocks the application of 👻 - *caki* bleeds the monster. This can be accounted for the following way: *caki*, as a genuine logophor, refers to $sp_i$, the speaker of the reported context (Tom). But there is another way to refer to Tom in that very same sentence: use a standard first person whose coordinates have been shifted by 👻. However, 👻 is mandatory in order to get a shifted reading of *ne*. It thus seems that using *caki* in an environment where 👻 is inserted would not be possible, since it would trigger the inference that $[\![caki]\!] \neq [\![sp_i]\!]$, which contradicts common knowledge; if it was the case that $[\![caki]\!] = [\![sp_i]\!]$ (which, in a shifted environment, amounts to $[\![caki]\!] = [\![sp_c]\!]$), then a (shifted) first person would have been used. The only interpretation available remaining for the 2nd person that is consistent with the presence of *caki* is thus the indexical, non-shifted one, referring to the utterance addressee, Mary. This kind of 'blocking effect' can be derived if we assume an economy principle that

enforces the application of the monster whenever possible (Meyer 2014; cf. footnote 7), which will ensure that a shifted reading will be preferred over a non-shifted parse whenever possible. Given this preference, we can predict that the mere use of *caki* in a given structure violates this constraint, since it competes with shifted first persons:

(76) *caki* < 1SG

(77) **Parse of *caki* with monster: not attested**

a. #(John to Mary) [$_\phi$ Tom$^i$ to Sue$^j$ say [$_\psi$ *caki*$_i$ ...you$_j$ ]]

b. ALT(*caki*) = $\left\{ \begin{array}{c} 1\text{SG} \\ 2\text{SG} \end{array} \right\}$

c. $[\![\text{EXH}\ (\psi)]\!] = caki \wedge \neg \left\{ \begin{array}{c} s_c \\ ad_c \end{array} \right\}$

d. $\rightsquigarrow$ the referent of *caki* is neither the local speaker or addressee.

e. $\rightsquigarrow$ #

This kind of parse is not attested: it would predict an inference from the use of *caki* over its shifted first and second person counterparts that would immediately clash with its semantics, triggering the implicature that the referent of *caki* is neither the local speaker nor the local addressee.

(78) **Parse of *caki* without monster: (75)**

a. (John to Mary) [$_\phi$ Tom$^i$ to Sue$^j$ say [$_\psi$ *caki*$_i$ ...you$_{*j,Mary}$ ]]

b. ALT(*caki*) = $\left\{ \begin{array}{c} 1\text{SG} \\ 2\text{SG} \end{array} \right\}$

c. $[\![\text{EXH}\ (\psi)]\!] = caki \wedge \neg \left\{ \begin{array}{c} s_{c*} \\ ad_{c*} \end{array} \right\}$

d. $\rightsquigarrow$ the referent of *caki* is neither the utterance speaker or addressee. (*per* c)

e. $\rightsquigarrow$ *caki* refers to the local speaker (semantics of *caki*)

f. $\rightsquigarrow$ the referent of *you* is the utterance addressee. (logical reasoning)

The only available reading of (75) is obtained through the inference that since *caki* is present in the structure, then that structure most not feature any , because a shifted 1st person form would then have been used instead. Rather, the presence of *caki* triggers the implicature that its referent is neither the local speaker nor addressee, allowing the 2nd person indexical to be associated with the utterance addressee, Mary.

# 6 Conclusion

In this paper, I have tried to make a case for implicatures over person features, as they occur in speech reports across languages making use of different anaphoric strategies: shifting indexicals and logophors. I have tried to shown that the hitherto unexplained disjoint reference patterns arising through the use of third person pronouns in these languages can readily be explained by adopting a theory of grammatically-driven, blind mandatory

implicatures triggered over the use of semantically unmarked forms. I have also provided further arguments for the operator-based approach of indexical shift, providing examples from optional shifting languages in which both the monster operator 👻 and the exhaustivity operator EXH interact in non-trivial ways.

# References


Anand, P. (2006). *De De Se*. PhD thesis, MIT.

Anand, P. and Nevins, A. (2004). Shifty operators in changing contexts. In *Semantics and Linguistic Theory*, volume 14, pages 20–37.

Anvari, A. (2020). *Meaning in context*. PhD thesis, Ecole Normale Supérieure.

Bary, C. and Maier, E. (2021). The landscape of speech reporting. *Semantics and Pragmatics*, 14:8.

Benveniste, E. (1966). La nature des pronoms. In *Problèmes de linguistique générale*. Gallimard.

Brasoveanu, A. and Farkas, D. (2007). Say reports, assertion events and meaning dimensions. *Pitar Mos: A Building with a View. Papers in Honour of Alexandra Cornilescu, Editura Universitatii din Bucuresti, Bucharest*, pages 175–196.

Breheny, R., Klinedinst, N., Romoli, J., and Sudo, Y. (2018). The symmetry problem: current theories and prospects. *Natural Language Semantics*, 26(2):85–110.

Butler, L. K. (2009). Explaining logophoricity, with special reference to aghem. *Ms, University of Arizona*.

Charnavel, I. (2019). Presupposition failure and intended pronominal reference: Person is not so different from gender after all. *Linguistic Inquiry*, 50(2):372–387.

Chierchia, G. (2004). Scalar implicatures, polarity phenomena, and the syntax/pragmatics interface. *Structures and beyond*, 3:39–103.

Chierchia, G. (2006). Broaden your views: Implicatures of domain widening and the "logicality" of language. *Linguistic inquiry*, 37(4):535–590.

Chierchia, G., Fox, D., and Spector, B. (2012). Scalar implicature as a grammatical phenomenon. In Claudia Maienborn, Klaus von Heusinger, P. P., editor, *Semantics: An International Handbook of Natural Language Meaning, Volume 3*. De Gruyter Mouton.

Clements, G. N. (1975). The logophoric pronoun in ewe: Its role in discourse. *Journal of West African Languages*, 10:141–177.

Cooper, R. (1983). *Quantification and syntactic theory*, volume 21. Springer Science & Business Media.

Culy, C. (1994). Aspects of logophoric marking. *Linguistics*.

Deal, A. R. (2020). *A Theory of Indexical Shift. Meaning, Grammar, and Crosslinguistic Variation*. The MIT Press.

Fox, D. (2007). Free choice and the theory of scalar implicatures. In *Presupposition and implicature in compositional semantics*, pages 71–120. Springer.

Fox, D. and Katzir, R. (2011). On the characterization of alternatives. *Natural language semantics*, 19(1):87–107.

Grice, H. P. (1975). Logic and conversation. In *Studies in the Way of Words*. Harvard University Press.

Harbour, D. (2016). *Impossible persons*, volume 74. Mit Press.

Hawkins, J. A. (1991). On (in) definite articles: implicatures and (un) grammaticality prediction. *Journal of linguistics*, 27(2):405–442.

Heim, I. (2001). Semantics and morphology of person and logophoricity. *Handout of talk given at the University of Tübingen*.

Heim, I. (2008). Features on bound pronouns. In Harbour, D., Adger, D., and Béjar, S., editors, *Phi theory: Phi-features across modules and interfaces*. Oxford University Press.

Heim, I. and Kratzer, A. (1998). *Semantics in generative grammar*, volume 13. Blackwell Oxford.

Hyman, L. M. and Comrie, B. (1981). Logophoric reference in gokana. *Journal of African Languages and Linguistics 3: 19-37*.

Hyman, L. M. and Watters, J. R. (1979). Aghem grammatical structure, with special reference to noun classes, tense-aspect and focus marking. *Southern California OccasionalPapers in Linguistics No. 7*.

Kaplan, D. (1989). Demonstratives. In Almog, J., Perry, J., and Wettstein, H., editors, *Themes From Kaplan*, pages 481–563. Oxford University Press.

Katzir, R. (2007). Structurally-defined alternatives. *Linguistics and Philosophy*, 30(6):669–690.

Kim, J.-H. and Yoon, J. H. (2009). Long-distance bound local anaphors in korean—an empirical study of the korean anaphor caki-casin. *Lingua*, 119(5):733–755.

Koev, T. K. (2013). *Apposition and the structure of discourse*. PhD thesis, Rutgers University Graduate School, New Brunswick.

Lewis, D. (1980). Index, context, and content. In *Philosophy and grammar*, pages 79–100. Springer.

Ludwig, R. A., Munro, R., Fleck, D. W., and Sauerland, U. (2010). Reported speech in matses: Obligatory perspective shift with syntactic transparency. *Proceedings of SULA*, 5:33–47.

Magri, G. (2009). A theory of individual-level predicates based on blind mandatory scalar implicatures. *Natural language semantics*, 17(3):245–297.

Magri, G. (2011). Another argument for embedded scalar implicatures based on oddness in downward entailing environments. *Semantics and Pragmatics*, 4:6–1.

Marty, P. P. (2017). *Implicatures in the DP domain*. PhD thesis, Massachusetts Institute of Technology.

Marty, P. P. (2018). An implicature-based approach to disjointness effects. In *Semantics and Linguistic Theory*, volume 28, pages 366–387.

Meyer, M.-C. (2014). Deriving hurford's constraint. In *Semantics and linguistic theory*, volume 24, pages 577–596.

Meyer, M.-C. (2015). Redundancy and embedded exhaustification. In *Semantics and linguistic theory*, volume 25, pages 491–511.

Munro, R., Ludwig, R., Sauerland, U., and Fleck, D. W. (2012). Reported speech in matses: Perspective persistence and evidential narratives. *International Journal of American Linguistics*, 78(1):41–75.

Newkirk, L. (2017). Logophoricity in ibibio. *Handout of talk given at ACAL 48, Rutgers University, March 2017. https://lydianewkirk.com/research/ACAL3-17Handout.pdf*. https://lydianewkirk.com/research/ACAL3-17Handout.pdf.

Nikitina, T. (2012). Logophoric discourse and first person reporting in wan (west africa). *Anthropological Linguistics*, 54(3):280–301.

Ninan, D. (2010). Semantics and the objects of assertion. *Linguistics and Philosophy*, 33(5):355–380.

O'Neill, T. (2015). The distribution of the danyi ewe logophor yi. *Talk given at the LSA Annual Meeting*.

Park, Y. (2014). Indexicals and the long-distance reflexive caki in korean. *Proceedings from SALT XIV*.

Polinsky, M. (2015). Embedded finite complements, indexical shift, and binding in tsez. *Languages of the Caucasus*, 1(1).

Rice, K. (1986). Some remarks on direct and indirect discourse in slave (northern athapaskan). In *Direct and indirect speech*, volume 31, page 47. De Gruyter Mouton.

Sauerland, U. (2007). Implicated presuppositions. *The discourse potential of underspecified structures*, 8:581–600.

Sauerland, U. (2008). On the semantic markedness of phi-features. In Harbour, D., Adger, D., and Béjar, S., editors, *Phi theory: Phi-features across modules and interfaces*. Oxford University Press.

Schlenker, P. (1999). *Propositional attitudes and indexicality: a cross categorial approach*. PhD thesis, Massachusetts Institute of Technology.

Schlenker, P. (2003). Indexicality, logophoricity, and plural pronouns. *Amsterdam Studies in the Theory and the History of Linguistic Science, Series 4*, pages 409–428.

Schlenker, P. (2005a). Minimize restrictors! (notes on definite descriptions, condition cand epithets). In *Proceedings of SuB9*, page 385.

Schlenker, P. (2005b). Non-redundancy: Towards a semantic reinterpretation of binding theory. *Natural Language Semantics*, 13(1):1–92.

Sells, P. (1987). Aspects of logophoricity. *Linguistic Inquiry*, 18(3):445–479.

Shklovsky, K. and Sudo, Y. (2014). The syntax of monsters. *Linguistic Inquiry*, 45(3):381–402.

Speas, M. (1999). Person and point of view in navajo direct discourse complements. University of Massachhussets Amherst.

Spronck, S. and Nikitina, T. (2019). Reported speech forms a dedicated syntactic domain. *Linguistic Typology*, 23(1):119–159.

Stokke, A. (2010). *Indexicality and presupposition: explorations beyond truth-conditional information*. PhD thesis, University of St Andrews.

Sudo, Y. (2012). *On the semantics of phi features on pronouns*. PhD thesis, Massachusetts Institute of Technology.

Thivierge, S. (2021). Matrix operators in georgian indexical shift. *Talk held at the 45th annual Penn Linguistics Conference, University of Pennsylvania*.

Yang, D.-W. (1983). The extended binding theory of anaphors. *Language Research*, (19):169–192.

Yoon, J.-M. (1989). Long-distance anaphors in korean and their cross-linguistic implications. In *CLS. Papers from the General Session at the... Regional Meeting*, volume 25, pages 479–495.

Zwicky, A. (1977). Hierarchies of person. In Woodford, A. B. and Fox, S. E., editors, *Papers from the Thirteenth Regional Meeting of the Chicago Linguistic Society*, page 714–733, Chicago. University of Chicago, Chicago Linguistic Society.