

## Chapter 5: Enter the Logophoric Pronoun

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### 5.1. Introduction and Goals

In this chapter, I add a fourth ingredient into my witch’s brew, which so far has consisted of upward C-agreement (in African languages), allocutive marking, and indexical shift. This fourth ingredient is special pronouns used in logophoric contexts, particularly in African languages (Sells 1987, Culy 1994, Culy 1997). This phenomenon, in which a unique pronoun—or in some cases a special focus/strong-form pronoun—is used in this way, is not particularly common in languages of the world. It is known primarily from various West African languages, both Niger-Congo and Afro-Asiatic (Chadic). There is also a much more widespread phenomenon in which anaphors of some kind are used like logophoric pronouns in logophoric contexts. I begin this chapter starting more narrowly with the West African phenomenon, to see where it fits into my wider web. I illustrate and explore the phenomenon largely using new data from Ibibio (Newkirk 2017). Secondary languages I draw on for confirmation and variation are Yoruba, based on Adesola (2005) and personal communication (also Anand 2006), and Ewe (Clements 1975, Pearson 2013, Pearson 2015), with a smattering of other examples from the literature (Abe (Koopman and Sportiche 1989), Edo (Baker 1999), etc.).<sup>1</sup> Then in section 5.6 I compare the rich description of logophoric pronouns in the African languages with what is known about LD-anaphors in East Asian languages—especially Japanese—following Baker and Ikawa (to appear). I conclude that there are many similarities between the African phenomenon and the East Asian one, but also some systematic differences. Consideration of this leads to an expansion of the typology of ghostly DP operators that was first presented in Chapter 2, comparing SoK (and OoK) to Sp and Ad.

(1a) shows a canonical example from Ibibio with the special pronoun *ímò* in the complement of a verb like ‘tell’. This special pronoun must refer to the subject/agent argument of the matrix verb, not to its indirect object/goal argument or to some other prominent antecedent in the larger discourse. In this it contrasts with even the ordinary third person pronoun *anye*, which can refer to the matrix subject or the matrix object or neither, as ordinary pronouns do in English. (1b,c) shows the same thing with the verb ‘ask’, another triadic verb of speaking.

- (1) a. Okon á-ké-dòkkó Edem ké Emem í-maá-ghá ímò. (Ibibio)  
Okon 3.SG-PST-tell Edem that Emem 3.SG-like-NEG LOG  
‘Okon<sub>i</sub> told Edem<sub>k</sub> that Emem does not like him<sub>i,\*k,\*n</sub>.’
- b. Emem a-ke-bip a-bo mme Okon a-ma-i-kid ímò.  
Emem 3.SG-PST-ask 3.SG-C Q Okon 3.SG-PST-3.LOG-see LOG  
‘Emem<sub>i</sub> asked whether Okon saw him<sub>i</sub>.’ (see also Clements 1975: 154)

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<sup>1</sup> Also useful and drawn on here are the anaphora questionnaires and sketches associated with Aphranaph, for further examples from Yoruba and Ibibio, and also data on Gungbe.

- c. \*Ng-ke-bip Okon mme Emen a-ma-i-kid imo.  
 1.SG-PST-ask Okon Q Emen 3.SG-PST-3.LOG-see LOG  
 ('I asked Okon<sub>i</sub> whether Emen saw him<sub>i,\*k</sub>')

Examples (1c) and (2) shows that even when the subject is non-third person or inanimate, hence not a good antecedent for the logophor, the goal argument still cannot be the antecedent of *imo* (although with other lexical-semantic classes such alternations are possible; see below). This orientation toward the thematic subject rather than the object is at least superficially like shifted first person indexicals in Magahi and like C-agreement in the African languages.

- (2) \*Ifiok-nduño a-dokko Okon ke eka imo a-ma-a-due.  
 Evidence 3.SG-tell Okon that mother LOG 3.SG-PST-3.SG-guilty  
 'The evidence tells Okon<sub>i</sub> that his<sub>i,\*n</sub> mother is guilty.'

The examples in (3) show that *imò* in Ibibò cannot be used in an unembedded clause, either to refer to the subject or to some other referent available in discourse. This is the case even if the verb, is 'tell', a verb that has a subject who is a speaker, has a perspective, etc.

- (3) a. \*Okon a-ma-a-kòòm ayin imò.  
 Okon 3.SG-PST-3.SG-greet son LOG  
 ('Okon<sub>i</sub> greeted his<sub>i,\*k</sub> son.')
- b. Emem a-ma-a-dokko eka omo/\*imò mbak/ke imò i-ma-i-dep ebot.  
 Emem 3.SG-PST-3.SG-tell mother his/LOG news/that LOG 3.LOG-PST-3.LOG-buy goat  
 'Emem<sub>i</sub> told his<sub>i</sub> mother the news/that he<sub>i</sub> bought a goat.'

There is already a significant history of saying that this phenomenon of logophoric pronouns is mediated by a null DP in the CP space, dating back to Koopman and Sportiche's (1989) (K&S) study of Abe. Other research in this tradition is my (Baker 1999) study of Edo, Adesola's (2005) study of Yoruba, Anand (2006), Deal (2020) and most recently recently Charnavel (2019, 2019, 2020).<sup>2</sup> Indeed, I believe this to be the oldest line of work of this kind, with the K&S study antedating the earliest generative works on upward C-agreement, allocutivity, and indexical shift. A key observation motivating this approach is the fact that C delimits the domain in which a logophoric pronoun can appear: *imò* inside the domain of the C selected by 'tell' can take the teller as its antecedent, whereas *imò* outside the domain of C is ungrammatical, even if it takes the teller as its antecedent. Thus in (3c) *imò* referring to Emem is possible inside the scope of the complementizer *ke*, whereas *imò* as the possessor of the goal argument, outside the scope of *ke*, is not possible. This makes sense if the immediate antecedent of must be a ghostly DP, call it *LogOp*, which is itself controlled by the matrix subject, as in the structure sketched in (4) (from Chapter 1).

- (4) Okon<sub>i</sub> told Edem<sub>k</sub> [LogOp<sub>i,\*k</sub> that [Emem does not like him<sub>i,\*k,\*n</sub>]]

<sup>2</sup> Moreover, some ideas expressed in different (more semantically-oriented) theoretical frameworks can arguably be seen as similar in essence. For example, Sells (1987) assumes that embedded clauses contain special discourse referents for the attitude holder, which logophoric pronouns need to be bound by. These discourse referents can be seen as parallel to my *LogOp*. Similarly, Pearson (2013) assumes that a logophoric pronoun in Ewe must always be bound by a lambda abstractor in the CP periphery of the complement of an attitude, although she is not committed these being lambda abstractors being related to syntactically represented DPs in the CP periphery.

The current work is firmly in this K&S-ian tradition, developing it and working it into the broader theoretical and typological context of this study. According to this view, logophoricity is very much like indexical shift, except that the ghostly DPs in the CP periphery have different features: local features ([+1] and [+2]) for indexical shift constructions; third person or no phi-features for logophoric constructions, plus perhaps a language particular [+log] feature.

To develop this theory, there are three main ingredients in the analysis to justify and explicate:

- The intrinsic nature of LogOp, and how it compares to Sp and SoK, including what syntactic environments it can be found in.
- The nature of the relationship between LogOp and its ultimate antecedent in the matrix clause. Is it the same kind of control-(like) relationship that we have seen in other constructions, subject to the same principles and restrictions?
- The nature of the relationship between LogOp and the logophoric pronoun(s) inside CP that it binds. This third is a relatively new topic, although in section 4.3 I had some consideration of the parallel issue of first and second person pronouns being bound by Sp and Ad in indexical shift constructions.

I start with the second of these tasks, showing that the relationship between LogOp and the matrix argument is one of obligatory control: the closest thematic subject controls it, parallel to what we have seen with SoK in upward agreement constructions and with Sp in indexical shift constructions (section 5.2). Then I take up aspects of the first question, considering what kinds of constituents can contain a LogOp (section 5.3). Then I interpose a section (section 5.4) on so-called addressee pronouns in languages like Mupun and Tikar, arguing that this even rarer phenomenon argues for a second DP in the logophoric family, parallel to Ad in the speech act family and perhaps to OoK in the Eval/Evid family. Then (in section 5.5) I turn to the third task, focusing on the nature of the LogOp's relationship to the bound pronoun. It turns out that there are both similarities and differences with indexical shift constructions in this regard. On the one hand, there are some interesting local binding/crossover effects in the logophoric languages which are not visible in indexical shift languages, because of the different phi-features involved. On the other hand, there is reason to think that logophoric pronouns do not need to be bound by the closest LogOp the way that first and second person pronouns need to be bound by the closest Sp and Ad operators (my Person Licensing Constraint). Section 5.6 compares logophoric pronouns in the African languages to long-distance anaphors in Japanese, a canonical case of a language with long-distance reflexives, showing that when "zOp" (Japanese's analog of LogOp) is in an environment of obligatory control, LD anaphors behave very much like African logophors, but unlike LogOp, zOp can also undergo a kind of nonobligatory control, when it occurs in other syntactic environments. This leads into section 5.7, which reconsiders the intrinsic nature (features) of LogOp compared to the other ghostly operators (including zOp), confirming and extending the typology of ghostly DPs first sketched out in section 3.xx, including the key difference between ghostly DPs that have some interpretable features (including zOp) and those that do not (including LogOp). Section 5.8 concludes.

As we consider the typology of ghostly DP operators, we might wonder whether it can be reduced. Is the ghostly DP that binds a logophoric pronoun in (say) Yoruba is theoretically the same element that C agrees with in (say) Lubukusu? A yes answer would be attractively

parsimonious, and parallel to the fact that the ghostly DP that binds an indexical pronoun in Mahaghi is the same element that C agrees in allocutive constructions (Ad). In other words, can SoK be equated with LogOp? However, it turns out that the answer is no. Ibibio is very special in that it is at the intersection of these two areal phenomena, having both logophoric pronouns and upward C-agreement. However, it turns out that the two operate independently, by way of different ghostly DP operators, which can have different controllers. This is demonstrated in what follows, as opportunities to do so arise.

## 5.2 The obligatory control of LogOp

In (5), I repeat again the Generalized Obligatory Control Signature, which I have taken to be the fundamental syntactic principle of control theory, which has played a prominent role in each chapter up to this point. Note that the list of controllable DPs has been extended to include LogOp from (4) (and zOp, in anticipation of the extension to Japanese).

### (5) *The Generalized OC Signature: (GOCS)*

If a clause with an intrinsically null DP (PRO, SoK, OoK, Ad, Sp, **LogOp**, **zOp**...) at its edge is generated within the XP headed by lexical head X, then the null DP is controlled by an argument of X. Which argument of the X is the controller is determined by the thematic roles of the controller and the contreee.

The thematic role condition on control has been fleshed out as in (6).

### (6) The obligatory controller of X in a CP inside VP is the argument of the verb the thematic role of which (best) matches the thematic role of X.

As a result of these principles being at work, the observed pattern for what a logophoric pronoun can take as an antecedent in Ibibio and other African languages is very much like the pattern for what a shifted first person indexical can take as its antecedent in Magahi, and recognizably similar to what C can indirectly agree with in languages like Lubukusu and Kinande.

Two other principles that are important in earlier chapters but that are not immediately relevant here are the Edge Condition and the T/Agree Condition. The Edge Condition only comes into play when there are two ghostly DPs in the periphery of the clause: Ad as well as Sp in indexical shift languages, or OoK as well as SoK (in Kipsigis). So far, LogOp does not have this kind of fraternal twin, but I return to this when we come to addressee pronouns in section 5.4. The T/Agree Condition, on the other hand, does not govern control of a ghostly DP operator per se, but rather agreement with that DP. That is therefore not at issue for LogOp in the West African languages—although it is for SoK in Ibibio, which exists alongside LogOp.

### 5.2.2 Thematic conditions on the control of LogOp

I begin with the implications of the thematic-role matching condition in (6) for logophoric constructions in African languages. The characteristic signature of the control of subject-like ghostly DPs like SoK and Sp is that the subject of ‘tell’ and other canonical two- and three-argument verbs can control them, whereas the object of ‘tell’ and other three-argument verbs

cannot. This is also true for LogOp, as shown already for Ibibio in (1) and (2). (7) shows the same asymmetry for other triadic verbs in Ibibio, ‘convince’, ‘remind’, and ‘show’.

- (7) a. ?Emem a-ma-a-kpak nditọ ke Okon i-maa-gha imọ/\*mm-ímò.  
 Emem 3.SG-PST-3.SG-convince children that Okon 3.SG-like-NEG LOG/\*PL-LOG  
 ‘Emem<sub>i</sub> convinced the children<sub>k</sub> that Okon does not like him<sub>i</sub>/\*them<sub>k</sub>.’
- b. Nditọ e-ma-e-toiyo Okon ke mm-imọ/\*imọ i-ma-i-dep adesi.  
 children 3.PL-PST-3.PL-remind Okon that PL-LOG/\*LOG LOG -PST-3.LOG-buy rice  
 ‘The children<sub>i</sub> reminded Okon<sub>k</sub> that they<sub>i</sub>/\*he<sub>k</sub> bought rice.’
- c. Emem a-ma-a-wat nditọ ke imọ i-maa-gha ommọ/\*mm-imọ..  
 Emem 3.SG-PST-3.SG -show children that LOG 3-LOG-like-NEG 3.PL/\*PL-LOG  
 ‘Emem<sub>i</sub> showed the children<sub>k</sub> that he<sub>i</sub> does not like them<sub>k</sub>.’

This asymmetry follows from (6) under the assumption that LogOp gets a subject-like thematic role from the C-head that licenses it—just as SoK and Sp do. This subject-object asymmetry is robust across the logophoric languages that have been studied from a generative perspective, found also in at least Ewe (Clements 1975: 154, Pearson 2013: 445), Yoruba (Adesola 2005: 186, 231-235), Abe (K&S: 580), Edo (Baker 1999ms), Gungbe (Aboh 2005: 49-50 Afranaph), and Baatonum (personal fieldnotes).<sup>3</sup>

An interesting wrinkle to control with three-argument is that with some of these verbs control can shift when the subject argument is inanimate. An inanimate subject is not a natural controller for LogOp on semantic grounds (although inanimate antecedents for logophoric pronouns are not impossible in Ibibio; see xx). In this situation, some causative verbs with experiencer objects allow the experiencer to control LogOp and thus antecede a logophoric pronoun, as seen in (8).

- (8) a. Deta a-ma-a-wat nditọ ke Okon i-maa-gha mm-imọ.  
 letter 3.SG-PST-3.SG-show children that Okon 3.SG-like-NEG PL-LOG  
 ‘The letter showed the children<sub>i</sub> that Okon does not like them<sub>i</sub>.’
- b. Ukpọk ekpat adesi a-ma-a-toiyo Okon ke imọ i-kpina i-dep adesi.  
 Empty bag rice 3.SG-PST-3.SG-remind Okon that Log 3.LOG-should 3.LOG-buy rice  
 ‘The empty bag of rice reminded Okon<sub>i</sub> that he<sub>i</sub> should buy rice.’

<sup>3</sup> The only counter example that I know of involves ‘tell’ in Yoruba: Adesola (2005: 186 (38b)) reports (i), where the logophoric pronoun *oun* refers to the goal of ‘say to’, not the agent. However, this sentence is special in that it has a directive semantics and involves two stacked C heads *pe* and *ki*. If the embedded clause is not a directive and has only the single C *pe*, then the logophoric pronoun can only refer to the agent of ‘tell’ as usual, as seen in (ii) (Adesola, p.c.). I put (i) aside, leaving open exactly what its structure is.

- (i) Ade so fun Olu pe ki oun lo ki baaba Ojo.  
 Ade say to Olu that C LOG go greet father Ojo  
 ‘Ade told Olu that he (=Olu) should go greet Ojo’s father.’
- (ii) Ade so fun Olu pe oun lo ki baaba Ojo.  
 Ade say to Olu that LOG go greet father Ojo  
 ‘Ade told Olu that he (=Ade, not=Olu) went to greet Ojo’s father.’

The contrast between (7b) and (8b) can also be seen in Baatonum (fieldnotes). In contrast, verbs with pure goal objects such as ‘tell’, do not allow this control shift, as seen in (2) above.<sup>4</sup>

This effect leads to one way in which C-agreement and logophoricity pattern differently in Ibibio: C-agreement, which is normally with the matrix subject, cannot shift to the matrix object when the subject is inanimate, as shown in (9). This can be attributed to the T/Agree Condition: even if an experiencer argument can count as a thematic subject when the other argument of the matrix verb is a nonagentive causer, it still does not trigger agreement on T the way a subject does.<sup>5</sup> Therefore, even if the experiencer object can control SoK as well as LogOp, C cannot manifest agreement with an SoK that is controlled by such an argument.

- (9) a. **Deta** a-ma-n-wat miin (\***m-bo/a-bo**) ke Okon i-m-maa-gha miin.  
 letter 3.SG-PST-1.SG.O-show me \*1.SG-C/3.SG-C that Okon 3.SG-1.SG.O-like-NEG me  
 ‘The letter showed me<sub>i</sub> that Okon does not like me<sub>i</sub>.’
- b. Ukpok ekpat a-ma-n-toiyo (miin) (\***m-bo/a-bo**) ke ng-kpena n-dep adesi.  
 Empty bag 3.SG-PST-1.SG.O-remind me \*1.SG-C/3.SG-C that 1.SG-should 1.SG-buy rice  
 ‘The empty bag reminded me that I should buy rice.’

The control shift in (7) is not just a matter of the object being able to control LogOp controller whenever the subject cannot. Like inanimate NPs, first person pronouns cannot be the antecedents of logophoric pronouns, because (we may assume) their phi-features do not match. Despite this, having a first-person pronoun as subject does not open the door for the object to be a logophoric antecedent, as shown in (10)

- (10) ?\*Ami m-ma-n-toiyo Okon ke imo i-kpina i-dep adesi.  
 I 1.SG-PST-1.SG-remind Okon that LOG 3.LOG-should 3.LOG-buy rice  
 (‘I reminded Okon<sub>i</sub> that he<sub>i</sub> should buy rice.’)

We saw some similar data for first person indexical shift in Magahi in chapter 4, with the experiencer antecedent i-shift when there is no agent, but not when there is one. To account for this pattern, I assumed the theta-theoretic principles in (11).<sup>6</sup>

- (11) a. Thematic roles that can match LogOp (also SoK, Sp) include: agent, causer, experiencer,

<sup>4</sup> It is likely that some of the other verbs in this class may not really allow inanimate subjects at all, like ‘ask’. If so, then this issue does not arise for them.

<sup>5</sup> Although Ibibio does not have object agreement with full DP objects, it does have it with pronouns. This however does not permit C-agreement with the object in examples like (9). I tentatively assume that “agreement” with pronominal objects in Ibibio is really clitic doubling, not true agreement, and that does not enable C-agreement by triggering Agree-Copy.

<sup>6</sup> (11b) states the interaction between the agent and the experiencer in terms of theta theory. An alternative might be to cast it in terms of control theory, saying that an experiencer cannot control LogOp in the presence of an agent, which is the canonical controller of LogOp. One reason why I do not take the control-theoretic approach is that it leads to ranking paradoxes. For example, possessors are on a par with agents in that they can control LogOp in the presence of an agent. One might think, then, that like agents they would preempt control of LogOp by an experiencer argument. But this is not the case: experiencers can control LogOp over a possessor (see (xx) and (xx) below). Another reason why I do not build (11b) into control theory is that, as we shall see, Ibibio allows two (or more) LogOps in the periphery of a single clause (see (xx) below). If there was only one LogOp, one might well think that the agent would take priority in controlling it, but once this has happened, why couldn’t an experiencer control the second LogOp? But this is impossible, as seen in (7c), where it is bad for both the agent and the goal (a potential experiencer) to be antecedents of logophoric pronouns.

source, possessor.

- b. An animate goal argument can take on the experiencer role when there is no agent argument in the clause.

Presumably what is behind (11a) is the fact that the mentioned thematic roles form a natural class within Theta theory: they are all subtypes of a “macro-agent” role (Foley and Van Valin 1984, Dowty 1991). Then (11b) as a law of Theta-theory might be a kind of “thematic dissimilation” such that a single clause cannot have distinct arguments with thematic roles that are too similar. For example, it seems like a simple one-verb clause can have an agent or a causer, but not both. Similarly, a verb like ‘say’ does not felicitously allow an animate source argument as well as its agent argument, whereas nonagentive ‘hear’ does (*The press secretary heard/??said from the chief of staff that new employment statistics would be available soon.*) I propose that, for the same kinds of reasons, a simple clause cannot have an agent and a true experiencer—although this cooccurrence restriction is less obvious given that an erstwhile experiencer can often be present as a goal argument. (11) then accounts for why an example like (10) is ungrammatical: ‘remind’ has an agent argument here, so its object *Okon* cannot count as an experiencer by (11b). Since *Okon* is not an experiencer, but only a theme or goal, it cannot control LogOp by (11a). In contrast, examples like those in (8) have causer subjects rather than agent subjects. In this context, the object can count as an experiencer, which allows it to control LogOp—just as an experiencer can when there is no external argument at all, as seen in (12). (Note that unlike (9), the experiencer in (12) can also trigger C-agreement; this is expected in that the experiencer in (12) is a syntactic subject, which T agrees with.)

- (12) Okon a-ma-a-toiyo (a-bo) ke imo i-kpina i-dep adesi.  
Okon 3.SG-PST-3.SG-remember 3.SG-C that LOG 3.LOG-should 3.LOG-buy rice  
‘Okon<sub>i</sub> remembered that he<sub>i</sub> should buy rice.’

A classic way to see thematic effects on processes like control as opposed to the effect of grammatical functions is to look at passive constructions, in which the thematic object becomes the structural subject. As it happens, there is no passive construction in Ibibio or Yoruba, or indeed in any of the relevant languages of this region—an areal property. Therefore, we cannot test the interaction of logophoricity and passive with a matrix predicate like ‘was told’. However, an approximation to this test is to consider examples with a verb like ‘hear’, which raises similar issues for the theory of operator control. Recall that the subject of ‘hear’ can consistently control SoK and Sp if there is no source phrase present. That is true of LogOp in the logophoric languages too: Ewe (Clements 1975: 158), Gungbe (Aboh 2005), Yoruba, Ibibio, and Baatonum. (13) gives examples.

- (13) a. Emem a-me-kop [mbak] ke imo i-ma-i-due. (Ibibio)  
Emem 3.SG-PERF-hear news that LOG 3.LOG-PST-3.LOG-commit.fault  
‘Emem<sub>i</sub> heard the news that he<sub>i</sub> was guilty.’ (Log=Emen)
- b. Olu gbo pe o ri baba oun. (Yoruba, Adesola 2005: 235)  
Olu hear that 3.SG saw father LOG  
‘Olu<sub>i</sub> heard that he<sub>k,\*i</sub> saw his<sub>i</sub> father.’

Some low-level variation then comes in across languages in what happens when there is a source phrase. In Ewe (Clements 1975: 159) and Ibibio, this can be the controller of LogOp; in Yoruba,

this was found to be marginal.<sup>7</sup> Baatonum does not even allow an oblique source phrase to be used with the verb ‘hear’; one needs to say ‘X told Y...’ rather than ‘Y heard from X...’.

- (14) a. Okon a-ke-kop a-to Emem ke imo i-ma-i-dia nsa-akak. (Ibibio)  
 Okon 3.SG-PST-hear 3.SG-from Emem that LOG 3.LOG-PST-3.LOG lottery  
 ‘Okon<sub>i</sub> heard from Emem<sub>k</sub> that he<sub>i,k</sub> won the lottery.’
- b. Olú gbó láti ẹnu Adé pé ó rí bàbá òun. (Yoruba)  
 Ólu hear from mouth Ade that 3.SG see father LOG  
 ‘Olu<sub>i</sub> heard from Ade<sub>k</sub> that he saw his<sub>i,??k</sub> father’

This variation is not unexpected; we have seen some variation in the behavior of ‘hear’ with a source phrase in other languages too. In Magahi, shifted ‘I’ referring to the hearer is possible if there is no source phrase, but if a source phrase is present, then then the shifted first person pronoun can refer to the hearer or the source, equivalent to the Ibibio-Ewe pattern. In Lubukusu, the hearer subject controlling SoK is possible with or without the source, which cannot itself control SoK, equivalent to the Yoruba pattern. I have tentatively attributed the variation to some ambiguity/variation in the status of the source phrase across languages: when it is an argument, it can count as a thematic subject eligible to control a ghostly DP, whereas when it is not an argument it is not an eligible controller according to the GOCS. This could work for Yoruba versus Ibibio too: note that the source DP in Yoruba is syntactically the possessor of the complement of the heavy preposition ‘from’, a likely adjunct, whereas the source is the direct complement of a light one-syllable P-like element in Ibibio.<sup>8</sup>

Example (14a) also shows again that in Ibibio that there is no T/Agree Condition-type restriction on the control of LogOP. Here again, this condition can create situations in which the trigger of C-agreement is different from the antecedent of a logophoric pronoun. In an example like (15a), only the hearer can control C-agreement by the T/Agree Condition; C-agreement with the source is ungrammatical. Despite this the source phrase can control LogOp and hence antecede a logophoric pronoun even when the hearer controls C-agreement. This is clear proof that LogOp and SoK are not the same syntactic element in Ibibio. The structure of (15a) must thus be something like (15b).

- (15) a. M-ke-kóp n-to Emem m-bo/\*a-bo ké Edem í-kí-maa-ghá ímò.  
 1.SG-PST-hear 1.SG-from Emem 1.SG-C /\*3.SG-C that Edem 3.SG-PST-like-NEG LOG  
 ‘I heard from Emem<sub>i</sub> that Edem did not like him<sub>i</sub>.’
- b. I<sub>k</sub> heard from Emem<sub>i</sub> [SoK<sub>k</sub> C1 [LogOp<sub>i</sub> C2 [ Edem did not like him<sub>i</sub>]]].

<sup>7</sup> Depending on the pragmatics of a particular example, sometimes there is a preference for the logophor to refer to the hearer rather than the source in Ibibio. However, this can be overcome by making the hearer subject a first person pronoun, which cannot antecede a logophoric pronoun.

<sup>8</sup> It is striking, however, that to ‘from’ in Ibibio shows agreement with the matrix subject, suggesting that it is or derives historically from some kind of serial verb construction. I put aside the implications of this.

Source phrases in Ewe are also morphologically complex, not obviously different from those in Yoruba. Probably there is no simple fool-proof way to see whether a given oblique phrase counts as an argument or an adjunct in a particular language, although certain tendencies are observable. (Indeed, Clements (1975) suggests that there is some variation across Ewe speakers with regard to examples like (14).)



Example (14a) shows that in Ibibio with a verb like ‘hear’, either the experiencer subject or the oblique source argument can control LogOp in the complement clause and hence be the ultimate antecedent of a logophoric pronoun. The examples in (16) take this one step farther: they show that both arguments of the matrix verb can antecede logophors in the same embedded clause, such that two logophors in the same clause can have different referents.

- (16) a. Nditò e-ke-kop e-to Okon ke ímò i-maa-gha mm-ímò.  
 children 3.PL-PST-hear 3.PL-from Okon that LOG 3.SG-like-NEG PL-LOG  
 ‘The children<sub>k</sub> heard from Okon<sub>i</sub> that he<sub>i</sub> doesn’t like them<sub>k</sub>.’
- b. Okon a-ke-kop a-to Emem ke imò i-ya-i-nwam imò.  
 Okon 3.SG-PST-hear 3.SG-from Emem that LOG 3.LOG-FUT-3.LOG-help LOG  
 ‘Okon<sub>i</sub> heard from Emem<sub>k</sub> that he<sub>i,k</sub> will help him<sub>k,i</sub>.’

Given my assumptions—especially the assumption that a logophoric pronoun must be bound by a LogOp—this implies that there can be two distinct LogOps in the periphery of a single clause in Ibibio, each controlled by a different argument of the matrix verb. This is shown in (17).

- (17) The children<sub>k</sub> heard from Okon<sub>i</sub> [LogOp<sub>k</sub> LogOp<sub>i</sub> that [he<sub>i</sub> doesn’t like them<sub>k</sub> ]].

Yoruba also allows two logophors in the same clause to have different referents under these special circumstances, as shown in (18) (Adesola, p.c.).

- (18) Olú gbó láti ẹnu Adé pé óun rí òun ni ója. ..  
 Ólu hear from mouth Ade that LOG see LOG at market  
 ‘Ólu<sub>i</sub> heard from Ade<sub>k</sub> that he<sub>k</sub> saw him<sub>i</sub> at the market.’

This is a suprising discovery several perspectives. Internal to the generative research on logophoricity, Koopman and Sportiche (1989) argue that in Abe there can only be one operator that binds *n* class pronouns per clause, and this has been taken for granted in the subsequent literature in that tradition. From a larger comparative perspective, LogOp is also different from the other ghostly DP operators in this regard. For example, Magahi allows only one Sp per CP complement, with the effect that two first person pronouns inside the same clause must refer to the same antecedent, even when the matrix verb is one like ‘hear’.

- (19) \*Santee Bantee-from hear that I me saw in the market yesterday. Magahi..

Looking ahead, a single clause can only have one operator (zOp) that binds LD anaphors in languages like Japanese (cf. Charnavel 2019, 2020). Nor are there any known cases of languages allowing stacked complementizers in which the two C heads agree with different NPs in the matrix clause (although the T/Agree Condition limits the opportunities for this to happen). There is something quite different about LogOp from the other ghostly DPs in this respect.<sup>9</sup>

<sup>9</sup> Note that the source phrases cannot contain a logophoric pronoun that refers to the hearer: an example with the structure of (i) is bad in Ibibio.

- (i) Okon<sub>i</sub> heard from Log<sub>i</sub>’s mother<sub>k</sub> that Log<sub>k</sub> won the lottery.

Before moving on, it is also worth noting that ‘hear’ is a bit unusual in its thematic/linking properties, but it is not unique, as pointed out by Clements (1975: 159) for Ewe. It is possible to create other predicates that have an experiencer subject and an oblique source argument, like ‘receive a message from’. Such examples also allow the source can control LogOp, as shown in (20). Indeed the receiver/experiencer and the source can both control LogOps in the same clause, as in (20b).

- (20) a. (Ami) m-ma-m-bò etop n-to Okon ke imò i-ya i-di mfin.  
 I 1.SG-PST-1.SG-get message 1.SG-from Okon that LOG 3.LOG-PST-3.LOG -come today  
 ‘I got a message from Okon<sub>i</sub> that he<sub>i</sub> will come today.’
- b. Nditò e-ma e-bò etop e-to Okon ke imò i-ya-i-dise mm-imò.  
 children 3.PL-PST-3.PL-get message 3.PL-from Okon that LOG 3.LOG-PST-3.LOG -visit PL-LOG  
 ‘The children<sub>i</sub> got a message/letter from Okon<sub>k</sub> that he<sub>k</sub> will visit them<sub>i</sub> soon.’

Thus, the important theoretical lessons that we have learned from ‘hear’ do not rest on this one verb, which could be idiosyncratic or idiomatic in some way. Rather, general thematic conditions on the control relation are at work here. I return to the question of why one can have more than one LogOp in a single CP structure whereas this is not possible for other ghostly DPs in section xx.

Finally, let us consider the experiencer arguments of psychological verbs as possible controllers of LogOp. In Magahi, these can control Sp in the absence of an agent argument. We also saw above that the object of a verb like ‘convinct’ or ‘remind’ can count as an experiencer and control LogOp in Ibibio and Baatonum as long as the subject is a nonagentive causer, as can the experiencer subjects of verbs like ‘remember’ and ‘hear’ (and many others). (21) fills out the picture by showing that the more canonical experiencer objects of predicates like ‘surprise’ ‘be happy’ and ‘be ashamed’ can also control LogOp so as to become the antecedent of a logophor. Note that the subjects in these cases are body parts of emotion terms in semi-idiomatic constructions. See Clements (1975: 162-163) for Ewe examples, and Baatonum allows this too.

- (21) a. Idém á-maá-kpá ñditò ke Edem í-maá-ghá mm-ímò.  
 body 3.SG-PST-die children that Edem 3.SG-like-NEG PL-LOG  
 ‘It surprised the children<sub>i</sub> that Edem doesn’t like them<sub>i</sub>.’
- b. Esit a-nem Okon ke Emem á-maá ímò.  
 heart 3.SG-sweet Okon that Emem 3.SG-like LOG  
 ‘Okon<sub>i</sub> is happy that Emem likes him<sub>i</sub>.’
- c. Obuut a-maa-mam Okon ke ímò i-ma-i-yip ngwet.  
 Shame 3.SG-PST-hold Okon that LOG 3.LOG-PST-3.LOG-steal book  
 ‘Okon<sub>i</sub> is ashamed that he<sub>i</sub> stole the book.’

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This points away from an analysis of (16) in which there is only one LogOp per CP but there is a covert predicate of ‘saying’ present under ‘hear’ that contributes a second LogOp—something like (ii). Whereas this rather abstract proposal might be made to work for (16), it could imply that the LogOp associated with ‘hear’ would have scope over the source/agent-of-saying, which would make possible a logophoric pronoun inside the source phrase referring to the hearer, contrary to fact.

- (ii) Okon<sub>i</sub> heard [LogOp<sub>i</sub> [(from) Log<sub>i</sub>’s mother<sub>k</sub> <say> [LogOp<sub>k</sub> that [ Log<sub>k</sub> won the lottery]]]].

This is further evidence that nothing like the T/Agree Condition restricts the control of LogOP, since T does not agree with the experiencer objects in these examples, but rather with the body part or emotion-denoting subject. Ibibio is again like Magahi in this respect, where unagreed-with dative case experiences can control Sp. This then is another construction in which C-agreement and logophoric pronouns can come apart in Ibibio, showing that they depend on distinct operators. In (22), the logophoric operator is controlled by the experiencer object ‘children’, whereas C-agreement, to the degree that it is possible at all, must be with the syntactic subject.<sup>10</sup>

- (22) a. Idém á-maá-kpá ñditò (??a-bo/\*e-bo) ke Edem í-maá-ghá mmímò.  
 body 3.SG-PST-die children ??3.SG-C/\*3.PL-C that Edem 3.SG-like-NEG PL-LOG  
 ‘It surprised the children<sub>i</sub> that Edem doesn’t like them<sub>i</sub>.’
- b. Body<sub>i</sub> die children<sub>k</sub> [SoK<sub>i</sub> C1 [LogOp<sub>k</sub> C2 [Edem not like Log]]]

Clements (1975) considers data like these from ‘hear’ constructions and experiencer predicates and concludes that there is a semantic condition on logophoric antecedents in Ewe, not a syntactic subjecthood condition (in contrast with previous descriptions that he cites). I partly agree: I claim it is a *thematic* condition, where thematic roles are how lexical semantic notions interface with a restricted class of syntactic positions. But “subject” in the expression “thematic subject” still does some work, in that it must be an argument of the matrix verb that is the controller of LogOp. This leads us into the topic of the next section. But perhaps the most elegant demonstrations that (thematic) subjecthood plays a role is the contrast between lexical causatives and syntactic causative constructions shown in (23) and (24). To convince someone of something is roughly to make them believe it, and to remind someone of something is roughly to make them remember it. In that sense, (23a) is close to (23b) in meaning, and (24a) is close to (24b) in meaning. In particular, the mental states of the “causee” are involved in each case. Nevertheless, there is a clear difference when it comes to logophoricity: the causee can be the controller of LogOp and thus the antecedent of *imò* in the syntactic causatives ((23b) and (24b)) but not in the lexical causatives ((23a) and (23b), repeated from above). I conclude that thematic subjecthood matters, not just semantic notions like being a perspective holder or being one who mentally grasps the content of the CP complement. In (23), ‘Koko’ is the thematic subject of ‘think’ but ‘children’ is not the thematic subject of ‘convince’. Similarly, in (24), ‘Okon’ is the thematic subject of ‘remember’ but not of ‘remind’. This makes a crucial difference in these cases.

- (23) a. ?Emem a-ma-a-kpak nditò [ke Okon i-maa-gha imò/\*mm-ímò].  
 Emem 3.SG-PST-3.SG-convince children that Okon 3.SG-like-NEG LOG/\*PL-LOG  
 ‘Emem<sub>i</sub> convinced the children<sub>k</sub> that Okon does not like him<sub>i</sub>/\*them<sub>k</sub>.’
- b. Nditò e-ma e-nam [Koko á-kere [ke Edem í-maá-ghá mm-ímò/ímò].  
 Children 3.PL-PST-3.PL-make Koko 3.SG-think that Edem 3.SG-like-NEG PL-LOG/LOG  
 ‘The children<sub>k</sub> made Koko<sub>i</sub> think that Edem doesn’t like him<sub>i</sub>/them<sub>k</sub>.’
- (24) a. Nditò e-ma-e-toiyo Okon ke mm-imò/\*imò i-ma-i-dep adesi.

<sup>10</sup> It is not surprising that C-agreement is degraded in (22), given that this kind of psych verb is usually factive, and there are semantic conditions on what can be the controller of SoK. See chapter 2 for discussion.

children 3.PL-PST-3.PL-remind Okon that PL-LOG/\*LOG 3.LOG-PST-3.LOG-buy rice  
 ‘The children<sub>i</sub> reminded Okon<sub>k</sub> that they<sub>i</sub>/\*he<sub>k</sub> bought rice.’

- b. Nditọ e-ma e-nam Okon a-toiyo ke mm-imọ/imọ i-kpina i-dep adesi.  
 children 3.PL-PST-3.PL-make Okon 3.SG-remember that PL-LOG/LOG 3.LOG-should-3.LOG-buy rice  
 ‘The children<sub>i</sub> made Okon<sub>k</sub> remember that they<sub>i</sub>/he<sub>k</sub> should buy rice.’

### 5.2.2 Structural conditions on the controller of LogOp

Let us turn then to the condition that the controller of LogOp must be an argument of the verb (or other lexical head) that selects the CP containing LogOp, as stated in the GOCS.

One fundamental consequence of this condition is that only the thematic subject of the verb that selects CP can control the null DP in the periphery of CP—not the subject (or other argument) of some higher verb. This locality was a clear property of C-agreement, which is easy to observe because Agree itself is very local. For indexical shift, the same locality can be shown, but it takes some care to distinguish the possibility of the controller being far from the operator it controls from the possibility of the operator being far from the pronoun that it binds. The same complication arises in logophoric constructions, and it turns out to be harder to control for. Examples with the logophoric pronoun taking a more remote antecedent are abundant: this is attested in Ibibio, Yoruba, Edo, Ewe (Clements 1975: 154), Abe (K&S: 579), Gungbe (Aboh 2005: 50-51), and Baatonum (fieldnotes). A typical Ibibio example is (25a); (25b) is one from Yoruba.

- (25) a. Okon á-kére ké Edem á-ké-n-dòkkò ké Mfon é-kpóno ímò.  
 Okon 3.SG-think that Edem 3.SG-PST-1.SG.O-tell that Mfon 3.SG.3.LOG.O-respect LOG  
 ‘Okon<sub>i</sub> thinks that Edem<sub>k</sub> told me that Mfon respects him<sub>i,k</sub>.’ (Ibibio)
- b. Olu mo pe Ade ro pe Adio ko feran oun. (Yoruba, afranaph)  
 Olu know that Ade think that Adio not like LOG  
 ‘Olu<sub>i</sub> knows that Ade<sub>k</sub> thinks that Adio does not like him<sub>i,k</sub>.’

As with indexical shift, one might wonder if examples like these imply that LogOp can be controlled/bound at a longer distance, with something like (26) being the representation for longer-distance reading of the logophor in (25a). If so, this is a problem for the OC-based theory.

- (26) Okon<sub>i</sub> think [ C [Edem tell me [LogOp<sub>i</sub> C [ Mfon respect Log<sub>i</sub> ] ]

However, (26) cannot be the full explanation of LD readings of logophors, given that they are different from indexical shift in Magahi and other languages in not obey an analog of Shift Together. Rather, two logophoric pronouns in the same clause can take different antecedents, one local and the other longer distance. For example, one logophor can refer to the immediately superordinate subject while the other one refers to the higher subject, as seen in (27) and (28). This mixed reading is sometimes easier to get when the reading in which both pronouns have the same antecedent is ruled out by Condition B of the Binding theory, as in (27a). However, it is not restricted to that, so (27b) is four ways ambiguous, with either logophor taking either subject as its understood antecedent. (28) is a Yoruba example like (27a) from Ibibio (this is also possible in Edo, Baker 1999ms).

- (27) a. Okon á-kére ké Edem á-ké-n-dòkkò ké ímò i-kpóno ímò.  
 Okon 3.SG-think that Edem 3.SG-PST-1.SG.O-tell that LOG 3.LOG-respect LOG  
 ‘Okon<sub>i</sub> thinks that Edem<sub>k</sub> told me that he<sub>k</sub> respects him<sub>i</sub>.’ (pragmatically most natural reading)
- b. Okon á-kére ké Edem á-ké-n-dòkkò ké èkà ímò é-kpóno ímò.  
 Okon 3.SG-think that Edem 3.SG-PST-1.SG.O-tell that mother LOG 3.SG.3.LOG.O-respect LOG  
 ‘Okon<sub>i</sub> thinks that Edem<sub>k</sub> told me that his<sub>i,k</sub> mother respects him<sub>i,k</sub>.’ (4 ways ambiguous)
- (28) Olu mo pe Ade ro pe oun ko feran oun. (Yoruba, Adesola p.c.).  
 Olu know that Ade think that LOG not like LOG  
 ‘Olu<sub>i</sub> knows that Ade<sub>k</sub> thinks that he<sub>i,k</sub> does not like him<sub>k,i</sub>.’ (two ways ambiguous)

The fact that one instance of *ímò* in (27a) refers to Edem implies that *Edem* must control LogOp in the lowest clause. This implies that Okon does not become the antecedent of the other instance of *ímò* by controlling at a distance that same LogOp.<sup>11</sup> Rather, (27a) must have a representation like (29), where one of the logophors is bound directly by the higher LogOp.

- (29) Okon<sub>i</sub> think [LogOp<sub>i</sub> C [Edem<sub>k</sub> tell me [LogOp<sub>k</sub> C [Log<sub>k</sub> respect Log<sub>i</sub> ]]]]

Indeed, the fact that *ímò* can be bound by a more remote LogOp rather than the closest one is not surprising given that it is intrinsically a pronoun, and pronouns can be bound by antecedents at an arbitrary syntactic distance (unlike anaphors; see the discussion of Japanese in section 5.6). Shift Together holds for indexicals like ‘I’ and ‘you’ because the Person Licensing Constraint stipulates that [+1] and [+2] pronouns must be bound by the closest [+1] or [+2] element. However, there is no such limitation on logophoric pronouns. Therefore, their binders are relatively unconstrained, as is the case for third person pronouns more generally. Given this, I have not figured out a way to prove that LogOp must always be controlled by the closest thematic subjects, but all the facts are perfectly compatible with that restrictive hypothesis.<sup>12</sup>

<sup>11</sup> This reasoning assumes that a given clause can have only one instance of LogOp. As we saw in the previous section, this is not always true in Ibibio and Yoruba. Hence (i) is a possible alternative representation for (27a). However, I know of no reason to say that (i) must be possible or to prefer it over (29).

- (i) Okon<sub>i</sub> think [ C [Edem<sub>k</sub> tell me [LogOp<sub>i</sub> LogOp<sub>k</sub> C [Log<sub>k</sub> respect Log<sub>i</sub> ]]]]

<sup>12</sup> It could be that there are some languages/varieties/dialects in which a nonlogophoric pronoun cannot be locally bound by LogOp, as some reports have it. In such a variety, one could investigate whether a more remote subject can control a LogOp by investigating structures of the form in (i):

- (i) Olu<sub>i</sub> said [(LogOp<sub>i</sub>) that [ his<sub>i</sub>(-LOG) mother thinks [ LogOp<sub>i</sub> that [LOG<sub>i</sub> is smart]]]].

The prediction is that this should be bad on the intended reading, with LOG=his=Olu. In particular, it would not be possible with *Olu* controlling LogOp in the complement of ‘say’, and then the higher LogOp binding the lower LogOp, because then the higher LogOp would also bind ‘his’ in ‘his mother’, triggering obviation. If the alternative structure, with ‘Olu’ controlling the lower LogOp of ‘think’ directly at a distance, then (i) could be acceptable with this interpretation.

Early reports suggested that many African languages did not allow plain pronouns to be bound by LogOps: see Clements (1975) on Ewe, Pulleybank (1981) on Yoruba, Koopman and Sportiche (1989) on Abe, and Baker (1999) on Edo. But later reports suggest that a plain pronoun can be bound by a LogOp in many of these languages

Another fundamental property of obligatory control built into the GOCS is that only the thematic subject of the verb that selects CP can control the null DP in the periphery of CP—not a nonargument of the matrix clause, such as the possessor of the subject. This is also easy to observe for upward C-agreement and for indexical shift in Magahi. And it is observable in canonical cases in Ibibio. The possessor of the subject cannot in general control the LogOp, allowing it to be the antecedent for the logophor in the examples in (12). Gungbe (Aboh 2005) and Baatonum (fieldnotes) are similar. This judgment is clear in examples like (30a,b) in which the possessed noun is itself animate, and it carries over to (30c,d) where the possessed noun is inanimate as well. Note that it is the specific job of both a spokesperson and a book to present the viewpoint of its possessor, so the often-invoked semantic/perspectival conditions on logophoricity should be satisfied in (30b,c). However, the structural conditions on obligatory control are not, and having the logophor refer to the possessor fails for this reason.

- (30) a. Nditọ Okon e-ma-e-bo ke mm-imo/\*ímò i-maa-gha Emem.  
 children Okon 3.PL-PST-3.PL-say that PL-LOG/\*LOG 3.SG-like-NEG Emem  
 ‘Okon<sub>i</sub>’s children<sub>k</sub> said that they<sub>k</sub>/\*he<sub>i</sub> doesn’t like Emem.’
- b. A-tañikònnọ Trump a-ma-a-nam e-diño ke imọ i-ya-i-ka North Korea  
 3.SG-talk.word Trump 3.SG-PST-3.SG-make 3.PL-know that LOG 3.LOG-FUT-3.LOG-go N.K.  
 urua mfen.  
 week next  
 ‘Trump<sub>i</sub>’s spokesman<sub>k</sub> announced that he<sub>k</sub>/\*i will go to North Korea next week.’
- c. #Ngwet Trump a-ke-bo ke imọ i-mi-yaiya.  
 book Trump 3.SG-PST-say that LOG 3.LOG-PERF-handsome  
 (‘Trump<sub>i</sub>’s book says that he<sub>i</sub> /it<sub>k</sub> is handsome.’)
- d. Ukpọk eapat Okon a-ma-n-toiyo ke ng-kpina n-dep adesi n-nọ anye/#imọ.  
 Empty bag Okon 3.SG-PST-1.SG.O-remind that 1.SG-should 1.SG -buy rice 1.SG-give 3.SG/LOG  
 ‘Okon<sub>i</sub>’s empty bag<sub>k</sub> reminded me that I should buy rice for him<sub>i</sub>.’

However, the empirical situation here is complicated by the fact that a few examples of what looks like a possessor controlling LogOp are accepted. For example, the possessor of the noun ‘letter’ can be the antecedent of a logophor with some relatively slight marginality in Ibibio ((31a)), Yoruba ((31b)), and Baatonum (fieldnotes).

- (31) a. ʔdétá Okon a-ké-bó ké Edem i-maá-ghá ímò. (Ibibio)  
 letter Okon 3.SG-PST-say that Edem 3.SG-like-NEG LOG  
 ‘Okon<sub>i</sub>’s letter said that Edem does not like him<sub>i</sub>.’
- b. Létà Adé fì hàn pé ó rí bàbá òun. (Yoruba; Adesola, p.c.)  
 letter Ade show that she see father LOG  
 ‘Ade<sub>i</sub>’s letter shows that she<sub>k</sub>/\*i saw his<sub>i</sub> dad.’

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after all: see Pearson (2013) on Ewe, Adesola (2005) on Yoruba, Aboh (2005) on Gungbe. So this line of argument may not be available

Another example of this type from Ibibio is (14).<sup>13</sup>

- (32) Ndise Okon a-wat ke imò i-yat esit.  
 picture Okon 3.SG-show that LOG 3.LOG-be.hot heart  
 ‘Okon<sub>i</sub>’s picture shows that he<sub>i</sub> is upset.’ (the picture Okon made or the one that portrays him)

My interpretation of these facts is that the possessor of the subject is never a genuine controller of LogOp, but a DP like ‘X’s letter’ or ‘X’s picture’ where the head noun is closely associated with X and represents X in some way can be used to refer metonymically to X. If this is right, then, the logophoric pronouns really are coreferential with the subject NPs ‘Okon’s letter’ and ‘Okon’s picture’ but those NPs are a particular indirect way of referring to Okon himself. And indeed consultants sometimes like to translate examples like (31) as ‘Okon says in his letter that Edem doesn’t like him’, taking the subject to be *Okon* even though that is not syntactically accurate.

Support for the view that these examples involving of metonymy comes from the fact that the subject ‘Okon’s letter’ in (31a) actually behaves like it is an animate NP—which is surprising if it refers to the letter, but not if it refers to Okon. We saw in the previous that an inanimate noun in the subject position of a verb like ‘show’ or ‘remind’ allows the object to be regarded as an experiencer and thus to control LogOp. Now consider the contrast between ‘Emem’s letter’ and ‘Okon’s empty bag’ used as the subject of such a verb, as seen in (33).

- (33) a. Deta Emem a-maa-wat nditò ke imò i-maa-gha ommo/\*mm-imò.  
 Letter Emem 3.SG-PST-show children that LOG 3.LOG-like-NEG 3.PL/\*PL-LOG  
 ‘Emem<sub>i</sub>’s letter showed the children<sub>k</sub> that he<sub>i</sub> does not like them<sub>k</sub>.’  
 b. Ukpòk ekpat Okon a-maa-toiyo nditò ke mm-imò i-kpena i-dep adesi.  
 Empty bag Okon 3.SG-PST-remind children that PL-LOG 3.LOG-should 3.LOG-buy rice  
 ‘Okon’s empty bag reminded the children<sub>i</sub> that they<sub>i</sub> should buy rice.’

With ‘Okon’s bag’ in (33b), a logophoric pronoun in the complement clause can refer to the matrix experiencer ‘children’. This is what we expect; it is just like (8b) above, except that the subject contains a possessor. But ‘Emem’s letter’ in (33a) works differently. The possessor *Emem* can be the antecedent of a logophor in the embedded clause, as in (31a). However, this has the effect of suppressing the possibility of the object ‘children’ anteceding a logophor. (Recall that Ibibio allows two LogOps in the periphery of a single CP, so the possessor/subject controlling one LogOp does not automatically preclude the experiencer object from controlling a second LogOp.) Thus *mm-imo* in the complement clause referring to the children is possible in (33b) but not in (33a). This subtle difference makes sense on the hypothesis that ‘Emem’s letter’ in (33a) refers metonymically to Emem. This counts as reference to an animate agent (not a mere causer) and therefore it is ruled out for the object to count as an experiencer and thus for it to

<sup>13</sup> (32) is interesting in that it is possible for *Okon* in this example to be interpreted either with an agent-like reading, in which Okon is the one who created the picture, or a patient-like reading, in which Okon is the one who is portrayed in the picture. This difference does not matter for logophoricity: *imo* can refer to Okon on either interpretation. I consider this a problem for a purely semantic/perspectival approach, in which a logophoric pronoun simply refers to the author of the current (shifted) context. On that sort of view, one would probably expect the agentive/creator reading of the possessor to count as an author, hence a logophoric center, but not the patient-like reading. I thank Idan Landau (p.c.) for suggesting this kind of example and its potential relevance.

control LogOp in the CP complement. If we just said that an inanimate subject is not a good logophoric controller and this allows control of the LogOp to pass to some other human-denoting argument in the clause (the possessor or the object), the details of this pattern would not be accounted for.

Overall, then, this pattern of facts supports the idea that obligatory control is at work here, where an argument of the matrix verb can control the LogOp but something that is not an argument of the verb (here the possessor) cannot, although the possibility of metonymy creates a few apparent exceptions.<sup>14</sup>

### 5.2.3 Structural conditions on the clause containing LogOp

The other major way in which the GOCS constrains obligatory control has to do with the position of the clause that contains the LogOp that needs to be controlled. The GOCS asserts that the clause must be merged with a projection of the head (usually a verb) whose argument controls the null DP. The natural consequence of this is that LogOps should only be possible in complement clauses and low VP-level adjunct clauses. This in turn will limit where logophoric pronouns can occur and what their antecedents can be. This section investigates these matters. For each of the major cases, there is some clear evidence supporting the predictions of the GOCS, but there are also interesting potential counterexamples to discuss as well.

Consider first the possibility of logophoric pronouns in relative clauses. A relative clause that modifies (say) the direct object is generally merged somewhere inside the DP projection that constitutes the object, not with a projection of the verb that selects that object. And indeed relative clauses are not an environment of obligatory control in English. Therefore, the baseline expectation is that logophoric pronouns will not be licensed in this environment either. This would also match up with what we know about comparable constructions in other languages: indexical shift in Magahi is impossible in relative clauses, and so are complementizers agreeing with the matrix subject in African languages. And indeed most canonical relative clauses cannot license logophoric pronouns in Ibibio (or in Baatonum). (34) gives some examples.<sup>15</sup>

- (34) a. Okon a-maa-duok ngwet odo se anye/\*imò a-ke-dep.  
 Okon 3.SG-PST-lose book the REL 3.SG/\*LOG 3.SG-PST-past-buy  
 ‘Okon<sub>i</sub> lost the book that he<sub>i</sub> bought.’ (\*Log=Okon)

<sup>14</sup> When an agreeing C is added to an example like (i), parallel to (31a), it must be singular, agreeing with ‘letter’, whereas the logophor is plural, matching ‘children’.

- (i) Dětá nditò a-ké-bó á-te/\*é-te ké Edem í-máá-ghá mm-ímò/\*imò.  
 letter children 3.SG-PST-say 3.SG-C/\*3.PL-C that Edem 3.SG-like-NEG PL-LOG/\*LOG  
 ‘The children’s letter says that edem does not like them.’

My interpretation is that the NP ‘children’s letter’ referring metonymically to the children is grammatically singular, since the syntactic head ‘letter’ is singular, but semantically plural, because it refers to more than one individual. C-agreement reflects the grammatical feature, whereas bound pronoun anaphora picks up the semantic plurality. See Corbette (xxxx), Wechsler and Zlatic (2003) and Messick (xxx) among others for discussion of grammatical versus semantic agreement.

<sup>15</sup> Note that there are two ways of marking a relative clause in Ibibio: they can have the C-like particle *se* between the head of the relative and the relative clause, as in (34a), or they can have a -CV suffix on the verb of the relative clause, as in (34b,c). There is no difference between the two with respect to logophoric phenomena.



- b. Dòkṭò ado a-maa-dòkṭò Okon ibòṣòṣò iduungò anye/\*imo a-ke-nam-ma  
 Doctor the 3.SG-PST- 3s-tell Okon result investigation 3.SG/\*LOG 3.SG-PST-make-REL  
 ‘The doctor<sub>i</sub> told Okon the results of the test he<sub>i</sub> did.’
- c. Okon a-ke-dep afòng-idem anye/\*imo a-maa-gha a-kan  
 Okon 3.SG-PST-buy shirt 3.SG/\*LOG 3.SG-like-REL 3s-best  
 ‘Okon<sub>i</sub> bought the shirt that he<sub>i</sub> likes best.’
- d. Okon a-ke-dò awonwaan a-(i)-maa-gha anye/?\*imo.  
 Okon 3.SG-PST-marry woman 3.SG-(3.LOG)-like-REL him/?\*LOG  
 ‘Okon<sub>i</sub> married a woman who likes him<sub>i</sub>.’

Note that it is not accurate to say that a logophoric pronoun is impossible inside this sort of relative clause in Ibibio. In fact, a logophoric pronoun can perfectly well appear inside a relative clause if a sentence like (34a) is embedded in the complement of an attitude type verb. This is shown in (35a), where the logophoric pronoun *imò* can refer to the subject of the whole sentence ‘Okon’ (see also Clements 1975: 156; Culy 1994: 1074). The structure is shown in (35b). Here there cannot be a LogOp in the periphery of the relative clause controlled by the subject of ‘lose’, as before, in accordance with the GOCS. But there can be a LogOp in the complement of ‘think’ controlled by ‘Okon’, the subject of ‘think’. This LogOp can bind the logophoric pronoun inside the relative clause. This confirms the conclusion from the previous section that a LogOp can bind (and thereby license) a logophoric pronoun indefinitely far away from it, as is generally possible for pronominal binding.

- (35) a. Okon a-kere ke ami m-ma n-duòk ngwet se imò i-ki-n-nò miin.  
 Okon 3.SG-think that I 1.SG-PST-1.SG-lose book REL LOG 3.LOG-PST-1.SG-give me  
 ‘Okon<sub>i</sub> thinks that I lost the book that he<sub>i</sub> gave me.’
- b. ‘Okon<sub>i</sub> thinks [IOp<sub>i</sub> that I lost [the book [(\*)IOp) that he<sub>i</sub> gave me]]].

More surprising is the fact that in Ibibio it is sometimes possible to have a logophoric pronoun in a relative clause that modifies the direct object when the verb that selects the direct object is an intensional predicate, having something to do with speech or thought. Then the logophoric pronoun can refer to the subject, as seen in the examples in (36). (See Sells (1986: 447) and Culy (1994: 1074) for similar examples in other African languages.)

- (36) a. Okon a-sàk a-yem awo-nwaan se i-di-dò imo.  
 Okon 3.SG-PROG 3.SG-look woman REL 3.SG-FUT-marry LOG  
 ‘Okon<sub>i</sub> is looking for a woman who will marry him<sub>i</sub>.’
- b. Okon a-ma-n-dòkṭò mbàk se Emem a-k-i-dòkṭò imò.  
 Okon 3.SG-PST-1.SG.O-tell story/news REL Emem 3.SG-PST-3.LOG.O-tell LOG  
 ‘Okon<sub>i</sub> told me the news/story that Emem told him<sub>i</sub>.’
- c. Okon a-maa-nam esio se imò i-di-nò Eno.  
 Okon 3.SG-PST-make pot REL LOG 3.SG-FUT-give Eno  
 ‘Okon<sub>i</sub> made a pot that he<sub>i</sub> will give to Eno.’

Although more fine-grained research would be helpful, the crucial generalization seems to be that a logophoric pronoun is licensed inside a relative clause only when the verb selecting the DP direct object can also take a CP complement that would be a canonical logophoric domain. This is plainly true of ‘tell’ and ‘make’ in Ibibio; it is also of *yem* ‘seek’, given that this verb is also the normal verb meaning ‘want’ in the language. However, it is not enough simply to have an intentional verb with the logophoric pronoun inside its NP object; (37) shows that a possessor of the object cannot be a logophoric pronoun, whether there is a relative clause modifying the head N or not. Rather, the logophoric pronoun must be inside the relative clause—within the scope of the relative complementizer.

- (37) a. \*Okon a-sak a-yem anwaan imo.  
 Okon 3.SG-PROG 3.SG-seek wife LOG  
 (‘Okoni is looking for his<sub>i</sub> (future) wife.’)
- b. Okon a-sak a-yem ngwet omo/\*imo se (ami) ng-ke-duok.  
 Okon 3.SG-PROG 3.SG-seek book his/LOG REL I 1.SG-PST-lose  
 ‘Okoni is looking for his<sub>i</sub> book that I lost.’

My tentative proposal about what is happening in these cases is that the head noun of the object “reanalyzes” with the verb to form a kind of complex predicate—perhaps by adjoining to the verb by abstract head movement/incorporation. When this happens, the NP headed by the reanalyzed noun becomes syntactically transparent, and the relative clause can be interpreted as the complement of the verb. The resulting structure is then possibly interpreted conjunctively, so ‘Okon wants a woman that <woman> will marry him’ ((36a)) comes out as roughly ‘Okon wants a woman and for the woman to marry him’. Similarly (36b) would mean roughly ‘Okon news-told me the news and that Emem told him the news’, and (36c) means roughly ‘Okon made a pot and made it that he will give the pot to Eno’. In contrast, this procedure of reanalysis does not give a coherent outcome for examples like (34), precisely because the content of the relative clause does not make a suitable complement for the main verb. For example, (34a) would result in something like ‘Okon book-lost and lost (it) that he bought a book’—and that makes little sense. (34b) does have the sort of verb that could support this kind of reanalysis, but the meaning would be ‘the doctor results-told Emem and told Emem that he did a test’, which is presumably not what the sentence would naturally mean (Emem probably knows that the doctor did a test; what needs to be communicated is how the results turned out).<sup>16</sup> This reanalysis of V+[N+RelCP] so that it becomes [V+N]+CP is presumably a marked process, not necessarily available in all languages. For example, Magahi does not allow a similar reanalysis to feed

<sup>16</sup> Also relevant is the fact that a relative clause modifying the subject DP cannot act like an argument of the verb as the result of reanalysis; if it could, we might expect (i) to be grammatical with *imo* inside the subject referring to ‘Okon’, the experiencer object of the matrix verb. This fits with the long history of views that hold that a verb plus (the head of) its object can form a complex predicate, whereas a verb plus (the head of) its subject cannot (see for example Marantz (1984) on idioms, Baker (1988) on abstract incorporation, etc.).

(i) \*Mbak se Edem a-k-i-dokko imoi a-maa-kpa Okoni idem.  
 news REL Edem 3.SG-PST-3.LOG.O-tell LOG 3.SG-PST-die Okon body  
 ‘The news that Edem told him surprised Okon.’

indexical shift, which would make possible a sentence like ‘Santee<sub>i</sub> is looking for a woman to marry with me<sub>i</sub>’; see section 4.xx. If this proposal is right, then it holds true that LogOp can be controlled in complement clauses but not in relative clauses, even though there is a marked process by which a relative clause can become (the equivalent of) a complement clause in some languages in a limited range of cases.

Next, consider the possibility of logophoric pronouns appearing in adjunct clauses. Here the results depend on what type of adjunct clause it is. Purposive (‘so-that’) adjuncts can include logophoric pronouns that refer to the subject of the main clause in Ibibio and Yoruba as well as Ewe (Clements 1975: 155, Pearson 2013).

- (38) a. Okon a-maa-dibe mbaak Emem a-di-kit imo. (Ibibio)  
 Okon 3.SG-PST-hide so.that Emem 3.SG-FUT.NEG-see LOG  
 ‘Okon<sub>i</sub> hid so that Emem would not find him<sub>i</sub>.’
- b. Okon á-ke-dát íbòk ódó m̀bàak (imo) i-dí-dòńń. (Ibibio)  
 Okon 3.SG-PST-take medicine the so.that LOG 3.LOG-FUT.NEG-sick  
 ‘Okon<sub>i</sub> took the medicine so that he<sub>i</sub> would not get sick.’
- c. Olú tètè jí kí òun má bàà pé ní tirè. (Yoruba)  
 Olu quickly wake that LOG NEG FUT late on his-own  
 ‘Olu<sub>i</sub> woke up quickly so that he<sub>i</sub> would not be late.’

This kind of adjunct clause also allows first person indexical-shift in Magahi and C-agreement in Lubukusu. In contrast, other types of adjunct clauses do not allow a logophoric pronoun to refer to the superordinate subject in Ibibio. This includes ‘because’ clauses, ‘when’ clauses, and ‘if’ clauses:

- (39) a. Okon a-mé-nèm ésit sia Emem a-ma(i)-nọ anye/\*imọ íbòk  
 Okon 3.SG-PERF-sweet heart because Emem 3.SG-PERF-(3.LOG.O)-give 3.SG/\*LOG drug  
 ‘Okon<sub>i</sub> is happy because Emem gave him<sub>i</sub> a drug.’
- b. Okon á-maá-dat íbòk ké inì dọktọ á-ké-tèmméké ànyé/\*imọ á-bó á-dát,  
 Okon 3.SG-PST-take medicine at time doctor 3.SG-PST-instruct 3.SG/\*LOG 3.SG-say 3.SG-take  
 ‘Okon<sub>i</sub> took the medicine when the doctor told him<sub>i</sub> to take it.’
- c. Akpedo Emem i- koot-to anye/\*imo usọọ odo, Okon i-di-kan-na adi-di  
 If Emem 3.SG-call-NEG 3.SG/\*LOG party the, Okon 3.SG-FUT-can-NEG INF-come  
 ‘If Emem doesn’t invite him<sub>i</sub> to the party, Okon<sub>i</sub> will not be able to come’

These sorts of adjunct clauses do not allow shifted indexicals in Magahi either—yet another close parallel between the two phenomena.

My interpretation of this contrast, inspired by the GOCS, is that purposive clauses attach low to the VP node, and hence are contexts of OC, whereas other kinds of adjuncts attach higher,

to VoiceP or TP. As such, the higher adjunct clauses are not contexts of OC.<sup>17</sup> The difference between (38) and (39) then follows from this plus the assumption that LogOp must undergo OC. The relationship between structure and control is stated in (40).

- (40) a. Clauses with a controllable element that are adjoined to VP undergo OC.  
 b. Clauses with a controllable element that are adjoined higher than VP cannot undergo OC (but perhaps NOC).

That the attachment site of an adjunct clause relates to the kind of control it can participate in is supported in part by Landau's (2021) detailed study of control into adjunct clauses, based primarily on data from English. Landau argues that adjunct clauses that require OC—including certain subtypes of purpose clauses—are ones that must be adjoined to VP; this is the converse of (40a).<sup>18</sup> Landau also argues that adjunct clauses that adjoin higher always permit NOC. Landau claims that most of these high adjunct clauses also permit OC as well, but his evidence for that is somewhat thin: it is primarily based on the fact that they can have inanimate controllers. Landau assumes that inanimates can normally control PRO only via OC, but this assumption is debatable; Landau (2021: xx) himself discusses cases where topical inanimate NPs can function as nonobligatory controllers in English. So (40) is defensible as the main effect in this area, with some residues to consider in future work.<sup>19</sup> Preliminary support that purposive

<sup>17</sup>I do not rule out that there are also semantic factors that are relevant to whether an adjunct clause allows logophoric pronouns and shifted indexicals. In addition to being in a favorable structural position, purposive clauses imply an attitude on the part of the agent. For example, *John went into the woods in order to trap a unicorn* does not commit the speaker to a belief in unicorns, and *Lois Lane put herself in danger in order to meet Superman* does not entail that *Lois Lane put herself in danger in order to meet Clark Kent*. However, having an attitude-like semantics is not sufficient for an adjunct to license a logophoric pronoun in Ibibio. Certain kinds of 'because' clauses also involve the mental world of the matrix subject, but *imo* inside the adjunct clause still cannot refer to the matrix subject in this case. Hence (ia), which involves a conscious mental kind of causation, is no better with *imo* than is (ib), which describes a purely physical relationship of cause and effect.

- (i) a. Okon a-ke-ka Lagos sia anye/\*imo a-ke-yem adi-kit Enọ.  
 Okon 3.SG-PST-go Lagos because 3.SG/\*LOG 3.SG-PST-want INF-see Enọ  
 Okon<sub>i</sub> went to Lagos because he<sub>i</sub> wanted to see Eno.  
 b. Okon a-ke-duọ sia Enọ a-ke-(i)-nak anye/imọ.  
 Okon 3.SG-PST-fall because Enọ 3.SG-PST-(3.LOG.O)-push 3.SG/\*LOG  
 Okon<sub>i</sub> fell down because Enọ pushed him<sub>i</sub>.

<sup>18</sup>The only type of adjunct clause that is generated inside VP but allows NOC according to Landau (2021) is object purposive clauses like 'Chris bought a book [Op PRO to read t on the plane]'. What is special about these is that they contain null-operator movement as well as PRO. This movement of an empty operator makes the infinitival CP into a predicate which is predicated of the object. This predication relationship forces the adjunct CP to be low, inside VP, apparently overriding the normal relationship between position of the clause and type of control which is expressed in (44). If we put this structure aside as a special case, then Landau's data is compatible with (40a).

<sup>19</sup>Other, more subtle reasons that Landau has for saying that high adjuncts can undergo OC as well as NOC is that they are not as strong islands when controlled by the closest subject, and certain strict vs. sloppy identity facts. For the island effects, I assume that adjunct islands are simply weaker when the main clause and the embedded clause express a single coherent situation, and the two clauses sharing the same subject contributes positively to that being the case. I have nothing to say here about the sloppy/strict identity evidence. We can also improve the fit between Landau's results and mine by saying that purposive clauses can attach to either VP or VoiceP/TP crosslinguistically and perhaps also language internally. For Ibibio, the possibility of a purposive clause being inside VP allows LogOp to undergo OC, making (38) possible, whereas the possibility of them being outside VP is harmless. For English, the

clauses may be generated in a different place from other adjunct clauses in Ibibio comes from the fact that they are weaker islands for *wh*-extraction than other CP adjuncts are, as shown in (41).

- (41) a. Anie ke Okon a-di-ka Lagos mbaak anye a-di-kit?  
 who FOC Okon 3.SG-FUT-go Lago so.that he 3.SG-FUT-see  
 ‘Who will Okon go to Lagos so that he will see?’
- b. ??Anie ke Okon a-ke-ka Lagos sia anye a-ke-yem adi-kit?  
 Who FOC Okon 3.SG-PST-go Lagos because he 3.SG-PST-want INF-see  
 ‘Who did Okon go to Lagos because he wanted to see?’
- c. ??Anie ke Okon a-ke-bọọñ-mkpo ke ini anye a-ke-kit-te ke urua?  
 Who FOC Okon 3.SG-PST-shout at time he 3.SG-PST-see-REL at market  
 ‘Who did Okon shout/call out when he saw in the market?’

This contrast coheres with Landau’s intuition that low CP adjuncts that undergo OC are in fact not very different from complement clauses (which are not islands for extraction in Ibibio or other languages). However, a full analysis of the attachment site of different kinds of CP adjuncts in Ibibio comparable to what has been done for English (e.g. in Landau 2021) must await future research.<sup>20</sup>

Consider next the possibility of logophoric pronouns in CP subjects. In fact, this category does not really exist in Ibibio, just as it does not most of the other languages discussed in this work. (42) shows that with a nonpsych causative verb like ‘help’, a declarative CP headed by *ke* ‘that’ is impossible as the thematic subject, whether it is found in the normal subject position or it is extraposed to the right edge of the sentence. Again, this could be because these CPs are insufficiently nominal to receive the external thematic role. Since these examples are bad even without a logophor in the *ke*-clause, the issue of the OC of LogOp does not come up here.<sup>21</sup>

- (42) a. \* Ke Edem/imọ i-ma-i-dia nsa-akak a-maa-nwam Okon.  
 that Edem/LOG 3.LOG-PST-3.LOG-win lottery 3.SG-PST-help Okon  
 ‘That Edem/he<sub>i</sub> won the lottery helped Okon<sub>i</sub>.’
- b. ?\*A-maa-nwam Okon ke Edem/imọ i-ma-i-dia nsa-akak.  
 3.SG-PST-help Okon that Edem/LOG 3.LOG-PST-3.LOG-win lottery  
 ‘It helped Okon<sub>i</sub> that Edem/he<sub>i</sub> won the lottery.’

possibility of “rationale clauses” being outside VP makes NOC possible, whereas the possibility of being inside VP is harmless (especially since Landau thinks that high adjunct clauses allow OC anyway).

<sup>20</sup> An alternative way to capture the difference between (38) and (39) is simply to say that the C head *mbaak* ‘so.that’ licenses LogOp whereas *sia* ‘because’ and *akpedo* ‘if’ do not. This does not require one to posit a difference in the attachment site of the CP adjuncts for which evidence is currently scanty. This was our official view in Baker and Ikawa (to appear), encouraged by Landau (p.c.) and an anonymous reviewer. However, I now feel that this might make the distinction between the different adjunct types rest too much on arbitrary lexical properties. (See also B&I fn xx for a concern that this would treat adjunct clauses in Japanese as cases of OC, whereas they seem to behave more like NOC in terms of what can be the antecedent for *zibun* inside them.)

<sup>21</sup> Something like (42a) can be expressed using a carrier noun like ‘news’ in combination with the CP, but then the argument structure of ‘news’ needs to be taken into account. See below.

A structure that looks like (42b) is possible with a psych-verb like ‘surprise’, but in this case, I assume that the CP is really an internal theme/content argument of the predicate, not its thematic subject. (Notice that the verb is not explicitly causative here, but rather an unaccusative ‘die’.) As such, the CP is generated inside VP, and can undergo OC (compare Landau’s (2001) analysis of psych verbs versus causative verbs in English and other European languages). Therefore, it is possible for the experiencer argument of ‘surprise’ to control LogOp inside the CP and thus antecede the logophor in this case; it is not a CP subject but merely looks a bit like one.

- (43) A-ma-a-kpa Okon idem ke ímò i-ma-i-dia nsa-akak.  
 3.SG-PST-3.SG-die Okon body that LOG 3.SG-PST-3.LOG-win lottery  
 ‘It surprised Okon<sub>i</sub> [LogOp<sub>i</sub> that [he<sub>i</sub> won the lottery]].’

One further non-OC environment that we can consider is root clauses contained in a connected discourse.<sup>22</sup> A LogOp at the edge of such a clause cannot undergo OC, because there is no lexical head that it merges with, so there is no argument of the lexical head that could control LogOp. Since a logophor must be bound by LogOp, the prediction is that it should be impossible for a true logophor to occur in a root clause where it refers to some prominent NP available in the larger discourse. (In contrast, exempt anaphors can often be used in this way; see section 5.6 for discussion.) And indeed Ibibio’s *imò* is generally impossible in this situation. Thus, *imò* is bad in (44), even in a “free indirect discourse” style environment. (See also the Afranaph questionnaire on Ibibio, 4.4.2.4 pp. 58-59, where a pronoun referring to a discourse topic outside the sentence is always the ordinary pronoun *anye/òmò*, never the logophor *imò*.)

- (44) \*Idem a-maa-kpa Okon a di-kit ndise omo ke ngwet odo. Nso se imò  
 body 3.SG-PST-3.SG-die Okon INF-see picture his in book the what C LOG  
 i-di-dokko eka imò.  
 3.LOG-FUT-tell mother LOG  
 (‘Okon<sub>i</sub> was surprised to see his<sub>i</sub> picture in the book. What would he<sub>i</sub> tell his<sub>i</sub> mother?’)

Similarly, *imò* in Ibibio is not possible in a root clause following a perspectival adjunct like ‘in X’s opinion’ (whereas “logophoric” *zibun* in Japanese is:

- (45) Ke akikere Okon, Emem/\*imò i-ma i-due. (Ibibio)  
 in thought Okon, Emem/ LOG 3.LOG-PST-3.LOG-guilty  
 ‘In Okon<sub>i</sub>’s opinion, Emem/\*he<sub>i</sub> was guilty.’

This follows from the GOCS plus the hypothesis that LogOp must undergo OC.

As with relative clauses, there is some nuance to these Ibibio facts to be considered. As in other African languages, Ibibio’s logophoric pronoun can be used in what looks like a root sentence that appears in a sequence of sentences like (46) (see also Clements 1975: 170-171; Adesola 2005: 216, Pearson 2015: 103). This is possible if and only if “Then I cooked the rice” is something that Okon said (see Pearson (2015: 103) for Ewe).

- (46) Okon a-ma-n-dòkko miin ke imò i-ma-i-dep udia ye adesi. (Ndion) imò

<sup>22</sup> This discussion is drawn from Baker and Ikawa (to appear).

Okon 3.SG-PST-1.SG-tell me that LOG 3.LOG-PST-3.LOG-buy yam and rice. then LOG  
 i-ma-i-tem adesi odo.  
 3.LOG-PST-3.LOG-cook rice the  
 ‘Okon<sub>i</sub> told me that he<sub>i</sub> bought yams and rice. Then he<sub>i</sub> cooked the rice.’

I sense a significant difference between the context in (46) and the one in (44). Pearson suggests that examples like (46) are cases of modal subordination in the sense of Roberts (1989). At first glance that seems plausible, but a closer look reveals several disanalogies. (46) does not fit the profile of modal subordination in that there is no modal with scope over the pronoun in the second sentence (overtly, anyway). Nor is the antecedent of the pronoun within the scope of the modal quantifier in the first sentence (assuming the antecedent is *Okon*, which is not in the scope of ‘tell’). Nor does the semantics of modal subordination seem quite right here. In ordinary modal subordination, the modal quantifier that has scope over the second sentence does not have to be the same as the one in the first sentence (Roberts 2020), whereas in (46) it must be ‘tell’ that (in effect) has scope over the second sentence.

Instead of modal subordination, I claim that examples like (46) involve ellipsis: the second sentence has the underlying form [*Okon<sub>i</sub> told me [IO<sub>p<sub>i</sub></sub> that [then Log<sub>i</sub> cooked the rice]]*], the CP complement moves out by focus movement (or something), and [*Okon<sub>i</sub> told me [IO<sub>p<sub>i</sub></sub> that --]]* then elides under parallelism with the preceding sentence (compare pseudo-gapping and fragment answers). As support for this hypothesis, consider (91), which is like (90) except that the CP-selecting verb is ‘deny’ rather than ‘tell’.

(47) Okon a-ma-a-kañ ke imo i-ki-yip ebót. (Ndion) imo  
 Okon 3.SG-PST-3.SG-deny that LOG 3.LOG-PST-steal goat then LOG  
 i-ma-i-wót ebót odo.  
 3.LOG-PST-3.LOG-kill goat the  
 ‘Okon denied that he stole a goat. Then he killed the goat.’

The English analog of (47) is hardly a coherent discourse. In particular, ‘He killed the goat’ cannot be interpreted as a continuation of what Okon denied by (something like) modal subordination. Presumably the negative semantics of ‘deny’ somehow prevents this. In contrast, (47) in Ibibio is judged to be coherent, and it is understood as meaning that Okon denied that he killed the goat. This is what the ellipsis hypothesis predicts, since it should be possible to delete ‘Okon denied that CP’ in the second sentence under identity with the first sentence as much as with any other verb. (Compare English, where it is possible to answer the question *What did John deny?* with the fragment answer *That he killed the goat*. Note that this analysis implies that English and the African languages allow clausal ellipsis in a somewhat different range of environments.) This ellipsis proposal raises many questions, but at least it can explain the most salient semantic facts about (46) and (47), as well as why (46) is good but (44) is not. In (44) there is no plausible matrix clause that could take the second sentence as its complement and delete under identity with the first sentence. On this interpretation, (46) is not a true counterexample to the GOCS-induced generalization that LogOp is impossible in root clauses, since it is not a root clause but only looks like one as a result of ellipsis.

The last case of CPs not merged with a VP projection that I consider is CPs functioning as noun complements, merged with a noun head like ‘news’ or ‘rumor’. This construction calls for some special discussion, as it did for C-agreement and indexical shift. Although there is

almost no crosslinguistic data on this topic, it turns out that it is possible for a logophor inside ‘news+CP’ in the direct object position to refer to the matrix subject in Ibibio. (48) gives two examples.

- (48) a. Emem a-me-kop mbak ke imò i-ma-i-due.  
 Emem 3.SG-PERF-hear news that LOG 3.LOG-PST-3.LOG-guilty  
 ‘Emem<sub>i</sub> heard the news that he<sub>i</sub> was guilty.’
- b. Emem a-maa-dokko Ekpe mbak ke imò i-ma-i-due.  
 Emem 3.SG-PST-tell Ekpe news that LOG 3.LOG-PST-3.LOG-guilty  
 ‘Emem<sub>i</sub> told Ekpe<sub>k</sub> the news that he<sub>i,\*k</sub> was guilty.’

Confirmation that the CP really does merge with ‘news’ rather than with the VP in these examples comes from the fact that focus movement can apply to the whole N-CP sequence as a unit, whereas it cannot move ‘news’ by itself, stranding the CP, as shown in (49). The logophoric pronoun is still possible in this focus-fronted version.

- (49) Mbak ke imò i-ma-i-due ke Emem a-ke-dokko Ima.  
 news that LOG 3.LOG-PST-3.LOG-guilty FOC Emem 3.SG-PST-tell Ima  
 ‘It’s the news that he<sub>i</sub> was guilty that Emem<sub>i</sub> told Ima.’  
 Not: \**Mbak ke Emem a-ke-dokko Ima ke imò i-ma-i-due.* ‘News FOC Emem told...’

This is somewhat surprising given the GOCS, since the CP containing LogOp does not merge with a projection of the verb (‘tell’, ‘hear’) whose argument seems to be controlling LogOp. This is consistent, however, with what we have seen in other languages and constructions: C inside an N-CP construction can agree upward with the matrix subject in Lubukusu (and Ibibio) (Diercks 2013) and indexical shift is possible inside an N-CP construction in Magahi. My proposal about this was that the N has a syntactically represented null argument in these cases. This null argument can be the controller of a ghostly DP operator inside the complement of N according to the GOCS. The matrix subject can then be the antecedent of this null argument of the noun, giving the appearance that it controls the ghostly DP directly. This analysis works for the logophoric examples in (48) as well. The structure for (48b) is given in (50).

- (50) Emem<sub>i</sub> told Ekpe<sub>k</sub> [ pro<sub>i</sub> news [LogOp<sub>i</sub> that [he<sub>i,\*k</sub> was guilty]]]

Suppose then that a noun like ‘news’ or ‘plan’ has an overt nominal argument in addition to the CP complement, presumably taking the form of a possessor. The GOCS does allow the possessor of a noun to control into a CP complement of the noun, parallel to allowing the subject of a verb to control into the CP of the verb. It is no surprise, then, that a logophor inside CP can refer to the possessor of the noun in (51).

- (51) a. Nditò e-me-kop mbak Emem ke imò i-ma-i-due.  
 children 3.PL-PERF-hear news Emem that LOG 3.SG-PST-3.SG-guilty  
 ‘The children heard Emem<sub>i</sub>’s news that he<sub>i</sub> was guilty.’
- b. Nditò e-ma-e-n-dokko e- baña uduak Okon ke imò i-ya i-n-nwam.  
 children 3.PL-PST-3.PL-1.SG.O-tell about plan Okon that LOG 3.LOG-FUT-3.LOG-1.SG.O -help  
 ‘The children told me about Okon<sub>i</sub>’s plan that he<sub>i</sub> will help me.’



The structure of these examples is similar to (50), but the nominal argument of the noun is not bound by the matrix subject in this case, but is an independently referring nominal.

Now we might well expect that the presence of an overt possessor inside NP would prevent the matrix subject from being the antecedent of a logophor inside the complement of N. Indeed, this is what Diercks reports for upward C-agreement in Lubukusu and Kipsigis. However, this turns out not to be the case in Ibibio: in this language, the matrix subject can still antecede a logophor inside the complement of a noun, even when the noun has an overt possessor, as shown in (52).

- (52) a. Nditọ e-me-kop mbak Emem ke mm-ímọ i-ma-i-due.  
 children 3.PL-PERF-hear news Emem that PL-LOG 3.LOG-PST-3.LOG-guilty  
 ‘The children<sub>i</sub> heard Emem’s news that they<sub>i</sub> were guilty.’
- b. Nditọ e-ma-e-n-dọkkọ e-bańa úduak Okon ke Emem a-ya-i-nwam mm-imọ.  
 Children 3.PL-PST-3.PL-1.SG.O-tell 3.PL-about plan Okon that Emem 3.SG-FUT-3.LOG.O-help PL-LOG  
 ‘The children<sub>i</sub> told me about Okon’s plan that Emem will help them<sub>i</sub>.’

In fact, it is even possible for there to be two logophoric pronouns inside the CP complement of N, one of which refers to the possessor, and one of which refers to the subject, as shown in (53).

- (53) a. Nditọ e-me-kop mbak Emem ke ímọ i-ma-i-kit mm-ímọ ke urua.  
 children 3.PL-PERF-hear news Emem that LOG 3.LOG-PST-3.LOG-see PL-LOG at market  
 ‘The children<sub>i</sub> heard Emem<sub>k</sub>’s news that he<sub>k</sub> saw them<sub>i</sub> at the market.’
- b. Nditọ e-ma-e-n-dọkkọ e-bańa uduak Okon ke imọ i-ya i-nwam mm-imọ.  
 children 3.PL-PST-3.PL-1.SG.O-tell 3.PL-about plan Okon that LOG 3.LOG-FUT-3.LOG.O-help PL-LOG  
 ‘The children<sub>i</sub> told me about Okon<sub>k</sub>’s plan that he<sub>k</sub> will help them<sub>i</sub>.’

My theory can be extended to these examples by saying that a noun like ‘news’ (or ‘plan’) can take two nominal arguments (both possibly silent) in addition to a CP argument, tentatively an agent/source-like one and a goal-like one (cf. English: *(?)John’s news to Mary that her proposal would be denied caused an uproar*). Moreover, we have already seen from ‘hear’ complements that a CP can have more than one LogOp in Ibibio and Yoruba. Given this, examples like (52a) and (53a) can have the representation given in (54).<sup>23</sup>

- (54) The children<sub>i</sub> heard [Emem<sub>k</sub>’s news pro<sub>i</sub> [LogOp<sub>k</sub> LogOp<sub>i</sub> that [Edem/Log<sub>k</sub> saw Pl-Log<sub>i</sub>]]].

Examples like (53) then constitute a second piece of evidence for the surprising result that two distinct LogOps can be at the periphery of CP in Ibibio and Yoruba.<sup>24</sup> I also note that this kind of

<sup>23</sup> If the covert argument of ‘news’ in (54) is indeed a goal-like one, then the possessor argument ‘Emem’ evidently does not prevent it from counting as an experiencer and thus being thematically eligible to control a LogOp. Apparently, then, the possessor argument of N is grammatically more like a source phrase associated with ‘hear’ or the by-phrase of a passive than like a full-blooded agent.

<sup>24</sup> Note that it is not possible for the possessor of a noun like ‘news’ to contain a logophoric pronoun bound by the matrix subject, as shown in (i).

construction is another one in which logophoricity and upward C-agreement can diverge to some extent in Ibibio. It is possible for an agreeing C inside the CP complement of N to agree with the matrix subject while a logophor inside the CP refers to the possessor of N, as in (55). (The opposite mismatch is not predictably not possible: C cannot agree with the possessor by the T/Agree condition, given that possessors do not trigger agreement on any functional head in Ibibio.<sup>25</sup>)

- (55) *Ndito* e-me-kop mbak **Emem** e-bo ke *imọ* i-ma-i-due.  
 children 3.PL-PERF-hear news Emem 3.PL-C that LOG 3.LOG-PST-3.LOG-guilty  
 ‘The children heard Emem<sub>i</sub>’s news that he<sub>i</sub> was guilty.’

Finally, we can consider the possibility of N+CP constructions in the subject position in Ibibio. This is grammatically possible—indeed, it is the only way to get something like a sentential subject that Ibibio allows. Moreover, it is possible for the CP to contain a logophoric pronoun. For example, (56a,b) are grammatical, with *imo* inside the subject referring to the object of the matrix verb. This works both with a psych predicate ((56a)), where the surface subject may be associated with an internal thematic role, and with a causative predicate like ‘help’ or ‘make famous’ ((56b)), where it is not. Moreover, in this structure too the logophor can refer to the object regardless of whether the carrier noun ‘new’ has an overt possessor or not.

- (56) a. Mbak (ndito) ke imọ i-ma-i-due a-me-yat Okon esit.  
 news (children) that LOG 3.LOG-PST-3.LOG-guilty 3.SG-PERF-hot Okon heart  
 ‘The (children’s) news that he<sub>i</sub> is guilty upset Okon<sub>i</sub>.’
- b. Mbak (ndito) ke imọ i-ma-i-dia nsa-akak a-ma-a-nwam Okon  
 news (children) that LOG 3.LOG-PST-3.LOG-win lottery 3.SG-PST-3.SG -help Okon  
 adi-bọ ewọd-akak ke bañ  
 INF-collect loan at bank  
 ‘The (children’s) news that he<sub>i</sub> won the lottery helped Okon<sub>i</sub> to get a loan from the bank.’

My idea about these would be that here too the real controller of LogOp in the noun-complement is a covert argument of the head noun ‘news’. This covert argument is a kind of null pronoun, and it can take as its antecedent the object of ‘upset’ or ‘help’. That a null argument of ‘news’ is involved may be observable in (56b) because of a subtlety of its meaning. One can imagine that

- (i) \*Okon a-me-kop mbak eka imọ ke Emem a-maa-dep ebot.  
 Okon 3.SG-PERF-hear news mother LOG that Emem 3.SG-PST-buy goat.  
 (‘Okon<sub>i</sub> heard his<sub>i</sub> mother’s news that Emem bought a goat.’)

This shows that the logophoric operator controlled by Okon in (54) does not have scope over the whole direct object, but only over the CP complement inside the direct. (Contrast Charnavel (2019, 2020), who does allow LogOps to have scope over NP/DP.) Thus both of the logophoric operators implicated by (53)—the one controlled by the subject and the one controlled by the possessor—have the same scope in this construction; both are associated with CP.

<sup>25</sup> In order for (55) to pass muster with the T/Agree Condition, we must say that the binding relationship between the subject of the sentence and the null argument of ‘news’ is like control in that it counts as a link in the web of pointers that count for Agree-Copy. That is needed so that T agreeing with the subject causes features from SoK inside CP to be copied afresh onto C as well as onto T itself. See section 2.xx for discussion.

the news that Okon has suddenly become wealthy by winning the lottery making the bankers more willing to give him a loan even if Okon himself has not heard the news yet (as long as the bankers have heard it). Willie Willie allows for this meaning for an analog of (56b) in which the subject of ‘win’ is the plain pronoun *anye*, but with the logophor *imo* he detects more a sense that Okon himself must have heard the news, and this gives him the confidence to approach the bankers. I take that to be support for my claim that ‘Okon’ can be an antecedent of the logophor in (56b) only by virtue of being the antecedent of a null argument (in this case, a goal-experiencer argument) of the carrier noun.

There are also several signs that the relationship between the null argument of ‘news’ and its antecedent does not have to be one of OC, but can be one of “mere” pronominal antecedence (or non-obligatory control, which I take to be more or less the same thing). First, OC does not normally happen into structural subjects (Landau 2001), which is where the NP is in (56b). Second, the object of ‘help’ may not be thematically qualified to be the controller of this null argument, if it is a theme argument whereas the covert argument of ‘news’ is source or experiencer. Indeed, the antecedent of the null argument of ‘news’ can be even farther away than it is in (56). In (57), the ultimate antecedent of the logophor *imo* can be the experiencer of ‘upset’ Okon, but it can also be the highest subject Edem, even though it is separated from the clause containing *imo* by an adjunct clause boundary (which cannot have its own LogOp; see (39a) above) as well as the noun phrase headed by ‘news’. This looks a lot more like NOC than it does like OC, crucially because null arguments of ‘news’ are involved, not just LogOps and the other ghostly DPs that are the focus of this study.

- (57) Edem a-maa-dip afid sia mbak ndito ke imo i-ma-i-due  
 Edem 3.SG-PST-hid knives because news children that LOG 3.LOG-PST-3.LOG-guilty  
 a-me-yat Okon esit.  
 3.SG-PERF-hot Okon heart  
 ‘Edem<sub>i</sub> hid the knives because the children’s news that he<sub>i,k</sub> is guilty upset Okon<sub>k</sub>.’

One other detail that falls into place along these lines is that whereas a logophoric pronoun can get a funny long-distance antecedent in these constructions where a noun like ‘news’ is involved, an agreeing complementizer cannot. Thus, in (58) *imo* inside the subject of the embedded clause can take ‘Emem’ as its antecedent, but a C agreeing with ‘Emem’ is not possible inside the complex subject.

- (58) Emem a-maa-kere ke mbak (\*a-bo) ke imo i-ki-due a-maa-kpa owo idem.  
 Emem 3.SG-PST-think that news 3.SG-C that LOG 3.LOG-PST-guilty 3.SG-PST-die person body  
 ‘Emem thinks that the news that Okon is guilty is surprising.’

In a superficial sense, it looks like (58) might satisfy the T/Agree condition because SoK inside the CP complement of ‘news’ could be controlled by a null argument of ‘news’ (just as LogOp can be), Emem can be the antecedent of the null argument, and ‘Emem’ triggers agreement on C. However, we have no reason to say that mere pronominal coreference creates the kind of pointers that Agree and OC relations do—the kind of pointers that Agree-Copy depends on. Pronominal coreference does not depend on this tight notion of phi-feature sharing, but rather a looser notion of phi-feature compatibility. In this way too, the binding of null arguments of a noun behaves quite differently from the OC of the ghostly DP operators in CPs.

Although logophoric pronouns inside complex NPs used as subjects are possible referring to the object of the matrix verb in Ibibio as in (56), we saw in chapter for that first person indexicals inside

complex NPs used as subjects cannot shift to refer to the object of the matrix verb in Magahi (see (88) in chapter 2). This is one way that logophoric pronouns behave differently from shifted indexicals at the periphery of my system. Descriptively, I can say that the null arguments of a noun like ‘news’ can undergo OC in both Ibibio and Magahi (e.g., when they are inside a direct object) but they can undergo NOC (e.g., when inside a subject) only in Ibibio. I conjectured that this might be because N+CP constructions need to go along with a demonstrative in Magahi, but bare NPs are used in Ibibio, but this is only a conjecture.

Overall, there is rich evidence that control is at work in logophoric constructions, accounting for the relationship between the logophoric operator that binds a logophoric pronoun and its antecedent. This covers three kinds of facts: the thematic restrictions on which argument(s) of the matrix verb can function as the antecedent of a logophoric pronoun, structural restrictions that require that the controller of a LogOp in CP must be an argument of the verb that CP is in construction with, and structural relationships on where a CP with a LogOp can be found—in a complement or a low adjunct, not in a relative clause, high adjunct clause, subject clause, or root clause. Moreover, these properties explicated in terms of the theory of control are strikingly like those found in indexical shift in Magahi and other languages, and also like those found in upward C-agreement constructions once one factors out the influence of the T/Agree Condition. I claim that this large-scale pattern of similarities is strong evidence for a unified account of these phenomena—although there are also a few differences.

#### 4.3 The constituents that permit the presence of a LogOp

The previous section showed, among other things, that LogOp is possible in clauses which are in contexts of obligatory control: in complement clauses or low adjunct clauses that merge directly with a projection of a lexical head (usually the verb, but also a noun like ‘news’ or ‘plan’). In this section, I briefly consider whether all clause-like constituents that appear in complement/object position can contain a LogOp and therefore locally-licensed logophoric pronouns. The short answer is that most of them can—even some surprising ones, like infinitives and gerunds which do not allow agreeing Cs in Ibibio, and do not allow indexical shift in Magahi. However, there are a small number of constituents that do not allow LogOp even in a position where it could potentially be controlled, and that is significant too.

First and foremost, LogOp in Ibibio is certainly possible in a wide range of finite CP complements. Most of the examples given so far have the declarative complementizer *ke*, which seems always to be compatible with LogOp. Culy (1994) gives a well-known hierarchy where verbs like ‘say’ and ‘tell’ are the most likely to license logophoricity in their complements, followed by nonfactive cognition verbs like ‘think’, followed by factive verbs like ‘know’. In Ibibio, all these classes of verbs permit a logophor in their complements. (59) adds examples with ‘think’ and ‘know’.

- (59) a. Okon a-kere ke imọ i-ya i-dia nsa-akak.  
 Okon 3.SG-think that LOG 3.LOG-FUT-3.LOG-win lottery.  
 ‘Okoni thinks that he<sub>i</sub> will win the lottery.’
- b. Okon á-diọngọ ké Edem é-ma ímọ.  
 Okon 3.SG-know that edem 3.SG.3.LOG.O-like LOG  
 ‘Okoni knows that Edem likes him<sub>i</sub>.’

Logophoric verbs are also possible in the complements of psych-factive predicates like ‘be happy that’, the sort of verb that is most resistant to agreeing complementizers, and with non-bridge verbs like ‘whine’, which tend to resist A-bar extraction.

- (60) a. Okon a-mé-nèm-ésít ké imọ i-ya-i-dińńọ ákpáníkọ.  
 Okon 3.SG-PERF -sweet-heart that LOG 3.LOG-FUT-3.LOG-know truth  
 ‘Okon<sub>i</sub> is happy that he<sub>i</sub> will know truth.’ (Log=Okon?)
- b. Ayin odo a-maa-foi ke owo-ndomokeed i-ki-maa-gha imọ.  
 child the 3.SG-PST-whine that person-not.one 3.SG-PST-like-NEG LOG  
 ‘The child<sub>i</sub> whined that no one liked him<sub>i</sub>.’

Logophoric pronouns are also possible in the complements of verbs with negative semantics like ‘deny’ and ‘doubt’. Indeed, I have not found any verb that selects a CP complement headed by *ke* that does not also license logophoricity. A similarly wide range of verbs allow logophoric pronouns in their complement in Baatonum (fieldnotes).

Indeed, full finite CPs complements that do not have the complementizer *ke* also license logophoricity in Ibibio. Verbs like ‘want’ and ‘permit’ select clauses with the subjunctive complementizer *yak* (historically related to the verb ‘permit’). These *yak*-complements allow a logophoric pronoun that refers to the subject of the matrix verb, as shown in (61).

- (61) a. Ruth a-bo yak nditọ e-nwam ímọ.  
 Ruth 3.SG-say C boys 3.PL-help LOG  
 ‘Ruth<sub>i</sub> asked the boys to help her<sub>i</sub>.’
- b. Okon a-yem (a-bo) yak ayin imọ a-do andikan.  
 Okon 3.SG-want 3.SG-C C son LOG 3.SG-be winner  
 ‘Okon<sub>i</sub> wants his<sub>i</sub> son to be the winner.’
- c. Okon a-maa-yak yak nditọ e-nwam imọ.  
 Okon 3.SG-PST-let C children 3.PL-help LOG  
 ‘Okon<sub>i</sub> permitted that the children help him<sub>i</sub>.’

Verbs like ‘ask’ and ‘remember’ can appear with the interrogative complementizer *mme*. Such complements also allow logophoric pronouns referring to the matrix subject.

- (62) Emem a-ke-bip mme Okon a-ma-i-kid ímọ. (Afranaph)  
 Emem 3.SG-PST-ask whether Okon 3.SG-PST-3.LOG.O-see LOG  
 ‘Emem<sub>i</sub> asked whether Okon saw him<sub>i</sub>.’

Logophoric pronouns are also possible in interrogative complements that are more like constituent questions, with what may be a moved *wh*-type phrase.

- (63) a. Enọ a-maa-bip nditọ-ideen ini ọmmọ e-di-ghi-nwam ímọ.  
 Eno 3.SG-PST-ask boys when they 3.PL-FUT-??-help LOG

‘Eno<sub>i</sub> asked the boys when they will help her<sub>i</sub>.’

- b. Okon a-ma a-toiyo se Eno a-ki-no **imo**.  
 Okon 3s-past-3s-remember what Eno 3s-past-give LOG  
 ‘Okon<sub>i</sub> remembered what Eno gave him<sub>i</sub>.’

We see, then, that LogOp is not selected by one particular complementizer as opposed to another in Ibibio, nor is LogOp incompatible with their being a wh-operator in the C-space. LogOp in Ibibio is like Sp and Ad in Magahi in these respects. This is also true for Yoruba: based on examples from Adesola (2005), logophors are possible with the complementizers *pe* (declarative, the most common), *ki* (subjunctive, in the complements of ‘want’, and ‘make’), *pe+ki* (with ‘agree’), *bi* (interrogative ‘ask’), and a null C (a version of ‘say’). There is a possible contrast between these Nigerian languages and Abe (K&S) and Ewe (Clements 1975), where logophoric pronouns may be limited to the complements of one particular complementizer, historically related to the verb ‘say’. If this difference is real, we could say that one particular C licenses LogOp in some languages, whereas in others either a larger set of Cs license it or LogOp is licensed by a different (covert) head that can co-occur with several Cs. Note also that *ini* ‘when’ in (63a) is the same word that is found in ‘when’ adjunct clauses, and *se* ‘what’ in (63b) is also found in some relative clauses. When these elements are found in a complement clause, logophoricity is licensed, but when they are found in a high adjunct clause or a relative clause, logophoricity is not licensed (see (34a) and (39b) above). This confirms that it is the syntactic position of noncomplement clauses that causes their lack of logophoricity (by blocking OC, as discussed in section 5.2.3) rather than the inability of their complementizers to license LogOp (contrary to the proposal of Baker and Ikawa to appear).

There is one type of finite verbal complement that does not allow LogOp in Ibibio, namely perception verb complements. These are headed by *naña*, otherwise translated as ‘how’.

- (64) a. Okon a-maa-kit naña Emem a-yip ebot omo/\*imo.  
 Okon 3.SG-PST-see how Emem 3.SG-steal goat his/\*LOG  
 ‘Okon<sub>i</sub> saw Emem steal(ing) his<sub>i</sub> goat.’
- b. Okon a-maa-kop naña ayin omo/\***imo** a-kwo ikwo.  
 Okon 3.SG-PST -hear how son his/\*LOG 3.SG-sing song  
 ‘Okon<sub>i</sub> heard his<sub>i</sub> son singing.’

In contrast, these verbs can take complements with a LogOp when they select a *ke*-headed CP complement with an epistemic meaning rather than perceptual meaning, as in (65) (see (xx) for ‘hear’).

- (65) Okon a-ma a-kit ke Emem a-maa-yip ebot imo..  
 Okon 3.SG-PST-see that Emem 3.SG-PST-steal goat LOG  
 ‘Okon<sub>i</sub> saw that Emem stole his<sub>i</sub> goat.’

From a semantic perspective, perception verb complements often do not license logophoric pronouns crosslinguistically, as expressed in Culy’s (1994) hierarchy. These complements are also syntactically unique in Ibibio in that they have both reduced/fixed tense in the complement and relative-N(P)-like head *naña* in the left periphery. Neither of these factors by itself blocks logophoricity in Ibibio: causative constructions are like perception verb complements in having

fixed/reduced tense marking, and interrogative clauses selected by verbs like ‘ask’ have a relative N(P)-like head in the left periphery, and they both allow logophoric pronouns. However, it is possible that there is some kind of interaction, such that both factors taken together rule out a LogOp. I do not investigate the exact source of the unavailability of LogOp in this context here.<sup>26</sup>

Consider next the complements of the causative verbs *nam* ‘make’ and *yak* ‘let’ in Ibibio. Although these have agreement with the embedded subject, they seem to be less than full CPs, in that (as in many other languages) they do not have an overt C head and they do not allow a T head that expresses a tense different from that of the matrix clause. This would be captured by saying that ‘make’ and ‘let’ select for VoiceP complements in Ibibio, where the Voice head can agree with the NP in Spec VoiceP. (This special property of agreement in Ibibio is seen in ordinary clauses too, where subject agreement appears twice—when not obscured by vowel-hiatus processes—once before the T head and once after the T head adjacent to the verb stem, as seen in many examples.) Nevertheless, logophoric pronouns can be licensed in the complements of ‘make’ and ‘let’ in Ibibio.<sup>27</sup>

- (66) a. Okon a-ma-a-nam nditọ e-nwam imọ. (Ok, Ok, ?, \*)  
 Okon 3.SG-PST-3.SG-make children 3.PL-help LOG  
 ‘Okon<sub>i</sub> made the children help him<sub>i</sub>.’
- b. Okon a-ma-a-nam ayin ímọ a-kot ngwet.  
 Okon 3.SG-PST-3.SG -make son LOG 3.SG-read book  
 ‘Okon<sub>i</sub> made his<sub>i</sub> son read a book.’
- c. Owo ndomo-keet i-yak-ka ayin ọmọ/(?)imọ a-dia fufu.  
 Person one-even 3.SG-let-NEG son his/(?)LOG 3.SG-eat fufu  
 ‘Nobody lets his son eat fufu.’

Note that the causee/agent of the lower verb does not act syntactically like the object of the matrix verb in Ibibio; for example, it cannot trigger object agreement/an object clitic on the matrix verb (Torrence 2016), and it cannot be a reflexive pronoun (*idem*) bound by the causer. This goes with the fact that a logophoric pronoun is possible as the possessor of the causee, as seen in (66b); this shows that the LogOp has scope over the cause as well as the verb phrase. I conclude the LogOp is licensed inside VoiceP or a functional projection that immediately contains VoiceP in Ibibio, as sketched in (67). This is lower in the clause than the other ghostly

<sup>26</sup> A different kind of verb that takes a finite clause but does not allow a logophoric pronoun inside of it is ‘deserve’, as seen in (i). On the one hand, ‘deserve’ is one of the few nonattit ude verbs that takes a CP complement (cf. Charnavel 2019, 2020). On the other hand, it takes the complementizer *se*, used in relative clauses but not otherwise in noninterrogative complement clauses. I do not know too much about this construction and leave open what is happening here.

(i) Okon a-dot se nnyin i-nwam Ø/anye/\*imo  
 Okon 3.SG-deserve C we 1.PL-help him/him/\*LOG  
 ‘Okon deserves that we help him.’

<sup>27</sup> There is more variability in this than in other cases, with some examples of a logophor in the causative complement considered degraded or ruled out entirely. I do not understand this variation, but have seen enough examples accepted on a range of occasions to be confident that a logophor inside a causative complement can be acceptable in Ibibio.

operators that I have discussed, pushing the limits of what is normally meant by the left periphery.<sup>28</sup>

(67) Okon<sub>i</sub> made [<sub>FP</sub>? LogOp (F?) [<sub>VoiceP</sub> his<sub>i</sub> son Voice(+Agr) [<sub>VP</sub> read a book ]]].

A similar surprise is that the phenomenon of logophoricity extends to nonfinite clauses in Ibibio, including both infinitives and gerunds. Cully (1994) says that logophoric pronouns crosslinguistically are incompatible with infinitives and control, and this has been the received wisdom in the literature, with no counterexamples that I know of. At first glance, this seems to be true in Ibibio too. In particular, it is bad to have a logophoric pronoun inside the nonfinite complement in subject control cases, where the null subject of the complement clause is understood as being the same as the subject of the matrix clause (the most common case). (68) gives an example with an infinitival verb with the prefix *edi-*, and (69) gives examples with a gerundival verb with the nominalizing prefix *u-*

(68) Okon a-ma-a-yem edi-se eka òmò /\* ímò  
Okon 3.SG-PST-3.SG-want INF-visit mother his/\*LOG  
'Okon<sub>i</sub> wants (PRO<sub>i</sub>) to visit his<sub>i</sub> mother.'

(69) a. \*Okon a-ma-a-tre u-tań-iko ye eka imò.  
Okon 3.SG-PST-3.SG-stop NLZR-talk-word with mother LOG  
'Okon<sub>i</sub> stopped (PRO<sub>i</sub>) talking with his<sub>i</sub> mother.'

b. Okon a-ma-a-toiyo u-dep ebot omo/?\*imò.  
Okon 3.SG-PST-3.SG-remember NLZR-buy goat his/?\*LOG  
'Okon<sub>i</sub> remembers (PRO<sub>i</sub>) buying his<sub>i</sub> goat.'

This suggests that infinitival and gerund clauses do not license LogOp, perhaps because they do not have C-like projections. But this would be in tension with what we just learned from causative complements. And indeed, we get a different result when the infinitival or gerundival clause has its null subject controlled by the object of the matrix verb. Then it is possible to have a logophor in the complement clause bound by the matrix subject, as seen in (70) for infinitival clauses and in (71) for gerundive clauses.<sup>29</sup>

(70) Okon a-ma-a-temme Emem edi-kpóno ímò.  
Okon 3.SG-PST-3.SG-instruct Emem NLZR-respect LOG  
'Okon<sub>i</sub> instructed Emem<sub>k</sub> (PRO<sub>k</sub>) to respect him<sub>i</sub>.'

(71) a. ?Okon a-ma a-tre Emem u-tań-iko ye eka imò.  
Okon 3.SG-PST-3.SG-stop Emem NLZR-talk with mother LOG  
'Okon<sub>i</sub> stopped Emem<sub>k</sub> from (PRO<sub>k</sub>) talking with his<sub>i</sub> mother.'

b. Okon a-ma a-toiyo Emem u-dep ebot imò.

<sup>28</sup> Logophoric pronouns are also possible in the complement of the causative verb in Yoruba, but this is perhaps less surprising since such complements do have an overt C (*ki*) in Yoruba.

<sup>29</sup> Clefting evidence shows that the subject is a separate constituent from *u*-verb+object in (71), so these are object control structures rather than ECM or 'accusative + infinitive structures.



Okon 3.SG-PST-3.SG-remember Emem NLZR -buy goat LOG  
 ‘Okon<sub>i</sub> remembers Emem<sub>k</sub> (PRO<sub>k</sub>) buying his<sub>i</sub> goat.’

This shows that nonfinite clauses can host LogOps in Ibibio after all, consistent with the claim that they can appear as low as VoiceP. What is not possible is for a logophoric pronoun to be bound by the controlled PRO in the nonfinite clauses. In section 5.5 below, I show that this fact can be subsumed to the more general fact that a logophoric pronoun cannot be locally bound by a nonlogophoric pronoun, on the assumption that PRO is a sort of nonlogophoric pronoun. It is not known how general (70) and (71) are across the African languages with distinctive logophoric pronouns, because such sentences have rarely been tried. There is a contrast here with indexical shift, which is not possible with infinitives and gerunds in Magahi, even in contexts of object control. There is also a notable difference in Turkic languages on this point: Uyghur, Mishar Tatar, and Sakha allow indexical shift in fully finite/verbal *dien* clauses, but not in more nominalized participial clauses (Podobryaev 2014, Shklovsky and Sudo 2014) Vinokurova p.c.). Moreover, agreeing complementizers are completely out with infinitives and gerunds—even in Ibibio. Logophoric operators thus have a wider distribution than the other kinds of operators, at least in Ibibio.<sup>30</sup>

In contrast to these gerundive constructions, real nominals with nominal word order do not allow LogOps. Subjects of clauses come before finite verbs in Ibibio, but possessors come after the head noun. Moreover, when the understood “subject” of a derived noun comes after the derived noun, showing itself to be a grammatical possessor, it cannot contain a logophoric pronoun. This is true for *n+V* nominalizations, which are always fully nominal, as in (72b), and also for *u+V* nominalizations, which (like English *V+ing* forms) can be fully nominal, as in (72a), or a partially nominalized gerund form with a normal direct object, as in (69) and (71).

- (72) a. \*Nditɔ e-ma-e-feeñe u-kɔ-iyak eka mm-imɔ.  
 children 3.PL-PST-3.PL-dread NLZR-fish mother PL-LOG  
 ‘The children<sub>i</sub> dreaded their<sub>i</sub> mother’s fishing.’
- b. Okon i-kit-te n-dudue eka ɔmɔ/\*imɔ  
 Okon 3.SG-see-NEG NLZR-sin mother his/\*LOG  
 ‘Okon<sub>i</sub> did not see his<sub>i</sub> mother’s mistake/fault.’

On my account, this is no different from the normal fact that the possessor of a morphologically simple noun cannot be (or contain) a logophor in Ibibio or other African languages, as shown again in (73).

- (73) \*Emem a-maa-dɔkkɔ eka imɔ mbak.  
 Emem 3.SG-PST-tell mother LOG news  
 (‘Emem told his mother the news.’)

<sup>30</sup> In the case of the gerunds, there is some tension between this result that LogOp is possible inside them in Ibibio, and the proposal in chapter 4 that nominalization is incompatible with Sp/Ad in indexical shift languages—even “subtle” nominalization. One way of addressing this would be to say that a nominal layer does not block obligatory control, but Sp and Ad are always high, higher than the highest possible nominalizing head. This could account for why LogOp is possible inside gerunds but Sp and Ad are not. Another way would be to say that *u-* in Ibibio counts as part of the extended project of the verb (and so invisible to the GOCS) but nominalizers in other languages generally are not. This calls for more research.

The assumption here is simply that ghostly operators cannot appear in nominal projections, perhaps because nominal categories do not generally allow specifiers (Baker 2003). Either there are no verbal projections at all inside the direct objects in (72), or the verbal projection is so small (VP only?) that it is lower than the lowest possible position of LogOp (e.g. VoiceP). Note that this is different from Charnavel (2019, 2020) who does assume that in French a logophoric operator can have scope over DP—and indeed any constituent that counts as a phase and/or that has a subject-(like) constituent. That assumption is too permissive for Ibibio and other African languages which do not license logophors inside DPs with no clausal structure at all.

The overall generalization then is that LogOp is structurally possible in (almost) any kind of clause-like structure that has some verbal projections. It can be a full CP or a truncated clause (a VoiceP), it can be finite or nonfinite, it can be purely verbal or partially nominal. It is only in constructions that have no verbal/clausal syntax at all that reject LogOp. (There is also the pending question of just why perception verb complements cannot have LogOp.)

#### 5.4 A second ghostly DP in the LogOp system

A familiar property of the Speas and Tenny (2003) that Sp is paired with Ad in the periphery of a clause (specifically a SAP in root clauses). One consequence of this within my is that second person indexicals can shift as well as first persons indexicals in languages in which such a structure can be embedded. Another consequence is that allocutive agreement with the addressee is at least as common as agreement with the speaker (and apparently more common). Similarly, I have tentatively argued that whereas many languages show C agreement with one ghostly DP only (SoK), Kipsigis may have a second such operator, which I dubbed OK, controlled by the matrix indirect object. Now I turn to evidence that it is possible to have a second ghostly DP operator in the logophoric domain as well, which I call AddrOp. The result of this is that a few languages have a second (series of) pronoun(s) found only in embedded clauses, called Addressee pronouns. These are found in Mupun (Chadic, Nigeria) and Tikar (Benue-Congo, Cameroon), as well as a few others. Although these two languages are not closely related, their systems seem very similar in their essential features, so I discuss them side by side. The literature on this topic is not rich enough to support a detailed analysis (nor do I have any primary data on this topic), but it is enough to fill out the typology of the ghostly DPs and provide some support for the overall picture.

The source on Tikar is Stanley (1982). In a Tikar matrix clause, the ordinary subject pronoun is *à*, as seen in (74).

- (74) À šɛ̀ lɛ̀ myón lɛ̀ .... (Stanley 1982: 32)  
 He say to wife-his that  
 ‘He said to his wife that...’

When this plain pronoun is used under a speech or attitude verb like ‘tell’, it is described as having to be disjoint in reference from both the matrix subject and the matrix goal argument, as shown in (75).

- (75) Pɔ́1 šɛ̀ lɛ̀ Ja^ñ lɛ̀ à kɛ̀nna^ lwùmwù. (Stanley 1982: 40)  
 Paul say to John that he go market  
 ‘Paul<sub>i</sub> told John<sub>k</sub> that he<sub>n,\*i,\*k</sub> went to the market.’

In contrast to this, there is another pronoun form *nún*. When this is used in the subject position of an embedded complement clause, it is logophoric, needing to be coreferent with the matrix subject, as in (76).<sup>31</sup>

- (76) Pɔ́l ʃe` le` Ja`n le` nún ke`nna` lwùmwù (Stanley 1982: 40)  
 Paul say to John that LOG go market  
 ‘Paul<sub>i</sub> told John<sub>k</sub> that he<sub>i,\*k</sub> went to the market.’

This is an instance of canonical African logophoricity in Tikar. Taking the complementarity at face value (but see note xx), the matrix subject must control an operator in CP, the pronoun *nun* must be bound by that operator, and the pronoun *a* must be free of that operator. (See section 5.5 on pronoun binding conditions more generally.) Then where Tikar goes beyond Ibibio and Yoruba is that it has a third pronoun that can appear in the embedded position, as seen in (77). In this example, the pronoun *nyi`* must be interpreted as coreferential with ‘John’, the goal argument of the matrix verb ‘tell’.<sup>32</sup>

- (77) Pɔ́l ʃe` le` Ja`n le` nyi` ní ke`n lwùmwù (Stanley 1982: 40)  
 Paul say to John that ADDR FOC go market  
 ‘Paul<sub>i</sub> told John<sub>k</sub> that he<sub>k,\*i</sub> should go to the market.’

The relationship of (77) to (75) looks like the relationship of (76) to (75), so it makes sense to generalize the analysis as follows. There is a second DP in the periphery of C, along side LogOp, which I call **AddrOp**. AddrOp gets an object-like thematic role from the C-like head (*le`*) which licenses it, so it must be controlled by the goal/thematic object of the matrix verb ‘tell’, just as LogOp must be controlled by the agent/thematic subject of ‘tell’. The pronoun *nyi* must be bound by AddrOp, just as *nun* (when used in the subject position) must be bound by LogOp. The normal weak pronoun *a* must be free from both ghostly DPs, either by explicit grammatical principle, or as a pragmatic blocking phenomenon. The representation is as in (78).

**Commented [MB1]:** Somewhere nail down why the antecedent of the pronoun must be the OP, not the goal by itself. A classic argument (K&S?) is that pronouns referring to the subject in the matrix clause (e.g. poss of object) are plain pronouns, not logophoric. It is only pronouns in certain kinds of CPs that show the logophoric behavior, and that is well captured by saying that a DP in the spec of CP plays a role. It might be hard to generalize this to the Addressee pronouns—anyway, the data doesn’t exist—but I assume it is the same.

<sup>31</sup> Based on the charts in Stanley (1982), it looks like in Tikar the logophoric versus plain pronoun distinction is neutralized in object position and other nonsubject positions, there being only a single form possible (the strong form, *nun*). This is not uncommon: it is also true in Baatonum, for example. A simple way to account for this in Baatonum using Distributed Morphology-style late insertion is to say that one particular form (/u/) is inserted in a very particular environment ([nominative, -Log, -1, -2, -plural, +human]) and a distinct form (/wi/) is inserted for all other [-1, -2, -plural, +human] pronouns. This means that /wi/ expresses the logophoric pronoun in subject position and all third person singular human pronouns in all other syntactic positions. I assume that something like this is happening in Tikar as well.

Tikar also uses the strong/logophoric pronoun as a sort of expression of the agent of speaking when a verb of speaking is elided (something like: He (~~says that~~) he will come). I do not analyze this very language specific construction here.

<sup>32</sup> (77) is different from (75) and (76) in two other ways, it seems. First, the addressee pronoun has apparently been focused, and second the embedded clause is interpreted modally, as ‘should go’ rather than as past tense ‘did go’. Stanley’s discussion does not make it clear whether these differences are crucial or incidental (because it is more common to tell people what they should do than to tell them what they did do, which they usually know). Of the approximately six other examples of addressee pronouns in her paper, most have the pronoun focused, but one apparently does not, and most have directive force but one (text 5 p. 37) apparently does not.

Stanley does give another example without *ni* and with past tense in which *nyi* is interpreted as referring to neither the matrix subject nor the matrix object. This is probably related to the use of the addressee pronoun in (83), but it is not clear exactly how.

(78) Paul<sub>i</sub> said to John<sub>k</sub> [LogOp<sub>i</sub> C1 [AddrOp<sub>k</sub> C2 [ nun<sub>i</sub>/nyi<sub>k</sub> go market ]]]

The Mupun language described by Frajzyngier (1993), replicating the results. When ‘say’ in Mupun (apparently the only verb in this language that licenses logophoricity in its complement; see Frajzyngier 1993: 110-111) has an overt third person goal, the facts are like Tikar: so-called class B pronouns must refer to the matrix subject, the sayer, so-called class C pronouns must refer to the matrix goal, the addressee, and class A pronouns—the only class found in matrix clauses—must be disjoint from both.

- (79) a. Wu sat nə di/wu nas an. Class B (logophoric) compared to class A (plain)  
 he said that LOG/he beat me  
 ‘He<sub>i</sub> said that he<sub>i</sub>/he<sub>k</sub> beat me.’ (ZF: 108)
- b. Wa sat nə n-nas war/dè. (ZF: 109)  
 She said that I-beat LOG/her<sub>l</sub>  
 ‘She<sub>i</sub> said that I beat her<sub>i</sub>/her<sub>k</sub>.’
- (80) a. N-sat n-wur nə wur/gwar ji. Class C (addressee) compared to class A (plain)  
 1.SG-say to-him that he/ADDR come (ZF: 113)  
 ‘I told him<sub>i</sub> that he<sub>k</sub>/he<sub>i</sub> should come.’
- b. Datar sat n-dapus nə di naa la reep gwar/wur. (ZF: 125)  
 Datar say to-Dapus that LOG see girl ADDR/his  
 Datar<sub>i</sub> told Dapus<sub>k</sub> that he<sub>i</sub> saw his<sub>k</sub>/his<sub>i</sub> daughter.

The example in (80b) shows both a logophoric pronoun and an addressee pronoun in the same CP. It is also an example of an addressee pronoun in a CP that does not have directive force.

Tikar and Mupun thus do for the theory of LogOps what Kipsigis may do for the theory of SoK—generalizing it and enriching it with a second operator. It shows again that goals are not intrinsically unable to control ghostly; they are just unable to control LogOp, as they cannot control Sp or SoK. They can however control AddrOp, just like they can control Ad in Maghai and OoK in Kipsigis. Conversely, the agent/subject cannot control AddrOp, just as it cannot control Ad in Magahi or OoK in Kipsis. If it could, then the addressee pronoun could refer to the matrix subject in some cases, but we have no evidence that this is true.

It is worth noting that the controller of AddrOp need not be overt. In both Tikar and Mupun it is possible for an implicit goal argument of the matrix verb to control AddrOp and hence antecede a special addressee pronoun. Examples are in (81).

- (81) a. A še` le` le` nyi` ní šélí le` bá bón jí (Stanley 1982: 33)  
 he say thus that ADDR FOC take thus so.that they eat  
 ‘He<sub>i</sub> said [to her<sub>k</sub>] that she<sub>k</sub> should take it thus so that they could eat.’
- b. Wu sat nə taji paa dəm n-kaano. (ZF: 115)  
 he said that PROH ADDR.F go to-Kano  
 ‘He<sub>i</sub> said [to her<sub>i</sub>] that she<sub>i</sub> should go to Kano.’

This is not surprising, and it is also the case in Magahi that an implicit goal of ‘say’ can control Ad and hence antecede shifted second person pronouns. See Landau (xxxx) for much discussion about when implicit arguments can be controllers of PRO in languages like English.<sup>33</sup>

There is empirical support, then, for positing a second operator in the CP space parallel to LogOp, much as there is for positing Ad as well as Sp and perhaps OoK as well as SoK. The space of possible ghostly DPs seems to be symmetrical, although in some of the subject-type operators (LogOp, SoK) seem to be considerably more common than their object-type analogs (AddrOp, OoK). Further analysis of addressee pronouns must await richer descriptions of the phenomenon.

### 5.5 The binding relationship between LogOp and the logophoric pronoun

On the Koopman-and-Sportiche (1989) inspired approach to logophoricity, there are three main ingredients to study: the licensing of an operator in the clausal periphery, the control of that operator by an argument of the matrix verb, and the binding of the logophoric pronoun by the operator. Section 5.2 focused on the second topic, and section 5.3 discussed a major part of the first topic. Section 5.4 extended the discussion to a second operator, one that binds addressee pronouns. Now I move on to the third topic, putting the relationship between the LogOp and the pronouns it binds on center stage. The most relevant comparison is with Sp and Ad binding first and second person pronouns in indexical shift languages. In general, descriptive and typological studies do not give a lot of insight into this topic. Ibibio is thus the star of the discussion, with specially commissioned data just for this. Additional data will come from Yoruba, based on the study of Adesola (2005), Edo (Baker 1999), and Abe (K&S), to give some sense of what varies across languages in this regard.<sup>34</sup> The major theme is that a LogOp binds a logophoric pronoun in a way that is similar in some ways to how a *wh*-operator binds a *wh*-trace. In particular, I argue that we see weak and strong crossover effects in this domain when we mix plain pronouns and logophoric pronouns, in patterns that are parallel to what has been observed with pronouns in *wh*-constructions.

Recapping a bit, a logophoric pronoun needs more than just to refer to a center of speech or thought. It also needs to be in an embedded CP (K&S). This is shown again in (82), where a

<sup>33</sup> Interestingly, it seems that addressee pronouns are sometimes possible in complement clauses even when the matrix verb does not have a goal argument at all, even covertly—e.g. with a verb like ‘know’. In this case, the addressee pronoun seems to refer to a prominent discourse referent. (i) is a Mupun example from ZF: 117; see Stanley (1982: 34) for a similar (simpler) example from Tikar. Note that this example also has a logophoric pronoun, which refers to the subject of the matrix verb ‘know’ in the usual way. This then looks like an example in which LogOp in the CP complement of ‘know’ is controlled but AddrOp is not. If so, and if there are no converse examples in which AddrOp is controlled and LogOp is not, this asymmetry is evidence that the Edge Condition applies to logophoric operators as well as to Sp and Ad—a welcome result.

(i) Kat la reep beer am kaa la mis be **la mis** nə man nə paa pə dem **ɸin** mənən.  
If girl pour water on boy CONS boy DET know that ADDR.F P like LOG then.  
‘If a girl<sub>i</sub> pours water on the young man<sub>k</sub>, then the man<sub>k</sub> knows that she<sub>i</sub> loves him<sub>k</sub>.’

Examples like this might also have theoretical implications for how we understand the defective addressee effect and Shift Together 2 patterns in Magahi and other indexical shift languages. However, there is not enough information about this for me to pursue the matter with any confidence.

<sup>34</sup> Baatonum is not relevant to this. Since logophors are only different from plain pronouns in subject position in this language, one cannot put multiple pronouns in different syntactic positions to develop a crossover paradigm.

logophor inside the CP complement can refer to the matrix subject/logophoric center Emem, but a logophor outside the CP complement—here the possessor of the object—cannot. Rather a plain pronoun must be used in that position. This also holds true in Yoruba, Edo, and Abe.

- (82) Emem a-maa-dòkkò eka ọmọ/\*imọ ke imọ i-ma-i-dep ebot.  
 Emem 3.SG-PST-tell mother his/LOG that LOG 3.LOG-PST-3.LOG-buy goat  
 ‘Emem<sub>i</sub> told his<sub>i</sub> mother that he<sub>i</sub> bought a goat.’

An inference from this is that logophoric pronouns need to be bound not by the logophoric center *per se*, but rather by a null operator in the Spec CP region, which is in turn controlled by the logophoric operator. This is a fundamental insight of K&S, carried forward in other work, which I have been adopting and applying to other constructions. Further support is that it matters in which complementizer heads the complement clause in some languages: logophoric pronouns are found only in CPs headed by the complementizer *be* in Ewe (Clements 1975), and logophoricity is obligatory in CPs headed by the complementizer *kO* in Abe and by *wẹẹ* in Edo in a way that it is not in other CPs. (Recall, however, that logophors are possible in almost any clausal complement in Ibibio.) Integral to this view is the condition in (83), which I have been assuming tacitly throughout.

- (83) A logophoric pronoun must be bound by a LogOp

This is parallel to the claim from Chapter 4 that pronouns are first person only if they are bound by Sp and they are second person only if they are bound by Ad. At a higher level of abstraction, (83) is also formally analogous to the fact that a *wh*-trace/syntactic variable must be bound by a *wh*-operator in Spec CP—although in many cases that may be guaranteed by the nature of *wh*-movement in a way that (83) is not. The task at hand in this section, then, is to flesh out this condition, comparing logophoric pronouns to plain pronouns in this regard and seeing also how the two interact.

A first thing to observe about (83) is that there is no special locality condition built into it. Indeed, LogOp does not need to be particularly close to a logophor that it binds. Several clause boundaries can intervene, as has been shown for many languages. For example, we have already seen in section 5.2.2 that *Okon* can be the antecedent of the logophoric pronoun *imo* in (84), even though there is a closer logophoric subject *Edem* in the structure.

- (84) Okon á-kére ké Edem á-ké-n-dòkkò ké Mfon é-kpóno ímò.  
 Okon 3.SG-think that Edem 3.SG-PST-1.SG.O-tell that Mfon 3.SG.3.LOG.O-respect LOG  
 ‘Okon<sub>i</sub> thinks [LogOp<sub>i</sub> that Edem<sub>k</sub> told me [LogOp<sub>k</sub> that Mfon respects him<sub>i,k</sub>]].’

Given that the control of LogOp is a species of obligatory control, the LogOp controlled by *Okon* is in the CP complement of ‘think’. From there it binds the logophor in the most deeply embedded clause at a significant syntactic distance.

A logophoric pronoun can even be separated from the LogOp by syntactic islands, as shown in (85). These examples show that any locality between the logophoric operator and the logophoric pronoun it binds is not to be understood as taking place to connect the logophor to its antecedent. In this respect, the relationship between the LogOp and the logophoric pronoun is unlike the relationship between a *wh*-operator and its trace. Rather, we are in the realm of pronoun binding, one of the less constrained grammatical relationships. (85a,b) show binding of

**Commented [M2]:** This was discussed above too. Is there value in examples from other languages?

a logophor inside a CP adjunct, (85c) shows binding of a logophor inside a relative clauses, and (85c) shows binding of a logophor inside a noun-complement construction.

- (85) a. Okon a-maa-bo ke Emem a-me-yat esit sia imọ i-ma i-tuak Eno.  
Okon 3.SG-PST-say that Emem 3.SG-PERF-hot heart because LOG 3.LOG-PST-3.LOG-hit Eno  
'Okon<sub>i</sub> said [LogOp<sub>i</sub> that [Emem is upset [because he<sub>i</sub> hit Eno]].'
- b. Okon a-kere ke akpedo imọ i-koot Emem usoro odo, anye a-kpaa-di.  
Okon 3.SG-think that if LOG 3.LOG-call Emem party the, he 3.SG-COND-come.  
'Okon<sub>i</sub> thinks [LogOp<sub>i</sub> that [[if he<sub>i</sub> invites Emem<sub>k</sub> to the party] he<sub>k</sub> will come.]]'
- c. Okon a-kere ke ami m-ma n-duok ngwet se imọ i-ki-n-ọ miin.  
Okon 3.SG-think that I 1.SG-PST-1.SG-lose book REL LOG 3.LOG-PST-1.SG.O-give me  
'Okon<sub>i</sub> thinks [LogOp<sub>i</sub> that I lost [the book [that he<sub>i</sub> gave me]].'
- d. Okon a-maa-bip mme Emem a-maa-kop mbak ke imọ i-ma i-dia nsa-akak.  
Okon 3.SG-PST-ask if Emem 3.SG-PST-hear news that LOG 3.LOG-PST-3.LOG-win lottery  
'Okon<sub>i</sub> asked [LogOp<sub>i</sub> if Emem heard [the news [that he<sub>i</sub> had won the lottery]].'

Recall that if examples like these do not occur in a clause that is under a verb like 'think' or 'say', then a logophoric pronoun is not possible inside the adjunct clause or the relative clause (see section 5.2.3). This implies that a logophoric operator is not possible in the CP of the adjunct clause or the relative clause, because a LogOp there would fail to undergo OC, and hence would not get grammatical features or a suitable interpretation. The only licit LogOp in these examples, then, is the one in the CP complement of 'think'/'say'/'ask', and a LogOp there binds the logophoric pronoun over clause boundaries and into an island.

Not even a relativized version of minimality holds here, in that it is possible to have two logophoric pronouns in the most deeply embedded clause, where one takes the highest subject and one takes the closest subject. This is shown again in (86) for Ibibio, and is also true in Yoruba and Edo. Here we know that there must be a LogOp in the lowest clause that comes between 'him' and the LogOp that binds it and bears a different index, because otherwise the subject 'he' would not be bound, running afoul of (83). However, this does not cause interference for the logophoric pronoun that is bound more remotely.

- (86) Okon á-kére ké Edem á-ké-n-dòkkò ké ímọ i-kpóno ímọ.  
Okon 3.SG-think that Edem 3.SG-PST-1.SG.O-tell that LOG 3.LOG-respect LOG  
'Okon<sub>i</sub> thinks [LogOp<sub>i</sub> that Edem<sub>k</sub> told me [LogOp<sub>k</sub> that he<sub>k</sub> respects him<sub>i</sub>]].'

This makes it clear that a logophoric pronoun need not be bound by the *closest* LogOp. This is an important difference between logophoric pronouns and first and second person pronouns, which do need to be bound by the closest Sp or Ad in accordance with the Person Licensing Condition (see section 4.2).

The converse question would be whether an intervening bindee—another pronoun—can disrupt the relationship between a logophoric operator and a logophoric pronoun that is bound by it. This leads us to the question of what happens more generally when a plain pronoun is present in a logophoric domain, trying to refer to the logophoric antecedent. On this point, descriptions certainly vary, and languages might as well.

Consider first when there is only a plain pronoun inside the CP complement of an attitude verb, trying to refer to the attitude holder. Older works often said that this was impossible. For example, my (1999) description of Edo said that a plain pronoun was not possible in a position where a logophoric pronoun is, with the same meaning. See also Clements (1975: 154) on Ewe, Pulleyblank (1986: 44) on Yoruba, and K&S (1989: 579) on Abe.

- (87) a. Ó ri pé ó/óún ní owó. (Yoruba, Pulleyblank 1986: 44)  
 3.SG see that 3.SG/LOG have money  
 ‘He<sub>i</sub> saw that he<sub>k,\*i</sub>/he<sub>i,\*k</sub> had money.’
- b. Ozó miànmíán wèé ò/ìrèn kié èkhù. (Edo, Baker 1999)  
 Ozo forget that 3.SG/LOG open door  
 ‘Ozo<sub>i</sub> forgot that he<sub>k,\*i</sub>/he<sub>i,\*k</sub> opened the door.’

However, more recent sources tend to say that it is possible for a plain pronoun to refer to the logophoric center, at least in the simplest cases: see Adesola (2005: 199-200) on Yoruba and Pearson (2013: 451) on Ewe. This is definitely possible in Ibibio too. (88a) is an example with a subject pronoun, and (88b) is one with a possessive pronoun

- (88) a. Obuut a-maa-mám Okon ke anye/imo a-maa-yip ngwet.  
 Shame 3.SG-PST-hold Okon that 3.SG/LOG 3.SG-PST-steal book  
 ‘Okon<sub>i</sub> is ashamed that he<sub>i,k</sub>/ he<sub>i,\*k</sub> stole the book.’
- b. Obuut a-maa-mám Okon ke ayín òmò a-maa-miem Emem.  
 Shame 3.SG-PST-hold Okon that son his 3.SG-PST -insult Emem  
 ‘Okon<sub>i</sub> is ashamed that his<sub>i,\*k</sub> son insulted Emem.’

It seems to be possible for a plain pronoun to be bound by the controller of LogOp even when the plain pronoun is given a distinctively bound variable interpretation. The preponderance of evidence indicates that the plain pronoun as well as the logophor can be a bound variable, although I have found some variability in this judgment. One way to test this is with a negatively quantified antecedent such as ‘nobody’. A plain pronoun inside a complement clause is possible even when the ultimate antecedent in the matrix clause is a negative quantified DP—although the preference for using the logophor as a way to express this meaning seems to increase somewhat. (The logophor can always easily have a bound variable interpretation in these contexts.) This rules out the possibility that the examples in (88) are simply the result of “accidental” coreference.

- (89) a. Owo ndomo-keet i-ki-kere-ke ke (?anye) a-maa-due.  
 person even-one 3.SG-PST-think-NEG that 3.SG 3.SG-PST-guilty  
 ‘Nobody<sub>i</sub> thinks that he<sub>i,k</sub> is guilty.’ (marginal; perfect is ... *ke imo i-ma i-due*)
- b. Owo ndomo-keet i-yem-me yak (ami) ñ-yara anye n-no Eno  
 person even-one 3.SG-want-NEG C I 1.SG-reveal 3.SG 1.SG-give Eno  
 ‘Nobody<sub>i</sub> wants me to introduce him<sub>i,k</sub> to Eno.’ (also OK wih *imo* = ‘nobody’).



Another standard way to test for a bound variable interpretation of a pronoun is sloppy identity interpretations in elliptical contexts. It turns out that plain pronouns can have sloppy readings as well as strict readings in ellipsis contexts, as shown in (90). The examples in (91) show that logophoric pronouns also allow both readings.

- (90) Okon a-kere ke Eno a-yaa-no enye àkák, ye Edem nko.  
 Okon 3.SG-think that Eno 3.SG-FUT-give 3.SG money and Edem too  
 ‘Okon<sub>i</sub> thinks that Eno will give him<sub>i</sub> money, and Edem (does) too.’  
 ...Edem λx (x thinks that Eno will give x/Okon money)
- (91) a. Okon a-kere ke Eno a-ya-i-no imọ àkák, ye Edem nko.  
 Okon 3.SG-think that Eno 3.SG-FUT-3.LOG.O-give LOG money and Edem too  
 ‘Okon<sub>i</sub> thinks that Eno will give him<sub>i</sub> money, and Edem does too.’  
 ...Edem λx (x thinks that Eno will give x/Okon money)
- b. Okon a-yaa-dot enyin ke imọ i-di-dongo-ke, ye Emem nko.  
 Okon 3.SG-FUT-place eye that LOG 3.LOG-FUT -sick-NEG and Emem also  
 ‘Okon<sub>i</sub> hopes that he<sub>i</sub> will not get sick, and Emem does too.’  
 ...Edem λx (x hopes that x/Okon will not get sick)

A third test for bound variable readings is using ‘only X’ as the antecedent of the pronoun inside the CP complement. This gives clearly different readings for bound variable pronouns versus referential pronouns. However, both the plain pronouns and the logophoric pronouns can be ambiguous between the referential and bound variable readings.

- (92) a. Okon ikpooṅg a-kere ke imọ i-ya-i-dia nsa-akák.  
 Okon only 3.SG-think that LOG 3.LOG-FUT-3.LOG-win lottery  
 ‘Only Okon<sub>i</sub> thinks he<sub>i</sub> will win the lottery.’  
 (Everyone else feels unlucky about themselves; *or* no one else thinks that Okon is lucky.)
- b. Okon ikpooṅg a-kere ke (anye) a-yaa-dia nsa-akák.  
 Okon only 3.SG-think that 3.SG 3.SG-FUT-win lottery  
 ‘Only Okon thinks he will win the lottery.’  
 (Everyone else feels unlucky about themselves; *or* no one else thinks that Okon is lucky.)

I conclude that plain pronouns do not rule out readings in which they are variables bound by the logophoric subject, although they are sometimes pragmatically dispreferred for this role, especially in comparison with the less ambiguous logophor.

While considering the semantic interpretation of pronouns, I add a comment on the much-discussed topic of *de se* versus *de re* reading. It is often said that logophors only allow *de se* readings, similar to controlled PRO and shifted indexicals. However, Pearson (2013, 2015) looks at this with some care in Ewe, and finds that logophoric pronouns can have *de re* interpretations as well. I have replicated Pearson’s result for Ibibio: even the logophor can be read *de re*. Consider a situation in which that Okon is singing as he works around the house, and someone records him without him knowing it. A year later, he hears the recording when his friend plays it. He doesn’t recognize his own voice or remember that he sang this song. But he is impressed that the person on the recording sings very well, saying to himself “that guy sings well”. The speaker, however, knows that the person that Okon heard in the recording is Okon himself. Willie judges that either (93a) or

(93b) would be appropriate in this *de re* situation. (Both sentences also allow the more normal *de se* reading in which Okon realizes that it was him who was singing as well.)

- (93) a. Okon a-kere ke imọ i-kwọ ikwọ ọfon.  
Okon 3.SG-think that LOG 3.LOG-sing song well.  
'Okon<sub>i</sub> thinks that he<sub>i</sub> sings well.'
- b. Okon a-kere ke anye o-kwọ ikwọ ọfon.  
Okon 3.SG-think that 3.SG 3.SG-sing song well.  
'Okon<sub>i</sub> thinks that he<sub>i</sub> sings well.'

Therefore, I will not say more about *de se/de re* interpretation here, taking it to be orthogonal to my main topic (and outside my main expertise).

The issues concerning using pronouns as bound variables in logophoric environments become more interesting when there are two different pronouns in the embedded clause, both trying to refer to the logophoric antecedent. This is always possible when both pronouns are logophoric, as expected. (94) gives two examples, one in which one logophor c-commands the other and one in which there is no c-command relationship.

- (94) a. Edem á-ké-n-dòkkò ké ímọ i-ma-i-kit èkà ímọ  
Edem 3.SG-PST-1.SG.O-tell that LOG 3.LOG-PST-3.LOG-see mother LOG  
'Edem<sub>i</sub> told me that he<sub>i</sub> saw his<sub>i</sub> mother.'
- b. Obuut a-maa-mám Okon ke ayín ímọ a-ma-i-miem ímọ.  
Shame 3.SG-PST-hold Okon that son LOG 3.SG-PST-3.LOG.O-insult LOG  
'Okon<sub>i</sub> is ashamed that his<sub>i</sub> son insulted him<sub>i</sub>.'

It is also possible for both pronouns to be nonlogophoric, to the same degree that it is possible to have a single nonlogophoric pronoun. (95) gives one example.

- (95) Okon a-maa-kere ke (anye) a-maa-miem eka òmọ.  
Okon 3.SG-PST-think that (3.SG) 3.SG-PST-insult mother 3.SG  
'Okon<sub>i</sub> thinks that he<sub>i</sub> insulted his<sub>i</sub> mother.'

Where it gets interesting is when there is both a plain pronoun and a logophoric pronoun in the same CP complement. This is where the analogy to the literature on crossover comes to the fore. There is often some degree of markedness to mixing pronouns, with a pragmatic preference in favor of using pronouns with the same features to refer to the same antecedent. But there are clear and stable differences that relate to the syntactic configuration. The cases can be sorted out in terms of c-command. Consider first and foremost a situation in which neither pronoun c-commands the other. When the logophoric antecedent is a referential DP, having both pronouns refer to it is still pretty much possible in *Ibibio*, although dispreferred to some degree to using two logophors.<sup>35</sup> (96) gives examples where the non-c-commanding plain pronoun comes first in linear order and the logophoric pronoun comes second.

<sup>35</sup> Recall that it is perfectly grammatical for a logophor and a plain pronoun to refer to the same antecedent when the plain pronoun is outside the c-command domain of LogOp, as in (3b). It is not referring to the same person using two different kinds of pronouns that is out per se, but a preference for using a logophor where it is possible to do so.

- (96) a. Okon a-maa-kere ke ayín òmò a-ma i-miem (eka) ímò.  
 Okon 3.SG-PST-think that son his 3.SG-PST-(3.LOG.O)-insult mother LOG  
 ‘Okon<sub>i</sub> thinks that his<sub>i</sub> son insulted him<sub>i</sub>/his<sub>i</sub> mother.’
- b. Okon a-yem yak (ami) ñ-yara eka ọmọ n-nọ imọ  
 Okon 3.SG-want C I 1.SG-reveal mother his 1.SG-give LOG  
 ‘Okon<sub>i</sub> wants me to introduce his<sub>i</sub> mother to him<sub>i</sub>.’  
 (Comment: his=Log=Okon “is OK, but two logophors is more natural.”)

The examples in (97) have a non-c-commanding logophor first in linear order and a plain pronoun second. This configuration tends to be a bit worse than when the plain pronoun comes first.

- (97) a. Okon a-maa-kere ke ayín ímò a-maa-miem eka òmò.  
 Okon 3.SG-PST-think that son LOG 3.SG-PST-insult mother his  
 ‘Okon<sub>i</sub> thinks that his<sub>i</sub> son<sub>k</sub> insulted his<sub>i</sub> mother<sub>k</sub>.’
- b. Okon a-maa-kere ke ñ-yaa-nọ eka ímò. ngwet ọmọ  
 Okon 3.SG-PST-think that 1.SG-FUT -give mother LOG book his  
 ‘Okon<sub>i</sub> thinks that I will give his<sub>i</sub> mother<sub>k</sub> (back) his<sub>i</sub> book.’

I take the badness of (97) relative to (96) to be a kind of parsing effect: perhaps encountering the logophoric pronoun earlier forces the embedded CP to be parsed with LogOp and this creates an expectation that further reference to the DP antecedent will also be with logophor. This is very tentative. Examples like (96) and (97) are also possible in Yoruba (Adesola 2005: 199, 217) but not in Edo (Baker 1999) or Abe (K&S 1989).

There is, however, a significant contrast between (96) and (97) and structurally similar examples in which the plain pronoun is interpreted as a bound variable. The plain pronoun loses the capacity to get a distinctively bound variable interpretation when there is also a logophoric pronoun in the clause that depends on the same antecedent. For example, when the logophoric antecedent is ‘nobody’, then all the cases with unmatched pronouns become fully bad in Ibibio, as seen in (99).

- (98) a. Owo ndomo-keet i-ki-kere-ke ke eka ọmọ i-sua imọ.  
 person even-one 3.SG-PAST-think-NEG that mother his 3.SG.3.LOG.O-hate LOG  
 ‘Nobody<sub>i</sub> thinks that his<sub>k,\*,i</sub> mother hates him<sub>i</sub>.’ For no x, x thinks that y’s/\*x’s mother hates x.
- b. Owo ndomo-keet i-ki-kere-ke ke eka imọ a-sua anye.  
 person even-one 3.SG-PAST-think-NEG that mother LOG 3.SG-hate 3.SG  
 ‘Nobody<sub>i</sub> thinks that his<sub>i</sub> (own) mother hates him<sub>k,\*,i</sub>.’  
 For no x, x thinks that x’s mother hates y/\*x.
- c. Owo ndomo-keet i-yem-me yak (ami) ñ-yara eka ọmọ n-nọ imọ  
 person even-one 3.SG-want-NEG C I 1.SG-reveal mother his 1.SG-give LOG  
 ‘Nobody<sub>i</sub> wants me to introduce his<sub>k,\*,i</sub> mother to him<sub>i</sub>.’  
 For no x, x wants me to introduce y’s/\*x’s mother to x.

Similarly, in cases of elipsis with mixed pronouns, a logophor in the elided clause is easily read as sloppy identity but the plain pronoun needs to be read as strict identity, as shown in (99).

- (99) Okon a-kere ke eka omọ a-ya-i-nọ imọ àkák, ye Edem nko.  
 Okon 3.SG-think that mother his 3.SG-FUT-3.LOG.O-give LOG money and Edem too  
 ‘Okon thinks that his mother will give him money, and Edem (does) too.  
 ... Edem  $\lambda x$  [x think that y’s/\*x’s mother will give x money]

Unfortunately, we do not have enough quality data on bound pronouns from other languages to know if this is true more generally or not.

The contrast between cases in which the antecedent is a quantified DP and ones in which it is a referential DP is what suggests that this is a kind of Weak Crossover (WCO) effect. is involved in this. The contrast between (96) and (98) is reminiscent of the contrast in English between (100a), a weak crossover case, and (100b), a so-called weakest crossover case (Safir 2004: 71-72, 84) .

- (100) a. \*?Who<sub>i</sub> does his<sub>i</sub> accountant love --<sub>i</sub>? (weak crossover)  
 b. Rex<sub>i</sub>, who<sub>i</sub> his<sub>i</sub> accountant loves --<sub>i</sub>, is a Republican. (weakest crossover)

The data from nonreferential quantifiers and ellipsis shows that a plain pronoun cannot be a bound variable related to the logophoric center in the presence of a logophoric pronoun that is a bound variable. It is not that plain pronouns are fundamentally incapable of being bound variables in Ibibio. We have seen that they can be bound variables when no logophor is present. They can also be bound variables that depend on a quantified DP that is in the matrix clause but is not the logophoric center, such as the goal of ‘tell’ in (101a). Similarly, sloppy identity is a natural reading of the plain pronoun object in (101b). (Note that these embedded clauses also contain a logophoric pronoun, although this time the logophor is predictably not coconstructed with the plain pronoun because of Condition B of the Binding theory.)

- (101) a. Okon i-ki-dọkkọ-ke owo ndomo-keet (i-bo) ke imọ i-ya i-nwam anye.  
 Okon 3.SG-PST-tell-NEG person only-one 3.SG-C that LOG 3.LOG-FUT-3.LOG-help 3.SG  
 ‘Okon<sub>i</sub> didn’t tell anyone<sub>k</sub> that he<sub>i</sub> will help him<sub>k</sub>.’  
 OK as: for no x, Okon told x that he (Okon) will help x.
- b. Okon a-ke-dọkkọ Emem (a-bo) ke imọ i-ya-i-nwam anye, ye Enọ nko.  
 Okon 3.SG-PST-tell Emem 3.SG-C that LOG 3.LOG-FUT-3.LOG-help 3.SG, and Eno too  
 ‘Okon<sub>i</sub> told Emem<sub>k</sub> that he<sub>i</sub> will help him<sub>i</sub>, and Eno too.  
 ...Eno [ $\lambda x$  Okon<sub>i</sub> told x that he<sub>i</sub> will help x too].

So Ibibio allows a normal process of replacing a pronoun with a variable like (102a), but it does not allow something like (102b), where there is logophoric binding along with lambda binding with the same ultimate antecedent.

- (102) a. [...NP<sub>1</sub> .... Pro<sub>1</sub> ...] becomes [...NP  $\lambda 1$  .... 1...]  
 b. [NP<sub>1</sub> ... LogOp<sub>1</sub>  $\lambda 2$  ... pro<sub>1</sub> ... 2 ...] *can’t become*  
 [NP  $\lambda 1$  .... [1]  $\lambda 2$  ... 1...2...]

Thus, we need a descriptive generalization with the effect of (103).

- (103) If a logophor functions as a bound variable dependent on NP1, then a pronoun can only be a bound variable dependent on NP1 by being bound by the same LogOp.

In contrast, the examples with a referential DP as the logophoric center indicate that accidental coreference is possible in the same structure as logophoric binding. In other words, the representation [NP<sub>i</sub> ... LogOp<sub>i</sub> λ2 ... pro<sub>i</sub> ... 2 ...] is possible as long as the index *i* is not abstracted over. This set of contrasts is similar to some versions of a WCO condition, which says roughly that the same (Wh)-operator cannot bind both a wh-trace and a pronoun. Both types of elements can be bound variables, but they cannot be variables bound directly by the same operator. A simple and intuitive version is Safir's (1984) Parallelism Condition on Operator Binding, which says roughly that two variables bound by the same operator must be of the same type ((104) is the formulation from Safir 2004b: 66).

- (104) If a single quantifier binds more than one variable, then either (a) they are both pronouns or (b) they are both traces.

My suggestion, then, is that plain pronouns and logophoric pronouns also count as different types of bound elements for this condition. LogOp counts as (equivalent to) a quantifier, and logophoric pronouns count as a third equivalence class of bindable elements. The bindees must both be traces (parasitic gap cases) or both logophors (as in (94)) or both plain pronouns (as in (95)). However, if there is only one bound variable in the CP, then (104) places no restrictions: that one variable can be a wh-trace, a plain pronoun, or a logophor, subject to other conditions. The same idea can be expressed somewhat less perspicuously but a bit more accurately in terms of Safir's (2004 :72) Quantifier Dependency Condition (QDC). The original version is in (105a); (105b) gives the parallel statement that we want for the logophoric examples analyzed here.

- (105) a. A pronoun *X* can be interpreted as dependent on a quantified antecedent *y* only if  
 (i) *x* is a q-variable (=wh-trace) of *y* or  
 (ii) *x* is dependent on a q-variable (=wh-trace) of *y*, or  
 (iii) there is no q-variable (wh-trace) of *y*.
- b. A pronoun *X* can be interpreted as dependent on a LogOp *y* only if  
 (i) *x* is a logophor bound by *y*, or  
 (ii) *x* is dependent on a logophor bound by *y*, or  
 (iii) there is no logophor bound by *y*.

The two statements can be reduced to one more general statement based on the idea that logophors are intrinsic variables bound by a logophoric operator (see (83)) just as wh-traces are intrinsic variables bound by wh-operators. The Generalized QDC then is a principle that regulates the relationship between pronouns—potentially derived variables—with intrinsic variables of both kinds.<sup>36</sup>

<sup>36</sup> Interestingly, a plain pronoun can depend on a quantified antecedent that a logophoric pronoun also depends on if the plain pronoun is in a different clause from the logophoric pronoun. This is seen in (i), which contrasts with (98a).

- (i) Owo ndomo-keet i-ki-bo-gho ke eka òmò a-kere ke ímò i-mi-yaiya

Although a plain pronoun can be bound by LogOp as long as there is not also a logophor in the same domain in Ibibio, this seems to be ruled out in some languages, such as Edo and Abe. According to my old work with O.T. Stewart (Baker 1999), Edo does not allow a plain pronoun to corefer with a logophoric pronoun that it has no c-command relationship to, even when the antecedent is not quantified.

- (106) a. Ozo ta weꞛ iye ẽre gbe iren. (Baker 1999: (36b))  
 Ozo said that mother his beat LOG.  
 ‘Ozo<sub>i</sub> said that his<sub>?i</sub> mother beat him<sub>i</sub>.’
- b. Ozo ta weꞛ iye iren tie ebe ere. (Baker 1999: (36a))  
 Ozo say that mother LOG read book his  
 Ozo<sub>i</sub> said that his<sub>i</sub> mother read his<sub>i</sub> book.

It is not clear entirely clear to me whether there is a grammatical difference between Edo and Ibibio/Yoruba here or rather a difference in preferences.<sup>37</sup> Interestingly, Stewart and I found the plain pronoun to be bad referring to the logophoric center even when no logophor present in the embedded clause—different from (Willie’s) Ibibio, (Adesola’s) Yoruba, and (Pearson’s) Ewe.<sup>38</sup>

- (107) a. Ozo mianmain weꞛ o/ iren kie ekhu. (Baker 1999: (32a,b))  
 Ozo forget that he/LOG open door  
 ‘Ozo<sub>i</sub> forgot that he<sub>k,s,i</sub>/he<sub>i</sub> opened the door.’
- b. Ozo ta weꞛ amẹn gbe ere. (Baker 1999: (34a))  
 Ozo said that water beat him  
 ‘Ozo<sub>i</sub> said that the rain beat him/her<sub>k,s,i</sub>.’

I did not investigate quantified antecedents at the time, but K&S have a little data of this sort for Abe, and that is the same in this respect: a plain pronoun cannot be bound by a quantifier that is also the logophoric center, whereas a logophoric pronoun can be.

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person even-one 3.SG-PST-say-NEG that mother his 3.SG-think that LOG 3.LOG-PERF-handsome  
 ‘Nobody<sub>i</sub> said that his<sub>i</sub> mother thinks that he<sub>i</sub> is handsome.’  
 For no x, x said that x’s mother thinks that x is handsome.

This can perhaps be seen as a kind of PIC effect. By the time that the pronoun in the middle clause is introduced, the logophor in the deepest clause has already been spelled out and become invisible to the derivation. As far as the plain pronoun knows, then, it is the only variable bound by LogOp in the complement of ‘say’, so it passes the QDC by clause (biii), on a par with examples like (89). It is notable, however, that simple bound variable anaphora is not normally subject to the PIC, and that fact might impinge on giving this sort of explanation.

<sup>37</sup> Note that I gave coreference between the pronouns as worse in (106b) than in (106a)—the same asymmetry that we observed in Ibibio above. What I do not remember is how I used the diacritic ? as opposed to ?? at the time, and the details of what led me to group (106a) with the bad examples rather than with the good examples.

<sup>38</sup> In Edo, this effect is also sensitive to what C is used with the embedded clause: a plain pronoun can refer to the matrix subject when C is *ne*, the subjunctive complementizer selected by ‘want’ in Edo (Baker 1999: (43)). I claimed that *ne* optionally licenses a LogOp, whereas *weꞛ* requires one. When there is a LogOp in the complement of ‘want’, a logophoric pronoun referring to the subject of ‘want’ is licensed; when there is no LogOp in the complement of ‘want’, a plain pronoun referring to the matrix subject is possible. See also K&S for plain and marked (*n*) pronouns being sensitive to particular Cs in Abe.

- (108) ApOUN  $\gamma e$  hE kO O/n ye sE. (K&S: 584)  
 nobody NEG say that 3.SG/ LOG is handsome.  
 ‘Nobody<sub>i</sub> said that he<sub>k</sub>/he<sub>i</sub> is handsome.’

In contrast, Yoruba is like Ibibio in these respects. According to Adesola (2005), a plain pronoun can refer to the logophoric center if it is alone in the embedded clause or if there is a logophor that it does not c-command. (Adesola also did not consider quantified antecedents.)

- (109) a. Olu ti kede pe o n bọ lọla. (Adesola 2005: 191)  
 Olu ASP announce that he PROG come tomorrow  
 ‘Olu<sub>i</sub> has announced that he<sub>i,k</sub> is coming tomorrow.’
- b. Olu sọ pe baba rẹ ti ri iya oun. (Adesola 2005: 199)  
 Olu say that father his ASP see mother LOG  
 ‘Olu<sub>i</sub> said that his<sub>i,k</sub> father saw his<sub>i</sub> mother.’

Following in essence K&S’s original analysis, I model low-level microvariation in terms of feature compatibility. I claim that ordinary pronouns have the feature [-log] across this entire range of languages. However, the formal features of LogOp vary some: LogOp in Edo and Abe is [+log], as one might expect, but LogOp is formally unmarked for the log feature ([0Log]) in Ibibio and Yoruba. The features of a bound pronoun must be nondistinct from (not necessarily identical to) those of their binder. I state this common assumption explicitly in (110).

- (110) A pronoun must be nondistinct in phi-features with the DP that it depends on.

As a result, LogOp cannot bind a plain pronoun in Edo and Abe, whereas it can in Ibibio and Yoruba.<sup>39</sup> Interactions between plain pronouns then depend only on crossover principles, not on featural compatibility, in Ibibio (the PCOB or the QDC, or their successors).

So far I have concentrated on cases in which there is no c-command relationship between a plain pronoun and a logophoric pronoun trying to refer to the same antecedent. However, the crossover literature leads us to expect that c-command can play an important role here. The QDC in (105) expresses this in the (ii) clause, which raises the possibility of a pronoun depending on an operator not directly, but by depending on an intrinsic variable bound by that operator. This dependency is impossible if the plain pronoun or something that contains it c-commands the intrinsic variable (Safir’s (2004) Independence Principle, INP), but it should be possible if the intrinsic variable c-commands the pronoun.<sup>40</sup> Thus, in standard crossover cases we observe the distinction between the bad (111a) and the good (111c), as well as the distinction between (111a)

<sup>39</sup> We also need some version of Rule H and/or a preference for bound variable anaphora to make sure that a pronoun that wants to depend on the DP that is the logophoric center prefers/needs to be bound by the LogOp that the logophoric center controls. Data from Ibibio and Yoruba that distinguishes bound variable anaphora from mere coreference would be helpful in clarifying exactly what more is needed in this respect.

<sup>40</sup> The standard view, after Reinhart (1983), has been that a pronoun can be understood as a variable bound by an antecedent if and only if the antecedent c-commands the pronoun. However Safir and Barker dispute this, in that BVA is possible in examples like ‘Nobody’s mother hates him’ and ‘Nobody’s mother gives away his baby pictures’. On the Safir/Barker view, then, one might also expect ‘Okon/nobody thinks that Log’s mother loves him/his child’ in Edo, but not ‘Okon/nobody thinks that his mother loves Log/Log’s child’. This prediction needs more study.

and (111b) which fueled the discussion of mixed pronoun cases in Ibibio so far. ((111d) fills out the paradigm.)

- (111) a. \*?Who<sub>i</sub> does his<sub>i</sub> accountant love --<sub>i</sub>? (weak crossover)  
 b. Rex<sub>i</sub>, who<sub>i</sub> his<sub>i</sub> accountant loves --<sub>i</sub>, is a Republican. (weakest crossover)  
 c. Who<sub>i</sub> --<sub>i</sub> loves his<sub>i</sub> accountant? (no crossover)  
 d. Rex<sub>i</sub>, who<sub>i</sub> – loves his<sub>i</sub> accountant, is a Republican. (no crossover)

This then calls our attention to examples in which a logophoric pronoun (an intrinsic variable) c-commands a plain pronoun (potentially a derived variable).

In Ibibio, this sort of dependency is ruled out, as shown in by the interpretation of the examples in (112): a plain pronoun cannot be bound by the logophoric center in the context of a logophoric pronoun that c-commands it. This configuration is ruled out not only when the logophoric center is nonreferential quantifier, but even when it is a referential name, which can support accidental coreference. (The examples are predictably grammatical if the c-commanded pronoun is a logophor rather than a plain pronoun.)

- (112) a. Edem á-ké-n-dòkkò ké ímò i-ma-i-se èkà òmò.  
 Edem 3SG-PST-1SG.O-tell that LOG 3.LOG-PST-3.LOG-visit mother his  
 ‘Edem<sub>i</sub> told me that he<sub>i</sub> saw his<sub>k,\*i</sub> mother.’  
 b. Okon a-yem yak (ami) ñ-yara imò n-nò eka omò  
 Okon 3SG-want C I 1SG -reveal LOG 1SG-give mother his  
 ‘Okon<sub>i</sub> wants me to introduce him<sub>i</sub> to his<sub>k,\*i</sub> mother.’  
 c. Owo ndomo-keet i-yem-me yak (ami) ñ-yara imò n-nò eka omò  
 Person even-one 3SG-want-NEG C I 1SG-reveal LOG 1SG-give mother his  
 ‘Nobody<sub>i</sub> wants me to introduce him<sub>i</sub> to his<sub>k,\*i</sub> mother.’

This configuration is also ruled out in Abe (K&S: 560 (8)). However, it is possible in both Yoruba and Edo. For Edo, this is strikingly the only configuration in which mixed pronouns referring to the same antecedent is possible.

- (113) a. Ozo ta wẹẹ irẹn tie ebe ẹre. (Baker 1999: (35a))  
 Ozo say that LOG read book his  
 ‘Ozo<sub>i</sub> said that he<sub>i</sub> read his<sub>i,k</sub> book.’  
 b. Ozo ta wẹẹ irẹn fian egbe ẹre. (Baker 1999: (35b))  
 Ozo say that LOG cut body his  
 ‘Ozo<sub>i</sub> said that he<sub>i</sub> cut his<sub>i,k</sub> body.’  
 d. Ade so pe oun ti ri iwe re. (Yoruba, Adesola 2005: 200)  
 Ade say that LOG ASP see book his  
 ‘Ade<sub>i</sub> said that he<sub>i</sub> has seen his<sub>i,k</sub> book.’

Universal Grammar thus allows this pattern of binding between intrinsic variables (the logophors) and derived variables (the pronouns), as expected (compare (111c) with wh-traces and pronouns). However, again there is lower-level microparametric variation across the



languages which can be modeled in terms of feature nondistinctness. Above I claimed that plain pronouns are always [-log] in this class of languages. Logophoric pronouns can always be (and must be ) bound by LogOp, so they must be [+log] or [0log]. We can capture the difference between (112) and (113) if we say that logophoric pronouns are formally [+log] in Ibibio and Abe but [0log] in Edo and Yoruba. These feature values allow a logophoric pronoun to be the local binder of a plain pronoun in Edo and Yoruba, whereas the two clash in Ibibio and Abe.<sup>41</sup> A representation for (113a) in Edo is given in (114a); note that neither of the local binding dependencies involves a clash of feature values, although if ‘his’ was bound directly by LogOp it would. In contrast, (114b) gives the representation for (112a) in Ibibio. Here ‘his’ cannot be locally bound by Log because they have clashing values for the Log feature, whereas if there were no logophor present, ‘his’ could be bound by LogOp given this set of feature values.

- (114) a. ‘Ozo<sub>i</sub> said [LogOp<sub>i</sub> that [LOG<sub>i</sub> read his<sub>i</sub> book]].  
           [+log]        [0log]        [-log]
- b. ‘Okon<sub>i</sub> told me [LogOp<sub>i</sub> that [LOG<sub>i</sub> read his<sub>k, #i</sub> mother]].  
           [0log]        [+log]        [-log]

The table in (115) summarizes the feature values that I have proposed. Note that there are two possible values for the LogOp (+log or 0log) and two possible values for the logophoric pronoun (+log or 0log). This gives us four different patterns of pronoun compatibility in the four West African languages we have considered. Ibibio and Yoruba pattern together as opposed to Abe and Edo in allowing a plain pronoun to be directly bound by a LogOp, whereas Edo and Yoruba pattern together as opposed to Abe and Ibibio in allowing a plain pronoun to be directly bound by a logophoric pronoun.

(115)

|          | Edo  | Ibibio | Abe  | Yoruba |
|----------|------|--------|------|--------|
| LogOp    | +log | 0log   | +log | 0log   |
| Logophor | 0log | +log   | +log | 0log   |
| Pronoun  | -log | -log   | -log | -log   |

Indeed, there is independent evidence that logophoric pronouns and plain pronouns differ not only semantically in terms of whether they are intrinsic variables or not but also in terms of grammaticized phi-features in Ibibio. Unlike Edo, Yoruba, Abe, and Ewe, Ibibio has rich agreement with subjects. It so happens that [+log] pronouns count as featurally different from plain pronouns for this agreement, triggering the prefix /i/ rather than /a/ for singular pronouns. case (/i/ vs /e/ in plural). This is seen in (116) and many of my other examples.

- (116) a. Obuut a-ma-a-mam Okon ke **ímò** i-ma-i-yip ngwet.  
 Shame 3SG-PST-3SG-hold Okon that LOG 3.LOG-PST-3.LOG-steal book  
 ‘Okon<sub>i</sub> is ashamed that he<sub>i</sub> stole the book.’
- b. Obuut a-ma-a-mam Okon ke **anye a-ma-a-yip** ngwet.  
 Shame 3SG-PST-3SG-hold Okon that he 3SG-PST-3SG-steal book

<sup>41</sup> Rule H is also relevant here, requiring the plain pronoun to depend directly on the c-commanding logophor in all these examples. See below for some discussion.

‘Okon<sub>i</sub> is ashamed that he<sub>i,k</sub> stole the book.’

In contrast, since Edo and Yoruba do not have subject verb agreement, a child learning these languages does not get evidence that [+/-log] is grammaticized as a language-particular phi-feature in any particular way in these languages.<sup>42</sup>

A technical addition is needed to account for why examples like (112a,b) in Ibibio do not (usually) sneak through by accidental coreference. We need to ask why a representation like (117) is not possible, where the pronoun depends directly on the antecedent ‘Edem’, which clearly matches it in being [-log].

(117) Edem<sub>i</sub> told me LogOp<sub>i</sub> that Log<sub>i</sub> saw his<sub>i</sub> mother.

This is a familiar kind of gap in Binding theory accounts. Something similar arises in English with sentences like *John<sub>i</sub> thinks that he<sub>i</sub> discredited \*him/himself<sub>i</sub>*; one needs to account for why one cannot avoid using the anaphor himself as the object of *discredit* by having the pronoun depend not on the local subject but on the more remote subject—a dependency that is clearly possible in examples like *John<sub>i</sub> thinks that Mary discredited him<sub>i</sub>*. A standard way of plugging this gap is Rule-H of Fox (2000), called *Have Local Binding!* in Büring (2005). The formulation in (118) is from Safir (2004).

(118) Rule H: A variable, x, cannot be bound by an antecedent, A, in cases where a more local antecedent, B, could bind x and yield the same interpretation.

Rule H forces the pronoun in (117) to depend on the nearby logophor rather than the more remote subject ‘Okon’. Therefore, it must be nondistinct from the logophor in features. Therefore it cannot be the [-log] form *om̩*, but must be the [+log] form *im̩* given that the antecedent forced on it by Rule H is [+log] in Ibibio. In contrast, in Edo the plain pronoun *ere* can be bound by logophor *iren* because *iren* is [0log] in Edo.

There is one more c-command configuration to consider: the case in which a plain pronoun c-commands a coreferential logophoric pronoun in the same clause. When a wh-trace/variable is bound by a plain pronoun in this way, examples are strongly and uniformly ruled out; this is the so-called strong crossover effect. This holds true even if there is a referential DP around which the pronoun could possibly refer to “accidentally”. The difference between (119a) and (119c), discussed above, is thus neutralized in (119b) and (119d), which are both bad with *he* bound by *who/Rex*. In other words, weakest crossover constructions avoid weak crossover but not strong crossover (see Safir (2004), following Lasnik and Stowell (1991)).

- (119) a. \*?Who<sub>i</sub> does his<sub>i</sub> accountant love --<sub>i</sub>? (weak crossover)  
 b. \*Who<sub>i</sub> does he<sub>i</sub> (say that Mary) love(s) --<sub>i</sub>? (strong crossover)  
 c. Rex<sub>i</sub>, who<sub>i</sub> his<sub>i</sub> accountant loves --<sub>i</sub>, is a Republican. (weakest crossover)  
 d. \*Rex<sub>i</sub>, who<sub>i</sub> he<sub>i</sub> (says that Mary) loves --<sub>i</sub>, is a Republican. (strong crossover).

<sup>42</sup> Also potentially relevant is the fact that *iren* in Edo can be used as a focused pronoun in main clauses, outside of logophoric environments (Baker 1999 (33)). This suggests that it has some association with A-bar dependencies, but is not restricted uniquely to logophoric contexts. In contrast, *imo* cannot be used as a focus pronoun in a root clause in Ibibio.

The parallel fact to (119b,d) would be that it would be bad for a plain pronoun to be an instance of the same variable as a logophoric pronoun that it c-commands—regardless of whether the ultimate antecedent is quantified or not. And indeed this is ungrammatical across all four of the logophoric languages—not subject to low-level variation the way that the other configurations are. This is shown for Ibibio in (120); these examples are sharply out even without a quantified NP as the logophoric center.

- (120) a. Edem á-ké-n-dòkkò ké (anye) a-maa-se èkà ímò.  
 Edem 3SG-PST-1SG.O-tell that 3SG 3SG-PST-see mother LOG  
 ‘Edem<sub>i</sub> told me that he<sub>k,\*i</sub> saw his<sub>i</sub> mother.’
- b. Okon a-maa-kere ke (anye) a-maa-miem eka ímò.  
 Okon 3SG-PST-think that (3SG) 3SG-PST-insult mother LOG  
 ‘Okon<sub>i</sub> thinks that he<sub>k,\*i</sub> insulted his<sub>i</sub> mother.’
- c. Okon a-maa-kere ke Emem a-yaa-nò anye ngwet ímò.  
 Okon 3SG-PST-think that Emem 3SG-FUT give 3SG book LOG  
 ‘Okon<sub>i</sub> thinks that Emem will give him<sub>k,\*i</sub> (back) his<sub>i</sub> book.’

The examples in (121) show that this configuration also disallows the plain pronoun from binding the logophor in Edo and Yoruba; for Abe, see K&S: 560 (11).

- (121) a. Ozo hoo ne ɔ mien igho iren. (Edo; Baker 1999: (36c))  
 Ozo want that he find money LOG  
 ‘Ozo<sub>i</sub> wants that he<sub>k,\*i</sub> finds his<sub>i</sub> money.’
- b. Olu so pe o ri baba oun. (Yoruba; Adesola 2005: 199)  
 Olu say that he see father LOG  
 ‘Olu<sub>i</sub> said that he<sub>k,\*i</sub> saw his<sub>i</sub> father.’
- c. Olu so pe Ade fun un ni owo oun. (Yoruba; Adesola 2005: 199)  
 Olu say that Ade give him PRT money LOG  
 ‘Olu<sub>i</sub> said that Ade gave him<sub>k,\*i</sub> his<sub>i</sub> money.’

Note that we might especially expect this configuration to be possible in Edo and Yoruba, given that plain pronouns are nondistinct from logophors in their features, as shown above.

Safir’s (2004) QDC aspires to give a unified explanation of weak crossover and strong crossover, so what we have already said about the WCO cases above should generalize to this case. We are considering a representation in which the plain pronoun refers to the logophoric antecedent. In principle, this could happen in one of three ways: the plain pronoun could depend on the logophoric antecedent directly, or it could depend on it indirectly by depending on LogOp, or it could depend on it indirectly by depending on the logophoric pronoun. Each of these possibilities is ruled out by known principles. Having the pronoun depend on the logophoric pronoun runs afoul of Safir’s Independence Principle, mentioned in passing above

and stated in (122). This is violated given that the plain pronoun c-commands the logophoric pronoun in (120) and (121).

(122) Independence Principle: If *x* depends on *y*, then *x* cannot c-command *y*.

Having the pronoun depend on the LogOp directly violates the QDC in (105): the pronoun is not an intrinsic variable associated with LogOp (it is not a logophor) and yet there is an intrinsic variable (the logophor) in the structure. Finally, having the pronoun depend directly on the logophoric antecedent violates Rule H. The LogOp is a c-commanding potential antecedent closer to the plain pronoun than the ultimate antecedent, so the pronoun cannot depend on the logophoric antecedent (barring some special interpretation, perhaps). Therefore, all the possibilities are ruled out, regardless of the phi-features on the pronoun. This effect of Rule H is what makes the difference between strong crossover and weak crossover, following Safir's (2004) reasoning.

The badness of (121b,c) in Yoruba is interpreted in a different way by Anand (2006), in a way that has some theoretical significance. He attributes this to so-called *de re* blocking, making a connection to how pronouns are interpreted in dream contexts in English. The generalization is the an element that has to be interpreted *de se*—in this case, the logophoric pronoun—cannot be c-commanded by an element that refers to the same antecedent *de re*. I think that this diagnosis is dubious. First, logophors apparently can refer to their antecedents *de re* in Ibibio (as in Ewe, according to Pearson 2015), while plain pronouns can refer *de se*. Second, I find the judgments for pronouns in dream contexts in English to not be very robust, with supposedly impossible interpretations allowed if the context is set up carefully. Third, I do not know of any compelling theoretical insight into why *de re* blocking should hold. I claim that attributing the pattern in (120)/(121) to the principles that create strong crossover provides a better, more robust account.

Anand (2006) also claims that *de re* blocking is a property of a certain kind of *de se* element—ones that are interpreted *de se* as a result of a binding relation. In this way, he distinguishes logophoric pronouns (and PRO), which involve binding, from shifted indexicals, which do not involve binding but get their reference from the local context (see also Deal 2020). This is different from my account, where logophoric pronouns and shifted indexicals are fundamentally the same in that both must be bound by ghostly DP operators, although there are some differences as well—especially the fact that the Person Licensing Condition restricts the binding relations that first and second person elements can participate in, but says nothing about logophoric pronouns. Another difference between the two is that all known languages have first and second person pronouns of some kind, whereas [+log] is a language-particular feature with a much narrower distribution. This second difference is important here. It is reasonable to assume that Sp is always [+1] (never [01]) and 'I'/me' is also always [+1] (never [01]), whereas third person pronouns are always [-1]. (And analogously for Ad, 'you' and the feature [+2].) Given this, it will never be possible for Sp or 'I' to bind a pronoun like 'him' or 'her', nor for 'he' or 'she' to bind a pronoun like 'me': the phi-features are always distinct. Therefore, it will never be possible for a third person pronoun to be coreferent with a first (or second) person pronoun within the same domain of Sp (or Ad)—regardless of the c-command relationship between the pronouns. This is true, as shown for Magahi in (123). (123a,b) are examples in which there is no c-command relationship between the first person pronoun and the third person pronoun; either one can refer to Santee, the referent of the matrix subject, but they cannot both refer to him in the same sentence, as predicted. (123c) is the case where a first person pronoun c-commands a third person pronoun, and (123d) the case where a third person pronoun c-commands a first person

pronoun. In these sentences too it is impossible for both pronouns to be coreferential simultaneously with the matrix subject ‘Santee’.<sup>43</sup>

- (123) a. Santee-aa sochl-ai ki okar maiyaa hamraa kaul kark-ai.  
Santee-FM think-3.NH.S that 3.SG.NH.GEN mother me.ACC call do-3.NH.S  
‘Santee<sub>i</sub> thinks that his<sub>k,\*i</sub> mother called me<sub>i</sub>.’ (or: ... that his<sub>i</sub> mother called me<sub>sp\*</sub>)
- b. Santee-aa sochl-ai ki hamar maiyaa okraa kaul kark-ai.  
Santee-FM think-3.NH.S that 1.SG.GEN mother him.ACC call do-3.NH.S  
‘Santee<sub>i</sub> thinks that my<sub>i</sub> mother called him<sub>k,\*i</sub>.’ (or: ... that my<sub>sp\*</sub> mother called him<sub>i</sub>)
- c. Santee-aa sochl-ai ki Bantee-aa hamraa okar kitaab lauTaa det-ai  
Santee-FM think-3.NH.S that Bantee-FM me.DAT 3.SG.NH.GEN book return give-3.NH.S  
‘Santee<sub>i</sub> thinks that Bantee will return to me<sub>i</sub>; his<sub>k,\*i</sub> book.’ (or... to me<sub>sp\*</sub> his<sub>i</sub> book.)
- d. Santee-aa sochl-ai ki Bantee-aa okraa hamar kitaab lauTaa det-ai  
Santee-FM think-3.NH.S that Bantee-FM 3.SG.NH.DAT 1.SG.GEN book return give-3.NH.S  
‘Santee<sub>i</sub> thinks that Bantee will return his<sub>k,\*i</sub> book to me<sub>i</sub>.’ (or... to him<sub>i</sub> my<sub>sp\*</sub> book.)

In effect, indexical shift in Magahi and presumably all languages is like logophoricity in Abe, where pronouns and operators are all fully specified as [+log] and [-log], so nondistinctness of features becomes identity of features, and all mixed pronoun cases are ruled out. The examples in (124) give a similar Magahi quadruple with a third person pronoun and a shifted second person pronoun both capable of referring to the matrix goal. Here too the mismatched pronouns cannot both be referentially dependent on this DP, whatever c-command relationship holds between them.

- (124) a. Santee-aa Banteeaa-ke kahl-ai ki okar maiyaa toraa kaul kark-ai  
Santee-FM Bantee-FM-DAT told-3.NH.S that 3.SG.GEN mother you.ACC call did-3.NH.S  
‘Santee told Bantee<sub>k</sub> that his<sub>i,\*k</sub> mother called you<sub>k</sub>.’ (or: ... his<sub>k</sub> mother called you<sub>ad\*</sub>)
- b. Santee-aa Banteeaa-ke kahl-ai ki tor maiyaa okraa kaul kark-ai.  
Santee-FM Bantee-FM-DAT told-3.NH.S that you.GEN mother him.ACC call did-3.NH.S  
‘Santee told Bantee<sub>k</sub> that your<sub>k</sub> mother called him<sub>i,\*k</sub>.’ (or: your<sub>ad\*</sub> mother called him<sub>k</sub>)
- c. Santee-aa Banteeaa-ke kahl-ai ki Ram toraa okra kitaab lauTaa detai  
Santee-FM Bantee-FM-DAT told-3.NH.S that Ram you.DAT his.GEN book return give-3.NH.S  
‘Santee told Bantee<sub>k</sub> that Ram will return to you<sub>k</sub> his<sub>i,\*k</sub> book.’ (or: ...to you<sub>ad\*</sub> his<sub>k</sub> book)
- d. Santee-aa Banteeaa-ke kahl-ai ki Ram okraa tor kitaab lauTaa detai  
Santee-FM Bantee-FM-DAT told-3.NH.S that Ram him.DAT your.GEN book return give-3.NH.S  
‘Santee told Bantee<sub>k</sub> that Ram will return to him<sub>i,\*k</sub> your<sub>k</sub> book.’ (or: ...to him<sub>k</sub> you<sub>ad\*</sub> book)

<sup>43</sup> In (123c,d), the c-commanding pronoun is an indirect object rather than a subject to work around the fact the subject-oriented reflexive *apan* blocks any pronoun inside a clause from referring to the subject of the clause, even when there is no issue of phi-feature compatibility.

Note that these facts again imply that a pronoun can only be bound by the controller of Sp or Ad by being bound by Sp or Ad itself—another instance of Rule H, parallel to what we saw with pronouns and LogOp. The upshot of this is that, since person features are fully specified (I assume), we see a relatively trivial paradigm of mixed pronoun cases in Magahi. Since all mixed cases are ruled out by feature nondistinctness, we do not get the opportunity to observe a characteristic weak or strong crossover pattern—as we don’t with logophoric constructions in Abe. Put in Anand’s terms, we do not get a chance to observe a distinctive *de re* blocking pattern, for predictable reasons. This does not, however, imply that indexical shift constructions are not fundamentally the result of pronouns being bound by operations, just as logophoric constructions are.

What we have learned here about the interactions between plain pronouns and logophoric pronouns also allows us to fill in a gap in the discussion in section 5.3 about logophoric phenomena in nonfinite clauses. There I alluded to Culy’s (1994: 1084) observation that “Control predicates and logophoricity seem to be mutually exclusive: there is no language that I know of that treats a control complement as a logophoric domain.” I showed that this complementarity does not in fact hold in Ibibio: logophoric pronouns are possible inside control complements as long as the null PRO subject of the infinitival or gerund clause is controlled by the object of the matrix verb (see (70) and (71)). If, however, PRO in the embedded clause is controlled by the subject of the matrix verb, then the incompatibility with logophoric pronouns that Culy observed is found in the languages I have studied too. (125a) repeats an Edo example, and (125b) one from Ibibio (see also (68) and (69)). (Culy’s key example from Donno So is similar to (125b).)

- (125) a. Ozo mianmian ya tie ebe ere/\*iřen. (Edo, Baker (1999) (42b))  
 Ozo forget to read book his/\*LOG  
 ‘Ozo<sub>i</sub> forgot to read his<sub>i</sub> book[].’
- b. Okon a-maa-yem edi-se eka òmò /\*ímò (Ibibio)  
 Okon 3SG-PST-want INF-visit mother his/\* LOG  
 ‘Okon<sub>i</sub> wants to visit his<sub>i</sub> mother.’

Rather than saying that there is contradictory evidence about whether nonfinite clauses can house LogOp or not, we can now understand (125) as instances of the same kind of strong crossover-like configuration in (120) and (121). Suppose that there is a special kind of null pronoun PRO in the subject position of these embedded clauses, in accordance with the usual Chomskian principles (like the Theta Criterion and the Extended Projection Principle that clauses must have subjects).<sup>44</sup> Then it is reasonable to say that this PRO counts as a plain pronoun, not a logophoric one, given that it has no intrinsic phi-features but inherits them from its [-log] antecedent ‘Ozo’ or ‘Okon’. Then the examples in (125) are cases in which a plain pronoun c-commands and is coindexed with a logophoric pronoun and is in turn c-commanded by the LogOp that is the natural binder of the logophoric pronoun, as shown in (126). This is known to be a problematic configuration.

<sup>44</sup> This assumption may not hold for all instances of nonfinite complementation; in some cases, the matrix verb might select an (extended) VP complement without a subject position, as in restructuring complements found in many languages (Wurmbrand 2003, etc.). But for these reduced complements, smaller even than VoiceP, it is very plausible to say that they do not have room for a LogOp, behaving in essence like single clause sentences.

- (126) Okon<sub>i</sub> wants [(LogOp<sub>i</sub>) [PRO<sub>i</sub> to visit his<sub>i</sub> mother]]  
 [-log] [+log or 0log] [-log] [0log or +log]

There is more than one way to fill in the details. The easiest way is in terms of the feature compatibility condition in (110) together with Rule H ((118)). In general, languages with explicit logophoric phenomena like Edo and Ibibio will have some [+log] elements: either LogOp is [+log] or the logophoric pronouns is [+log], or both are (see the typology in (115)<sup>45</sup>). Rule H implies that the logophor must be bound directly by PRO in this configuration. If the logophor is [+log], as in Ibibio, then its features clash with those of its binder, in violation of (110). At the same time, Rule H implies that PRO must count as being bound by LogOp in (126). If LogOp is [+log], then its features clash with those of its bindee, again violating (110). One way or the other, PRO c-commanding a logophoric pronoun that it is coindexed with will be ruled out in most languages with morphologically marked logophoricity.<sup>46</sup> This is also compatible with the fact that (127) is possible in Ibibio, where a logophoric pronoun in an infinitival clause can be bound by PRO when PRO is controlled by another logophoric pronoun in the immediately superordinate clause.

- (127) Okon a-bo ke ímò i-ma-i-yem edi-se eka ímò.  
 Okon 3SG-say that LOG 3.LOG-PST-3.LOG-want INF-visit mother LOG/his  
 ‘Okon<sub>i</sub> says that he<sub>i</sub> wants PRO<sub>i</sub> to visit his<sub>i</sub> mother.’

The lower regins of this sentence are different from (125b) only in that the controller of PRO is a logophoric pronoun rather than an ordinary DP in (127). However, this causes PRO to inherit a [-log] feature from its controller rather than a [-log] feature. As a result, it is a compatible binder for *ímò* inside its c-command domain and a possible bindee of LogOp in the complement of ‘want’. Therefore, the logophoric pronoun can be coreferential with PRO in (127) even though it cannot be in (125).

This completes my primary discussion of the three crucial components of logophoric pronoun constructions in Ibibio and related West African languages: the licensing of LogOp (and sometimes AddrOp) by C, the control of LogOp by an argument of the superordinate verb, and the binding of the logophoric pronoun by LogOp. This last and most recent topic presents a complex pattern of both universal and microparametric properties. On the universal side is the fact that logophoric pronouns must be bound by a LogOp across the West African languages that have been studied. Also universal is the fact that a logophoric pronoun cannot be locally bound by a nonlogophoric pronoun (strong crossover) and perhaps the fact that a plain pronoun cannot be bound by a quantifier when that quantifier also binds a logophoric pronoun that the plain pronoun does not c-command (weak crossover). On the microparametric side is the fact that languages can differ as to whether LogOp and the logophoric pronouns are specified as being [+log] or [0log], with the value of the logophoric feature being

<sup>45</sup> Yoruba however is a language that I analyzed as having both LogOp and logophoric pronouns being [0Log]. If examples like (125) are out in Yoruba too (which I do not know for sure), this points to the strong crossover type explanation mentioned in note xx.

<sup>46</sup> Another approach for ruling out (126), which does not depend on language-specific values of a [log] feature, would be to derive its badness for the QDC, as a kind of strong crossover variation. This would imply that PRO cannot depend directly on LogOp by QDC (since there is a logophoric variable present), it cannot depend directly of the logophor that it c-commands (by the Independence Principle), and it cannot depend directly on the controlling DP in the matrix clause by Rule H. I think this is also a positive approach, and it would be a more general explanation, extending even to a language like Yoruba (see fn. 45). However, I do not develop the details here.

unspecified. These options lead to four different possible binding patterns, with Ibibio, Yoruba, Edo, and Abe each having somewhat different patterns for cases in which a logophor binds a plain pronoun or when there is no c-command relationship between the logophor and the plain pronoun and the ultimate antecedent is a referential DP. The prediction would be that these four patterns illustrate the limits of variation in what a logophoric system can look like with regard to mixed pronoun cases—although little typological data is available on this point, since the topic has only been studied systematically in a handful of languages.

### 5.6 Logophoric properties of exempt/LD anaphors

In the last two sections of this chapter, I move on to some larger scale comparison. Having dedicated logophoric pronouns seems to be a strongly areal phenomenon: it is found in West African languages but perhaps nowhere else in the world (see Culy 1994). However, many researchers have observed that long distance (LD, also called *exempt*) anaphors in East Asian languages (Chinese, Japanese, Korean), European languages (Icelandic, Italian, French, English...), and others can be used in ways that are very much like logophoric pronouns in important respects. This observation goes all the way back to Clements's (1975) early discussion of logophoric pronouns in Ewe, comparing them to LD uses of the anaphor in Latin. It is also a cornerstone of Sells's (1987) influential work, which put West African data side by side with Japanese data. Since then, the connection between the two has been at least mentioned by virtually every work on the topic. Nevertheless, few works have been in a position to compare the two phenomena in a deep and balanced way. Baker and Ikawa (in press) (B&I) take on this task, putting Japanese data involving *zibun* side-by-side with Ibibio data across a broad range. In this section, I summarize our main results, exploring the interesting interface between the typological and the (semi) universal in this domain. My primary goal for this work is to get another data point for seeing what the intrinsic features of operators might be, and how aspects of their syntax might be derived from those features. As the discussion unfolds, I end up revising the B&I analysis in one important way, involving the possibility of super-LD antecedents in *zibun*, to fit better in the current context. I also include a few remarks about how the patterns we found compare with those put forward by Charnavel's (2019, 2020) detailed research, focused on exempt anaphors in French and English, with relevance to other languages as well.

Before coming to LD uses of *zibun* in embedded clauses, there is an important first order difference between *zibun* and Ibibio's *imọ* that can be seen even in root clauses. *Zibun* (and also Korean *caki* and Chinese *ziji*) is a local anaphor, in that it can take a c-commanding antecedent in the same clause, either root or embedded, as seen in (128).

- (128) (Hanako-wa) Taroo-ga zibun-o seme-ta-(to omotte-i-ru).  
 Hanako-TOP Taroo-NOM self-ACC blame-PST-that think-AUX-PRS  
 '(Hanako<sub>k</sub> thinks that) Taroo<sub>i</sub> blamed self<sub>i,k</sub>.'

Indeed, this canonical local use of *zibun* requires c-command by its antecedent (Nishigauchi 2005). For example, in (129) *zibun* cannot be bound by *Taroo*, the possessor of the subject rather than the subject itself, as in (128).

- (129) \*Taroo-no otosímọ no-ga zibun-o toraburu-ni makikon-ta.  
 Taroo-GEN lost.bag-NOM self-ACC trouble-into involve-PST  
 '(Taroo<sub>i</sub>'s lost bag got self<sub>i</sub> in trouble.)'



Thus, within a root clause, *zibun* shows behavior compliant with Condition A of the Binding theory (Chomsky 1981), similar in these respects with *self* forms in English. In contrast, the Ibibio logophor *ímò* cannot be used in a matrix clause with the local subject as its antecedent, as shown in (130). Rather Ibibio’s local anaphor is built on the noun *idem* ‘body’, with or without an overt possessor pronoun that matches its antecedent in features. Ibibio is like Ewe (Clements 1975: 150), Yoruba, Edo, and Gungbe in this respect.

- (130) Okon a-(i)-ma idem (omo)/\*ímò.  
 Okon 3.SG-(3.LOG)-love body his / \*LOG  
 ‘Okon<sub>i</sub> loves himself<sub>i</sub>/him\*<sub>i</sub>.’

Indeed, *ímò* is not generally possible in matrix clauses at all; thus (130) with *ímò* in a neutral context is also bad with *ímò* referring to someone known from the context. In an embedded clause, *ímò* is possible referring to the matrix (thematic) subject, as we have seen throughout—but crucially not in a sentence like (131a), where the second *ímò* in object position cannot refer to the matrix subject when it is bound by a c-commanding *ímò* in the subject position of the same clause. Rather, a “logophoric anaphor” must be used in this context, consisting of *idem* ‘body’ plus the logophor *ímò* as its possessor. In contrast, *ímò* in the object position of the embedded clause can corefer with another instance of *ímò* that does not c-command it—such as *ímò* used as the possessor of the subject, as in (131b).

- (131) a. \*Okon a-ke-bo ke ímò i-m-i-kpi idem ímò /\*ímò.  
 Okon 3.SG-PST-say that LOG 3.LOG-PERF-3.LOG-cut body LOG /\*log  
 ‘Okon<sub>i</sub> said that he<sub>i</sub> cut him(self)\*<sub>i</sub>.’
- b. Obuut a-ma-a-mám Okon ke ayín ímò a-ma-i-miem ímò.  
 shame 3.SG-PST-3.SG-hold Okon that son LOG 3.SG-PST-3.LOG-insult LOG  
 ‘Okon<sub>i</sub> is ashamed that his<sub>i</sub> son insulted him<sub>i</sub>.’

So there is a clear sense in which *zibun* is an anaphor whereas *ímò* is a pronoun, in that *zibun* is subject to Principle A of the classic binding theory, allowing/requiring it to have a c-commanding antecedent inside the same clause, whereas *ímò* is subject to Principle B, barring it from having a c-commanding antecedent inside the local domain.

Despite this fundamental difference in their intrinsic properties, *zibun* is like *ímò* in that when it is inside a complement clause it can be bound by an argument of the verb in the superordinate clause. In this context, we confirm the received wisdom of the field that *zibun* behaves strikingly like a logophor such as *ímò*. In particular, it shows the same kinds of thematic restrictions on which matrix argument can be its antecedent. This makes sense if *zibun* can be locally bound by something analogous to LogOp—call it zOp (see Nishigauchi (2014) for such a proposal for Japanese, and Charnavel for this view of LD anaphors more generally). We can assume, then, that zOp is controlled by matrix arguments under the same principles of Generalized Control Theory as LogOp is. For example, when the matrix predicate takes an agent and a goal argument, the agent can be the antecedent of LD *zibun*, but the goal cannot be (Sells 1987: 453-454; Oshima (2004); Nishigauchi (2014: 191)). Like the similar patterns in Ibibio and Magahi, this can be attributed to the idea that zOp gets a subject-like thematic role from the head

that licenses it, and therefore only an argument of the matrix verb that has a matching subject-like theta-role can control it.

- (132) Keizi-wa sono seizika-ni [booryokudan-ga zibun-o sagasi-te-i-ru-koto-o] osie-ta.  
 detective-TOP the politician-DAT gangsters-NOM self-ACC search-AUX-PRS-C-ACC tell-PST  
 ‘The detective<sub>i</sub> told the politician<sub>k</sub> [zOp<sub>i,\*k</sub> that gangsters are searching for self<sub>i,\*k</sub>].’

In contrast, when the matrix verb takes an experiencer argument and a source argument, as with ‘hear’ or ‘learn’, either argument of the matrix verb can be the antecedent of LD *zibun*. Both of these thematic roles are close enough matches to zOp (or LogOp, or Sp) to control it.

- (133) Keizi-wa sono seizika-kara [booryokudan-ga zibun-o odosi-te-i-ru-koto-o] kii-ta.  
 detective-TOP that politician-from gangsters-NOM self-ACC blackmail-AUX-PRS-C-ACC hear-PST  
 ‘The detective<sub>i</sub> heard from the politician<sub>k</sub> [zOp<sub>i,k</sub> that gangsters are blackmailing self<sub>i,k</sub>].’

Unlike Ibibio, Japanese has a passive construction. When the matrix predicate is the passive of a verb like ‘tell’ the oblique agent can still be an antecedent for LD *zibun*, as shown in (134) (Kuno 1987: 258). This is further support for the idea that thematic roles are more important for the control of operators than surface grammatical functions are. However, the goal subject can also be the antecedent, suggesting that it has become an experiencer argument, like the subject of (133), rather than being a pure goal argument, like the dative object of (132).

- (134) Sono seizika-wa keizi-kara [booryokudan-ga zibun-o sagasi-te-i-ru-koto-o] osiet-rare-ta.  
 that politician-TOP detective-from gangsters-NOM self-ACC search-AUX-PRS-C tell-PASS-PST  
 ‘That politician<sub>i</sub> was told by the detective<sub>k</sub> that gangsters are searching for self<sub>i,k</sub>.’

In addition, I showed above that a goal argument in Ibibio can take on an experiencer role when the subject of the clause is inanimate, such that it bears a causer thematic role, rather than a true agent role. This can happen in Japanese as well: the goal argument in (135) can be the antecedent of LD *zibun* (Nishigauchi 2014: 191-192), whereas it cannot in (132).

- (135) Sono tegami-ga sono seizika-ni [booryokudan-ga zibun-o sagasi-te iru koto]-o osie-ta.  
 that letter-NOM that politician-DAT gangsters-NOM self-ACC search be-PRS that-ACC tell-PST  
 ‘The letter showed the politician<sub>i</sub> that gangsters were searching for self<sub>i</sub>.’

Thus, the thematic conditions on what can be the antecedent of LD *zibun* in a complement clause in Japanese are extremely similar to those on what can be the antecedent of *imo* in Ibibio, supporting a unified analysis in terms of the OC of ghostly DP operator.

It is also true in Japanese, as in Ibibio, that an argument of the matrix verb that bears a suitable thematic role can control zOp and thus antecede *zibun* but a nonargument of the matrix verb cannot, such as the possessor of the subject in (136). As in Ibibio, this restriction holds even when the possessee is inanimate, hence not itself a promising logophoric antecedent (as long as one avoids natural metonymic cases; see xx for some discussion).

- (136) #Taroo-no asiato-wa zibun-ga mada tikaku-ni i-ru-koto-o sisasi-ta.  
 Taroo-GEN footprint-TOP self-NOM still around-at be-PRS-C-ACC suggest-PST  
 (not: ‘Taroo<sub>i</sub>’s footprint suggested that self<sub>i</sub> was still around.’)

For Japanese as in Ibibio, this can be attributed to the GOCS, which requires the controller of a null DP in a CP complement to be an argument of the verb that selects that CP.

In addition to CP complements, another core context of OC is low adjunct clauses, such as purposive clauses. And indeed it is possible for *zibun* in a purpose clause to take the matrix subject as its antecedent, as shown in (137). Again, Japanese is parallel to Ibibio in this regard.

- (137) Taroo-wa Hanako-ga zibun-ni kizuka-nai-yooni kakure-ta.  
 Taroo-TOP Hanako-NOM self-DAT notice-NEG-C hide-PST  
 ‘Taroo<sub>i</sub> hid so that Hanako would not notice self<sub>i</sub>.’

However, this leads us to a major difference between Japanese *zibun* and Ibibio *imo*. This is that the LD anaphor in Japanese is licensed in a wider range of clause types. Whereas LogOp needs to undergo OC in order to be interpretable, this is apparently not the case for zOp in Japanese. For example, LD *zibun* is also possible in high VoiceP or TP level adjuncts including ‘because’ clauses, ‘when’ clauses and ‘if’ clauses, whereas *imo* is not.

- (138) a. Takasi-wa [Yosiko-ga zibun-o tazunete-ki-ta node] uresigat-ta.  
 Takasi-TOP Yosiko-NOM self-ACC visit-come-PST because happy-PST  
 ‘Takasi<sub>i</sub> was happy because Yosiko came to visit him<sub>i</sub>.’ (Sells 1987: 464).  
 b. Mari-ga zibun-ni mizu-o kake-ta toki, Takasi-wa hidoku odoroi-ta.  
 Mary-NOM self-DAT water-ACC pour-PST when Takasi-TOP greatly be.surprised-PST  
 ‘Takasi<sub>i</sub> was surprised when Mary poured water on self<sub>i</sub>.’ (Nishigauchi 2014:165)

Similarly, LD *zibun* is freely possible in relative clauses, whereas *imo* is not (except for special cases in which the head of the relative clause reanalyzes with a verb that can also select a CP). Thus (139) is possible in Japanese.

- (139) Takasi-wa [[zibun-o sonkee-suru] onna-to] kekkon-si-ta. (=6a)  
 Takasi-TOP self-ACC admire-do woman-with marry-do-PST  
 ‘Takashi<sub>i</sub> married [a woman [zOp<sub>i</sub> that admires self<sub>i</sub>]].’ (Nishigauchi 2014: 185)

Third, *zibun* is possible in a root clause where gets an antecedent from discourse, as in (140a) (Oshima 2004: 12; see also Sells 1987: 455, Nishigauchi 2014: 172), or from a suitable PP adjunct as in (140b) (see also Park 2018 for Korean *caki*). In contrast, *imo* is not allowed in root clauses (except for the special case were a matrix clause containing the seeming root clause has been elided).

- (140) a. Tokiko-wa aozame-ta. Masaki-wa zibun-o okizarinisite itte-simat-ta-no-da.  
 Tokiko-TOP pale-PST Masaki-TOP self-ACC leave.behind go-end.up-PST-no-COP  
 ‘Tokiko<sub>i</sub> turned pale. Masaki had gone leaving self<sub>i</sub> behind.’  
 b. Taroo-ni.yoruto zibun-wa waruku-nai-?(n(o)-da-)soo-da. (Japanese)  
 Taroo-according.to self-TOP bad-NEG-no-COP-EVID-COP  
 ‘According to Taroo<sub>i</sub>, self<sub>i</sub> is not bad.’

I see a systematic pattern here, where the logophor *imo* is restricted to contexts of OC (complements and low adjuncts) whereas *zibun* can appear in non-OC contexts as well as OC ones.<sup>47</sup>

Interestingly, when *zibun* appears in these non-OC contexts where *imo* is not licensed, it has different antecedence properties as well. This is discussed in the previous literature: Oshima (2004, 2006) argues that *zibun* can take either a logophoric center or an empathic center as its antecedent, as does Nishigauchi (2014); see also Charnavel (2019, 2020) for French.<sup>48</sup> Baker and Ikawa (in press) support Kuno's (1987) and Oshima's more specific view about this in which the type of antecedent that *zibun* finds depends on the syntactic position of the clause that contains it. The antecedent of zOp in a complement clause is chosen thematically, as shown above: it must be controlled by an agent, source, or experiencer argument. In contrast, the antecedent of zOp in a clause adjoined to TP or DP must be a [+empathy] nominal in the sense of Kuno and Kaburaki (1977). The difference is not seen clearly with subjects as antecedents: those generally have both the property of having an agent-like thematic roles and the property of being a natural topic, so [+empathy]. As such, they qualify as antecedents for zOp in both contexts. Other kinds of nominals can tease the two apart, however. For example, source argument of 'hear' and the oblique agent of a passive can antecede *zibun* in a complement clause, as seen above. However, as oblique case nonsubjects, they do not make good antecedents for a *zibun* in an adjunct clause or a relative clause unless they are explicitly made [+empathy], for example by the presence of the auxiliary verb *kure*, which expresses empathy for a nonsubject constituent in the clause (see

<sup>47</sup> Japanese is different from Magahi and Ibibio in that it does allow CPs to be used as sentential subjects without a carrier noun like 'news', presumably by virtue of having a nominal complementizer *koto* which can satisfy EPP properties and bear nominative case. Nishigauchi (2014: 188-189) reports that there is variation as to whether *zibun* inside a CP subject can take the object as its LD antecedent or not. This is possible with psychological predicates like 'make X crazy' but not with purely causative predicates like 'make X famous', as shown in (i).

- (i) a. [C.kyoozyu-ga zibun-o in'yoo-sita koto-ga] Takasi-o utyooten-ni/\*yuumei-ni -ta.  
 Prof.C- NOM self- ACC quote-do.PST that-NOM Takasi-ACC crazy- DAT/\*famous-DAT make- PST  
 'That Prof C quoted self<sub>i</sub> made Takasi<sub>i</sub> crazy/\*famous.'
- b. [<sub>CP</sub> zOp<sub>i</sub> [Professor C quoted self<sub>i</sub>]]<sub>k</sub> made Takasi<sub>i</sub> [famous]/[crazy e<sub>k</sub>].

I take the badness of (i) with 'famous' to support my control-based analysis in terms of the GOCS. The CP is not merged inside VP, but rather as the external argument in Spec VoiceP. As a result, zOp inside this CP is not in a position of obligatory control, such that it is controlled by 'Takasi', the other argument of the complex predicate 'make famous'. That version of (i) is thus ungrammatical. (I also have to add that zOp here cannot take 'Takasi' as its NOC antecedent, presumably because as a direct object without special support from *kure* or a favorable discourse, 'Takasi' is not [+emphatic] here.) I take this to be the main effect. Then in the spirit of Landau's (2001) study of causative versus psychological predicates in English, I assume that the CP subject in (i) with 'crazy' is associated with a thematic position inside the predicate, as the stimulus or target of emotion, expressing the content about which Taro has exasperated feelings (cf. Pesetsky 1995). In Japanese, then, this CP subject can be interpreted in this lower position for purposes of the GOCS. (In contrast, Landau assumes that extraposed CPs can reconstruct but CPs A-moved to the subject position normally do not in English.) Since this lower position is inside a projection of the complex predicate 'make crazy', the GOCS applies and zOp inside of CP is controlled by another argument of 'make crazy', namely 'Takashi'. Hence the distinction in (i). (Also relevant could be the fact that 'Takasi' receives an experiencer thematic role from 'make crazy', which is the right kind of thematic role to match the role of zOp, whereas 'Takasi' may receive just an ordinary theme role from 'make famous'.)

<sup>48</sup> Charnavel's discussion also has roots in Sells's (1987) distinction between source, self, and pivot as antecedents for logophoric elements, although her typology has some improvements over Sells's.

Ikawa (2022) for recent discussion and references). Thus, the examples in (141) are bad with *zibun* in the relative clause ((141a)) or the adjunct clause ((141b)) referring to the source or agent phrase in the matrix clause.

- (141) a. #Yuuzin-wa Hanako-kara [[Taroo-ga zibun-ni tutae-ta] nyuusu-o] kii-ta.  
 friend-TOP Hanako-from Taroo-NOM self-DAT tell-PST news-ACC hear-PST  
 ‘The friend heard from Hanako<sub>i</sub> [the news [that zOp<sub>i</sub> Taro told self<sub>i</sub>]].’
- b. #Zibun-ga takarakuzi-ni atta-ta-toki, Hanako-wa yokuzitu Taroo-kara sore-o  
 self-NOM lottery-DAT win-PST-when Hanako-TOP next.day Taro-from it-ACC  
 kii-ta/tutae-rare-ta.  
 heard/told-PASS-PST  
 ‘When self<sub>i</sub> won the lottery, Hanako [heard it from/was told it by] Taroo<sub>i</sub> the next day.’

Conversely, we saw that a goal/indirect object cannot antecede *zibun* in a complement clause CP when an agent-subject is present. However, such an argument can antecede *zibun* inside a relative clause, especially if it is made explicitly [+empathy] by using *kure*, as in (142).<sup>49</sup>

- (142) Sono hito-wa Hanako-ni Ziroo-ga zibun-ni nokosi-ta kotoba-o osiete-kure-ta..  
 that person-TOP Hanako-DAT Ziroo-NOM self-DAT leave-PST words-ACC tell-BEN-PST  
 ‘That person<sub>i</sub> told Hanako<sub>k</sub> [the words [Ziroo left for self<sub>i,k</sub>]] (to Hanako’s benefit).’

This distinction between complement clauses on the one hand and adjunct clauses and clauses embedded in NP on the other again recalls Control theory, as it is synthesized by Landau (2013). PRO in an infinite clause undergoes OC by a suitable argument of the matrix verb if the infinite clause is a complement of the V or a low adjunct attached to VP. PRO inside clauses in other positions—high adjuncts and nominal subjects—undergoes a less-syntactically constrained process of NOC, which probably reduces to a kind of pronominal anaphora. Against this background, my hypothesis is that LogOp in the African languages must undergo OC, and is ungrammatical if it does not. ZOp in Japanese may also undergo OC. When it is in a context that allows this, its behavior is essentially identical to that of LogOp in African languages. However, zOp (like Sp and Ad in Magahi, not to mention PRO itself) can survive in non-OC environments too, in which case is assigned an antecedent by discourse pragmatics. In Japanese, this involves considerations of empathy: in simple (simplistic?) terms, uncontrolled zOp must be assigned a [+empathy] antecedent. Subjects, especially voluntary agentive ones, are naturally [+empathy]. However, oblique sources or agents are not naturally [+empathy]: if one’s primary focus (empathy) is with X rather than Y, one is likely to say ‘X told Y that...’ rather than ‘Y heard from X that...’ or ‘Y was told by X that...’ The goals of agentive verbs can be discourse prominent, and Japanese has special grammatical resources to express this interpretation, for example the benefactive auxiliary *kure*, as discussed by Nishigauchi (2014), among others. Overall, then, being a thematic subject is the key to anteceding *zibun* in domains of OC given the GOCS and the fact that OC is subject to thematic-role matching, whereas being discourse prominent is the key to anteceding *zibun* that occurs outside of domains of OC.

<sup>49</sup> It is hard for *zibun* in a sentence-initial adverbial clause to refer to a goal argument in the matrix clause even if it is marked [+emphatic]. Even referring to the matrix subject requires the subject to be topicalized. The backwards binding in these examples, with *zibun* coming before its antecedent, apparently places even more stringent requirements on what the antecedent can be.

So far, we have seen one major similarity between zOp constructions in Japanese and LogOp constructions in Ibibio—both can undergo OC respecting the same thematic principles of controller choice—and one major difference between them—zOp can undergo a form of NOC whereas LogOp is ruled out if it does not undergo OC. In addition, there are some differences which can be attributed to *zibun* being an anaphor whereas *imo* is a pronoun. At the top of this list is the fact that two LD *zibuns* in the same clause need to have the same antecedent, whereas we have seen that this is not the case for *imo* and other logophoric pronouns. Two subcases fall under this generalization, and they point to two theoretical factors at work. First, when two *zibuns* are found inside the CP complement of a verb like ‘hear’, it is not possible for one of them to refer to the experiencer argument in the matrix clause and the other to the source argument, as shown in (143b). This is true even though both matrix arguments can antecede a single *zibun* in the embedded clause, as in (143a). This contrasts with (16) from Ibibio.

- (143) a. Taroo-wa Takasi-kara [Yosiko-ga zibun-o nikunde-i-ru-to] kii-ta.  
Taro-TOP Takasi-from Yosiko-NOM self-ACC hate-AUX-PRS-C hear-PST  
‘Taro<sub>i</sub> heard from Takasi<sub>k</sub> that Yosiko hates self<sub>i,k</sub>.’ (=Taro, or =Takasi).
- b. Taroo-wa Takasi-kara [zibun-no ani-ga zibun-o nikunde-i-ru-to] kiita.  
Taro-TOP Takasi-from self-GEN older.brother-NOM self-ACC hate-AUX-PRS-C hear-PST  
‘Taro<sub>i</sub> heard from Takasi<sub>k</sub> that self<sub>i</sub>’s older brother hates self<sub>i+k</sub>.’ or  
‘Taro<sub>i</sub> heard from Takasi<sub>k</sub> that self<sub>k</sub>’s older brother hates self<sub>k,\*i</sub>.’ (Shiori Ikawa, pc)

This implies that a particular clause can only host a single zOp in Japanese. That single zOp can be controlled by the matrix experiencer or the matrix source, but only by one of them, and then both instances of *zibun* must be bound by this one zOp, as shown in (144). In this respect, zOp is like Sp in Magahi rather than like LogOp in Ibibio, where having two LogOps in a single CP is possible.

- (144) Taro<sub>i</sub> heard from Takashi<sub>i</sub> [zOp<sub>n</sub> C [ zibun’<sub>s<sub>n</sub></sub> brother hates zibun<sub>n</sub>]].  
by control: i=n or k=n

The other case to consider is having two instances of *zibun* in a doubly embedded clause, one trying to take the subject of the immediately superordinate clause as its antecedent and the other trying to take the subject of the highest clause as its antecedent. This is also impossible, as shown in (145); here too the two LD anaphors must have the same antecedent (Howard & Niyekawa-Howard 1976, Oshima 2006: 100; see also Huang and Liu (2001: (13)) on Chinese and Park (2018) on Korean). This requirement is not found in the African languages with logophoric pronouns.

- (145) Taroo-wa Hanako-ga zibun<sub>1</sub>-no yuuzin-ga zibun<sub>2</sub>-o  
Taroo-TOP Hanako-NOM self-GEN friend-NOM self-ACC  
semete-i-ta-to it-ta-to omot-ta.  
blame-AUX-PST-C say-PST-C think- PST  
‘Taroo thinks that Hanako said that self<sub>1</sub>’s friend was blaming self<sub>2</sub>.’
- a. OK: zibun<sub>1</sub>=zibun<sub>2</sub>=Taroo                      b. OK: zibun<sub>1</sub>=zibun<sub>2</sub>=Hanako  
c. ??zibun<sub>1</sub>=Taroo, zibun<sub>2</sub>=Hanako              d. ??zibun<sub>1</sub>=Hanako, zibun<sub>2</sub>=Taroo

e. OK:  $zibun_1$ =Taroo or Hanako,  $zibun_2$ = $zibun_1$ 's friend

In this case, there definitely can be two zOps with different indices because there are two CP-spaces: one in the CP complement of the matrix verb 'think' and one in the CP complement of the intermediate verb 'say'. One zOp could potentially bind one of the *zibuns* and the other the other, as in the representation in (146). This must be ruled out in Japanese.

(146)  $Taro_i$  think [ $zOp_i$  C [ $Hanako_k$  say [ $zOp_k$  C [ $zibun_{s_i,k}$  brother hates  $zibun_{k,i}$ ]]].

Following Nishigauch (2014) and Charnavel (2019, 2020), B&I assume that (146) is ruled out by the fact that *zibun* is intrinsically an anaphor in Japanese—as implied already by (128) and (129)—and therefore it needs to have a c-commanding antecedent nearby. This is stated in (147).

(147) *Zibun* is an anaphor: it must be bound in the smallest clause that contains it.

For  $zibun_k$  in (146) this condition is satisfied by  $zOp_k$  in the same CP; however,  $zibun_i$  has no local antecedent. Thus (146) is out for much the same reason that *\*John thinks that Mary hates himself* is bad in English. In contrast, the Ibibio analog of (146) is grammatical because *imo* is intrinsically a pronoun, not an anaphor. As such, it does not need to be bound in the local clause, making a representation like (146) is possible in Ibibio.<sup>50</sup>

Given that *zibun* is an anaphor, we need to consider the fact that it can take a super-LD antecedent—as *imo* in Ibibio can. For example, in (148) *zibun* can take the immediately superordinate subject *Mary* as its antecedent, but it can also take the subject of the highest clause *Takashi* as its antecedent (Nishigauchi 2014: 171).

(148) Takashi-wa [Mari-ga [minna-ga  $zibun$ -o erabi soo-da-to] iw-ta-to] omow-ta.  
 Takashi-TOP Mary-NOM everyone-NOM self-ACC elect likely-COP-C say-PST-C think-PST  
 'Takashi<sub>i</sub> thought that Mary<sub>k</sub> said that everyone is likely to elect self<sub>i,k</sub>.'

Nishigauchi infers from examples like (148) that zOp (my term) in the lowest clause can be bound at a distance by the subject of a higher clause, a type of nonobligatory control (see also Charnavel 2019, 2020). I adopt a version of this hypothesis that is suited to the current context. I have assumed, especially in chapter 3, that obligatory control is obligatory in the sense that it must take place when the syntactic configuration described by the GOCS holds. However, when considering the optionality of indexical shift (a visible result of controlling Sp and Ad) in languages like Magahi, I argued that the OC configuration can be bled by certain syntactic

<sup>50</sup> A further implication might be that zOp is in an A-position, so it can A-bind *zibun* (see Charnavel 2020), whereas I have assumed that LogOp and the other ghostly DP are A-bar positions (an idea with roots going back to Oyharchabal 1993). Therefore B&I assume that zOp is not licensed in the CP space after all, but in Spec PoVP (point of view phrase), which is high in the TP space instead. An empirical consequence that we derived from this is that zOp is possible in any clause-like constituent in Japanese, and is not dependent on a particular CP structure being present, as logophoric pronouns often are. For example, LD *zibun* is possible even in a perception verb complement, which does not allow logophoric pronouns in Ibibio and other West African languages (Culy 1994). However, I won't emphasize this part here, leaving open other possibilities like zOp being unspecified for A/A-bar status, or *zibun* being an X-anaphor which is satisfied with an A or A-bar antecedent.

processes, including CP extraposition.<sup>51</sup> When extraposition takes place—and the CP is interpreted in its derived position—a complement clause ends up behaving like a high adjunct clause, which is an environment of nonobligatory control. For operators that must undergo OC in order to get interpretable features, like SoK and now LogOp, this does not lead to any new possibilities. But we know that zOp in Japanese is more like Sp and Ad, in that it does not need to undergo OC. Therefore, CP extraposition can lead to new possibilities in this language. In particular, zOp in the (covertly) extraposed clause can take a [+empathy] nominal as its antecedent, and the subject of the root clause definitely qualifies as such (Kuno and Kaburaki 1977, Kuno 1987). Therefore, (148) can get a super-LD reading under the analysis in (149).<sup>52</sup>

- (149) Takashi<sub>i</sub> thinks [zOp<sub>i</sub> that [ [zOp<sub>i</sub> that [everyone elect self<sub>i</sub>]] Mary<sub>k</sub> say -- ]].
- |-----|  
“extraposition” to adjoin to TP

This view makes certain predictions as to what nominals can be super LD antecedents for *zibun* in a complement clause, other than the subject of a higher clause. For example, the highest clause in a structure like (149) could have a [+empathy] indirect object as well as a subject. The prediction would be that zOp in the extraposed CP could take this as its antecedent as well, with the result that *zibun* refers to the goal in the clause above the clause headed by the verb that selects the CP that immediately contains it. (150) shows that this prediction is true (Shiori Ikawa, p.c.). Note that the highest verb ‘tell’ here bears the auxiliary *kure*, ensuring that its goal argument is [+empathy].

- (150) Taroo-wa Hanako-ni Ziroo-ga Mika-ga zibun-o kiratteiru-to omot-teiru-to osiete-kure-ta.  
Taroo-TOP Hanako-DAT Ziroo-NOM Mika-NOM self-ACC hates-that think-ASP-that tell-BEN-PST  
‘Taro<sub>i</sub> told Mary<sub>k</sub> (for her benefit) that Ziro<sub>n</sub> thinks that Mika<sub>m</sub> hates self<sub>k</sub> (or i<sub>n,m</sub>).’  
Takashi<sub>i</sub> told Mary<sub>k</sub> [zOp<sub>i</sub> that [ [zOp<sub>k</sub> that [Mika hates self<sub>k</sub>]] Ziro<sub>n</sub> think -- ]].
- [+emp] |-----|

This is striking in that a [+empathy] goal argument in the clause immediately above *zibun* cannot be the antecedent of *zibun*. That goal argument cannot be an OC controller of zOp since it has the wrong kind of thematic role (as before), and it cannot be an NOC antecedent of zOp because the CP extraposition takes zOp out of the domain of the goal argument, which is inside VP.

<sup>51</sup> The other syntactic manipulation that can bleed OC according to Chapter 3 is nominalization. That could have the desired effect too, but I assume that extraposition is the more likely analysis for the example in (148), in that the most embedded clause does not have the more nominal C-head *koto* and is not marked for case. Note that extraposition is effectively string vacuous in (148). I assume that extraposition left-adjoins CP to some projection higher than VP in Japanese (a strict head-final language with leftward but not rightward scrambling) and that the subject can land in a still higher position—perhaps Spec TP by ordinary EPP movement. It is not too surprising, then, that extraposition can be string vacuous in Japanese, although it may be possible to confirm or deny its existence by closer investigation of factors other than word order.

<sup>52</sup> This analysis of super-LD anaphor is significantly different from the one proposed in Baker and Ikawa (in press). There we claimed that zOp could be controlled by another zOp. This led to certain complexities, including the need to reformulate the GOCS slightly and the question of why operators like zOp cannot control ordinary PRO. The extraposition analysis is arguably simpler and coheres well with what I now say anyway about the optionality of indexical shift in languages like Magahi. (150) is a new prediction of this analysis, not captured by the previous analysis. Most other predictions remain the same, except for one that B&I made about a complex four-clause sentence in Japanese (example (58) in that paper). I leave open what is going on there.



To compare with (150), we could ask whether a [-empathy] argument in the highest clause which is thematically capable of being an OC controller of zOp, like the source phrase of a verb like ‘hear’, can function as a super-LD antecedent of *zibun*. At first glance, one might think that the answer should be no, because super-LD antecedents depend on empathy and the source argument of ‘hear’ is [-empathy] by hypothesis. In fact, this sort of antecedence is possible, as shown by (151).

- (151) Hanako-wa Taroo-kara Ziroo-ga Mika-ga zibun-o kiratteiru-to omot-teiru-to kii-ta.  
 Hanako-TOP Taro-from Ziro-NOM Mika-NOM self-ACC hates-that think-ASP-that hear-PST  
 ‘Hanako heard from Taro<sub>i</sub> that Ziroo thinks that Mika hates self.’  
 Hanako<sub>i</sub> heard from Taro<sub>k</sub> [zOp<sub>k</sub> that [ [zOp<sub>k</sub> that [Mika hates self<sub>k</sub>]] Ziroo<sub>n</sub> think -- ]].  
 [-emp] [+emp] | \_\_\_\_\_ |

On a closer look, though, we make the correct prediction if we say that zOps themselves can count as being [+empathy], hence good antecedents for an uncontrolled zOp. The source phrase *Taro* is able to control the higher zOp in (151), since this OC relationship depends on thematic role, not on empathy/discourse prominence. Then that higher zOp can be the [+empathy] antecedent for the lower zOp in the extraposed CP complement. Again, super-LD anaphoric relationships turn out to be less constrained than local-LD anaphoric relationships because they involve NOC rather than OC and there are fewer restrictions on this. That zOp can be the [+empathy] antecedent for an uncontrolled zOp is confirmed by (152), from B&I. Here the most deeply embedded CP is a relative clause rather than a complement clause. This is unambiguously a non-OC context, regardless of the subtleties of string-vacuous extraposition. Here it seems surprising that *zibun* in the relative clause can be coreferential with ‘Taro’, a nonemphatic argument. However, the paradox dissolves when we realize that ‘Taro’ hear can control zOp in the complement of ‘hear’ and this can be the [+empathy] antecedent that the zOp inside the relative clause needs.

- (152) Hanako-wa Taroo-kara Ziroo-ga zibun-o unda hito-o mituke-ta-to kii-ta.  
 Hanako-TOP Taro-from Ziro-NOM self-ACC give.birth person-ACC find-PST-COMP hear-PST  
 ‘Hanako heard from Taro<sub>i</sub> that Ziroo found the person who gave birth to self<sub>i</sub>.’  
 Hanako heard from Taro<sub>i</sub> that [zOp<sub>i</sub> Ziro found [the person who [zOp<sub>z</sub> give birth to self<sub>i</sub>]]].  
 [-emp] [+emp]

This shows that super-LD anaphora in a complement clause as in (151) behaves like LD anaphora in a relative clause or an adjunct clause, as predicted given that both are instances of NOC on my analysis.

Overall, then, we have seen that the analysis of LD *zibun* in Japanese should indeed be partially unified with that of logophors in West African languages. Both involve ghostly operators that can undergo OC according to the same principles of Generalized Control Theory, although they are different in that zOp can also undergo NOC whereas LogOp cannot (and perhaps in that zOp counts as an A-position, whereas LogOp does not).

A further question that now arises is what about other languages with LD/exempt anaphors? Is it likely that the same kind of analysis will extend to them? A full answer has to be deferred to future research, since I cannot go into every relevant language in the kind of detail that is necessary to address this. However, we can make some educated guesses based on existing literature. I am optimistic that the LD anaphors of other East Asian languages will turn

out to be very much like Japanese in this respect. That is especially so for *caki* in Korean, which has many similarities to *zibun* in Japanese and no relevant differences that I can see, based on Park (2018). I think it is also likely to apply to *ziji* in Chinese (Huang and Tang 1991, Huang and Liu 2001), although LD *ziji* is more sensitive to person effects than *zibun* and *caki* are, and that needs to be worked into a full treatment. Still, the fact that LD anaphors in complement clauses show a distinctive logophoric behavior, whereas they are also possible in adjunct clauses, relative clauses, and root clauses with a different range of possible antecedents, apparently holds across this range of languages.

In contrast, I am less certain that the same theory holds for LD/exempt anaphors in IE languages like French, English, Italian, and Icelandic, based on the detailed studies of Charnavel (2019, 2020). Of course, our frameworks are quite similar, and the facts are similar enough to make a unified analysis highly desirable. But there are a few differences that may not be so easy to reconcile. At the top of this list is the fact that for the West African languages and Japanese, I have crucially assumed that the ghostly DP operators always have scope over full clauses and clause-like constituents (e.g., nominal gerund constructions), whereas Charnavel crucially assumes that her  $pro_{Log}$  can have scope over DPs, VPs, and indeed any phasal domain in French and English. Relatedly, I have drawn a closer connection between where a ghostly operator occurs (e.g., in a CP complement or an adjunct clause) and what kind of antecedent it can take (determined thematically via OC or determined pragmatically via topicality and empathy, following Kuno (1987) and Oshima (2004, 2006)), whereas Charnavel does not draw a clear distinction here, allowing any  $pro_{Log}$  in principle to have an attitude holder or an empathy locus as its antecedent. It is possible that these differences can be reconciled. For example, I have some hope that some of the cases that Charnavel analyzes as involving a  $pro_{Log}$  with nonclausal scope that takes an empathy locus as its antecedent can be reanalyzed as involving local anaphors; if so, this could change the overall picture in relevant ways.<sup>53</sup> Another possibility is that one may be able to allow for LogOps at the edges of non-CP phases in some languages if one can figure out how control theory applies to such LogOps—a project with some new challenges but perhaps opportunities as well (compare the long standing question of whether DPs can contain PRO/null arguments or not, and if so how control theory does or does not apply to them in English). I do not pursue these imaginable projects of integration here.

One additional feature of Charnavel’s account that would be nice to adopt is that she assigns a substantive semantic meaning to the head that licenses her version of the ghostly DP ( $pro_{Log}$ ), a head that she calls  $Op_{Log}$ . She ascribes to it the meaning in (153).

(153)  $[[Op_{Log}]] = \lambda\alpha.\lambda x. \alpha$  from  $x$ ’s first person perspective (Charnavel 2020: 697 (68b))

Indeed, it does seem theoretically desirable that something like (153) would be true. However, it does not fit well with what is known about Ibibio in at least three respects. First, (153) is hard to square with the fact that a single clause can have two logophoric pronouns that refer to different people in an example like (16) with matrix predicate ‘hear from’. Presumably the same content

<sup>53</sup> This may involve revising or abandoning Charnavel’s animacy test for distinguishing local vs LD uses of anaphors. She claims that local uses can be recognized by the fact that they allow inanimate antecedents, whereas LD/logophoric uses do not (see also Charnavel and Sportiche). However, this generalization has already been challenged by Marty (2020) for French. For Ibibio, B&I show that it is not always impossible for an inanimate NP to antecede *imo*, whereas *zibun* in Japanese needs an animate antecede even in clearly local cases. Therefore, the equation of animate with logophoric and of inanimate with local/nonlogophoric is too simple in the general case.

cannot be presented from two different people's first person perspective in any meaningful way. Second, it is not excluded for a logophoric pronoun to have an inanimate antecedent in Ibibio; (154) gives some examples (B&I; (154a) is based on an example of Clements's (1975) from Ewe). However, presumably the content "water is falling" cannot be presented from the first person perspective of the water, since it does not have a first person perspective. (Examples (154b,c) also challenge the often-made claim that logophoricity is only possible in the complements of attitude verbs; see for example Pearson (2013, 2015).)

- (154) a. Edim a-ke-bo ke imo i-ya-i-dep.  
rain 3SG-PST-say that LOG 3SG-FUT-3SG-fall  
'It is about to rain.' (lit. 'Rain said that it will fall.')
- b. Ngwet odo a-ma-a-nam n-yem adi-maana ng-koot imo.  
Book the 3SG-PST-3SG-make 1SG-want INF-again AGR-read LOG  
'The book<sub>i</sub> made me want to read it<sub>i</sub> again.'
- c. (?)Masin odo a-ma-a-tre Okon u-diõñ imo.  
machine the 3SG-PST-3SG-stop Okon NMLZ-fix LOG  
'The machine<sub>i</sub> stopped Okon from fixing it<sub>i</sub>.'

Third, Charnavel says that when an evaluative adjective like 'beautiful' or 'ugly' appears in the same domain as an LD anaphor in French, the judge of adjective has to be the same as the referent of the LD anaphor. This does not seem to be true for logophoricity in Ibibio. Willie accepts examples like (155), where it is understood that Okon does not want Edem to buy the picture of him (Okon) because Okon thinks that the picture is ugly. Here the CP complement of 'want' has a logophoric pronoun that refers to Okon, but 'beautiful' is not Okon's evaluation of the picture but rather the speaker's.

- (155) Okon i-yem-me yak Edem a-dep uyai ndise imo.  
Okon 3SG-want-NEG COMP Edem 3SG-buy beautiful picture LOG  
'Okon<sub>i</sub> does not want Edem to buy the beautiful picture of him<sub>i</sub>.'

So we do not have evidence that the head that licenses LogOp in Ibibio has a substantive meaning that has to do with point of view. I do not rule out the idea that the licenser of LogOp might have some distinctive semantics, but it would have to be something more subtle and harder to pin down than (153). This reinforces a truth mentioned in passing in previous sections: that logophoricity in West African languages seems to have as much or more to do with the syntax of CP peripheral DPs and obligatory control as it does with the semantics of attitude ascription or other related semantic issues. In this, I agree with a point that Culy (1997: 849-850) made about logophors in African languages long ago: "They are primarily indirect-discourse forms and usually do not represent point of view at all."

Summing up the comparison between Japanese and the African languages, we have seen plenty of reason to say that LD anaphoric constructions in Japanese are akin to logophoric constructions in that they too involve a ghostly DP operator that can be controlled by a suitable argument of the matrix verb and binds a pronoun (anaphor) in the embedded clause. However, there are some differences as well. This leads us into the final topic for this chapter: a

consideration of how LogOp and zOp fit into the typology of ghostly DP operators initially sketched at the end of chapter 3.

### 5.7 The typology of operators revisited: features and interactions

In chapter 3, I gave an extensive list of properties that the ghostly DP operators considered up to that point have in common. I repeat the list in (156).

- (156)
- a. They appear at the periphery of a relatively full finite CP—not in, say, nominalized or nonfinite clauses.
  - b. They (can) come in pairs: one subject-like and the other object-like.
  - c. They are broadly similar (although not identical) in meaning, having to do with the producers, consumers, possessors, and judges of propositional content.
  - d. They are obligatorily null DPs, pronoun-like in their features.<sup>54</sup>
  - e. They do not create islands for extraction
  - f. They do not count as A-binder antecedents for reflexive pronouns.
  - g. They do count as semantic binders for ordinary pronouns, transmitting their features to their bindees.
  - h. They can be the goals of an Agree relation, if a nearby head has probe features.
  - i. They can be controlled by the arguments of the verb (or noun) that heads the phrase which the CP merges with (a CP complement or low adjunct).
  - j. Control of them is governed by matching thematic roles: agent-type arguments control Sp, SoK, LogOp and zOp; theme/goal-type arguments control Ad, OoK and AddrOp.
  - k. The inner DP (Ad, OoK, AddrOp) can only be controlled if the outer one is (Sp, SoK, LogOp).

For the most part, these properties hold of LogOp and zOp as well, but a few comments are in order. (156d,g,i,j) hold without qualification and have been amply illustrated and discussed above. (156b) also holds given the existence of addressee pronouns in a few languages (section 5.4); the existing data on this is also compatible with (156k), but we know too little about the details of addressee pronoun systems to be sure about this. LogOp and zOp do not happen to be targets of Agree in any of the languages I have considered ((156h)), but I tentatively take this to be an accidental gap, probably related to the fact that C-like heads are not as frequently probes for agreement as *v* and especially *T* are (Baker 2008). As discussed in the last section, it is not clear that the heads that license LogOp and zOp have a discernable meaning the way that the one that licenses SoK does, but that is also true for the head (*Fin*) that licenses Sp and Ad in embedded clauses in a language like Magahi; thus, I do not detect a significant difference with respect to (156c). I have not shown yet that LogOp does not interfere with *wh*-extraction creating some kind of island ((156e)), but in fact it does not. (157) shows that it is perfectly possible to move an interrogative phrase out of a clause that has a logophoric pronoun in Ibibio.

(157) Nso ke Okon a-ke-dokko Emem ke imo i-k-i-dep?

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<sup>54</sup> Spadine (2020) argues that an overt DP expressing the author of an attitude—something like SoK or Sp—is possible in the CP periphery of a clause in Tigrinya. I discuss this interesting case briefly in Chapter 3 and again in Chapter 6.

What FOC Okon 3SG-PST-tell Emem that LOG 3.LOG-PST-3.LOG-buy  
 ‘What did Okon<sub>i</sub> tell Emem that he<sub>i</sub> bought?’

Overall, then, there is plenty of evidence that LogOp and zOp are broadly the same kind of thing as SoK, Sp, and Ad are.

The two properties that call for more discussion are (156a) and (156f). A version of (156a) is true for Ibibio, in that LogOp is possible in most if not all finite full CP complements and is not possible in derived nominalizations or simple NP/DPs (see section 5.3). However, the range of clause-like constituents that can contain a LogOp is somewhat wider than the range of clauses that show evidence of having Sp and Ad in Magahi or SoK in the African languages. We can see the difference internal to Ibibio too: agreeing Cs are not possible in infinitival clauses, nominal gerunds, or the complements of causative verbs, but LogOp licensing a logophoric pronoun is possible in these smaller and less finite constituents in Ibibio. I argued that in Ibibio LogOp can be found as low as (just above) VoiceP, the position where a subject gets its thematic role. This is lower than what we normally consider to be the left periphery of a clause.

This also relates to (156f), the question of whether the ghostly DP operator counts as an A-binder. In Ibibio, it does not. Local anaphors are formed by combining the noun *idem* ‘body’ with a possessive pronoun in Ibibio (see Afranaph). Such an element may and must be bound by an NP that c-commands it within the same clause, as in (158a), but it cannot survive with a LogOp controlled by the higher subject as its closest binder, as shown by (158b).<sup>55</sup>

- (158) a. Okon a-ke-bo ke imo i-mi-kpi idem imo.  
 Okon 3SG-PST-say that LOG 3.LOG-PERF-cut body LOG  
 ‘Okon<sub>i</sub> said that [LogOp<sub>i</sub> [he<sub>i</sub> cut himself<sub>i</sub>]].’
- b. \*Okon a-ke-bo ke Edem a-me-kpi idem imo.  
 Okon 3SG-PST-say that Edem 3SG-PERF-cut body LOG  
 (‘Okon<sub>i</sub> said that [LogOp<sub>i</sub> [Edem<sub>k</sub> cut himself<sub>i</sub>]].’)’

In this respect, LogOp in Ibibio is perfectly in line with SoK in the African languages (including Ibibio) and Sp/Ad in allocutive languages (Oyharçabal 1993). However, zOp in Japanese is different in this regard, in that it can bind an anaphor in accordance with the Nishigauchi/Charnavel theory. This was discussed in section 5.6 and is shown again in (159).

- (159) Taroo-wa Hanako-ga zibun-o kiratte-i-ru-koto-ni odoroi-ta.  
 Taroo-TOP Hanako-NOM self-ACC hate-AUX-PRS-COMP-DAT get.surprise-PST  
 ‘Taroo<sub>i</sub> was surprised [zOp<sub>i</sub> that [Hanako hates self<sub>i</sub>]].’

So Japanese and other languages with this kind of LD anaphor are theoretical outliers in this one respect. I do not know why this is, exactly. B&I suggest that zOp is actually licensed in a “point of view phrase” (roughly following Nishigauchi) and that this phrase is high in the T-space rather than low in the C-space, such that zOp can count as an A-position—more like Spec TP rather than like canonical Spec CP. Combining this with my sharpened realization here that

<sup>55</sup> I use the logophoric version of the anaphor in (158b) on the assumption that that is the one that would match LogOp in the [+log] feature. However, (158b) is equally bad with the anaphor *idem omo*, the third person singular [-log] version.

LogOp is also generated rather low in Ibibio, one might say that logophoric-type operators naturally appear lower in the clausal spine than other kinds of ghostly DPs and this creates the possibility of them counting as A-positions rather than A-bar positions, but languages vary as to how they categorize them with regard to that status. That is all I can say about this now; it would of course be helpful in considering this to have a deeper and more principled theory of the A/A-bar distinction.<sup>56</sup>

Chapter 3 also discussed a cluster of ways in which SoK and OoK are different from Sp and Ad. There I explored the idea that these differences can be traced back to one primary difference: Sp and Ad have intrinsic interpretable features but SoK (and OoK) does not. The comparison between LogOp and zOp in this chapter fills this view out in an interesting way. As closely related as they are, zOp clearly behaves like Sp with regard to this cluster of properties, whereas LogOp behaves more like SoK. Like Ad, zOp is possible in root clauses, where it can get an antecedent from discourse, whereas lOp like SoK is not possible in root clauses. Like Ad, zOp is possible in noncomplement embedded clauses, including high CP adjuncts and relative clauses, whereas LogOp like SoK is not normally possible in such clauses. And zOp is also like Sp and Ad in that when it is in a complement clause it can get its value from a higher instance of the same operator. (On my account, this is the result of nominalization or extraposition bleeding obligatory control into the complement clause.) In contrast, SoK clearly cannot get its value from a higher SoK in the African languages, and there is no evidence that LogOp can get its value from a higher LogOp either.<sup>57</sup> (There is also the difference that constructions involving SoK are restricted by the T/Agree Condition whereas constructions involving Sp and Ad are not, but that effect is particular to agreement, so it is not relevant to LogOp and zOp.) In chapter 3 and 4, I proposed to derive these differences from the fact that Sp and Ad have intrinsic interpretable features ([+1] or [+2]), whereas SoK does not. The idea can be (re)stated as follows:

- (160) a. All DPs must have interpretable features at the point of LF.  
 b. Obligatory control can give a DP interpretable features in the syntactic derivation.

From this it follows that a DP without intrinsic features must undergo OC (or some similar process, perhaps), so it must appear in a clause where OC takes place: a complement clause or a low adjunct clause like a purposive. In contrast, a DP with intrinsic interpretable features may undergo OC if the syntactic configuration calls for that, but it can also survive in other contexts, getting an interpretation guided by its intrinsic features. Now these differences between LogOp constructions and zOp constructions fall into place if we can convince ourselves that zOp is like Sp and Ad in having interpretable features intrinsically, whereas LogOp is like SoK in not having them.

I am easily convinced. One way that *zibun* is different from *imo* in Ibibio is that there is a strict requirement that *zibun* must take a human antecedent, whereas this is not always necessary for *imo* (see (154)). It is reasonable to say, then, that *zibun* bears the feature [+human], and that zOp also has that feature. We also saw in the previous section that uncontrolled zOp has to get an antecedent that is [+empathy] in Kuno's sense. It is plausible then to say that zOp is itself

<sup>56</sup> There is new work on this topic in recent years, but I don't know that any of it gives good leverage on these cases...

<sup>57</sup> Logophoric pronouns can get a super-long distance antecedent from a clause higher than the immediately superordinate one, but this is because pronouns can be bound by operators at any syntactic difference; there is no need to say that one LogOp can bind/control another one to capture this effect.

[+empathy]; indeed this is implied by my analysis of an example like (151). These are interpretable features that constrain the meaning of zOp at LF sufficiently to pass (160a), I claim. The precise interpretation of zOp is of course quite different from that of Sp or Ad, since the particular features that they bear are different. These differences in the interpretable features have other consequences too; in particular, Sp and Ad are subject to the Person Licensing Condition of chapter 4, which puts a special kind of constraint on how uncontrolled Sp and Ad can be bound that does not hold of zOp constructions. From the other side, indexical shift in Magahi is not sensitive to empathy in the way that *zibun* constructions are in Japanese. But despite these differences, there is a gross syntactic similarity between *zibun* constructions and Sp/Ad constructions in terms of where they can appear, and (160) captures this.

The other side of this coin is to accept that LogOp does not have intrinsic interpretable features. That is defensible too. I just mentioned that LogOp is not strictly [+human] or [+animate]. There is no reason to say that it is [+empathy] either parallel to the motivations for saying this for zOp. It is clearly not [+1] or [+2] since it is regularly controlled by third person DPs and binds third person pronouns. One might think that LogOp is intrinsically third person, but even that is not necessarily the case. Clements (1975) points out that the Ewe speakers he worked with allow a logophoric pronoun to take a second person pronoun as well as a third person DP as its antecedent. This is also possible in Ibibio, as shown in (161).<sup>58</sup>

- (161) À-ké-bo ke (imɔ) i-ma-i-kot ngwet.  
 2SG-PST-say that LOG 3.LOG-PST-3.LOG-read book  
 ‘You said that you read a book.’

The only feature that we know LogOp has is [+log] (or [0Log], in some languages—see section 5.5). I take it that this not to be an interpretable feature, but rather a diacritic feature (cf. Heim 2002, von Stechow 2002, Pearson 2015, Park 2018). It is simply a morphosyntactic gadget that languages can use to give some information about whether a certain pronoun is bound by a certain operator or not. If so, LogOp has no interpretable features intrinsically. Then (160) implies that it, like SoK, must get features in the syntactic derivation, by obligatory control. This in turn implies that LogOp must be in a context where obligatory control applies. Like SoK, it must be in a complement clause or a low adjunct clause; it cannot be in a root clause, a high adjunct clause, or a relative clause. If it is in an extraposed CP, then it must be interpreted in its base position, and cannot get new antecedents by extraposing, the way that Sp and zOp can.

Abe as described and analyzed by K&S provides an interesting point of comparison to *imɔ* and *zibun* in these respects. The special/marked pronoun in Abe is *n*, contrasting with an ordinary pronoun realized as  $\emptyset$  in nominative subject position and *O* elsewhere. In the complement of a canonical logophoric verb like ‘say’, *n* preferentially refers to the matrix subject, whereas *O* is obviated from this reading. In this sense, *n* is a logophoric pronoun of sorts.

- (162) Yapi hE kO n/O ye sE. (K&S: 579 (64a))  
 Yapi said that N/he is handsome  
 ‘Yapi said that he/he<sub>K,\*i</sub> is handsome.’

<sup>58</sup> However, a logophoric pronoun cannot take a first person pronoun as its antecedent in Ewe, Ibibio or any other language that I know of. I do not know why this asymmetry holds. Note that I gloss /i/ as 3.Log throughout, but that is probably not entirely accurate; /i/ is really a default/antiagreement marker in Ibibio; see Baker and Willie (2010).

*N* is also clearly pronominal, in that it cannot refer to the subject of the same clause. To refer to a local c-commanding antecedent, it needs to be part of a complex anaphor by combining with the noun root ‘body’, just as *imo* must in Ibibio.

- (163) a. (...) \**n* wu ni. (K&S: 561 (14a))  
           N saw N  
           (‘He<sub>i</sub> saw him<sub>i</sub>.’)
- b. (...) *n* mU n-se. (K&S: 564 (20b))  
           N saw N-body  
           ‘He<sub>i</sub> knows himself.’

This together with the fact that Abe is a West African language might make us expect it to behave like Ibibio and Ewe rather than like Japanese in other respects as well. But in fact, *n* in Abe behaves like *zibun* in Japanese in a cluster of ways. First, it is possible in matrix clauses, where it can take an antecedent from discourse, as shown in (164).

- (164) F wu Api e? m wu n/O. (K&S: 558 (2b), (3b))  
       You saw Api Q I saw N/her  
       Q: ‘Did you see Api?’ A: (yes) ‘I saw her<sub>i</sub>.’

Second, it can appear in embedded clauses other than complement clauses, taking a matrix NP as its antecedent. (165a) is a high adjunct clause and (165b) is a kind of (event-denoting) relative clause—two environments in which OC does not apply.

- (165) a. [n a su], Ø hE na hOrE. (K&S: 569 (64a))  
           N arrive he told the truth  
           ‘After he<sub>i,k</sub> arrived, he<sub>i</sub> told the truth.’
- b. [koko n f kolo n] IE O tE. (K&S: 569 (64b))  
           love REL you love N bothers him PRT  
           ‘The fact that you love him<sub>i,k</sub> bothers him<sub>i</sub>.’

(166) shows that in a doubly embedded sentence, *n* like *zibun* (and also *imo*) can take a super-LD antecedent.

- (166) Yapi hE kO f bO wu ye n/O ye sE. (K&S: 579 (64c))  
       Yapi said that you take see that N/he is handsome  
       ‘Yapi<sub>i</sub> said you believe that he<sub>i,(k)}/he<sub>k,\*i</sub> is handsome.’</sub>

Finally, (167) shows that two *n* pronouns in the same simple clause must have the same referent, as two *zibuns* must (not counting the possibility of *zibun* referring to the local subject). This is a key part of K&S’s reasoning that *n* must be bound by a unique operator in Spec CP, which I call *nOp*.



- (167) N ceewu n kolo n. (K&S: 571 (41))  
 N friend DET likes N  
 ‘His<sub>i</sub> friend likes him<sub>i</sub>,\*<sub>k</sub>.’

This cluster of properties makes sense if we assume that nOp is really more like zOp than like LogOp in having inherent interpretable features. This allows it to survive in environments where it cannot undergo OC, enabling it to get an antecedent in another way. This accounts for the possibility of (164), (165a), and (165b). It also allows (166) to be analyzed in terms of the lowest CP extraposing and thereby giving its nOp access to antecedents other than ‘you’, the subject of the superordinate verb (although this may not be necessary for (166), given the pronominal nature of *n*). Like zOp, we can assign nOp in Abe at least the feature [+human], in that *n* can only refer to a human antecedent, whereas *O* is not restricted as to what it refers to (K&S 557). Perhaps we should also give nOp a feature like [+topic], analogous to zOp’s [+empathy] feature. (K&S give no details about how *n* gets an antecedent from discourse, and whether there are any special constraints on this.) A take away from this is that whether a logophoric type ghostly DP operator has interpretable features or not can be a somewhat subtle matter, at least based on syntactic descriptions. However, even if this is fixed somewhat arbitrarily (given current knowledge), it results in what seems to be a robust cluster of differences concerning whether the special pronoun has a relative wide or relatively narrow syntactic distribution.

Thanks to (167) from Abe, we see even more clearly how special LogOp in Ibibio and Yoruba is compared to the other ghostly operators in that there can be more than one in a single clause. Even nOp does not allow this. Nor does zOp, as we saw above, nor does Sp (e.g., Magahi does not allow ‘\*Santee<sub>i</sub> heard from Banteek [Sp<sub>k</sub> Sp<sub>i</sub> that I<sub>k</sub> saw my<sub>i</sub> mother in the market].’) It is not clear why LogOp is special in this way. A tempting hypothesis is that LogOp’s lack of interpretable features may be an important precondition to allowing there to be more than one of them, in that substantive interpretable features may cause two DPs with the same features to have the same reference in some cases. This is most plausible for Sp, which has the [+I] feature. In root clauses, I said that Sp must denote the speaker of the sentence. Assuming that in almost every case a given sentence has a single speaker, both Sps would have to denote the same person, and there would be no discernable evidence that there were two of them. In an embedded sentence, where Sp can be controlled, two Sps could potentially come apart by being assigned different controllers, but perhaps the fact that two Sps are never detectable in a matrix clause biases a language learner away from entertaining such a representation. This sort of reasoning might be extended to zOp too, the distinguishing feature of which is [+empathy]. Kuno and Kaburaki (1977) and Kuno (1987) talk of the empathy center as being the person who defines the “camera angle” from which an event is viewed. A camera has only one physical position at a time, so perhaps two zOps looking for a [+empathy] antecedent in the same syntactic position and context also find the same antecedent (although this is less clear). In contrast, LogOp has only the meaningless diacritic feature [+log], so there is no semantic or pragmatic pressure for two DPs with this feature to refer to the same thing. A desirable way to explore whether this is on the right track would be to see if there can also be more than one SoK in a single clause, that being the other ghostly DP that does not have intrinsic interpretable features to constrain it. Unfortunately, independent factors like the T/Agree Condition make it hard to test whether a

single clause can have more than one SoK.<sup>59</sup> Moreover, while SoK itself does not have meaning-giving features, the head that selects it (Eval) does have a relatively robust meaning, along the lines of “X has a distinctive responsibility as a source of the content of CP”. Depending on exactly what “distinctive responsibility” means here, that might also rule out two SoKs in the same clause (associated semantically to the same content) having different referents. For now, then, I do not know how to test further the idea that lack of semantic features is a precondition for allowing multiple instances of a particular ghostly DP, and this must remain a conjecture.

A final question to ponder briefly is whether there are any cooccurrence restrictions that hold across ghostly DP operators of different kinds: which ones can appear together with which other ones in a single language or construction? We will of course want to try to collect more cases. Given that each of the relevant constructions is relatively rare, there is a good chance of accidental gaps, where one operator might not cooccur with another because we have not found the right case, not because of any grammatical restriction that bars the combination. And in fact, quite a few combinations are already attested. Ibibio shows clearly that it is possible for a language to have both SoK, the target of C-agreement, and LogOp, the binder of logophoric pronouns; the two can co-occur in the same clause and function independently of each other, often having the same controller, but sometimes not. Park (2016) reports that some Korean speakers allow indexical shift as well as having the LD anaphor (*caki*), and Ikawa (p.c.) says that the same is true in Japanese. Some speakers of these languages then allow both Sp/Ad and zOp in embedded clauses in the same sentence (although not necessarily in the same clause). One combination that I have not seen is SoK along with Sp/Ad in embedded clauses, such that a language has both upward C-agreement and indexical shift.<sup>60</sup> If, however, I am right that unshifted first and second person pronouns need to be bound by Sp and Ad in the root clause (Sp\* and Ad\*), then all of the NC languages have both SoK and these instances of Sp and Ad. Overall, then, there are no obvious gaps in the pattern, except ones involving OoK and AddrOp, which are particularly rare, occurring only in a subset of the languages that have SoK and LogOp. One combination of special note is in African languages that are described as having logophoric pronouns and second person indexical shift. For example, Nikitina (2012) says that a characteristic form of clausal embedding in the Adiokrou (Kwa) language of the Ivory Coast is the one shown in (168), which has a logophoric pronoun in the embedded clause referring to the matrix subject ‘she’ and a second person pronoun in the embedded clause referring to the matrix object ‘them’.<sup>61</sup>

<sup>59</sup> The obvious thing to try is stacking agreeing Cs in the CP complement of ‘hear’ and seeing if the two Cs can agree with different DPs or not. Ibibio seems like the language to try this in, because it does allow agreeing C *-bo* to stack on top of agreeing C *-te* under a wide variety of verbs, including ‘hear’. However, C agreeing with the source argument of ‘hear’ is ruled out by the T/Agree condition, given that T cannot agree with the source argument. Indeed, if T can only agree with one NP in the matrix clause (the usual case), then only one NP in that clause will be able to control an SoK with which an Eval head could manifest agreement. This might make it impossible in principle to observe two different SoKs in the same clause.

<sup>60</sup> However, Tigrinya has a construction that is an interesting blend of C-agreement and indexical shift (Spadine 2020). I discuss this a bit in chapter 3, and more in chapter 6.

<sup>61</sup> Nikitina does not gloss *ir* as a logophoric pronoun but says (p. 239) that in this example “the subject of the report is encoded by a special “reporting” pronoun.” On the other hand, she does gloss *ony* as “2.pl.report”. It is possible that this is an addressee pronoun, rather than an ordinary 2<sup>nd</sup> person form found also in root clauses, in which case Adiokrou is roughly like Mupun and Tikar. She discusses several other languages as having the same kind of “semi-direct” discourse, including Engenni, Aghem, and Ngwo, and I assume that some of these are real cases of pairing LogOp and Ad in an embedded clause, even if Adiokrou turns out not to be.



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