Chapter 5: Enter the Logophoric Pronoun

1. Introduction

In this chapter, I add a fourth ingredient into my intellectual witch's brew, which so far consists of upward C-agreement, allocutive marking, and indexical shift. This fourth ingredient is constructions in which special pronominal forms are used in logophoric contexts that usually involve the complement clauses of verbs of speech or thought (Sells 1987, Culy 1994, Culy 1997). Narrowly construed, this phenomenon is not widespread in languages of the world. It is known primarily from various West African languages, both Niger-Congo and Afro-Asiatic (Chadic). There is, however, a much more widespread phenomenon in which anaphors of some kind are used like logophoric pronouns in logophoric contexts. I begin this chapter by focusing on the West African phenomenon, to see how it fits into my wider web. I illustrate and explore it largely using new data from Ibibio (see also Newkirk 2017). Secondary languages I draw on for replication and to study crosslinguistic variation include Yoruba, based on Adesola (2005) and personal communication (also Anand 2006), and Ewe (Clements 1975, Pearson 2013, Pearson 2015), with a smattering of examples from Abe (Koopman and Sportiche 1989) and Edo (Baker 1999) and some references to Baatonum (fieldnotes). Then in §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 & Ikawa (2024). I show that there are many similarities between the African construction and the East Asian one, but also some systematic differences. Consideration of this leads to an expansion of the typology of ghostly DP operators presented in Chapter 3.

(1a) shows a canonical example from Ibibio, with the special logophoric pronoun *ímọ̀* inside the complement of 'tell'. This special pronoun must refer to the subject/agent argument of the matrix verb, not to its object/goal argument or to some other prominent antecedent in the larger discourse. In this, it contrasts with 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) show the same thing with the verb ‘ask’, another triadic verb.

(1) Ibibio (fieldwork, Willie Willie)

a. Okon á-ké-dọ̀kkọ́ Edem ké Emem í-maá-ghá ***ímọ̀****.*
Okon 3SG-PST-tell Edem that Emem 3SG-like-NEG LOG
“Okon$_i$ told Edem$_k$ that Emem does not like him$_{i,*k,*n}$.”

b. Emem a-ke-bip a-bo mme Okon a-ma-i-kid ***ímọ̀****.*
Emem 3SG-PST-ask 3SG-C Q Okon 3SG-PST-3.LOG.O-see LOG
“Emem$_i$ asked whether Okon saw him$_i$.”

*c. *Ng-ke-bip Okon mme Emen a-ma-i-kid* ***imọ****.*
1SG-PST-ask Okon Q Emen 3SG-PST-3.LOG.O-see LOG
(“I asked Okon$_i$ whether Emen saw him$_{*i,*k}$.”)

*d. *Ifiọk-nduuño a-dọkkọ Okon ke eka* ***imọ*** *a-maa-due.*
evidence 3SG-tell Okon that mother LOG 3SG-PST-guilty
(“The evidence tells Okon$_i$ that his$_{*i,*n}$ mother is guilty.”)

Examples (1c) and (1d) show that (with these verbs) even when the subject is first person or inanimate, hence not a suitable antecedent for the logophor, the goal argument still cannot be the antecedent of *imọ*. This orientation toward the thematic subject rather than the object is like what we have seen with shifted first person indexicals in Magahi and C-agreement in the African languages.

The examples in (2) show that *ímọ̀* in Ibibo cannot be used in a root 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 and has a perspective.

(2) Ibibio (fieldwork, Willie Willie)

*a. *Okon a-maa-kọ̀ọ̀m ayin ímọ̀.*
Okon 3SG-PST-greet son LOG
(“Okon$_i$ greeted his$_{*i,*k}$ son.”)

*b. Emem a-maa-dọkkọ eka omo/*imọ mbʌk/ke imọ i-ma-i-dep ebot.*
Emem 3SG-PST-tell mother his/LOG news/that LOG 3.LOG-PST-3.LOG-buy goat
"Emem$_i$ told his$_i$ mother the news/that he$_i$ bought a goat."

There is a long history in generative studies of saying that the 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 Charnavel (2019, 2019, 2020).[1] Indeed, this is oldest line of work of work on what I am calling ghostly DPs, 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: *imọ* inside the domain of the C selected by 'tell' can take the teller as its antecedent, whereas *imọ* outside the domain of C is ungrammatical, as seen in (2b). This makes sense if the immediate antecedent of the logophor must be a ghostly DP in the C-space, call it *lOp*, which is itself controlled by the matrix subject, as in the structure sketched in (3) (originally proposed in Chapter 1).

(3) Okon$_i$ told Edem$_k$ [lOp$_{i,*k}$ that [Emem does not like him$_{i,*k,*n}$.]]

The current work is firmly in this 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/participant features ([+1] and [+2]) for indexical shift

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[1] Some ideas expressed in 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 lOp. Pearson (2013) assumes that a logophoric pronoun in Ewe must be bound by a lambda abstractor in the CP periphery of the complement of an attitude verb, although she is not committed these abstractors being related to syntactically represented DPs in the CP periphery.

constructions; third person or no phi-features for logophoric constructions, plus a language particular [+log] feature.

This lOp counts as another ghostly DP, on a par with SoK and Sp, in that it is hard to detect by ordinary syntactic means. First, it is necessarily a null pronoun; there is no option of using some kind of overt pronominal element in its place. Second, it cannot be the local binder for a reflexive pronoun. Local anaphors in Ibibio are formed by combining the noun *idem* 'body' with a possessive pronoun (see Afranaph). Such an element may and must be bound by an NP that c-commands it within the same clause, but it cannot survive with a lOp controlled by the higher subject as its only binder inside the minimal clause , as in (4a).[2] Third, lOp does not create an island for wh-movement; (4b) shows that it is possible to move an interrogative phrase out of a clause that has a logophoric pronoun in Ibibio.

(4) Ibibio (fieldwork, Willie Willie)

*a. Okon a-ke-bo ke Edem a-me-kpi idem *imo/#omo.*
Okon 3SG-PST-say that Edem 3SG-PERF-cut body *LOG/#3SG
(Not: "Okon$_i$ said that [lOp$_i$ [Edem$_k$ cut himself$_i$]].")

b. Nso ke Okon a-ke-dọkkọ Emem ke imọ i-ki-dep?
what FOC Okon 3SG-PST-tell Emem that LOG 3.LOG-PST-buy
"What did Okon$_i$ tell Emem [lOp$_i$ that [he$_i$ bought --]]?"

This is in line with how SoK, Sp, and Ad behave in constructions that involve them. These ghostly DPs can be detected by agreement and pronoun binding, but not by these familiar tests.

To develop the theory outlined in (3), there are three main ingredients to justify and explicate. The first is the intrinsic nature of lOp, and how it compares to Sp and SoK, including what syntactic environments it can be found in. The second is the nature of the relationship between lOp and its ultimate antecedent in the matrix clause. Is it the same kind of control relationship that we have seen in other constructions, subject to the same principles and restrictions?

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[2] *Idem omo* is the normal third person singular anaphor in Ibibio, whereas *idem imo* is a special form that agrees with a logophor as the subject of the clause (see (114b)). Both are ungrammatical with lOp as their only local antecedent.

The third is the nature of the relationship between lOp and the logophoric pronoun(s) inside CP that it binds. These three issues are exactly parallel to the ones that I considered for indexical shift constructions in Chapter 4. The parallelism does not guarantee that the details of each ingredient will be identical though.

I start with the second ingredient, showing that the relationship between lOp and the matrix argument is one of obligatory control: the closest thematic subject controls it (§5.2). This is essentially identical to what happens with SoK in upward C-agreement constructions and with Sp in i-shift constructions. Then I take up aspects of the first ingredient, considering what kinds of constituents can contain a lOp (§5.3). This is very similar to what we have seen with SoK and Sp, but lOp's distribution of is a bit broader, appearing even in nonfinite clauses and gerund-type nominalizations. Next, I interpose a section (§5.4) on so-called addressee pronouns in languages like Mupun and Tikar, arguing that this even rarer phenomenon argues for the existence of a second ghostly DP in the logophoric family, parallel to Ad in the speech act family and to OoK in the Eval family. §5.5 turns to the third task, focusing on lOp's relationship to the bound pronoun. In this domain, there are some differences with indexical shift constructions to consider, going beyond the similarity that both involve bound variable anaphora. One is that there are some interesting "crossover" effects in the logophoric languages which are not visible in indexical shift languages, because of the different phi-features involved. The other difference is that logophoric pronouns do not need to be bound by the closest lOp the way that first and second person pronouns need to be bound by the closest Sp and Ad (the Person Licensing Constraint). §5.6 briefly compares logophoric pronouns in the African languages to long-distance anaphors in Japanese, drawing on Baker & Ikawa (2024). I show that when "zOp" (Japanese's analog of lOp) is in an environment of obligatory control, LD anaphors behave very much like African logophors. However, unlike lOp, zOp can undergo a kind of nonobligatory control when it occurs in other syntactic environments because zOp has intrinsic interpretable features. This confirms and extends the broad typology of ghostly DPs first sketched in Chapter 3. §5.7 concludes.

As we consider the typology of ghostly DP operators, we might wonder whether it can be reduced. Could lOp, the ghostly DP that binds a logophoric pronoun in (say) Yoruba, be the same element as SoK, the one that C agrees with in Lubukusu? A yes answer would be attractively parsimonious. It would also parallel the fact that the

ghostly DP that binds a shifted second person pronoun in Magahi is the same one that C agrees with in allocutive constructions (Ad). However, the answer turns out to be no. Ibibio is special in that it has both logophoric pronouns and upward C-agreement. However, the two operate independently, by way of different ghostly DP operators, which can have different controllers. This is demonstrated in the course of what follows, as opportunities present themselves.

2. The obligatory control of lOp

2.1. Thematic conditions on control

I start by investigating the claim that lOp undergoes obligatory control. (5) repeats one more time the Generalized Obligatory Control Signature, which I have taken to be the fundamental syntactic principle of control theory, and which has played a prominent role in every chapter so far. Here the list of controllable DPs has been extended to include lOp from (3) (and zOp, in anticipation of §5.6).

(5) The Generalized OC Signature: (GOCS)
If a clause with an intrinsically null DP (PRO, SoK, OoK, Ad, Sp, **lOp, 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 X controls the null DP is determined by the thematic role matching condition in (6).

(6) The obligatory controller of Y in a CP inside XP is the argument of X whose thematic role (best) matches the thematic role of Y.

Because these general UG principles are 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 agrees with in languages like Kinande.

To see this, let us 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 lOp in Ibibio as seen already in (1) and (2). (7) shows the same asymmetry for the verbs ‘remind’, ‘show’, and ‘convince’.

(7) Ibibio (fieldwork, Willie Willie)

*a. Ndiṭọ e-ma-e-toiyo Okon ke mm-imọ/*imọ i-ma-i-dep adesi.*
children 3PL-PST-3PL-remind Okon that PL-LOG/*LOG 3.LOG -PST-3.LOG-buy rice
“The children$_i$ reminded Okon$_k$ that they$_i$/*he$_k$ bought rice.”

*b. Emem a-maa-wʌt ndiṭọ ke imọ i-maa-gha ọmmọ/?*mm-imọ..*
Emem 3SG-PST-show children that LOG 3.LOG-like-NEG 3PL/?*PL-LOG
“Emem$_i$ showed the children$_k$ that he$_i$ does not like them$_k$.”

*c. ?Emem a-maa-kpak ndiṭọ [ke Okon i-maa-gha imọ/*mm-ímọ̀].*
Emem 3SG-PST-convince children that Okon 3SG-like-NEG LOG/*PL-LOG
“Emem$_i$ convinced the children$_k$ that Okon does not like him$_i$/*them$_k$.”

This asymmetry follows from (6) given that lOp gets an agent-like thematic role from the C-head that licenses it, just as SoK and Sp do. This fundamental subject-object asymmetry is robust across the well-studied logophoric languages. It is found also in Ewe (Clements 1975: 154, Pearson 2013: 445), Yoruba (Adesola 2005: 186, 231-235), Abe (K&S: 580), Edo (Baker 1999), Gungbe (Aboh 2005: 49-50), and Baatonum (fieldnotes).[3]

An interesting wrinkle to control with three-argument verbs is that,

[3] The only counterexample that I know of from the literature involves ‘tell’ in Yoruba. Adesola (2005: 186) reports (ia), where the logophoric pronoun *oun* refers to the goal of ‘say’, not the agent. However, this sentence is special in that

with some of them, control can shift when the subject argument is inanimate. An inanimate subject is not a natural controller for lOp on semantic grounds (although inanimate antecedents for logophoric pronouns are not impossible in Ibibio; see B&I (2024: 911)). In this situation, some causative verbs with experiencer objects allow the experiencer to control lOp and thus antecede a logophoric pronoun:

(8) Ibibio (fieldwork, Willie Willie)

a. Deta a-maa-wʌt nditọ ke Okon i-maa-gha mm-imọ.
letter 3SG-PST-show children that Okon 3SG-like-NEG PL-LOG
"The letter showed the children$_i$ that Okon does not like them$_i$."

b. Ukpọk ekpat adesi a-maa-toiyo Okon ke imọ i-kpina i-dep adesi.
empty bag rice 3SG-PST-remind that LOG 3.LOG-should 3.LOG-buy rice
"The empty rice bag reminded Okon$_i$ that he$_i$ should buy rice."

The contrast between (7a) and (8b) can also be seen in Baatonum (fieldnotes). In contrast, verbs with pure goal objects such as 'tell', do not allow this shift in control, as seen in (1d) above.

The shift in control in (8) is not just a matter of the object being able to control lOp if and only if the subject cannot. Like inanimate NPs, first person pronouns cannot be the antecedents of logophoric pronouns. I assume this is because their phi-features do not match. Despite this, having a first-person pronoun as subject does not allow

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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 logoophoric pronoun can only refer to the agent of 'tell' as usual, as seen in (ib) (Adesola, p.c.). I put (ia) aside, leaving open exactly what its structure is.

(i) Yoruba (Adesola 2005: 186 (38b); Adesola, p.c.)

a. 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$_i$ that he$_i$ should go greet Ojo's father."

b. Ade so fun Olu pe oun lo ki baaba Ojo.
Ade say to Olu that LOG go greet father Ojo
"Ade$_i$ told Olu$_k$ that he$_{i,*k}$ went to greet Ojo's father."

the object to be a logophoric antecedent the way that having an inanimate nominal as subject does. This is shown in (9) (also (1c)).

(9) Ibibio (fieldwork, Willie Willie)
*?*Ami m-ma-n-toiyo Okon ke imọ i-kpina i-dep adesi.*
I 1SG-PST-1SG-remind Okon that LOG 3.LOG-should 3.LOG-buy rice
("I reminded Okon$_i$ that he$_i$ should buy rice.")

The contrast between (7), where the experiencer object cannot control lOp, and (8), where it can, is further evidence of the context-sensitivity of thematic roles like "initiator", which we saw for the control of Sp and Ad in §4.3.2. The specific assumptions that I used, based on Foley & Van Valin (1984) and Dowty (1991), are repeated in (10), with lOp joining Sp and SoK in (10f). Given (10f) plus (6), (10a) implies that the goal/experiencer object cannot be the initiator in (7) (because the agent is). Hence, it cannot control lOp and antecede a logophoric pronoun. However, in (8a,b) the subject is a causer, not a true agent. (10c) thus allows the goal phrases in these sentences to count as initiators, such that they can control lOp and antecede a logophoric pronoun.

(10) Thematic roles and macroroles:

a. The agent of an event is always its initiator.
b. The patient of an event can be its undergoer.
c. The goal of an event can be its initiator if there is no agent.
d. The goal of an event can be its undergoer if there is an agent.
e. Ad (and OoK) are undergoers of an event denoted by C.
f. Sp, SoK, **and lOp** are initiators of an event denoted by C.
g. The macroroles of the controller and the controllee must be the same.

These assumptions, especially (10c), also allow a goal-experiencer nominal to control lOp in a sentence like (11), where the verb

‘remember’ is an anticausative, with no external argument at all.

(11) Ibibio (fieldwork, Willie Willie)
Okon a-maa-toiyo (a-bo) ke imọ i-kpina i-dep adesi.
Okon 3SG-PST-remember 3SG-C that LOG 3.LOG-should 3.LOG-buy rice
“Okon$_i$ remembered that he$_i$ should buy rice.”

In contrast, (9) does have an agent argument, albeit one that cannot antecede a third person logophoric pronoun. Therefore, (10a,c) correctly block the experiencer from controlling lOp in cases like (9).

The principles in (10) do not fully implement the distinction between (8) and (1d) as to whether the goal of a verb can count as the initiator in the absence of an agent. (10c) says that a goal can be an initiator in this circumstance, but it does not say that it must be. I assume that the objects of ‘remind’ and ‘show’ are more prone to being interpreted as experiencers as well as goals than the object of ‘tell’ is. Thus, (12b) seems like a more stretched thing to say than (12a) in English.

(12) English (personal knowledge)
a. Mary told John that she loves him, even though he was in a coma and couldn’t hear her.
b. ?Mary reminded John that she loves him, even though he was in a coma and couldn’t hear her.

As such, the object of ‘remind’ plausibly has more “proto-agent” entailments than the object of ‘tell’ (Dowty 1991), experiencers like agents being conscious sentient persons. This gives it an extra boost toward initiatorhood. However, I do not fully codify this, and expect some variation across languages, verbs, and speakers.[4]

Another instructive comparison is between the lexical causative verbs ‘remind’ and ‘convince’ shown in (7) and periphrastic causative constructions like ‘make remember’ and ‘make believe’, shown in (13). Whereas the causee, the one made to remember or believe,

[4] For example, the object of ‘tell’ can control zOp in Japanese if and only if the subject is inanimate; see Baker & Ikawa (2024: 922 (43)).

cannot control the lOp in the complement clause in (7) when the causer is a true agent, in (13) this is possible.

(13) Ibibio (fieldwork, Willie Willie)

a. Nditọ e-ma-e-nam [Koko á-kere [ke Edem i-ḿmaá-ghá mm-ímọ̀/ímọ̀]].
children 3PL-PST-3PL-make Koko 3SG-think that Edem 3SG-like-NEG PL-LOG/LOG
"The children$_k$ made Koko$_i$ think that Edem doesn't like him$_i$/them$_k$."

b. Nditọ e-ma-e-nam [Okon a-toiyo [ke mm-imọ/imọ i-kpina i-dep adesi]].
children 3PL-PST-3PL-make Okon 3SG-remember that PL-LOG/LOG 3.LOG-should 3.LOG-buy rice
"The children$_i$ made Okon$_k$ remember that they$_i$/he$_k$ should buy rice."

The contrast between (7) and (13) supports the assumptions about thematic roles outlined in (10), as long as we assume that two events are encoded linguistically in (13), whereas only one complex event is encoded in (7). For example, (13b) speaks of a causing event which has an agent and which causes a distinct remembering event; that remembering event in turn has an experiencer and some content. In contrast, (7a) speaks of an event of reminding, which has an agent (or causer), an experiencer, and some content. Metaphysically, this might be a rather subtle distinction, but linguistically it makes an important difference because thematic roles are relative to events. At one level, this is obvious: the same person or object could very well be the agent/initiator of one event but the undergoer or not a participant at all in some contingently related event. This event-relatively then has implications for the rule concerning goal-experiencers in (10c). The goal-experiencer cannot be the initiator of an event of remembering if that event is conceived of as having an agent, as it is in (7a). But the goal-experiencer can be the initiator of an event of remembering that does not have a represented agent, as in (13b)—even if the event is caused by some other event that does have an agent. Therefore, the rememberer or the convincee can be a logophoric antecedent in (13) but not (7). It is predictable from this perspective that the periphrastic causative construction in (13b) behaves like the intransitive version of 'remember' in (11) rather than like the transitive version in (7a).

Other predicates that take experiencer arguments but no agent are factive emotive predicates that have experiencer objects, such as 'surprise' and 'be ashamed'. In Magahi, these can also control Sp in the absence of an agent argument. (14) shows that in Ibibio the experiencer objects of these predicates can also control lOp so as to become the antecedent of a logophor. Note that the subjects in these cases are body parts or emotion terms in semi-idiomatic constructions (see Clements (1975: 162-163) for Ewe; Baatonum allows this too). This also fits with (10), in particular (10c).

(14) Ibibio (fieldwork, Willie Willie)

a. Idém á-maá-kpá ǹdìtọ̀ ke Edem i-́maá-ghá mm-ímọ̀.
body 3SG-PST-die children that Edem 3SG-like-NEG PL-LOG
"It surprised the children$_i$ that Edem doesn't like them$_i$."

b. Obuut a-maa-mʌm Okon ke ímọ̀ i-ma-i-yip ngwet.
shame 3SG-PST-hold Okon that LOG 3.LOG-PST-3.LOG-steal book
"Okon$_i$ is ashamed that he$_i$ stole the book."

Like (8), (14) provides evidence that the T/Agree Condition does not restrict the control of lOp. T does not agree with the experiencer objects in these examples, but rather with the subject, whether it is a body part nominal, one that denotes an emotion like shame, or an inanimate causer. Ibibio is again like Magahi in this respect, where unagreed-with dative case experiencers can nevertheless control Sp.

As a result, these are constructions in which C-agreement and logophoric pronouns can go separate ways in Ibibio. This shows that the two phenomena depend on distinct operators. In (15a,b), the logophoric operator is controlled by the experiencer object, whereas C-agreement (to the degree that it is possible) must be with the syntactic subject.[5] A sketch of the structure of (15a) is in (16).

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[5] C-agreement is degraded in (15a) because the psych predicate is factive, and there are semantic conditions on the controller of SoK, as discussed in Chapter 2.

(15) Ibibio (fieldwork, Willie Willie)

*a. Idém á-maá-kpá ǹdìtọ̀ (??a-bo/*e-bo) ke Edem i-́maá-ghá mm-ímọ̀.*
body 3SG-PST-die children ??3SG-C/*3PL-C that Edem 3SG-like-NEG PL-LOG
"It surprised the children$_i$ that Edem doesn't like them$_i$."

b. Deta** a-ma-n-wʌt miin **(a-bo/m-bo) ke Okon i-m-maa-gha miin.*
letter 3SG-PST-1SG.O-show me 3SG-C/*1SG-C that Okon 3.SG-1.SG.O-like-NEG me
"The letter showed me that Okon does not like me."

(16) Body$_i$ die children$_k$ [SoK$_i$ C1$_{Agr}$ [lOp$_k$ C2 [Edem like Log$_k$]]]

My thesis is that what controls lOp is determined by the thematic roles of the potential controllers. A classic way to test a hypothesis like this 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. Therefore, we cannot test the interaction of logophoricity and passive using a matrix predicate like 'was told'. However, an approximation to this test is possible using examples with the verb 'hear', which is thematically similar to 'was told' and raises similar issues for the theory of operator control. Recall that the subject of 'hear' can always control SoK and Sp if no source phrase is present. That is true of lOp in the logophoric languages too in Ewe (Clements 1975: 158), Gungbe (Aboh 2005), Yoruba (Adesola 2005: 235), Ibibio, and Baatonum. (17) gives an Ibibio example.

(17) Ibibio (fieldwork, Willie Willie)

Emem a-me-kop (mbʌk) ke ímọ̀ i-ma-i-due.
Emem 3SG-PERF-hear (news) that LOG 3.LOG-PST-3.LOG-commit.fault
"Emem$_i$ heard (the news) that he$_i$ was guilty."

Then some variation across languages comes in as to what happens when a source phrase is present. In Ewe (Clements 1975: 159) and Ibibio, this can be the controller of lOp ((18a)). Nor is 'hear' unique in these respects; these languages have other predicates that have the

same argument structure as ‘hear’, and they also allow the source (or the experiencer) to control lOp, as in (18b).

(18) Ibibio (fieldwork, Willie Willie)

a. Okon a-ke-kop a-to Emem ke imọ i-ma-i-dia nsa-akʌk.
Okon 3SG-PST-hear 3SG-from Emem that LOG 3.LOG-PST-3.LOG-win lottery
“Okon$_i$ heard from Emem$_k$ that he$_{i,k}$ won the lottery.”

b. (Ami) m-ma-m-bọ etop n-to Okon ke imọ i-ya i-di mfin.
I 1SG-PST-1SG-get message 1SG-from Okon that LOG 3.LOG-PST-3.LOG -come today
“I got a message from Okon$_i$ that he$_i$ will come today.”

In contrast, source-control was considered marginal in Yoruba ((19)),[6] and Baatonum does not even allow an oblique source with ‘hear’.

(19) Yoruba (Oluseye Adesola, p.c.)

Olú gbọ́ (láti ẹnu Adé) pé. ó rí bàbá òun.
Ólu hear from mouth Ade that 3SG see father LOG
“Olu$_i$ heard from Ade$_k$ that he saw his$_{i,??k}$ 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; this is 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 an initiator able to control a ghostly DP like lOp, whereas when it is

[6] 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.

not an argument it is not an eligible controller according to the GOCS. This could work for the Yoruba/Ibibio contrast 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.[7]

The examples in (18) also show again that that there is no T/Agree Condition-type restriction on the control of lOP in Ibibio. Like experiencer objects, the source phrase in (18) can control lOp and antecede logophoric pronouns without triggering agreement on T or any other functional head. This too can create situations in which the trigger of C-agreement is different from the antecedent of a logophoric pronoun. In (20a), only the hearer can control C-agreement by the T/Agree Condition; C-agreement with the source is ungrammatical. However, the source phrase can control lOp and hence antecede a logophoric pronoun, even when the hearer controls C-agreement. This is clear proof that lOp and SoK are not the same syntactic element in Ibibio. The structure of (20a) must be something like (20b).

(20) Ibibio (fieldwork, Willie Willie)

*a. M-ke-kóp n-to Emem m-bo/*a-bo ké Edem i-ḱí-maa-ǵhá ímọ̀.*
1SG-PST-hear 1SG-from Emem 1SG-C /*3.SG-C that Edem 3SG-PST-like-NEG LOG
"I heard from Emem$_i$ that Edem did not like him$_i$."

b. I$_k$ heard from Em$_i$ [SoK$_k$ C1 [lOp$_i$ C2 [Ed not like him$_i$.]]].

Example (18a) shows that with a verb like 'hear' in Ibibio, either the experiencer subject or the oblique source argument can control lOp in the complement clause. The examples in (21) take this one step farther: they show that both arguments of the matrix verb can antecede logophors in the same embedded clause. The result is that two

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[7] 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 do not explore 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 (18).)

logophors in the same clause have different referents.

(21) Ibibio (fieldwork, Willie Willie)

a. Nditọ e-ke-kop e-to Okon ke ímọ̀ i-maa-gha mm-ímọ̀.
children 3PL-PST-hear 3PL-from Okon that LOG 3.LOG-like-NEG PL-LOG
"The children$_k$ heard from Okon$_i$ that he$_i$ doesn't like them$_k$."

b. Okon a-ke-kop a-to Emem ke imọ i-ya-i-nwam imọ.
Okon 3SG-PST-hear 3SG-from Emem that LOG 3.LOG-FUT-3.LOG-help LOG
"Okon$_i$ heard from Emem$_k$ that he$_{i,k}$ will help him$_{k,i}$."

Given my assumption that a logophoric pronoun must be bound by a lOp, this implies that there can be two distinct lOps in the periphery of a single clause in Ibibio, each controlled by a different argument of the matrix verb. The rough structure is shown in (22).

(22) The children$_k$ heard from Okon$_i$ [lOp$_k$ lOp$_i$ that [he$_i$ doesn't like them$_k$]].

Yoruba replicates this; it also allows two logophors in the same clause to have different referents under these circumstances, as shown in (23)

(23) Yoruba (Oluseye Adesola, p.c.).

Olú gbọ́ láti ẹnu Adé pé óun rí òun ni ọ́ja.
Ólu hear from mouth Ade that LOG see LOG at market
"Olu$_i$ heard from Ade$_k$ that he$_k$ saw him$_i$ at the market."

This is a surprising discovery. Within generative research on logophoricity, Koopman & Sportiche (1989: 570) argued 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, lOp is 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'. As a result,

(24) violates Binding condition B.

(24) Magahi (fieldwork, Deepak Alok)
**Santee-aa Bantee-aa-se sun-l-ai ki ham hamraa bajaar-me dekh-l-i.*
Santee-FM Bantee-FM-INS hear-PFV-3.NH.S that I me.ACC market-in see-PFV-1.S
("Santee$_i$ heard from Bantee$_k$ that he/I$_k$ saw him/me$_i$, in the market.")

Looking ahead, it is also the case that a single clause can only have one zOp, the operator 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. LOp seems to be different from other ghostly DPs in this respect.[8] This requires some adjustment to the principles of thematic role matching for ghostly operator constructions. There are two choices: one must either allow the matrix clause to have two (or more) initiator arguments, or one must say that an lOp can bear a thematic role other than initiator. I return to this in Chapter 8, where I argue for the latter approach.

In conclusion, Clements (1975) considers data from 'hear' constructions and experiencer predicates and concludes that there is a semantic condition on logophoric antecedents in Ewe, not a syntactic subjecthood condition. I agree in part; I claim it is really a *thematic* condition, where thematic roles are how lexical semantic notions interface with a restricted class of syntactic positions. This will be taken up thoroughly in Chapter 8, where I pursue a generalized control theory.

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[8] Note that the source phrase cannot contain a logophoric pronoun that refers to the hearer in an example of the form "Okon$_i$ heard from Log$_i$'s mother$_k$ that Log$_k$ won the lottery." This points away from an analysis of (21) in which there is only one lOp per CP but there is a covert predicate of 'saying' present under 'hear' that contributes a second lOp—something like "Okon$_i$ heard [lOp$_i$ [(from) Log$_i$'s mother$_k$ <say> [lOp$_k$ that [Log$_k$ won the lottery]]]]. That rather abstract structure might work for (21), but makes the wrong prediction on this point.

2.2. Structural conditions on control

Let us turn next to the condition that the controller of lOp must be an argument of the verb (or other lexical head) that selects the CP containing lOp, 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 (say) the subject of some higher verb. This locality was a clear property of C-agreement, easy to observe because Agree itself is very local. For indexical shift, the same locality can be shown, but it took 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 in this context it is harder to control for. Examples with the logophoric pronoun taking a more remote subject as 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 (25); (26) is one from Yoruba.

(25) Ibibio (fieldwork, Willie Willie)
Okon á-kére ké Edem á-ké-n-dọ̀kkọ̀ ké Mfọn é-kpóno ímọ̀.
Okon 3SG-think that Edem 3SG-PST-1SG.O-tell that Mfon 3SG.3.LOG.O-respect LOG
"Okon$_i$ thinks that Edem$_k$ told me that Mfon respects him$_{i,k}$."

(26) Yoruba (Afranaph, Oluseye Adesola)
Olu mo pe Ade ro pe Adio ko feran oun.
Olu know that Ade think that Adio not like LOG
"Olu$_i$ knows that Ade$_k$ thinks that Adio does not like him$_{i,k}$."

As with indexical shift, one might wonder if examples like these imply that lOp can be controlled or bound at a longer distance, with something like (27) being the representation for longer-distance reading of the logophor in (25). If so, this is a problem for the OC-based theory.

(27) Okon$_i$ think [C [Edem tell me [lOp$_i$ C [Mfon respect Log$_i$]]

However, (27) cannot be the full explanation of longer distance readings of logohors, 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 in (28) and (29). This mixed reading can be easier to get when the reading in which both pronouns have the same antecedent is ruled out by Condition B, as in (28a). However, it is not restricted to that: (28b) is four ways ambiguous, with either logophor taking either subject as its antecedent. (29) is a Yoruba example like (28a) from Ibibio; this is also possible in Edo (Baker 1999).

(28) Ibibio (fieldwork, Willie Willie)

a. Okon á-kére ké Edem á-ké-n-dọ̀kkọ̀ ké ímọ̀ i-kpóno ímọ̀.
Okon 3SG-think that Edem 3SG-PST-1SG.O-tell that LOG 3.LOG-respect LOG
"Okon$_i$ thinks that Edem$_k$ told me that he$_k$ respects him$_i$."

b. Okon á-kére ké Edem á-ké-n-dọ̀kkọ̀ ké èkà ímọ̀ é-kpóno ímọ̀.
Okon 3SG-think that Edem 3SG-PST-1SG.O-tell that mother LOG 3SG.3.LOG.O-respect LOG
"Okon$_i$ thinks that Edem$_k$ told me that his$_{i,k}$ mother respects him$_{i,k}$." (four ways ambiguous)

(29) Yoruba (Oluseye Adesola, p.c.)

Olu mo pe Ade ro pe oun ko feran oun.
Olu know that Ade think that LOG not like LOG
"Olu$_i$ knows that Ade$_k$ thinks that he$_{i,k}$ does not like him$_{k,i}$." (two ways ambiguous)

The fact that one instance of *ímọ̀* in (28a) refers to Edem implies that *Edem* must control an lOp in the lowest clause. This implies that *Okon* does not become the antecedent of the other instance of *ímọ̀* by

controlling at a distance that same lOp.[9] Rather, (28a) has a representation like (30), where one of the logophors is bound directly by the higher lOp.

(30) Okon_i think [lOp_i C [Edem_k tell me [lOp_k C [Log_k respect Log_i]]]]

Indeed, the fact that *ímọ̀* can be bound by a more remote Op 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 §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. But there is no such limitation on logophoric pronouns (see also §5.5.2). 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 lOp must always be controlled by the closest thematic subjects, but all the facts are perfectly compatible with that restrictive hypothesis.[10]

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[9] This reasoning assumes that a given clause can have only one instance of lOp. As we saw in the previous section, this is not always true in Ibibio and Yoruba. Hence (i) is a possible alternative representation for (28a). However, I know of no reason to say that (i) must be possible or to prefer it over (30).

(i) Okon_i think [C [Edem_k tell me [lOp_i lOp_k C [Log_k respect Log_i]]]]

[10] There may be some languages/varieties in which a nonlogophoric pronoun cannot be locally bound by lOp, such as Edo and Abe (see §5.5.3). In such a language, one could investigate whether a more remote subject can control a lOp by investigating structures of the form in (i),

(i) Olu_i said [(lOp1_i) that [his_i(-log) mother thinks [lOp2_i that [LOG_i is smart]]]].

The prediction is that this should be bad with LOG=his=Olu. In particular, it would not be possible with *Olu* controlling lOp1 in the complement of 'say', and then lOp1 binding the logophor, because then lOp1 would also bind 'his' in 'his mother', which is bad by hypothesis. If the alternative structure is possible, with 'Olu' directly controlling lOp2 in the complement of 'think', then (i) could be acceptable with this interpretation. However, I do not have access to speakers of Edo or Abe or another language of this type to test this at this time.

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. It is also observable in many cases in Ibibio. The possessor of the subject cannot in general control the lOp, allowing it to be the antecedent for the logophor in the examples in (31). Gungbe (Aboh 2005) and Baatonum (fieldnotes) are similar. This judgment is clear in examples like (31a) in which the possessed noun is itself animate, and it carries over also to (31b,c) where the possessed noun is inanimate. 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 (31a,b). However, the structural conditions on obligatory control are not, and having the logophor refer to the possessor fails for this reason.

(31) Ibibio (fieldwork, Willie Willie)

a. A-tañikọnnọ Trump a-maa-nam e-diọñọ ke imọ i-ya-i-ka North Korea urua mfen.
3SG-talk.word Trump 3SG-PST-make 3.PL-know that LOG 3.LOG-FUT-3.LOG-go N.K. week next
"Trump$_i$'s spokesman$_k$ announced that he$_{k,*i}$ will go to North Korea next week."

b.#Ngwet Trump a-ke-bo ke imọ i-mi-yaiya.
book Trump 3SG-PST-say that LOG 3.LOG-PERF-handsome
("Trump$_i$'s book says that he$_{*i}$ /it$_{??k}$ is handsome.")

c. Ukpọk ekpat Okon a-ma-n-toiyo ke ng-kpina n-dep adesi n-nọ anye/#imọ.
empty bag Okon 3SG-PST-1SG.O-remind that 1SG-should 1SG-buy rice 1SG-give 3SG/#LOG
"Okon$_i$'s empty bag$_k$ reminded me that I should buy rice for him$_i$."

The empirical situation here is complicated by the fact that a few examples of what looks like a possessor controlling lOp are accepted. For example, the possessor of the nouns 'letter' and 'picture' can be the antecedent of a logophor with some slight marginality in Ibibio

((32)) as well as Yoruba and Baatonum (fieldnotes).[11]

(32) Ibibio (fieldwork, Willie Willie)

a. ?Détá Okon a-ḱé-bó ké Edem i-ḿaá-ghá ímọ̀.
letter Okon 3SG-PST-say that Edem 3SG-like-NEG LOG
"Okon$_i$'s letter said that Edem does not like him$_i$."

b. Ndise Okon a-wʌt ke ímọ̀ i-yat esɪt.
picture Okon 3SG-show that LOG 3.LOG-be.hot heart
"Okon$_i$'s picture shows that he$_i$ is upset."

My interpretation of this is that the possessor of the subject is never a genuine controller of lOp. Rather, 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 are in fact coreferential with the subject NPs 'Okon's letter' and 'Okon's picture' but those NPs are quirky indirect ways of referring to Okon himself. Indeed, consultants sometimes like to translate examples like (32a) 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 involve metonymy comes from the fact that the subject 'Okon's letter' in (32a) behaves like an animate NP, which is surprising if it refers to the letter but not if it refers to Okon. We saw in the previous section that an inanimate noun in the subject position of a verb like 'show' or 'remind' is a causer, which allows the goal-experiencer object to be regarded as the initiator and thus to control lOp. Now consider the contrast between

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[11] (32b) 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. This could be 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 agent-creator reading of the possessor to count as an author, hence a logophoric center, but not the patient-portrayed reading. I thank Idan Landau (p.c.) for suggesting this kind of example and its possible relevance.

‘Emem’s letter’ and ‘Okon’s empty bag’ used as the subject of such a verb, shown in (33).

(33) Ibibio (fieldwork, Willie Willie)

*a. Deta Emem a-maa-wʌt nditọ ke imọ i-maa-gha ommo/*mm-imọ.*
letter Emem 3SG-PST-show children that LOG 3.LOG-like-NEG 3PL/*PL-LOG
“Emem$_i$’s letter showed the children$_k$ that he$_i$ does not like them$_k$.”

b. Ukpọk ekpat Okon a-maa-toiyo nditọ ke mm-imọ i-kpena i-dep adesi.
empty bag Okon 3SG-PST-remind children that PL-LOG 3.LOG-should 3.LOG-buy rice
“Okon’s empty bag reminded the children$_i$ that they$_i$ 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. 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 suppresses the possibility of the object ‘children’ anteceding a logophor. (Recall that Ibibio allows two lOps in the periphery of a single CP, so the possessor/subject controlling one lOp does not automatically preclude the experiencer object from controlling a second lOp.) 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 and therefore (10c) rules out the goal object counting as an initiator, as needed for it to control lOp in the CP complement. Just saying that an inanimate subject is not a good logophoric controller and this allows control of the lOp to pass to some prominent human-denoting argument in the clause is not enough to account for the details of this pattern. Overall, this pattern of facts supports the idea that obligatory control is at work here, where an argument of the matrix verb can control lOp but something that is not an argument of the verb (here the possessor) cannot, even though

the possibility of metonymy creates a few apparent exceptions.[12]

2.3. Structural conditions on the clause containing lOp

The other way in which the GOCS constrains obligatory control has to do with the position of the clause that contains the lOp 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. Assuming that lOp needs to be controlled, the implication of this is that lOps should only be possible in complement clauses and low VP-level adjunct clauses. This section investigates this implication. For each of the major cases, there is some clear evidence supporting the predictions of the GOCS, but there are 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 of the object, not with a projection of the verb that selects that object. Therefore, the GOCS predicts no OC by another argument of the verb, and indeed relative clauses are not an environment of OC in English. The baseline expectation, then, is that logophoric pronouns will not be licensed in relative clauses either. This would also match with what we know about other ghostly DP constructions: indexical shift in Magahi is impossible in relative clauses, and so are complementizers agreeing with the matrix subject in African languages. Indeed, most canonical relative clauses cannot license logophoric pronouns in Ibibio (or in

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[12] When an agreeing C is added to an example like (i), parallel to (32a), it must be singular, agreeing with 'letter', whereas the logophor coreferential with 'children' must be plural. My interpretation is that the NP 'children's letter' referring metonymically to the children is grammatically singular, since its syntactic head 'letter' is singular, but it is 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 Corbett (1979, 2006), Wechsler and Zlatic (2003) and Messick (2023) among others for discussion of grammatical versus semantic agreement.

(i) Ibibio (fieldwork, Willie Willie)
*Détá ndiṭọ a-ḱké-bó á-te/*é-te ké Edem i-ḿmaá-ghá *(mm)-ímọ̀.*
letter children 3SG-PST-say 3SG-C/*3PL-C that Edem 3SG-like-NEG PL-LOG
"The children$_i$'s letter says that Edem does not like them$_i$."

Baatonum). (35) gives three examples.[13]

(34) Ibibio (fieldwork, Willie Willie)

*a. Okon a-maa-duọk ngwet odo se anye/*imọ a-ke-dep.*
Okon 3SG-PST-lose book the REL 3SG/*LOG 3SG-PST-buy
"Okon$_i$ lost the book that he$_i$ bought."

*b. Dọktọ ado a-maa-dọkkọ Okon ibọọrọ iduungọ anye/*imo a/i-ke-nam-ma.*
doctor the 3SG-PST-tell Okon result investigation 3SG/*LOG 3SG/3.LOG-PST-make-REL
"The doctor$_i$ told Okon the results of the test he$_i$ did."

*c. Okon a-ke-dọ awonwaan a-(i)-maa-gha anye/?*imọ.*
Okon 3SG-PST-marry woman 3SG-(3.LOG.O)-like-REL 3SG/?*LOG
"Okon$_i$ married a woman who likes him$_i$."

It is not entirely accurate simply to say that a logophoric pronoun is impossible inside a relative clause in Ibibio. A logophoric pronoun can perfectly well appear inside a relative clause if a sentence like (33a) is embedded in the complement of an attitude verb. This is shown in (34a), where the logophoric pronoun *imọ* can refer to the subject of the whole sentence 'Okon'; see also Clements (1975: 156) and Culy (1994: 1074). The structure is shown in (34b). Here again there cannot be an lOp in the periphery of the relative clause controlled by the subject of 'lose', in accordance with the GOCS. But there can be an lOp in the complement of 'think' controlled by 'Okon', the subject of 'think'. This lOp can bind the logophoric pronoun inside the relative clause. This confirms the conclusion from the previous section that a lOp can bind a logophoric pronoun indefinitely far away, as is generally possible for pronominal binding.

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[13] 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 (33a), or they can have a -CV suffix on the verb of the relative clause, as in (33b,c). I found no difference between the two with respect to logophoricity.

(35) Ibibio (fieldwork, Willie Willie)

a. Okon a-kere ke ami m-ma-n-duọk ngwet se imọ i-ki-n-nọ miin.
Okon 3SG-think that I 1SG-PST-1SG-lose book REL LOG 3.LOG-PST-1SG.O-give me
"Okon$_i$ thinks that I lost the book that he$_i$ gave me."

b. Okon$_i$ thinks [lOp$_i$ that I lost [the book [(*lOp) that he$_i$ gave me]]].

More perplexing 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. 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) Ibibio (fieldwork, Willie Willie)

a. Okon a-sʌk a-yem awo-nwaan se i-di-dọ imo.
Okon 3SG-PROG 3SG-seek woman REL 3SG-FUT-marry LOG
"Okon$_i$ is looking for a woman who will marry him$_i$."

b. Okon a-maa-nam esio se ***imọ*** *i-di-nọ Enọ.*
Okon 3SG-PST-make pot REL LOG 3SG-FUT-give Eno
"Okon$_i$ made a pot that he$_i$ 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 direct object can also select a CP complement that would be a canonical logophoric domain. This is true of 'tell' and 'make' in Ibibio, and also of *yem* 'seek', given that this is also the normal verb meaning 'want'. However, it is not enough simply to have an intensional verb with the logophoric pronoun inside its 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 its C head.

(37) Ibibio (fieldwork, Willie Willie)

*a. *Okon a-sʌk a-yem anwaan imọ.*
Okon 3SG-PROG 3SG-seek wife LOG
("Okon$_i$ is looking for his$_i$ (future) wife.")

*b. Okon a-sʌk a-yem ngwet ọmọ/*imọ se (ami) ng-ke-duọk.*
Okon 3SG-PROG 3SG-seek book his/*LOG REL I 1SG-PST-lose
"Okon$_i$ is looking for his$_i$ 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 complex predicate—perhaps by adjoining to the verb by covert head movement. 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 could be interpreted conjunctively, so that '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 made a pot and made it that he will give the pot to Eno.' In contrast, this procedure of reanalysis would not give a coherent outcome for examples like (34), because the content of the relative clause does not constitute 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'—the second conjunct of which makes no sense. This reanalysis of V+[N+RelCP] so that it becomes [V+N]+CP is presumably a marked process, not automatically available in all languages. For example, Magahi does not allow a similar reanalysis to feed indexical shift, which would make possible a sentence like 'Santee$_i$ is looking for a woman to marry with me$_i$' (see §4.3.4). If this proposal is right, then it holds true that lOp 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.

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 contain 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) Ibibio (fieldwork, Willie Willie)

a. Okon a-maa-dibe mbaak Emem a-di-kit imo.
Okon 3SG-PST-hide so.that Emem 3SG-FUT.NEG-see LOG
"Okon$_i$ hid so that Emem would not find him$_i$."

b. Okon á-ke-dát íbǫ́k ódó m̀bàak (imo) i-dí-dǫ́ñǫ́.
Okon 3SG-PST-take medicine the so.that LOG 3.LOG-FUT.NEG-sick
"Okon$_i$ took the medicine so that he$_i$ would not get sick."

(39) Yoruba (Oluseye Adesola, p.c.)

Olú tètè jí kí òun má baà pẹ́ ní tirẹ̀.
Olu quickly wake that LOG NEG FUT late on his.own
"Olu$_i$ woke up quickly so that he$_i$ would not be late."

This kind of adjunct clause also allows first person indexical-shift in Magahi and C-agreement in Lubukusu. Other types of adjunct clause do not allow a logophoric pronoun to refer to the higher subject in Ibibio. This includes 'because', 'when', and 'if' clauses, as in (40).

(40) Ibibio (fieldwork, Willie Willie)

*a. Okon a-mé-nèm ésɪt sia Emem a-ma-(i)-nọ anye/*imọ íbǫ́k.*
Okon 3SG-PERF-be.sweet heart because Emem 3SG-PST-(3.LOG.O)-give 3SG/*LOG drug
"Okon$_i$ is happy because Emem gave him$_i$ a drug."

*b. Okon á-maá-dat íbǫ́k ké ìnì dǫ́ktǫ́ á-ké-tèmméké ànyé/*imọ á-bó á-dát.*
Okon 3SG-PST-take medicine at time doctor 3SG-PST-instruct 3SG/*LOG 3SG-say 3SG-take
"Okon$_i$ took the medicine when the doctor told him$_i$ to take it."

*c. Akpedo Emem i- koot-to anye/*imo usọrọ odo, Okon i-di-kan-na adi-di.*
if Emem 3SG-call-NEG 3SG/*LOG party the Okon 3SG-FUT-can-NEG INF-come
"If Emem doesn't invite him$_i$ to the party, Okon$_i$ will not be able to come."

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

My interpretation of this contrast among adjunct clauses, 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.[14] The difference between (38) and (40) follows from this plus the assumption that lOp must undergo OC. 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.[15] Landau also argues that adjunct clauses that adjoin higher always

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[14] I do not deny 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, *Mary went into the woods in order to trap a griffin* does not commit the speaker to a belief in griffins. 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. Hence (ia), which involves a mental kind of causation, is no better with *imo* than is (ib), which describes purely physical cause and effect.

(i) Ibibio (fieldwork, Willie Willie)

*a. Okon a-ke-ka Lagos sia anye/*imo a-ke-yem adi-kit Enọ.*
Okon 3SG-PST-go Lagos because 3SG/*LOG 3SG-PST-want INF-see Enọ
"Okon$_i$ went to Lagos because he$_i$ wanted to see Eno."

*b. Okon a-ke-duọ sia Enọ a-ke-(i)-nʌk anye/*imọ.*
Okon 3SG-PST-fall because Enọ 3SG-PST-(3.LOG.O)-push 3.SG/*LOG
"Okon$_i$ fell down because Enọ pushed him$_i$."

[15] The only type of adjunct clause that is generated inside VP but allows NOC according to Landau (2021) is an object purposive clause like *Neal bought a book$_i$ [Op$_i$ PRO to read t$_i$ 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 the position of the clause and the type of control which is expressed in (G)OCS applied to adjunct clauses.

permit NOC. Landau claims that most of these high adjunct clauses also permit OC, but his evidence for that is somewhat thin: it is primarily based on the fact that their PRO subjects can have inanimate controllers. Landau assumes that inanimates can normally control PRO only via OC, but this assumption is debatable; Landau (2021) himself discusses cases where topical inanimate NPs can function as nonobligatory controllers in English. The GOCS is thus defensible as the main effect in the area of adjunct clauses too, with some residues to consider in future work.[16] Preliminary evidence that purposive clauses may be generated in a different position from other adjunct clauses in Ibibio comes from the fact that they are weaker islands for *wh*-extraction than other CP adjuncts, as shown in (41).

(41) Ibibio (fieldwork, Willie Willie)

a. Anie ke Okon a-di-ka Lagos mbaak anye a-di-kit?
who FOC Okon 3SG-FUT-go Lago so.that he 3SG-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 3SG-PST-go Lagos because he 3SG-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 3SG-PST-shout at time he 3SG-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

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[16] Other reasons that Landau (2021) 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 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.

that undergo OC are 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 Landau has done for English must await future research.[17]

Consider next the possibility of logophoric pronouns in CP subjects. In fact, this construction does not 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 in the normal preverbal subject position or extraposed to the right edge of the sentence. 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 lOp does not come up.[18]

(42) Ibibio (fieldwork, Willie Willie)

*a. *Ke Edem/imọ a-maa-dia nsa-akʌk a-maa-nwam Okon.*
that Edem/LOG 3SG-PST-win lottery 3SG-PST-help Okon
("That Edem/he$_i$ won the lottery helped Okon$_i$.")

*b. ?*A-maa-nwam Okon ke Edem/imọ a-maa-dia nsa-akʌk.*
3SG-PST-help Okon that Edem/LOG 3SG-PST-win lottery
("It helped Okon$_i$ that Edem/he$_i$ won the lottery.")

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

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[17] An alternative way to capture the difference between (38) and (40) is simply to say that the C head *mbaak* 'so that' licenses lOp whereas *sia* 'because' and *akpedo* 'if' do not. This would not require us to posit a difference in the attachment site of the CP adjuncts, for which the empirical evidence is currently scanty. This was the official view of Baker & Ikawa (2024), 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 2024: 947 fn 46.)

[18] Something like (42a) can be expressed using a carrier noun like 'news' in combination with the CP. See later in this section for discussion.

theme/content argument of the predicate, not its thematic subject. (Notice that the verb is not explicitly causative here, but rather an idiomatic use of 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 lOp 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) Ibibio (fieldwork, Willie Willie)
A-maa-kpa Okon idem ke ímọ̀ i-ma-i-dia nsa-akʌk.
3SG-PST-die Okon body that LOG 3.LOG-PST-3.LOG-win lottery
“It surprised Okon$_i$ [lOp$_i$ that [he$_i$.won the lottery]].”

One further non-OC environment that we can consider is root clauses contained in a connected discourse. An lOp 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 that head that could control lOp. Since a logophor must be bound by lOp, the prediction is that it should be impossible for a true logophor to occur in a root clause, referring (say) to some prominent NP in the larger discourse. (In contrast, exempt anaphors can be used in this way; see §5.6.) Indeed, Ibibio’s *imọ* is generally impossible in this situation. Thus, *imọ* 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 an ordinary pronoun *anye/ọ̀mọ̀*, never the logophor *imọ*.)

(44) Ibibio (fieldwork, Willie Willie)
**Idem a-maa-kpa Okon adi-kit ndise omo ke ngwet odo. Nso se imọ i-di-dokko eka imọ.*
body 3SG-PST-die Okon INF-see picture his in book the what C LOG 3.LOG-FUT-tell mother LOG
(“Okon$_i$ was surprised to see his$_i$ picture in the book. What would he$_i$ tell his$_i$ mother?”)

Similarly, *imọ* in Ibibio is not possible is possible in a root clause following a perspectival adjunct like ‘in X’s opinion’:

(45) Ibibio (fieldwork, Willie Willie)
*Ke akikere Okon, Emem/*imọ a/i-ma a/i-due.*
in thought Okon, Emem/*LOG 3.LOG-PST-3.LOG-guilty
"In Okon$_i$'s opinion, Emem/*he$_i$ was guilty."

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

As with relative clauses, there is some nuance to this generalization to consider. 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), This is possible if and only if "Then I cooked the rice" is something that Okon said, as Pearson (2015: 103) observes for Ewe (see Clements 1975: 170-171; Adesola 2005: 216).

(46) Ibibio (fieldwork, Willie Willie)
Okon a-ma-n-dọkkọ miin ke imọ i-ma-i-dep udia ye adesi. (Ndion) imọ i-ma-i-tem adesi odo.
Okon 3SG-PST-1SG.O-tell me that LOG 3.LOG-PST-3.LOG-buy yam and rice (then) LOG 3.LOG-PST-3.LOG-cook rice the
"Okon$_i$ told me that he$_i$ bought yams and rice. Then he$_i$ cooked the rice."

I see 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 that the antecedent can be *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$_i$ told me [lOp$_i$ that [then Log$_i$ cooked the rice]]]*, the clausal

complement moves out by focus movement, and *[Okon$_i$ told me --]* elides under parallelism with the preceding sentence (compare pseudo-gapping and fragment answers in English). As support for this hypothesis, consider (47), which is like (46) except that the CP-selecting verb is ‘deny’ rather than ‘tell’.

(47) Ibibio (fieldwork, Willie Willie)
Okon a-maa-kañ ke imọ i-k-i-yip ebot. (Ndion) imọ i-ma-i-wot ebot odo.
Okon 3SG-PST-deny that LOG 3.LOG-PST-3.LOG-steal goat then LOG 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 West African languages allow clausal ellipsis in a somewhat different range of environments.) This ellipsis proposal raises many questions, but it does 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 analysis, (46) is not a counterexample to the GOCS-induced generalization that lOp is impossible in root clauses. The second sentence is not a root clause but only looks like one because 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 like ‘news’ or ‘rumor’. This construction calls for some special discussion, as it did for C-agreement and indexical shift. 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) Ibibio (fieldwork, Willie Willie)

a. Emem a-me-kop mbʌk ke ímọ̀ i-ma-i-due.
Emem 3SG-PERF-hear news that LOG 3.LOG-PST-3.LOG-guilty
"Emem$_i$ heard the news that he$_i$ was guilty."

b. Emem a-maa-dọkkọ Ekpe mbʌk ke ímọ̀ i-ma-i-due.
Emem 3SG-PST-tell Ekpe news that LOG 3.LOG-PST-3.LOG-guilty
"Emem$_i$ told Ekpe$_k$ the news that he$_{i,*k}$ was guilty."

Confirmation that the CP really does merge with 'news' rather than with the VP comes from the fact that focus movement can apply to the 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 the focus-fronted version.

(49) Ibibio (fieldwork, Willie Willie)

a. Mbʌk ke ímọ̀ i-ma-i-due ke Emem a-ke-dọkkọ Ima.
news that LOG 3.LOG-PST-3.LOG-guilty FOC Emem 3SG-PST-tell Ima
"It's the news that he$_i$ was guilty that Emem$_i$ told Ima."

*b. *Mbʌk ke Emem a-ke-dọkkọ Ima ke ímọ̀ i-ma-i-due.*
news FOC Emem 3SG-PST-tell Ima that LOG 3.LOG-PST-3.LOG-guilty
(lit. "It's the news that Emem$_i$ told Ima that he$_i$ was guilty.")

This is somewhat surprising given the GOCS, since the CP containing lOp does not merge with a projection of the verb ('tell', 'hear') whose argument seems to be controlling lOp. 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 (Diercks 2013) and Ibibio, and indexical shift is possible inside an N-CP construction in Magahi. My proposal about this for the other languages was that the noun 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 in accordance with 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$_i$ told Ekpe$_k$ [$_{NP}$ pro$_i$ news [$_{CP}$ lOp$_i$ that [he$_{i,*k}$ is guilty]]]

Next suppose that, in addition to its CP complement, a noun like 'news' or 'plan' has an overt nominal argument in the form of a possessor. The GOCS allows 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 complement of the verb. It is no surprise, then, that a logophor inside CP can refer to the possessor in (51).

(51) Ibibio (fieldwork, Willie Willie)

a. Nditọ e-me-kop mbʌk Emem ke ímọ̀ i-ma-i-due.
children 3PL-PERF-hear news Emem that LOG 3.LOG-PST-3.LOG-guilty
"The children heard Emem$_i$'s news that he$_i$ was guilty."

b. Nditọ e-ma-e-n-dọkkọ e-baña uduak Okon ke imọ i-ya-i-n-nwam.
children 3PL-PST-3PL-1SG.O-tell 3PL-about plan Okon that LOG 3.LOG-FUT-3.LOG-1.SG.O-help
"The children told me about Okon$_i$'s plan that he$_i$ 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 but is an overt independently referring nominal.

Given this, 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. This is what Diercks (2013) reports for upward C-agreement in Lubukusu. However, this is not 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) Ibibio (fieldwork, Willie Willie)

a. Ndiṭọ e-me-kop mbʌk Emem ke mm-ímọ̀ i-ma-i-due.
children 3PL-PERF-hear news Emem that PL-LOG 3.LOG-PST-3.LOG-guilty
"The children$_i$ heard Emem's news that they$_i$ were guilty."

b. Ndiṭọ e-ma-e-n-dọkkọ e-baña údúak Okon ke Emem a-ya-i-nwam mm-imọ.
children 3PL-PST-3PL-1SG.O-tell 3.PL-about plan Okon that Emem 3SG-FUT-3.LOG.O-help PL-LOG
"The children$_i$ told me about Okon's plan that Emem will help them$_i$."

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) Ibibio (fieldwork, Willie Willie)

Ndiṭọ e-me-kop mbʌk Emem ke ímọ̀ i-ma-i-kit mm-ímọ̀ ke urua.
children 3PL-PERF-hear news Emem that LOG 3.LOG-PST-3.LOG-see PL-LOG at market
"The children$_i$ heard Emem$_k$'s news that he$_k$ saw them$_i$ at the market."

My theory can be extended to these examples by saying that a noun like 'news' 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 seen that a CP can have more than one lOp in Ibibio (see (21)/(22)). Given this, examples like (52a) and (53) can be represented as in (54).[19]

[19] 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 initiator and thus being thematically eligible to control lOp. Apparently, 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 for (10).

(54) The children$_i$ heard [Emem$_k$'s news pro$_i$ [lOp$_k$ lOp$_i$ that
[Edem/Log$_k$ saw Pl-Log$_i$]]].

Examples like (53) constitute a second piece of evidence for the surprising result that two distinct lOps can be in the periphery of CP in Ibibio. This construction is another one in which logophoricity and upward C-agreement can diverge somewhat 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 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.)

(55) Ibibio (fieldwork, Willie Willie)
Ndito e-me-kop mbʌk ***Emem*** *e-bo ke* ***ímọ̀*** *i-ma-i-due.*
children 3PL-PERF-hear news Emem 3PL-C that LOG 3.LOG-PST-3.LOG-guilty
"The children heard Emem$_i$'s news that he$_i$ was guilty."

Note that in order for (55) to pass muster with the T/Agree Condition, we must say that the relationship between the subject of the sentence 'children' and the null argument of 'news' is also an instance of OC. Then it counts as a link in the web of pointers that are relevant 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.

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 in Ibibio. Moreover, it is possible for the CP to contain a logophoric pronoun. The examples in (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. In this structure too the logophor can refer to the object regardless of whether the carrier noun 'news' has an overt possessor or not.

(56) Ibibio (fieldwork, Willie Willie)

a. Mbʌk (ndito) ke imọ i-ma-i-due a-me-yat Okon esɪt.
news (children) that LOG 3.LOG-PST-3.LOG-guilty 3SG-PERF-hot Okon heart
"The (children's) news that he_i is guilty upset $Okon_i$."

b. Mbʌk (ndito) ke imọ i-ma-i-dia nsa-akʌk a-maa-nwam Okon adi-bọ ewọọd-akʌk ke bañ
news (children) that LOG 3.LOG-PST-3.LOG-win lottery 3SG-PST-help Okon INF-collect loan at bank
'The (children's) news that he_i won the lottery helped $Okon_i$ to get a loan from the bank.'

My analysis of these is that here too the real controller of lOp 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 is observable in a subtlety of the meaning of (56b). One can imagine that the news that Okon has suddenly become wealthy by winning the lottery makes the bankers more willing to give him a loan even if Okon himself has not heard the news yet. Willie Willie allows this meaning for an analog of (56b) in which the subject of 'win' is the plain pronoun *anye*, but with the logophor *imọ* he has the sense that Okon himself must have heard the news, this giving 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 of the carrier noun—in this case, its goal-experiencer argument.

There are several signs that the relationship between the null argument of 'news' and its antecedent does not have to be one of OC, but in (56) it is 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 complex NP is in (56). Second, the object of 'help' is not thematically qualified to be the controller of this null argument, if it is a theme argument whereas the covert arguments of 'news' are source and goal-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', 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 lOp; see (40a)) as well as the noun phrase headed by 'news'. This looks more like NOC than it does like OC. NOC is possible because null arguments of 'news' are involved, not just lOps and the other ghostly DPs that are the focus of this study.[20]

(57) Ibibio (fieldwork, Willie Willie)
Edem a-maa-dip afid sia mbʌk ndito ke imo i-ma-i-due a-me-yat Okon esɪt.
Edem 3SG-PST-hid knives because news children that LOG 3.LOG-PST-3.LOG-guilty 3SG-PERF-hot Okon heart
"Edem$_i$ hid the knives because the children's news that he$_{i,k}$ is guilty upset Okon$_k$."

One other detail that falls into place is that whereas a logophoric pronoun can get a long-distance antecedent in these constructions that involve a noun like 'news', an agreeing complementizer cannot. 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 embedded subject.

(58) Ibibio (fieldwork, Willie Willie)
*Emem a-maa-kere ke mbʌk (*a-bo) ke imo i-ki-due a-maa-kpa owo idem.*
Emem 3SG-PST-think that news (*3SG-C) that LOG 3.LOG-PST-guilty 3SG-PST-die person body
"Emem$_i$ thinks that the news that he$_i$ 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' can be controlled by a null argument of 'news' (just as lOp can be), *Emem* can be the antecedent of that null argument, and *Emem* triggers agreement on T in the root clause. However, we have no reason to say

[20] Perhaps this implies that the null arguments of nouns have intrinsic interpretable features. Either that, or they fall under a different theory as to what may and must undergo OC than the ghostly DP operators do.

that mere pronominal coreference creates the kind of pointers that Agree and OC relations do—the pointers that Agree-Copy depends on. Pronominal coreference does not depend on the notion of phi-feature sharing, but rather on a looser notion of feature compatibility. In this way too, the binding of null arguments of a noun behaves differently from the OC of the ghostly DP operators in CPs.

Turning this argument around, the fact that C in the complex NP in (55) can agree with the subject of the matrix clause implies not only that the relationship between that subject and the null argument of 'news' is an instance of OC (not mere pronoun binding), but also that OC relationships must be syntactically represented, because they (unlike pronoun binding) are visible to Agree in the syntax and at PF. This turns out to be one of my strongest arguments that OC has a syntactic aspect to it. See §8.7 for discussion.

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 4 that first person indexicals inside complex NPs used as subjects cannot shift to refer to the object of the matrix verb in Magahi (see (48) in Chapter 4). This is one way that logophoric pronouns behave differently from shifted indexicals at the edge 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 NOC might be bad in Magahi because N+CP constructions need to go have a demonstrative as well, whereas bare NPs are used in Ibibio. However, this is only a conjecture at this point.

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 analysis 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 lOp in CP must be an argument of the verb that CP is merged with, and structural restrictions on where a CP with a lOp can be found—in a complement or a low adjunct, but not in a relative clause, high adjunct clause, subject clause, or root clause. These properties that have been 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.

3. The constituents that can contain lOp

The previous section showed, among other things, that lOp is possible in clauses which are in contexts of OC: complement clauses or low adjunct clauses that merge directly with the projection of a lexical head (usually a verb, but also a noun like ‘news’ or ‘plan’). In this section, I briefly consider which clause-like constituents that appear in complement/object position can contain an lOp and therefore locally-licensed logophoric pronouns. The short answer is that almost all of them can: not only finite clauses, but even causative complements, infinitives, and gerunds. These license logophoric pronouns in Ibibio, even though they do not allow agreeing Cs in Ibibio or indexical shift in Magahi. Thus, lOp is licensed in a wider range of clause types than its kin, SoK and Sp.

First of all, lOp in Ibibio is possible in a wide range of finite CP complements. Most of the examples given so far have the declarative complementizer *ke*, which is always compatible with lOp. 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. (59a,b) adds simple examples with ‘think’ and ‘know’. Logophoric pronouns are also possible in the complements of psych-factive verbs like ‘be happy’ and with nonbridge verbs like ‘whine’.

(59) Ibibio (fieldwork and Afranaph, Willie Willie)

a. Okon a-kere ke imọ i-ya-i-dia nsa-akʌk.
Okon 3SG-think that LOG 3.LOG-FUT-3.LOG-win lottery.
“Okon$_i$ thinks that he$_i$ will win the lottery.”

b. Okon á-diọ́ngọ ké Edem é-ma ímọ̀.
Okon 3SG-know that Edem 3SG:3.LOG.O-like LOG
“Okon$_i$ knows that Edem likes him$_i$.”

c. Okon a-mé-nèm-ésít ké imọ i-ya-i-diǫ́ñǫ́ ákpánikǫ́.
Okon 3SG-PERF-sweet-heart that LOG 3.LOG-FUT-3.LOG-know truth
"Okon$_i$ is happy that he$_i$ will know truth."

d. Ayin odo a-maa-fọi ke owo-ndomokeed i-ki-maa-gha imọ.
child the 3SG-PST-whine that person-not.one 3SG-PST-like-NEG LOG
"The child$_i$ whined that no one liked him$_i$."

Logophoric pronouns are also possible in the complements of verbs with negative semantics like 'deny' and 'doubt' ((47)). Indeed, I have not found any verb that selects a CP complement headed by *ke* that does not license logophoricity. A similarly wide range of verbs allow logophoric pronouns in their complement in Baatonum (fieldnotes).

Finite CPs complements that have complementizers other than *ke* also license logophoricity in Ibibio. This includes verbs like 'want' and 'permit' which select clauses with the subjunctive complementizer *yak* (historically related to the verb 'permit') ((60a)), and verbs like 'ask' and 'remember' which select clauses with the interrogative complementizer *mme* ((60b)). Logophoric pronouns are also possible in interrogative complements that are more like constituent questions, with what may be a moved *wh*-phrase ((60c)).

(60) Ibibio (Afranaph, Willie Willie)

a. Okon a-yem (a-bo) yak ayin imọ a-do andikan.
Okon 3SG-want 3SG-C C son LOG 3SG-be winner
"Okon$_i$ wants his$_i$ son to be the winner."

b. Emem a-ke-bip mme Okon a-ma-i-kid ímọ̀.
Emem 3SG-PST-ask whether Okon 3SG-PST-3.LOG.O-see LOG
"Emem$_i$ asked whether Okon saw him$_i$."

c. Okon a-maa-toiyo se Enọ a-ki-nọ ***imọ***.
Okon 3SG-PST-remember what Eno 3SG-PST-give LOG
"Okon$_i$ remembered what Eno gave him$_i$."

We see, then, that lOp is not selected by one particular C as opposed to another in Ibibio, nor is it incompatible with there being a wh-operator in the C-space. LOp 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), *ki* (subjunctive, in the complements of 'want', and 'make'), *pe+ki* (with 'agree'), *bi* (interrogative, with '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'. This suggests that one special C licenses lOp in some languages, whereas in others either a larger set of Cs license it (or lOp is licensed by a different (covert) head that can co-occur with several overt Cs). Note also that *se* 'what' in (60c) is also found in some relative clauses. When this element is found in a complement clause, logophoricity is licensed, but when it is found in a relative clause, logophoricity is not licensed. This confirms that it is the syntactic position of noncomplement clauses that causes their lack of logophoricity rather than the inability of their complementizers to license lOp.

The one type of finite verbal complement that does not allow lOp in Ibibio is perception verb complements. These are headed by *naña*, otherwise translated as 'how'. *Imo* is ruled out in (61a,b).

(61) Ibibio (fieldwork, Willie Willie)

*a. Okon a-maa-kit naña Emem a-yip ebot ọmọ/*imọ.*
Okon 3SG-PST-see how Emem 3SG-steal goat his/*LOG
"Okon$_i$ saw Emem steal(ing) his$_i$ goat."

*b. Okon a-maa-kop naña ayin omo/*imọ a-kwọ ikwọ.*
Okon 3SG-PST-hear how son his/*LOG 3SG-sing song
"Okon$_i$ heard his$_i$ son singing."

In contrast, these verbs can take complements with a lOp when they select a *ke*-headed CP complement with an epistemic meaning rather than a perceptual meaning. This is seen in (62) (see (18) for 'hear').

(62) Ibibio (fieldwork, Willie Willie)
Okon a-maa-kit ke Emem a-maa-yip ebot imọ.
Okon 3SG-PST-see that Emem 3SG-PST-steal goat LOG
"Okon$_i$ saw that Emem stole his$_i$ 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 *nañа* in the left periphery. Neither of these factors by itself blocks logophoricity in Ibibio, but it is possible that there is some kind of interaction between them that does. I do not investigate the exact source of this restriction here.[21]

Now we move to complements that are not fully finite CPs in Ibibio. Somewhat surprisingly, these license logophoricity as well. One relevant case is the complements of the causative verbs *nam* 'make' and *yak* 'let'. Although these have agreement with the embedded subject, are less than full CPs in that 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 is 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), once before the T head and once after the T head adjacent to the verb stem. But logophoric pronouns can be licensed in the C-less and T-less

[21] A different kind of verb that takes a finite clause but does not allow a logophoric pronoun inside that clause is 'deserve', as seen in (i). On the one hand, 'deserve' is one of the few nonattitude 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 much about this construction and leave open what is happening here.

(i) Ibibio (fieldwork, Willie Willie)
*Okon a-dot se nnyin i-nwam Ø/anye/*imo*
Okon 3SG-deserve C we 1PL-help him/him/*LOG
"Okon$_i$ deserves that we help him$_i$."

complements of ‘make’ and ‘let’ in Ibibio, as in (63).[22]

(63) Ibibio (fieldwork, Willie Willie)

a. Okon a-maa-nam ndiṭọ e-nwam (?)imọ.
Okon 3SG-PST-make children 3PL-help LOG
“Okon$_i$ made the children help him$_i$.”

b. Owo ndomo-keet i-yak-ka ayin ọmọ/(?)imọ a/i-dia fufu.
person one-even 3SG-let-NEG son his /(?)LOG 3SG-eat fufu
“Nobody lets his son eat fufu.”

Note that the causee/agent of the lower verb does not act like the object of the matrix verb in Ibibio; for example, it cannot trigger an object agreement/clitic on the matrix verb (Torrence 2016), and it cannot be a reflexive pronoun (*idem*) bound by the causer. This fits with the fact that a logophoric pronoun is possible as the possessor of the causee, as seen in (63b); showing that the lOp has scope over the causee as well as the verb phrase. I conclude the lOp is licensed inside VoiceP or a functional projection that immediately contains VoiceP in Ibibio, as sketched in (64). This is lower in the clause than the other ghostly operators that I have discussed, and it pushes the limits of what is normally meant by the left periphery.[23]

(64) Okon$_i$ let [$_{FP?}$ lOp$_i$ (F?) [$_{VoiP}$ his$_i$ son Voice [$_{VP}$ eat fufu]]].

Similarly, logophoric phenomena are found in infinitive clauses and gerunds in Ibibio. Cully (1994) says that logophoric pronouns crosslinguistically are incompatible with infinitives and control, and this has been the received wisdom in the literature. 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

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[22] There is more variability in this than in other cases, with some examples of a logophor in the causative complement considered marginal or ruled out entirely. I do not understand this variation but I have collected many accepted examples.

[23] Logophoric pronouns are also possible in the complement of the causative verb in Yoruba, but this is less surprising since they do have an overt C head (*ki*).

as being the same as the subject of the matrix clause. (65a) is an example with an infinitval verb bearing the prefix *edi-*, and (65b) has a gerundival verb with the nominalizing prefix *u-*

(65) Ibibio (fieldwork, Willie Willie)

*a. Okon a-maa-yem edi-se eka ọ̀mọ̀/*ímọ̀.*
Okon 3SG-PST-want INF-visit mother his/*LOG
"Okon$_i$ wants (PRO$_i$) to visit his$_i$ mother."

*b. Okon a-maa-toiyo u-dep ebot omo/?*imọ.*
Okon 3SG-PST-remember NLZR-buy goat his/?*LOG
"Okon$_i$ remembers (PRO$_i$) buying his$_i$ goat."

However, we get a different result when the null subject of an infinitival or gerundival clause is 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 (66).[24]

(66) Ibibio (fieldwork, Willie Willie)

a. Okon a-maa-temme Emem edi-kpóno ímọ̀.
Okon 3SG-PST-instruct Emem INF-respect LOG
"Okon$_i$ instructed Emem$_k$ (PRO$_k$) to respect him$_i$."

b. ?Okon a-maa-tre Emem u-tañ-ikọ ye eka imọ.
Okon 3SG-PST-stop Emem NLZR-talk with mother LOG
"Okon$_i$ stopped Emem$_k$ from (PRO$_k$) talking with his$_i$ mother."

c. Okon a-maa-toiyo Emem u-dep ebot imọ.
Okon 3SG-PST-remember Emem NLZR-buy goat LOG
"Okon$_i$ remembers Emem$_k$ (PRO$_k$) buying his$_i$ goat."

This shows that nonfinite clauses can host lOps in Ibibio, consistent with the view in (64) that they can appear as low as VoiceP. What is not possible is for a logophoric pronoun to be bound by the controlled

[24] Clefting evidence shows that the subject is a separate constituent from *u-* verb+object in (66b,c), so these are object control structures rather than exceptional case marking or 'accusative + infinitive structures.

PRO in the nonfinite clauses. In §5.5 below, I show that this fact can be derived from the more general fact that a logophoric pronoun cannot be locally bound by a nonlogophoric pronoun, PRO being a sort of nonlogophoric pronoun. It is not known how general (66) is across the African languages with logophoric pronouns, since such sentences have rarely been considered. There is a contrast here with indexical shift, which is not possible with infinitives and gerunds in Magahi or the Turkic languages, even in contexts of object control. LOp thus has a wider distribution than the other kinds of ghostly DPs, at least in Ibibio.

In contrast to these gerundive constructions, true nominals with nominal word order do not allow lOp. Subjects of clauses come before finite verbs in Ibibio, but possessors come after the head noun. When the understood subject of a derived noun comes after that noun, showing itself to be a possessor, it cannot contain a logophoric pronoun. This is true for *n*+V nominalizations, which are always fully nominal, as in (67a), and for *u*+V nominalizations, which (like English V+*ing* forms) can be nominal, as in (67b), or more verbal (as in (66b,c)).

(67) Ibibio (fieldwork, Willie Willie)

a. *Okon i-kit-te n-dudue eka ọmọ/*imọ.*
Okon 3SG-see-NEG NLZR-sin mother his/*LOG
"Okon$_i$ did not see his$_i$ mother's mistake/fault."

b. **Nditọ e-ma-e-feeñe u-kọ-iyak eka mm-imo.*
children 3PL-PST-3PL-dread NLZR-catch-fish mother PL-LOG
("The children$_i$ dreaded their$_i$ mother's fishing.")

On my account, this is no different from the fact that the possessor of a morphologically simple noun cannot be (or contain) a logophor in Ibibio or other African languages, as shown in (2). The assumption 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 (67), or the verbal projection is so small (VP only) that it is lower than the lowest possible position of lOp. Note that this is different from Charnavel (2019, 2020) who assumes that in French a logophoric operator can have scope over DP—and indeed over any constituent that counts as a phase and/or that has a subject. That

assumption is too permissive for the African languages, which do not license logophors in DPs without any clausal structure.

The overall generalization is that lOp 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. Only constructions that have no verbal/clausal syntax at all reject lOp.

4. A second logophoric ghostly DP

A familiar property of the Speas & Tenny (2003) framework is that Sp is paired with Ad in the periphery of a clause. One consequence of this within my system is that second person indexicals can shift as well as first persons indexicals in languages in which a structure with Sp and Ad can be embedded. Another is that allocutive agreement with the addressee is possible as well as agreement with the speaker. Similarly, I have argued that whereas most languages show C agreement with one ghostly DP only (SoK), Kipsigis may have a second such operator, which I dubbed OoK, 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 family as well, which I call *AdOp*. The result of this is that some languages have a second (series of) pronoun(s) found only in embedded clauses, called addressee pronouns. These occur in Mupun (Chadic, Nigeria) and Tikar (Benue-Congo, Cameron), as well as a few others. Although these two languages are not closely related, their systems seem very similar, so I discuss them side by side. The literature on this topic is not rich enough to support a detailed analysis, but it does fill out the typology of the ghostly DPs and provide support for the overall picture.

The source for Tikar is Stanley (1982). In a Tikar matrix clause, the ordinary subject pronoun is *à*, as seen in (68).

(68) Tikar (Stanley 1982: 32)
À *šɛ̀* *lɛ̀* *myón* *lɛ̀* *…*
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 (69).

(69) Tikar (Stanley 1982: 40)

Pɔ́l šɛ̀ lɛ̀ Já̀n lɛ̀ à kɛ̀nná̀ lwùmwù.
Paul say to John that he go market
"Paul$_i$ told John$_k$ that he$_{n,*i,*k}$ went to the market."

In contrast to *a*, there is another pronoun *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 (70).[25]

(70) Tikar (Stanley 1982: 40)

Pɔ́l šɛ̀ lɛ̀ Já̀n lɛ̀ nún kɛ̀nná̀ lwùmwù.
Paul say to John that LOG go market
"Paul$_i$ told John$_k$ that he$_{i,*k}$ went to the market."

This is an instance of canonical African logophoricity in Tikar. Taking the complementarity at face value, the matrix subject must control an operator in CP, the pronoun *nun* must be bound by that operator, and the pronoun *a* must not be bound by that operator (see §5.5 on pronoun binding conditions). Tikar then goes beyond Ibibio and Yoruba in that it has a third pronoun *nyi*̀́ that can appear in the embedded clause, as seen in (71). This must be interpreted as coreferential with 'John', the goal argument of the matrix verb 'tell'.[26]

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[25] 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, where 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 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 singular human pronouns in other syntactic positions. I assume that something like this happens in Tikar as well.

[26] (71) looks different from (69) and (70) in two other ways: the addressee pronoun has apparently been focused, and the embedded clause is interpreted modally, as 'should go' rather than as past tense 'did go'. Stanley's discussion and examples do not make it clear whether these differences are crucial or incidental.

(71) Tikar (Stanley 1982: 40)

Pɔ ˈl šɛ̀ lɛ̀ Jáàn lɛ̀ nyìí ní kɛ̀n lwùmwù.
Paul say to John that ADDR FOC go market
"Paul$_i$ told John$_k$ that he$_{k,*i}$ should go to the market."

The relationship of (71) to (69) looks like the relationship of (70) to (69), so it makes sense to generalize the analysis as follows. There is a second DP in the periphery of CP along with lOp, namely AdOp. AdOp gets an undergoer thematic role from the C-type head *lɛ̀* which licenses it, so it must be controlled by the undergoer of the matrix verb 'tell', just as lOp must be controlled by the initiator-agent of 'tell'. The pronoun *nyi* must be bound by AdOp, just as *nun* (in the subject position) must be bound by lOp. The normal weak pronoun *a* must not be bound by either ghostly DP. The representation is as in (72).

(72) Paul$_i$ said to John$_k$ [lOp$_i$ C$_1$ [AdOp$_k$ C$_2$ [nun$_i$ /nyi$_k$/a$_{n,*i,*k}$ go...]]]

The Mupun language described by Frajzyngier (1993) replicates these results. When 'say' in Mupun (the only verb in this language that licenses logophoricity; see Frajzyngier 1993: 110-111) has an overt third person goal, the facts are like Tikar: so-called class B pronouns like *dì* must refer to the matrix subject, class C pronouns like *gwar* must refer to the matrix goal, and class A pronouns like *wu(r)* (the only ones used in matrix clauses: see (73a)) must be disjoint from both.

(73) Mupun (Frajzingier 1993: 108, 113, 125)

a. Wu sat nə dì/wu nas an.
he said that LOG/he beat me
"He$_i$ said that he$_i$/he$_k$ beat me."

b. N-sat n-wur nə wur/gwar ji.
1SG-say to-him that he/ADDR come
"I told him$_i$ that he$_k$/he$_i$ should come."

c. Datar sat n-dapus nə dì naa la reep gwar/wur.
Datar say to-Dapus that LOG see girl ADDR/his
"Datar$_i$ told Dapus$_k$ that he$_i$ saw his$_k$/his$_i$ daughter."

The example in (73c) has 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 lOps what Kipsigis may do for the theory of SoK: generalizing it and enriching it with a second operator. It shows again that goal arguments are not intrinsically unable to control ghostly DPs; they are just unable to control lOp, as they cannot control Sp or SoK. They can however control AdOp, just like they can control Ad in Magahi and OoK in Kipsigis. Conversely, the agent-subject cannot control AdOp, just as it cannot control Ad in Magahi or OoK in Kipsis. If it could, then the addressee pronoun would be able to refer to the matrix subject, contrary to fact.

Note that the controller of AdOp need not be overt. In both Tikar and Mupun it is possible for an implicit goal argument of the matrix verb to control AdOp and hence antecede an addressee pronoun. A Tikar example is (74); see Frajzingier (1993: 115) for Mupun.

(74) Tikar (Stanley 1982: 33)
A šɛ̀ lɛ̀ lɛ̀ nyì ní šélí lɛ́ ɓá ɓón jí.
he say thus that ADDR FOC take thus so.that they eat
"He$_i$ said [to her$_k$] that she$_k$ should take it so that they could eat."

This is not surprising. It is also the case that in Magahi an implicit goal of 'say' can control Ad and hence antecede shifted second person pronouns. See Landau (2010) for discussion of when implicit arguments can control PRO in languages like English.[27]

There is empirical support, then, for positing a second operator in the CP space parallel to lOp, as there is for positing Ad as well as Sp and perhaps OoK as well as SoK. The range of possible ghostly DPs thus seems to be symmetrical, although some of the subject-type operators

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[27] Addressee pronouns seem sometimes to be possible in complement clauses even when the matrix verb does not have any goal argument, even covertly—e.g., with a verb like 'know'. In this case, the addressee pronoun seems to refer to a prominent discourse referent; see Stanley (1982: 34) for Tikar and Frajzingier (1993: 117) for Mupun. If this means that AdOp can undergo NOC whereas lOp cannot, it is relevant to the study of obligatory control and Shift Together, analogous to the discussion of indexical shift in §4.5. However, there is not enough information about this for me to pursue the topic with any confidence.

(lOp, SoK) are considerably more common than their object-type analogs (AdOp, OoK). Further analysis of addressee pronouns must await richer descriptions of the phenomenon.

5. The binding of logophors by lOp

5.1. Overview

On my Koopman-&-Sportiche-inspired approach to logophoricity, there are three main ingredients to study: the licensing of a ghostly DP 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. §5.2 focused on the second topic and §5.3 discussed a major part of the first topic. §5.4 extended the discussion to a second ghostly DP, one that binds addressee pronouns. Now I turn the focus to the third topic, putting the relationship between lOps and pronouns that they bind on center stage. Descriptive and typological studies do not generally give much insight into this topic. Specially commissioned data from Ibibio thus carries much of the weight of this discussion. Additional data from Yoruba, based on Adesola (2005), Edo (Baker 1999), and Abe (K&S) will give some sense of what can vary across languages in this regard.[28] First, I show that logophoric pronouns need to be bound by an lOp in the African languages, comparing this to the need for participant pronouns to be bound by Sp and Ad (§5.5.2). Then I show that languages differ as to whether a plain pronoun can be bound by lOp or a logophoric pronoun. I account for this variation by saying that lOp and logophoric pronouns vary as to whether they are [+log] or [0log] across languages (§5.5.3). Finally, I show that an additional restriction bans a plain pronoun from binding a logophor in any language follows as a form of strong crossover, abstractly like a wh-dependency (§5.5.4).

5.2. Obligatory nonlocal binding

The closest analog to the topic of operator-pronoun binding from the other rare constructions is Sp and Ad binding first and second person

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[28] In Baatonum, logophors are only different from plain pronouns in subject position (see fn. 25). Therefore, one cannot put multiple logophoric pronouns in different syntactic positions in this language, limiting its usefulness for this topic.

pronouns in indexical shift languages (see §4.4). The key principle that regulates this is my Person Licensing Condition (PLC). This says that first person pronouns must be locally bound by Sp (or another first person pronoun) and that second person pronouns must be locally bound by Ad (or another second person pronoun). In absolute terms, the binder can be at any syntactic distance from the bound pronoun, but person licensing is subject to a relativized minimality condition, such that another Sp or Ad cannot intervene between Sp or Ad and a participant pronoun that it binds.

It turns out that logophoric pronouns are subject to a similar binding condition, but it is simpler in that there is no locality condition on the binding, either absolute or relativized. The condition on logophoric pronouns is simply (75), as I have assumed throughout.

(75) A logophoric pronoun must be bound by a lOp

The key reason for saying that logophoric pronouns are subject to such a condition is the fact that they can only appear in certain kinds of embedded clauses. It is not enough for them to refer to a center of speech or thought; they also need to be in the domain of certain kinds of Cs, as observed by K&S. This is shown again in (76), where a logophor inside the CP complement can refer to the matrix subject (and logophoric center) *Emem*, but a logophor outside the CP—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.

(76) Ibibio (fieldwork, Willie Willie)
*Emem a-maa-dọkkọ eka ọmọ/*imọ ke imọ i-ma-i-dep ebot.*
Emem 3SG-PST-tell mother his/*LOG that LOG 3.LOG-PST-3.LOG-buy goat
"Emem$_i$ told his$_i$ mother that he$_i$ 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 center. This is a fundamental insight of K&S, carried forward in subsequent work. Further support is that it can matter 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

complementizers *kO* in Abe and *wẹẹ* in Edo in a way that it is not in other CPs. More generally, logophoric pronouns are licensed in complement clauses but not in relative clauses, high adjunct clauses, or root clauses. I accounted for this by saying that lOp needs to undergo OC and complement clauses (and low adjunct clauses) are environments in which this can happen, whereas relative clauses, high adjunct clauses, and root clauses are not. This explanation assumes (75), which implies that domains that cannot have lOp cannot have logophoric pronouns either. In one sense, it is clearer that logophoric pronouns need to be bound by designated operators than it is for participant pronouns, given that Sp and Ad are possible in any root clause, whereas lOp is not.

Like the PLC, (75) has no absolute locality condition built into it; nor is it subject to general conditions like the Phase Impenetrability Condition. As a result, lOp 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. This can be seen in the range of examples in (77). In each case, the binding lOp is near its controller (as required by the GOCS), in a specifier associated with the bolded C-head. The logophor is also bolded, and intervening clausal boundaries are market with brackets.

(77) Ibibio (fieldwork, Willie Willie)

*a. Okon á-kére [**ké** Edem á-ké-n-dọ̀kkọ̀ [ké Mfọn é-kpóno **ímọ̀**]].*
Okon 3SG-think that Edem 3SG-PST-1SG.O-tell that Mfon 3SG:3.LOG.O-respect LOG
"Okon$_i$ thinks that Edem$_k$ told me that Mfon respects him$_{i,k}$."

*b. Okon a-maa-bo [**ke** Emem a-me-yat esıt [sia **imọ** i-ma-i-tuak Enọ]].*
Okon 3SG-PST-say that Emem 3SG-PERF-hot heart because LOG 3.LOG-PST-3.LOG-hit Eno
"Okon$_i$ said that Emem is upset because he$_i$ hit Eno."

*c. Okon a-kere [**ke** [akpedo **imọ** i-koot Emem usọrọ odo], anye a-kpaa-di.*
Okon 3SG-think that if LOG 3.LOG-call Emem party the he 3SG-COND-come.
"Okon$_i$ thinks that if he$_i$ invites Emem$_k$ to the party, he$_k$

will come."

*d. Okon a-maa-bip [**mme** Emem a-maa-kop [mbʌk [ke **imọ** i-ma-i-dia nsa-akʌk]]].*
Okon 3SG-PST-ask if Emem 3SG-PST-hear news that LOG 3.LOG-PST-3.LOG-win lottery
"Okon$_i$ asked if Emem heard the news that he$_i$ had won the lottery."

In (77b-d), the logophoric pronoun is not only separated from the lOp that binds and licenses it by two finite clause boundaries, but by a syntactic island. In (77b,c), the logophoric pronoun is inside an adjunct island; in (77d), it is inside a complex noun phrase (see also (35) for a logophor inside a relative clause). This lack of any locality restriction is not unexpected given that we are in the realm of pronoun binding, which is one of the least constrained grammatical relationships. However, inasmuch as (75) is also a syntactic licensing condition for logophoric pronouns, we might have expected it to obey the PIC. The relationship between lOp and a logophor is like the one between Sp or Ad and a participant pronoun in this respect.

Unlike the PLC, (75) does not even impose a relativized minimality type of locality on the binding/licensing of a logophor. Thus, it is possible to have two logophors in a doubly embedded clause, where one is anteceded by the highest subject and the other by the intermediate subject. This is shown in (78) for Ibibio; this is also possible in Yoruba and Edo. We know that there must be a differently-indexed lOp in the lowest clause that comes between the object logophor 'him' and the lOp that binds it, because otherwise the subject subject logophor 'he' would not be bound, running afoul of (75). However, this intervening lOp does not cause interference for the logophoric pronoun that is bound more remotely.

(78) Ibibio (fieldwork, Willie Willie)
a. Okon á-kére ké Edem á-ké-n-dọ̀kkọ̀ ké ímọ̀ i-kpóno ímọ̀.
Okon 3SG-think that Edem 3SG-PST-1SG.O-tell that LOG 3.LOG-respect LOG
"Okon$_i$ thinks that Edem$_k$ told me that he$_k$ respects him$_i$."

b. Okon$_i$ thinks [lOp$_i$ that Edem$_k$ told me [lOp$_k$ that he$_k$ respects him$_i$.]]

This makes it clear that a logophoric pronoun need not be bound by the *closest* lOp. 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 PLC. As a result, two logophors in the same clause need not be coreferential, whereas two participant pronouns in the same clause must be—the Shift Together property. So there are several similarities between the binding of indexicals and that of logophors, but also one fundamental difference.

5.3. Feature nondistinctness of lOp and its bindees

The condition in (75) requires that a logophoric pronoun be bound by an lOp; it does not require that an lOp bind a logophoric pronoun. Other ghostly DPs can be present in the periphery of a clause without having to bind any variable inside the clause. This is known to be true for SoK and for Ad in Magahi: agreement on a C head (Eval or Fin) shows that they can be present even when there is no pronoun for them to bind inside the TP complement of C. I assume that this is true for lOp as well; certainly it is not required for the finite complement of a speech or attitude verb to contain a logophoric pronoun. In other words, the appropriate C-type heads are sufficient licensers for the ghostly DPs, and they are not the sort of operators that must bind a variable so as not to violate a ban on vacuous quantification.

A narrower question is whether a pronoun that is bound by a logophoric operator must be a logophoric pronoun. On this point, the African languages seem to vary, whereas they are uniform in the respects discussed in the previous subsection. Baker (1999) reported that in Edo, a plain pronoun cannot refer to the matrix subject when it appears in a CP complement headed by *wẹ̀ẹ̀* (‘say’), whereas a logophoric pronoun can (and must).

(79) Edo (Baker 1999)
Ozó miànmián wèé ò/irèn kìé èkhù.
Ozo forget that 3SG/LOG open door
“Ozo$_i$ forgot that he$_{k,*i}$/he$_{i,*k}$ opened the door.”

This is not unexpected given that *wẹ̀ẹ̀* always licenses an lOp. That lOp must be controlled by the superordinate subject 'Ozo'. Then a pronoun that wants to be referentially dependent on 'Ozo' must depend directly on closer c-commanding DP lOp, by Heim's/Fox's Rule H. A pronoun bound by a [+log] DP like lOp must itself be [+log] (one might think). That is why the form *irẹ̀n* is possible referring to Ozo in (79), but the form *ọ́* is not. K&S report the same pattern for Abe, as shown in (80).

(80) Abe (Koopman & Sportiche 1989: 579 (64b))
Yapi hE kO f wu O/n.
Yapi say C you saw 3SG/LOG
"Ozo$_i$ said that you saw him$_{k,*i}$/him$_{i,}$."

However, Ibibio is different in this respect. In this language, Willie Willie consistently allows a plain pronoun in an embedded clause to refer to the matrix subject, even when a logophoric pronoun is possible with that meaning. An example is in (81).

(81) Ibibio (fieldwork, Willie Willie)
Obuut a-maa-mʌm Okon ke anye/imo a/i-ma-a/i-yip ngwet.
shame 3SG-PST-hold Okon that 3SG/LOG 3SG/LOG.S-PST-steal book
"Okon$_i$ is ashamed that he$_{i,k}$/ he$_{i,*k}$ stole the book."

One might wonder whether *anye* meaning Okon in (81) is an instance of "accidental coreference": perhaps it is not bound by the DP 'Okon' in the syntax or semantics, but just refers freely to any individual in the domain of discourse, and Okon is one such individual. But if this were the case, we would expect that the complementarity between the logophor and the plain pronoun that we see in Edo and Abe should reappear in Ibibio when the pronoun is forced to have a bound variable interpretation. In fact, it does not: the examples in (82) show that even when a pronoun is interpreted as a variable bound by the matrix subject, a plain pronoun is possible as well as a logophor.[29] (82a) tests this by using a negatively quantified DP as the matrix

[29] In my data, the logophor is sometimes preferred for a distinctively bound variable reading, but the preference is variable in strength and often quite mild.

subject; this would not support a coreferential interpretation. (82b) shows that the plain pronoun, like the logophor, can have a sloppy reading as well as a strict one in a sentence with ellipsis. (82c) shows that a DP with the focus particle 'only' can give a bound variable reading to a plain pronoun as well as to a logophoric pronoun.

(82) Ibibio (fieldwork, Willie Willie)

a. Owo ndomo-keet i-yem-me yak (ami) ñ-yara anye/imo n-nọ .Enọ
person even-one 3SG-want-NEG SBJV.C I 1SG-reveal 3SG/LOG 1SG-give Eno
"Nobody$_i$ wants me to introduce him$_{i,k}$/him$_i$ to Eno."

b. Okon a-kere ke Enọ a-ya-(i)-nọ anye/imọ àkʌ́k, ye Edem nko.
Okon 3SG-think that Eno 3SG-FUT-(LOG.O)-give 3SG/LOG money and Edem too
"Okon$_i$ thinks that Eno will give him$_i$/him$_i$ money, and Edem too." =Edem λx (x thinks that Eno will give x/Okon money)

c. Okon ikpọọng a-kere ke anye a-yaa-dia nsa-akʌk.
Okon only 3SG-think that 3SG 3SG -FUT-win lottery
"Only Okon$_i$ thinks he$_i$ will win the lottery." (Everyone else feels unlucky about themselves; *or* no one else thinks that Okon is lucky. Same possibilities with …*ke imo i-ya-i-dia*…)

I conclude that plain pronouns do not rule out readings in which they are variables bound by the logophoric subject in Ibibio.[30]

Another way to maintain the idea that lOp can only bind logophoric pronouns in Ibibio, contrary to appearances, would be to say that lOp is optional in finite CP complements in Ibibio, whereas it is obligatory

[30] This is also the place to mention that both plain pronouns and logophoric pronouns can be interpreted *de se* in Ibibio, and both can be interpreted *de re*. In this, I agree with Pearson's (2013, 2015) results for Ewe, contrary to some other sources. See Baker & Ikawa (2024: 913 (30)) for an example and brief discussion.

in *wẹ̀ẹ̀* complements in Edo and in *kO* complements in Abe.[31] Then (81) with the logophoric pronoun could have the representation [Okon$_i$ is ashamed [lOp$_i$ that [LOG$_{i,*k}$ stole the book]]], satisfying (75). In contrast, (81) with the plain pronoun could have the representation [Okon$_i$ is ashamed [-- that [3sg$_{i,k}$ stole the book]]], which would be grammatical in Ibibio just as it is in English. Since there is no lOp in the second representation, Rule H cannot force the pronoun to depend directly on lOp. There is no lOp-pronoun dependency, hence no need for the pronoun to match lOp in a [+log] feature. However, this alternative is insufficient, as shown by the grammaticality of examples like (83) in Ibibio.

(83) Ibibio (fieldwork, Willie Willie)

a. Okon a-maa-kere ke ayín ọ̀mọ̀ a-ma-i-miem ímọ̀.
Okon 3SG-PST-think that son his 3SG-PST-LOG.O-insult LOG
"Okon$_i$ thinks that his$_{?i,k}$ son insulted him$_i$."

b. Okon a-yem yak (ami) ñ-yara eka ọmọ n-nọ imọ
Okon 3SG-want C.SBJV I 1SG-reveal mother his 1SG-give LOG
"Okon$_i$ wants me to introduce his$_{?i,k}$ mother to him$_i$."

These examples have two pronouns inside the complement clause trying to refer to the logophoric subject 'Okon', one of them logophoric and the other a plain pronoun. The examples are basically acceptable, not markedly different from (81) with a plain pronoun, although Willie observes that using two logophoric pronouns is the most natural way to express the intended meaning. We know that there must be a lOp in the CP of the embedded clause in these examples, because otherwise the logophoric pronoun would violate

[31] In Baker (1999) I argued that Edo's subjunctive complementizer *ne*, selected by verbs like 'want' differed from *wẹ̀ẹ̀* in this way. LOp must be present in a CP headed by *wẹ̀ẹ̀*, causing obviation in examples like (79), whereas it is optionally present in a CP headed by *ne*, so there is obviation of a plain pronoun if and only if there is also a logophoric pronoun inside the complement clause. I do not take the space to repeat the data here, but refer readers to the original discussion.

(75). Therefore, the structure of (83a) must be (84).[32]

(84) Okon$_i$ thinks [lOp$_i$ that [his$_i$ son insulted Log$_i$]]

Rule H then implies that 'his' must refer to Okon by taking lOp as its antecedent, the closest c-commanding DP with the relevant index. I conclude that lOp can bind a plain pronoun as well as a logophor in Ibibio, although not in Edo and Abe. Yoruba is like Ibibio in this respect, replicating the pattern. A plain pronoun can refer to the matrix subject whether or not there is also a logophor in the clause:[33]

(85) Yoruba (Adesola 2005: 191, 199)

a. Olu ti kede pe o/oun n bọ lọla.
Olu ASP announce that 3SG/LOG PROG come tomorrow
"Olu$_i$ has announced that he$_{i,k}$/he$_{i,*k}$ is coming tomorrow."

b. Olu sọ pe baba rẹ ti ri iya oun.
Olu say that father 3SG ASP see mother LOG
"Olu$_i$ said that his$_{i,k}$ father saw his$_i$ mother."

In contrast, the configuration in (83) and (85b) is bad (highly degraded) in Edo with the plain pronoun also coreferential with the matrix subject, as shown in (86). This is expected given that plain pronouns in Edo cannot refer to the matrix subject even when there is

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[32] It is important that there is no c-command relationship between the plain pronoun and the logophor in (84). For examples in which one pronoun c-commands the other, see below. Examples in which the logophor precedes the plain pronoun but does not c-command it are considered a bit worse (?? status). I tentatively take this to be a nongrammatical parsing effect.

[33] Here I follow Adesola (2005: 199-200) rather than Pulleyblank (1986: 44), who reports that a plain pronoun cannot refer to the matrix subject in a sentence like (85a). There is a similar inconsistency in the Ewe literature: Clements (1975: 154) says that a plain pronoun cannot refer to the logophoric center in contexts where a logophor is possible, whereas Pearson (2013: 451) finds it to be possible. I do not know if this is genuine dialectal/idiolectal variation or the result of some difference in the data-collecting methodology.

no logophor in the clause, as seen in (79).

(86) Edo (Baker 1999: (36b))
Ozo ta wẹ̀ẹ̀ iye ẹ̀re gbe irẹ̀n.
Ozo said that mother his beat LOG.
"Ozo$_{i}$ said that his$_{??i}$ mother beat him$_{i}$."

I conclude that lOp can directly bind a plain pronoun as well as a logophor in Ibibio and Yoruba, but not in Edo and Abe (depending perhaps on the lect; see fn 33).

How is this microparameterization encoded in the grammars of these languages? Following in essence K&S's original analysis, I model the variation 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 lOp vary some: lOp in Edo and Abe is [+log], whereas lOp 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 its binder. I state this common assumption explicitly in (87).

(87) A pronoun must be nondistinct in phi-features from the DP that locally binds it.

This implies that lOp cannot bind a plain pronoun in Edo and Abe ([-log] is distinct from [+log]), whereas it can in Ibibio and Yoruba ([-log] is nondistinct from [0log].

This approach extends readily to another aspect of microparametric variation in this domain. So far, we have only considered examples in which the embedded clause has a plain pronoun and a logophoric pronoun in which neither c-commands the other. Consider now examples in which a logophoric pronoun c-commands a plain pronoun within the same embedded clause. In Edo, this configuration is surprisingly good; (88) contrasts with (86), with the plain pronoun able to refer to the matrix subject only in (88).

(88) Edo (Baker 1999: (35a), (35b))
a. Ozo ta wẹ̀ẹ̀ irẹ̀n tie ebe ẹ̀re.
Ozo say that LOG read book his
"Ozo$_{i}$ said that he$_{i}$ read his$_{i,k}$ book."

b. Ozo ta wẹ̀ẹ̀ irẹ̀n fian egbe ẹ̀re.
Ozo say that LOG cut body his
"Ozo$_i$ said that he$_i$ cut his$_{i,k}$ body."

In Ibibio, on the other hand, this configuration is surprisingly bad. Thus (89) contrasts with (83) in that the plain pronoun can join with the logophor in referring to the matrix subject in (83) but not in (89).

(89) Ibibio (fieldwork, Willie Willie)
a. Edem á-ké-n-dọ̀kkọ̀ ké ímọ̀ i-ma-i-se èkà ọ̀mọ̀.
Edem 3SG-PST-1SG.O-tell that LOG 3.LOG-PST-3.LOG-visit mother his
"Edem$_i$ told me that he$_i$ saw his$_{k,*i}$ mother."

b. Okon a-yem yak ñ-yara imọ̀ n-nọ̀ eka ọ̀mọ̀.
Okon 3SG-want C.SBJV 1SG-reveal LOG 1SG-give mother his
"Okon$_i$ wants me to introduce him$_i$ to his$_{k,??i}$ mother."
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For this configuration, Yoruba patterns with Edo rather than Ibibio: a plain pronoun can be coreferential with a c-commanding logophor.

(90) Yoruba (Adesola 2005: 200)
Ade so pe oun ti ri iwe re.
Ade say that LOG ASP see book his
"Ade$_i$ said that he$_i$ has seen his$_{i,k}$ book."

Abe however patterns with Ibibio rather than with Edo in that a plain pronoun cannot be coreferential with a c-commanding logophor.[34]

(91) Abe (Koopman & Sportiche 1989: 560 (8a))
N wu O/n wo n.
LOG saw his/LOG dog DET
"He$_i$ saw his$_{*i,k}$ /his$_{i,*k}$ dog."

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[34] Abe is different from the other languages that I am discussing in that the "logophoric" pronoun *n* is possible in root clauses. See §5.6.3 for discussion.

So there must be a second locus of parameterization here, logically independent of the first one, which is whether lOp is [+log] or [0log].

These patterns can also be analyzed using (87) together with the idea that a category may be unmarked for a feature value and Rule H, which says that the closest possible binder for a pronoun must be its actual binder. This time, the trick is to say that logophoric pronouns can be formally [+log] or [0log], depending on the language, while keeping the idea that plain pronouns are always [-log]. These feature values are independent of whether lOp is [+log] or [0log] in the language. Whatever the values of the [_log] feature are (within this range), lOp is nondistinct from a logophor and can bind it. I then claim that logophoric pronouns are [0log] in Edo and Yoruba. This allows them to locally bind plain pronouns, because [0log] is nondistinct from [-log]. In contrast, logophoric pronouns are [+log] in Ibibio and Abe. Rule H forces the logophoric pronoun to be the true binder of the plain pronoun in (89) and (91), but this violates (87), because the [+log] logophor is distinct in features from the [-log] pronoun. A representation for (88) in Edo is given in (92a); note that neither of the local binding dependencies involves a clash of feature values, although if 'his' was bound directly by lOp it would. In contrast, (92b) gives the representation for (89a) 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 lOp given these feature values.

(92) a. Ozo_i said [lOp_i that [LOG_i read his_i book]]. (Edo)
[+log] [0log] [-log]

b. Okon_i told me [lOp_i that [LOG_i read $\text{his}_{k,*i}$ mother]].
[0log] [+log] [-log]

Table 5-1 summarizes the feature values that I have proposed.[35]

K&S do not discuss combinations of plain and logophoric pronouns in complement clauses as opposed to root clauses, but there is no reason in their article to suspect that they behave differently.

[35] This analysis raises the conceptual question of how exactly to define lOp and

	Edo	*Ibibio*	*Abe*	*Yoruba*
lOp	+log	0log	+log	0log
Logophor	0log	+log	+log	0log
Pronoun	-log	-log	-log	-log

Table 5-1: Values of the [_log] feature across languages

There is independent evidence that logophoric pronouns and plain pronouns differ 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 (/i/ vs /e/ in plural). This is seen in (93) and many of my other examples.

(93) Ibibio (fieldwork, Willie Willie)

a. Obuut a-ma-a-mʌm Okon ke ***ímọ̀ i****-ma-****i****-yip ngwet.*
shame 3SG-PST-3SG-hold Okon that LOG 3.LOG-PST-3.LOG-steal book
"Okon$_{i}$ is ashamed that he$_{i,*k}$ stole the book."

b. Obuut a-ma-a-mʌm Okon ke ***anye a****-ma-****a****-yip ngwet.*
shame 3SG-PST-3SG-hold Okon that 3SG 3SG-PST-3SG-steal book
"Okon$_{i}$ is ashamed that he$_{i,k}$ stole the book."

This could be a sign to a child learning Ibibio that *imo* is [+log], distinct in formal phi-features from *anye*. In contrast, since Edo and

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logophoric pronouns, e.g. for the purpose of stating the fundamental binding condition in (75). It no longer works to simply say that a lOp is a ghostly DP that is [+log] and a logophoric pronoun is a pronoun that is [+log]. One option would be to say that lOp is an operator that is not [-log] and a logophoric pronoun is one that is not [-log]. The other option is to say that these categories are defined somehow by their semantics, over and above their formal phi-feature specifications. I leave this open for now. (It might seem more natural to put the parameterization in the features of the plain pronoun, saying that it is [-log] in Edo/Abe and [0log] in Ibibio/Yoruba. The problem is that I do not see a good way to formulate the second parameter (the one at work in (88)-(91)) along these lines. Yet another option could be to say that Ibibio and Yoruba allow pronouns to be both [+log] and [-log] at the same time (see Chapter 6), whereas Edo does not. This too does not lead to a convenient approach to the second parameter.)

Yoruba do not have subject-verb agreement, a child learning these languages does not get evidence that [+/-log] is grammaticized as a phi-feature in any particular way in these languages.

We can compare the binding of logophoric pronouns by lOp with the binding of participant pronouns by Sp and Ad in indexical shift constructions. The two are similar in that both logophoric pronouns and participant pronouns need to be bound by suitable operators (§4.4 and §5.5.2). However, there are differences when it comes to the finer behavior of the features involved. We have seen that a plain pronoun can sometimes refer to the same antecedent as a special logophoric pronoun, depending on the language and the details of the syntactic configuration. The analog of this for indexical shift would be to see if a plain pronoun—i.e., an ordinary unmarked third person pronoun—can sometimes refer to the same antecedent as a special participant pronoun. But this is unknown in the indexical shift literature (I believe) and it is clearly impossible in Magahi. (94) shows that a third person pronoun cannot refer to the antecedent of a shifted first person pronoun, regardless of whether there is no c-command relationship between the pronouns or whether the first person pronoun c-commands the third person pronoun. (95) shows the same thing for combinations of second person and third person pronouns.[36]

(94) Magahi (fieldwork, Deepak Alok)

a. Santee-aa sochl-ai ki okar maiyaa hamraa kaul kark-ai.
Santee-FM think-3.NH.S that 3SG.NH.GEN mother me.ACC call do-3.NH.S
"Santee$_i$ thinks that his$_{k,*i}$ mother called him/me$_i$." (also "… that his$_{i,k}$ mother called me$_{sp*}$")

b. Santee-aa sochl-ai ki Bantee-aa hamraa okar kitaab lauTaa det-ai
Santee-FM think-3.NH.S that Bantee-FM me.DAT 3SG.NH.GEN book return give-3.NH.S
"Santee$_i$ thinks that Bantee will return to me$_i$ his$_{k,*i}$ book." (also "… to me$_{sp*}$ his$_{i,k}$ book.")

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[36] In (94b) and (95b), 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.

(95) Magahi (fieldwork, Deepak Alok)

a. Santee-aa Bantee-aa-ke kahl-ai ki okar maiyaa toraa kaul kark-ai.
Santee-FM Banee-FM-DAT told-3.NH.S that 3SG.GEN mother you.ACC call did-3.NH.S
"Santee told Bantee$_k$ that his$_{i,*k}$ mother called you$_k$." (also "… his$_{k,i}$ mother called you$_{ad*}$.")

b. Santee-aa Bantee-aa-ke kahl-ai ki Ram toraa okra kitaab lauTaa det-ai
Santee-FM Bantee-FM-DAT told-3.NH.S that Ram you.DAT 3SG.GEN book return give-3.NH.S
"Santee told Bantee$_k$ that Ram will return to you$_k$ his$_{i,*k}$ book." (also: "…to you$_{ad*}$ his$_{k,i}$ book.")

This apparent difference between logophoric constructions and indexical shift constructions can be captured by assuming that the features [_1] and [_2] can never be left unmarked. Sp is always [+1] (never [01]) and 'I'/'me' is always [+1] (never [01]), while third person pronouns are always [-1]. Similarly, Ad and 'you' are always [+2] (not [02]) and third person pronouns are always [-2]. Given this, it will never be possible for Sp or 'I' to bind a pronoun like 'him' or 'her', nor for Ad or 'you' to bind 'him' or 'her': the person features are always distinct. Therefore, it is never possible for a third person pronoun to be coreferential with a first or second person pronoun within the same domain, regardless of the c-command relationship between the pronouns. 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]. In this situation, nondistinctness of features becomes equivalent to identity of features, and all mixed pronoun cases are ruled out. It is not entirely clear to me why the [_log] feature is different from [_1] and [_2] in this way, but presumably it is related to the obvious fact that first and second person features are universal in natural languages, or nearly so, whereas logophoric features are highly language-particular. Also, cases of a first or second person pronoun being syncretic with a third person pronoun are few and far between, whereas cases of the logophoric-nonlogophoric distinction being neutralized are ubiquitous. Even languages that distinguish logophoric pronouns from nonlogophoric ones somewhere in their grammar neutralize that distinction in other positions. For example, Baatonum distinguishes

logophoric pronouns from plain pronouns only in subject position, whereas it distinguishes first and second person pronouns from third person pronouns in all syntactic positions. It is common, then, for items not to be specified for [+log] or [-log], whereas it is rare for pronouns not to be specified for [+1] or [-1] and [+2] or [-2].

5.4. Strong crossover and logophoricity

This analysis is still not complete, however. Consider (96a,b) from Yoruba. These examples are different in that the plain pronoun trying to refer to the subject of the main clause c-commands a logophoric pronoun that refers to the same subject (as opposed to the logophoric pronoun being the c-commander, as in (90), or there being no c-command relationship, as in (85b)). (97) is the structure of (96a). It shows that there should be no problem with the feature relationships in this case. In Yoruba, a logophoric pronoun is [0log], so it is nondistinct in features from the [-log] pronoun that binds it, and the lOp is [0log], so it is nondistinct in features from the [-log] pronoun that it binds. (87) is thus respected in this structure. Nevertheless, (96) is bad in Yoruba with the plain pronoun c-commander on the intended meaning, as Adesola (2005) discusses at some length.

(96) Yoruba (Adesola 2005: 19, 199)

a. Olu gbà ki ó/òun rí bàbá òun.
Olu accept that he/LOG see father LOG
"Olu$_i$ agreed that he$_{k,*i}$ /he$_{i,*k}$ saw his$_i$ father."

b. Olu so pe Ade fun un ni owo oun.
Olu say that Ade give him PRT money LOG
"Olu$_i$ said that Ade gave him$_{k,*i}$ his$_i$ money."

(97) Olu$_i$ accept [lOp$_i$ that [he $_{k,*i}$ saw LOG $_i$ father]]
[0log] [-log] [0log]

Indeed, this kind of example is ruled out in all four of the logophoric languages for which I have this kind of data, as shown in (98)-(100). Apparently, whatever rules out a structure like (97) is independent of the precise feature values of the pronouns and operators involved.

(98) Ibibio (fieldwork, Willie Willie)
Edem á-ké-n-dọ̀kkọ̀ ké (anye) a-maa-se èkà ímọ̀.
Edem 3SG-PST-1SG.O-tell that 3SG 3SG-PST-see mother LOG
"Edem$_i$ told me that he$_{k,*i}$ saw his$_i$ mother."

(99) Edo (Baker 1999: (36c))
Ozo hoo ne ọ miẹn igho irẹn.
Ozo want that 3SG find money LOG
"Ozo$_i$ wants that he$_{k,*i}$ finds his$_i$ money."

(100) Abe (Koopman & Sportiche 1989: 560 (11))
Ø wu n wo n.
3SG saw LOG dog DET
"He $_{k,*i}$ saw his $_i$ dog."

My proposal is that these examples are ruled out universally as a kind of strong crossover (SCO) violation. Strong crossover is a robust phenomenon in which the variable (trace) bound by a *wh*-operator cannot be c-commanded by a pronoun that is interpreted as an instance of the same variable. (101) shows this effect in the domain of nonrestrictive relative clauses in English.[37] We see here that it is possible for an ordinary pronoun to have the same reference as a moved relative pronoun (and the head of the relative) when the ordinary pronoun is c-commanded by the trace of the relative pronoun ((101a)), or when there is no c-command relationship between them ((101b)), but this is sharply ruled out when the ordinary pronoun c-commands the trace of the relative pronoun ((101c)). *He* in (101c) must refer to someone other than Rex. (101d,e) is a more minimal pair that shows the same contrast as (101a,c).

(101) English (Safir 2004: 84, personal knowledge)
a. Rex$_i$, who$_i$ –$_i$ loves his$_i$ accountant, is a Republican.
b. Rex$_i$, who$_i$ his$_i$ accountant loves --$_i$, is a Republican.

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[37] I use nonrestrictive relative clauses rather than constituent questions or restrictive relative clauses in order to abstract away from the effects of weak crossover. In these domains the analogs of (101a,d) are good and the analogs of (101c,e) are bad, but the analog of (101b) is also degraded (?*Who$_i$ does his$_i$ accountant love --$_i$?). How closely weak crossover is related to strong crossover is debated. I do not consider analogs of weak crossover in the domain of logophoricity, except for the comment in fn 39.

*c. *Rex$_i$, who$_i$ he$_i$ (says Mary) loves --$_i$, is a Republican.*
d. Rex$_i$, who$_i$ –$_i$ always keeps an accountant near him$_i$, is a Republican.
*e. *Rex$_i$, who$_i$ he$_i$ always keeps an accountant near --$_i$, is Repulican.*

I see a similarity between this well-known paradigm and the pattern that we see across the logophoric languages, and especially in Yoruba, where the feature values of lOp and logophoric pronouns mean that (87) places no substantive restrictions. As a trace of *wh*-movement must be bound by a *wh*-operator (possibly covert), so a logophoric pronoun must be bound by an lOp (always covert); this was stated in (75). In both domains, a plain pronoun can in principle be coreferential with the operator-bindee pair (feature specifications permitting). However, in both domains this is blocked if the plain pronoun c-commands the bindee (but not the operator). Thus (101c,e) are bad in the case of nonrestrictive relative clauses, and (96)-(100) are bad in the case of logophoric constructions.

There are of course a number of ways of trying to explain the SCO effect that one could try plugging into this analysis. The easiest one is to follow the GB-era tradition of building SCO into the definition of a variable—what Safir (2004: 63-64) calls the "definition of syntactic variable" approach. According to this approach, a *wh*-trace counts as a licit variable if it is locally A-bar bound; this condition holds in (101a,b,d) but not (101c,e). We can get a parallel effect in the domain of logophoricity by modifying (75), the fundamental principle underlying this section (repeated as (102)), so that it requires *direct* (or local) binding, as in (103).

(102) A logophoric pronoun must be bound by an lOp

(103) An A-pronoun that is [+log] or [0log] must be **directly** bound by a DP that is [+log] or [0log].

A minor change in (103) is that I have replaced reference to an lOp and a logophoric pronoun with their characterizations in terms of the [_log] feature according to our current understanding (see fn 35). The major change is that in (103) I now distinguish between direct binding and indirect binding, saying that the binding that is needed to license the logophoric pronoun must be the direct kind. Rule H is in the background here again (Fox (2000), called *Have Local Binding!* in

Büring (2005)). The formulation in (104) is from Safir (2004).

(104) 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.

We are considering configurations of the form [… lOp$_i$ … pronoun$_i$ … LOG$_i$…] where each DP c-commands the one to its right. Rule H says the true binder of LOG in this configuration must be the pronoun, since that is a more local antecedent in the sense defined by c-command. This Rule-H mandated binding is what I mean by direct binding in (103)—leaving open that there may also be a sense in which lOp binds LOG in this configuration indirectly, by way of binding the pronoun which binds LOG directly. But now (103) is violated by this structure, given in (97). The direct binder of LOG is the plain pronoun, but the plain pronoun is [-log], not [+log] or [0log] as required. This is not generic feature compatibility, but a special condition that is relevant to the relationship between intrinsic variables—elements that need to be bound by an A-bar operator—and pronominal elements. Ideally, we could combine logophors and *wh*-traces under a broader notion of A-bar bound variables, such that (103) and the SCO account are not merely parallel but special cases of the same abstract syntactic condition, but I do not pursue that here.

These principles do not require that a logophoric pronoun always be directly bound by lOp; they also allow it to be bound directly by another logophoric pronoun, which is in turn bound by a lOp. This is needed for examples like (105) in Ibibio, which are possible in all the languages; see (96a) with the second logophor for a Yoruba example.

(105) Ibibio (fieldwork, Willie Willie)
Edem á-ké-n-dọ̀kkọ̀ ké ímọ̀ i-ma-i-kit èkà ímọ̀.
Edem 3SG-PST-1SG.O-tell that LOG 3.LOG-PST-3.LOG-see mother LOG
"Edem$_i$ told me that he$_i$ saw his$_i$ mother."

The logophor functioning as the possessor of the object is not directly bound by lOp in (105) any more than it is in (96); rather, it is locally bound by the subject pronoun in the same clause. But that is fine in (105) because the local binder is itself a logophoric pronoun, hence it (like lOp) is [+log] or [0log], depending on the language. Hence (103)

is satisfied and there is no SCO-type violation. The subject pronoun is itself directly bound by lOp, so it too satisfies (103), and all the logophoric pronouns are in some sense (directly or indirectly) bound by an lOp—the spirit of the original (75). Note that (103) is intended to constrain logophoric pronouns but not lOps; this allows lOps to be controlled (hence bound) by [-log] elements such as ordinary DPs. The result is that any ascending sequence of logophors can and must terminate in an lOp. LOps may themselves count as pronouns (DPs with features and an index but no encyclopedic content), so I refer to A-pronouns—pronouns in an A-position, like subject or object but not like Spec of a C-type head—to distinguish logophoric pronouns like *imo* or *oun* from lOp in (103).

What we have learned here about the interactions between plain pronouns and logophoric pronouns allows me to fill in a gap in the discussion in §5.3 about logophoric pronouns in nonfiinite clauses. There I mentioned 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 hold in Ibibio: logophoric pronouns are possible inside control complements as long as the PRO subject of the infinitival or gerundival clause is controlled by the object of the matrix verb (see (66)). 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. (106) repeats an Ibibio example (see also (65b)). (107) shows that the same is true in Edo. (Culy's example is from Donno Sɔ.)

(106) Ibibio (fieldwork, Willie Willie)
*Okon a-maa-yem edi-se eka ọ̀mọ̀ /*ímọ̀*
Okon 3SG-PST-want INF-visit mother his/*LOG
"Okon$_i$ wants to visit his$_i$ mother."

(107) Edo (Baker 1999: (42b))
*Ozo mianmian ya tie ebe ẹre/*irẹn.*
Ozo forget INF read book his/*LOG
"Ozo$_i$ forgot to read his$_i$ book."

Rather than saying that there is conflicting evidence about whether nonfinite clauses can house lOp, we can now understand (106) and

(107) as instances SCO, similar to (96)-(100). Suppose that there is a special null pronoun PRO in the subject position of these embedded clauses, in accordance with usual Chomskian principles.[38] 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 (106) and (107) have the structure in (108). This violates the direct binding condition in (103), because the direct binder of LOG is PRO, not lOp, and PRO is [-log]. (108) is like (97) in the relevant respects.

(108) Okon$_i$ wants [lOp$_i$ [PRO$_i$ to visit LOG$_i$'s mother]]
[-log] [+/0log] [-log] [+/0log]

A variant of this construction is (109) from Ibibio. Here a logophoric pronoun in an infinitival clause can be bound by PRO. This is possible because PRO is controlled by a logophoric pronoun in the superordinate clause, the subject of 'want'. The local environment of the lowest logophor is the same in (109) as it is in (108), but this time PRO receives [+log] from its controller rather than [-log]. Since the direct binder of the logophor is [+log], (103) is satisfied in (109b).

(109) Ibibio (fieldwork, Willie Willie)

a. Okon a-bo ke ímọ̀ i-ma-i-yem edi-se eka ímọ̀.
Okon 3SG-say that LOG 3.LOG-PST-3.LOG-want INF-visit mother LOG
"Okon$_i$ says that he$_i$ wants to visit his$_i$ mother."

b. ...LOG$_i$ wants [lOp$_i$ [PRO$_i$ to visit LOG$_i$'s mother]]
[+/0log] [+/0log] [+/0log] [+/0log]

The unfinished business from §5.3 is thus readily resolved given that PRO, like overt pronouns, can trigger SCO violations, as we know

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[38] 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 lOp, so that they behave in essence like single clause sentences.

independently for *wh*-constructions (see Safir 2004a: 168 (40a)).

As a matter of theory comparison, it is worth noting that Anand (2006) interprets the badness of (96a,b) in Yoruba in a different way. 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 that 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) (Baker & Ikawa 2024: 913 (30)), while plain pronouns can refer *de se*. Second, I find the judgments for pronouns in dream contexts in English not to 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 patterns in this section to the principles that create SCO effects 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, which involve binding, from shifted indexicals, which in his veiw 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. In fact, the analogs of the supposed *de re* blocking in (96a) in Yoruba are bad for indexical shift in Magahi as well. Thus in (110) the third person subject cannot refer to the same argument in the matrix clause as a shifted ‘I’ or ‘you’ that it c-commands. This could be seen as a case of *de re* blocking.

(110) Magahi (fieldwork, Deepak Alok)

a. Santee-aa sochl-ai ki Bantee-aa okraa hamar kitaab lauTaa det-ai.
Santee-FM think-3.NH.S that Bantee-FM 3SG.NH.DAT 1SG.GEN book return give-3.NH.S
“Santee$_i$ thinks that Bantee will return to him$_{k,*i}$ my$_i$ book.”
(also “… to him$_i$ my$_{sp*}$ book.”)

b. Santee-aa Bantee-aa-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$_k$ that Ram will return to him$_{i,*k}$ your$_k$ book." (or: …to him$_k$ you$_{ad*}$ book)

However, this does not stand out as a *de re* blocking effect because the c-command relationship between the participant pronoun and the third person pronoun is not crucial: a third person pronoun cannot refer to the same NP as a shifted participant pronoun even when the third person pronoun does not c-command the participant pronoun (see (94) and (95)). This is not mysterious; I have explained it using the hypothesis that pronouns are always marked for first and second person features, whereas a logophoric pronoun can be formally unmarked for the [_log] feature. But it means that feature nondistinctness conditions swamp the *de re* blocking pattern in the case of indexical shift, whereas it stands out more clearly as something different (SCO, in my view) in some logophoric languages, especially Yoruba. *De re* blocking then is not a strong reason to analyze indexical shift and logophoric pronouns in fundamentally different ways, as is done in the Anand/Deal shifty operator approach.

This completes my analysis of the binding of pronouns by lOp. The analysis has three main parts. First, logophoric pronouns, like indexicals, must be bound by a ghostly DP operator, but in the case of logophoric pronouns this is not subject to a relativized minimality condition like the PLC. This provides the core of West African logophoric behavior. Second, logophoric pronouns and the lOps that bind them can be specified as either [+log] or [0log], contrasting with plain pronouns which are consistently [-log]. This gives different patterns in different languages as to whether lOps and logophors can bind plain pronouns. In this subdomain, Ibibio, Abe, Yoruba, and Edo show four different patterns. However, no known language allows a plain pronoun (or PRO) to bind a logophoric pronoun. I explained this by generalizing a familiar account of strong crossover, based on the idea that logophors are like *wh*-traces in being dedicated variables that

need to be directly bound by the right kind of A-bar operator.[39] This cluster of ideas does justice both to what is universal about the binding of logophoric pronouns and where we see some low-level variation.

6. Logophoric uses of anaphors and other typological variants

6.1. Introduction

In the last section of this chapter, I move from a rich description and analysis of a localized phenomenon to touch on some larger scale comparison. Having dedicated logophoric pronouns like Ibibio's *imo* is a strongly areal phenomenon: it is found in West African languages but perhaps nowhere else in the world (Culy 1994). However, many researchers have observed that long distance (LD, also called *exempt*) anaphors in East Asian languages (Chinese, Japanese, Korean) and European languages (Icelandic, Italian, French, English…) can be used in ways that are very much like logophoric pronouns in important respects. This observation goes back to Clements's (1975) early discussion of logophoric pronouns in Ewe, which compared them to LD uses of the anaphor in Latin. It is also a cornerstone of Sells's (1987) study, 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,

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[39] There is some evidence that logophoric constructions show weak crossover effects as well as strong crossover effects in Ibibio. I found that in examples like (i) a plain pronoun cannot be interpreted as a variable bound by the same nonreferential quantifier as a logophoric pronoun, even when the plain pronoun does not c-command the logophor. (i) is worse than (82a), where the plain pronoun is a bound variable without there being a logophor around, and it is worse than (83a) where the antecedent of the two pronouns is a referential DP. This is like weak crossover in that it matters whether the binder is a quantifier or not and whether the two pronouns/variables match or not. I do not pursue an analysis, in part because I do not have comparable data from other languages.

(i) Ibibio (fieldwork, Willie Willie)
Owo ndomo-keet i-ki-kere-ke ke eka ọmọ i-sua imọ.
person even-one 3SG-PST-think-NEG that mother his 3.SG:3.LOG.O-hate LOG
"Nobody$_i$ thinks that his$_{k,*i}$ mother hates him$_i$." For no x, x thinks that y's/*x's mother hates x.

few have been in a position to compare the two phenomena in a deep and balanced way. In Baker & Ikawa (2024) (B&I), we took on this task, putting Japanese data involving *zibun* side-by-side with Ibibio data across a broad range. In §5.6.2, I summarize our main results (with one revision), surveying what LD anaphors and true logophoric pronouns have in common and how they differ. This includes some comments comparing my framework with that of Charnavel (2019, 2020), which focuses on the LD anaphors. Then in §5.6.3, I take a closer look at Abe, in which the erstwhile logophoric element *n* is pronominal rather than anaphoric (like Ibibio's *imo*) but can nonetheless be used in matrix clauses as well as embedded clauses (like Japanese's *zibun*). Throughout the section, my primary goal is to get a broader picture of the range of possible ghostly DP operators. This reinforces the claim from Chapter 3 that the primary distinction among such operators is whether they have intrinsic interpretable features or not. LOp in Ibibio, Yoruba, and Edo is like SoK in other African languages in not having such features; therefore it must get them via obligatory control, which limits its distribution. In contrast, zOp in Japanese and nOp in Abe, although logophoric in some sense, have such features, which allows them to forego obligatory control, giving them a wider distribution. This distinction among the broadly logophoric operators thus replicates the distinction between SoK/OoK and Sp/Ad that we arrived at in earlier chapters.

6.2. Japanese *zibun*

Years of generative research on the simplex anaphor *zibun* in Japanese agrees that when it is used in complement clauses without a local antecedent, it is in a sense logophoric. This means that what can be its antecedent in the superordinate clause is constrained in ways that go beyond normal syntactic restrictions like c-command and locality. The restrictions also look strikingly familiar to the West Africanist acquainted with the dedicated logophoric pronouns of that area. (111) gives an overview of this. (111a) shows that *zibun* in the complement of 'tell' can refer to the agent subject of the matrix clause but not to its goal object. (111b) shows that *zibun* in the complement of 'hear' can refer to the matrix goal-experiencer subject, and given favorable pragmatics it can also refer to the oblique source argument of 'hear'. (111c) shows that *zibun* in the complement of the passive of 'tell' behaves like *zibun* in the complement of 'hear': it can refer to the oblique agent or to the goal subject. (111d) shows that *zibun* cannot refer to the possessor of the subject instead of the subject itself.

(111) Japanese (Sells 1987: 453-454; Nishigauchi (2014: 191), (Kuno 1987: 258), Shiori Ikawa, p.c.)

a. Keizi-wa sono seizika-ni [booryokudan-ga zibun-o sagasite-i-ru-koto-o] osie-ta.
dectective-TOP the politician-DAT gangsters-NOM self-ACC search-AUX-PRS-C-ACC tell-PST
"The detective$_i$ told the politician$_k$ [zOp$_{i,*k}$ that gangsters are searching for self$_{i,*k}$."

b. Keizi-wa sono seizika-kara [booryokudan-ga zibun-o odosite-i-ru-koto-o] kii-ta.
dectective-TOP that politician-from gangsters-NOM self-ACC blackmail-AUX-PRS-C-ACC hear-PST
"The detective$_i$ heard from the politician$_k$ that gangsters are blackmailing self$_{i,k}$."

c. Sono seizika-wa keizi-kara [booryokudan-ga zibun-o sagasite-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$_i$ was told by the detective$_k$ that gangsters are searching for self$_{i,k}$."

d. #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$_i$'s footprint suggested that self$_i$ was still around.")

This pattern of antecedence is identical to what we have seen for logophoric pronouns in Ibibio and other West African languages. This motivates having a parallel analysis, in which *zibun* can be locally bound by a ghostly DP operator similar to lOp—call it zOp—as in (112). Nishigauchi (2014) gives such an analysis for Japanese, and Charnavel (2019, 2020) develops it for LD anaphors more generally.

(112) The detective$_i$ told the politician$_k$ [zOp$_{i,*k}$ that gangsters are searching for self$_{i,*k}$]."

In the context of this work, we can go on to say (unlike Nishiguachi and Charnavel) that zOp undergoes obligatory control, following the same principles of control theory as lOp does. Thus, only an initiator argument of the matrix verb can control zOp, given that zOp gets an initiator role from a C-like head in the complement clause. See B&I for further evidence and theoretical discussion. Similar if not identical data can also be found for *caki* in Korean (Park 2018), *ziji* in Mandarin (Huang and Tang 1991, Huang and Liu 2001), and *minh* in Vietnamese (Bui 2024); it is an areal feature of East Asia.

This West-Africa-like logophoric pattern holds despite the fact that *zibun* in Japanese and the corresponding items in other East Asian languages are fundamentally anaphors, whereas items like *imo* in Ibibio are fundamentally pronouns. The anaphoric nature of *zibun* can be seen in the fact that it can take a c-commanding antecedent in the same clause, including a root clause, as in (113a). If it has an antecedent, the antecedent must c-command it, as in (113b). This shows that *zibun* is subject to Condition A of the Binding theory (Chomsky 1981), the condition that holds of anaphors.

(113) Japanese (Baker & Ikawa 2024: 902; Nishigauchi 2005)

a. Taroo-ga zibun-o seme-ta.
Taroo-NOM self-ACC blame-PST
"Taroo$_i$ blamed self$_{i,k}$."

*b. *Taroo-no otosimono-ga zibun-o toraburu-ni makikon-ta.*
Taroo-GEN lost.bag-NOM self-ACC trouble-into involve-PST
("Taroo$_i$'s lost bag got self$_i$ in trouble.")

In contrast, the Ibibio logophor *ímọ̀* cannot take the local subject as its antecedent, whether it appears in a matrix clause or an embedded clause (cf. Clements 1975: 150 on Ewe). It can, however, be coreferential with the possessor of the subject, which does not c-command it. This is shown in (114). This shows that *imo* obeys Condition B of the Binding theory, the condition that regulates pronouns. (Ibibio's local anaphor is formed from the noun *idem* 'body', with or without an overt possessor pronoun that matches its antecedent in features.)

(114) Ibibio (fieldwork, Willie Willie, see also Aphranaph)

*a. *Okon e-ma ímọ̀.*
Okon 3SG.3.LOG.O-love LOG
("Okon$_i$ loves him$_{*i}$" OK with *idem ọmọ* 'body his')

b. Okon a-ke-bo ke ímọ̀ i-mi-kpi ímọ̀.
Okon 3SG-PST-say that LOG 3.LOG-PERF-cut LOG
("Okon$_i$ said that he$_i$ cut him$_i$." OK with *idem ímọ̀* 'body LOG')

c. Obuut a-maa-mʌm Okon ke ayín ímọ̀ a-ma-i-miem ímọ̀.
shame 3SG-PST-hold Okon that son LOG 3SG-PST-3.LOG.O-insult LOG
"Okon$_i$ is ashamed that his$_i$ son insulted him$_i$."

From one important perspective, this difference in the nature of anaphoric *zibun* and the African logophoric pronouns does not matter very much. The logophoric pattern of antecedence outlined in (111) does not depend so much on *zibun* as it does on zOp and its OC relationship to a nominal in the matrix clause. That OC relationship is identical in the East Asian and African constructions. The Japanese version is a bit different theoretically, however, in that zOp is alone among the ghostly DP operators in that it can bind an anaphor; lOp in Ibibio, by contrast, cannot (see (4a)). For this reason, B&I said that zOp is actually licensed not by a C-type head but by a "point of view" head which is at the top of the TP space, following Nishiguachi (2014). This could go along with zOP being in an A-position and part of the same binding domain as the core TP, allowing it to bind an anaphor, just as the subject in Spec TP can. This is also an integral if implicit part of Charnavel's (2019, 2020) approach to LD anaphors.[40] This A/A-bar difference deserves more study and thought, however.

The fact that *zibun* is an anaphor rather than a pronoun does have one clear consequence for multiclausal logophoric behavior. We have seen that two logophors in a doubly-embedded clause can have different references; for example, one can refer to the subject of the highest

[40] B&I also relate to this the fact that some Cs fail to license lOp in Ibibio (notably *naña* 'how' found in perception complements; see (61)), whereas zOp is possible in clauses with any C (including perception complements). This insensitivity to C makes sense if zOp is licensed by PoV rather than C.

clause whereas the other refers to the subject of the intermediate clause (see (78)). With *zibun* in Japanese, this is impossible, as shown in (115). Here both *zibuns* in the lowest clause can refer to Hanako, but it is bad for one to refer to Hanako and the other to Taroo (Howard and Niyekawa-Howard 1976, Oshima 2006: 100).

(115) Japanese (Baker & Ikawa 2024: 904 (14))
Taroo-wa Hanako-ga zibun-no yuuzin-ga zibun-o semete-i-ta-to it-ta-to omot-ta.
Taroo-TOP Hanako-NOM self-GEN friend-NOM self-ACC blame-AUX-PST-C say-PST-C think-PST
"Taroo$_i$ thinks that Hanako$_k$ said that self$_k$'s friend$_n$ was blaming self$_{k,n,*i,}$." (also: "Taroo$_i$ thinks that Hanako$_k$ said that self$_i$'s friend$_n$ was blaming self$_{i,n,*k,}$.")

The judgement also holds for *ziji* in Mandarin (Huang and Liu 2001: (13)), *caki* in Korean (Park 2018) and *minh* in Vietnamese (Bui 2024); it seems to be typical of languages with LD anaphors rather than logophoric pronouns. Indeed, the difference follows readily from Binding theory. The structure of (115) is (116) with two zOps, one in the CP complement of the root verb 'think' and one in the CP complement of the intermediate verb 'say', each controlled by the immediately superordinate subject.

(116) Taro$_i$ think [zOp$_i$ C [Hanako$_k$ say [zOp$_k$ C [zibun's$_{k,*i}$ brother hates zibun$_{k,*i}$]].

Following Nishigauch (2014) and Charnavel (2019, 2020), B&I assume that (116) is ruled out with one of the *zibun*s bearing index i because *zibun* is intrinsically an anaphor in Japanese. As such it needs to have a c-commanding antecedent nearby, in the same clause. ZOp$_k$ qualifies as such, whereas a *zibun*$_i$ has no antecedent in the same clause. This reading of *zibun* is thus out for much the same reason that **John thinks that Mary hates himself* is bad in English. In contrast, the Ibibio analog of (116) is grammatical because *imo* is a pronoun, not an anaphor. As such, it does not need to be bound in the local clause, making a representation like (116) with different indices on the logophors possible in Ibibio. (This theory does not yet account for a reading which (115) and its analogs in other East Asian languages do have: the one in which both *zibuns* refer to Taro, the subject of the root clause. I return to this at the end of this section.)

It is also impossible for two LD *zibuns* in the complement of the verb ‘hear’ to refer to different arguments of ‘hear’, as seen in (117). Here the first *zibun* can refer to either the experiencer-subject of ‘hear’ or the oblique source argument of ‘hear’ (as in (111b)). However, whichever argument the first *zibun* refers to must also be the one that the second *zibun* refers to.

(117)Japanese (Shiori Ikawa, p.c.)
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$_i$ heard from Takasi$_k$ that self$_i$’s brother hates self$_{i*k}$” or “Taro$_i$ heard from Takasi$_k$ that self$_k$’s brother hates self$_{k,*i}$.”

This implies that a 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. As anaphors, both instances of *zibun* must be bound by this one zOp (or, in the case of the object *zibun*, by the subject ‘self’s brother’). In this respect, zOp is like Sp in Magahi but different from lOp in Ibibio and Yoruba. The uniqueness of zOp in the clause together with *zibun* being an anaphor implies in full generality that two LD *zibuns* in the same clause are coreferential.

The most salient difference between Japanese *zibun* and Ibibio *imo* is that the LD anaphor in Japanese is licensed in a much wider range of clause types. We saw in §5.2.3 that lOp in Ibibio needs to undergo OC in order to be interpretable, so it is restricted to appearing in complement clauses and low adjunct clauses. This is apparently not the case for zOp in Japanese. LD *zibun* is possible in high VoiceP or TP level adjuncts, including ‘because’ clauses, ‘when’ clauses and ‘if’ clauses (see (118)), as well as low adjuncts like ‘so that’ clauses. In contrast, *imo* is only licensed in ‘so that’ clauses.

(118)Japanese (Sells 1987: 464, Nishigauchi 2014:165)
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$_i$ was happy because Yosiko came to visit him$_i$.”

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$_i$ was surprised when Mary poured water on self$_i$."

Similarly, LD *zibun* is freely possible in relative clauses, whereas *imo* is only possible there in special cases. (119) is good in Japanese.

(119)Japanese (Nishigauchi 2014: 185)
Takasi-wa [[zibun-o sonkee-suru] onna-to] kekkon-si-ta.
Takasi-TOP self-ACC admire-do woman-with marry-do-PST
"Takashi$_i$ married [a woman [zOp$_i$ that admires self$_i$]]."

Third, *zibun* is possible in a root clause where it gets an antecedent from discourse, as in (120) (see also Sells 1987: 455, Nishigauchi 2014: 172). In contrast, *imo* is not generally allowed in root clauses.

(120)Japanese (Oshima 2004: 12)
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
"Tokikio$_i$ turned pale. Masaki had gone leaving self$_i$ behind."

These data imply that zOp, the true binder of LD *zibun*, can appear in non-OC contexts as well as OC ones. In this respect, it behaves more like Sp and Ad in Magahi and other languages than it does like lOp or SoK in the African languages. Based on the SoK-Sp/Ad contrast, I claimed in Chapters 3 and 4 that this difference is rooted in whether a ghostly DP has intrinsic interpretable features or not. SoK does not, so it must receive features by OC in the syntax in order to be interpretable at LF. As a result, it has a relatively narrow distribution. In contrast, Sp and Ad are [+1] and [+2], respectively. This buys them time at LF and guides them to suitable antecedents. As a result, they may undergo OC, and must in OC contexts, but they can also survive in non-OC contexts. This gives Sp and Ad a broader distribution, such that they can appear in essentially any finite CP in Magahi, as shown by the fact that allocutive agreement is possible in any finite clause.

Extending these ideas to the logophoric phenomena, it is desirable to say that lOp in Ibibio lacks any intrinsic interpretable features, limiting it to the narrower distribution, whereas zOp in Japanese has some interpretable feature, freeing it from a dependence on OC and granting it the broader distribution.

It is significant in this regard that when *zibun* appears in these non-OC contexts where *imo* is not licensed, it has different antecedence properties from *zibun* in complement clauses as illustrated in (111). Oshima (2004, 2006) argues that *zibun* can take either a logophoric center or an empathy center as its antecedent, as does Nishigauchi (2014); see also Charnavel (2019, 2020) for French.[41] B&I support Kuno's (1987) and Oshima's more specific view, 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 usually have both the property of having an agent-like thematic role and the property of being a natural topic, so [+empathy]. As such, they qualify as antecedents for zOp in both contexts. Careful consideration of other kinds of arguments can reveal the difference, however. For example, the source argument of 'hear' and the oblique agent of a passive can antecede *zibun* in a complement clause (see (111b,c)). However, as oblique case nonsubjects, they are less discourse-prominent, and 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 Ikawa (2022) for recent discussion and references). Thus, the examples in (121) are bad with *zibun* in a relative clause ((121a)) or an adjunct clause ((121b)) referring to the source or agent phrase in the matrix clause.

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[41] Charnavel's discussion also has roots in Sells's (1987) distinction between source, self, and pivot as antecedents for logophoric elements, although her typology of antecedents has some improvements over Sells's.

(121)Japanese (Baker & Ikawa 2024: 944 (86a); Shiori Ikawa, p.c.)

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$_i$ [the news [that Taro told self$_{*i}$]]].")

b. #Zibun-ga takarakuzi-ni atta-ta-toki, Hanako-wa yokuzitu Taroo-kara sore-o kii-ta/tutae-rare-ta.
self-NOM lottery-DAT win-PST-when Hanako-TOP next.day Taro-from it-ACC heard-PST /told-PASS-PST
("[When zOp$_{*i}$ self$_{*i}$ won the lottery], Hanako heard it from/was told it by Taroo$_i$ the next day.")

Conversely, a goal object cannot antecede *zibun* in a complement clause CP when an agent-subject is present ((111a)). However, such an argument can antecede *zibun* inside a relative clause, especially if it is explicitly made [+empathy] by using *kure*, as in (122).[42]

(122)Japanese (Baker & Ikawa 2024: 944 (86b))

Sono hito-wa Hanako-ni Ziroo-ga zibun-ni nokosi-ta kotoba-o osiete-kure-ta.
that person-TOP Hanako-DAT Ziro-NOM self-DAT leave-PST words-ACC tell-BEN-PST
"That person$_i$ told Hanako$_k$ [the words [Ziroo left for self$_{i,k}$]] (to Hanako's benefit)."

So when zOp is in a complement clause (or a 'so-that' adjunct; see B&I (2024: 923 (46)), it undergoes OC, just as lOp does, and its antecedent is determined by thematic roles, especially which argument is the initiator ((111)). But zOp can also survive in non-OC environments, where it is assigned an antecedent by discourse pragmatics. In Japanese, this involves considerations of empathy: in

[42] 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 [+empathy]. Even referring to the matrix subject in (118b) 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.

simplified terms, uncontrolled zOp must be assigned a [+empathy] antecedent, the notion originally studied by Kuno and his collaborators. 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, such as 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, whereas a particular kind of discourse prominence is the key to anteceding *zibun* that occurs outside of domains of OC. The OC/not-OC distinction is thus relevant to Japanese LD anaphora as well as to Ibibio logophoricity, but in this subtler way.

What exactly is the interpretable feature that zOp has in Japanese that makes it different from lOp in the West African languages in this way? One contender is [+human], given that *zibun* can only take human antecedents in Japanese. In contrast, nonhuman antecedents for the logophoric pronoun are not impossible in Ewe (Clements 1975: 168-169) or Ibibio. (123) is one example; see B&I (2024: 911 (26), (28)) for others.[43]

(123) Ibibio (fieldwork, Willie Willie)
Ngwet odo a-maa-nam n-yem adi-maana ng-koot imọ.
book the 3SG-PST-make 1SG-want INF-do.again AGR-read LOG
"The book$_i$ made me want to read it$_i$ again."

The other candidate is simply [+empathy] itself, partially incorporated into the grammar of Japanese as a formal feature as well as semantic-pragmatic notion. Kuno and Kaburaki (1977) and Kuno (1987) discuss what the semantic-pragmatic interpretation of such a feature is, e.g. in terms of the notion of the "camera angle" from which an event is presented (although they would not countenance implementing it as a

[43] B&I (2024: 948 (93)) also show that lOp may not even have a [+3] person feature, in that a logophoric pronoun in Ibibio can have a second person antecedent in the matrix clause (see also Clements 1975 for this in Ewe).

binary feature). “EmpOp” could then be a better, crosslinguistically more applicable label for what I have been calling zOp. EmpOp, like Sp, can be controlled, in which case its inherent features play little or no distinguishable role. But it can also fail to be controlled, in which case its inherent features provide interpretability by guiding it to a discourse antecedent. In the case of Sp, this is done syntactically, through the tight conditions of the PLC. In the case of EmpOp, it is done more pragmatically, using notions of empathy and point of view. Sp (and Ad) and zOp/EmpOp can both undergo a kind of NOC, then, but it is rather different depending on the particular interpretable feature(s) that the ghostly DP has. In contrast, lOp in Ibibio and its neighbors has a special feature [+log], but this is a purely diacritic feature present only to help match up bound pronouns and their binders; it has no intrinsic interpretability per se (Stechow 2003, Anand 2006, Pearson 2013, Park 2018).[44] As such, lOp has to undergo OC, and the appearance this gives it of imposing semantic requirements are derived consequences of the logophoric pronoun having to be bound by lOp, lOp getting a particular thematic role from C (initiator), and lOp having to undergo OC, which involves a kind of thematic role matching, to be analyzed more closely in Chapter 8.

Now we are in position to address a loose end, which came up in connection with (115)/(116). This is the fact that *zibun* can take a “super-LD” antecedent as well as a modestly LD antecedent. For example, in (124), *zibun* can be coreferential with the immediately superordinate subject *Mary*, but it can also be coreferential with highest clause subject *Takashi*.

(124)Japanese (Nishigauchi 2014: 171)
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$_i$ thought that Mary$_k$ said that everyone is likely to elect self$_{i,k}$.’

Nishiguachi infers from examples like (124) that zOp (my term) in the

[44] Several of these authors also attribute the idea to unpublished talk(s) by Irene Heim in 2002.

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 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 result of controlling Sp and Ad) in languages like Magahi, I argued that the OC configuration can be bled by certain syntactic processes, including CP extraposition.[45] 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 to get interpretable features, like SoK and lOp, this does not lead to new possibilities. But 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 (vacuously) extraposed clause can take a [+empathy] nominal as its antecedent, and the subject of the root clause qualifies as such (Kuno and Kaburaki 1977, Kuno 1987). Therefore, (124) can get a super-LD reading in the analysis in (125).[46]

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[45] The other syntactic manipulation that is known to bleed OC is nominalization. That could have the desired effect too, but extraposition looks like the more likely analysis for the example in (124), given that the most embedded clause does not have the more nominal C-head *koto* and is not marked for case. Note that extraposition is string vacuous in (124). I assume that extraposition left-adjoins CP to some projection higher than VP in Japanese (a strict head-final language) and that the subject can land in a still higher position—perhaps Spec TP by ordinary EPP movement. It is not 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.

[46] This analysis of super-LD anaphor is significantly different from the one proposed in B&I. There we claimed that zOp could be controlled by another zOp. This led to certain complexities, including the need to reformulate the GOCS 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. (126) is a new prediction of the current analysis, not made by the previous analysis.

(125) Takashi$_i$ thinks [zOp$_i$ that [[zOp$_i$ that [everyone elect self$_{i,}$]]$_n$
Mary$_k$ say -- $_n$]].

Since lOp lacks interpretable features, it cannot avoid OC by extraposing in this way. However, it does not need to in order to for a logophor like *imo* to get a super-LD antecedent in sentences analogous to (124); as a pronoun, *imo* can simply be bound at a distance by the higher lOp in the CP complement of 'think'.

This analysis 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 (125) could have a [+empathy] indirect object as well as a subject. The prediction is 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. (126) shows that this prediction is true. Note that the highest verb 'tell' here bears the auxiliary *kure*, making it clear that its goal argument is [+empathy].

(126)Japanese (Shiori Ikawa, p.c.)

Taroo-wa Hanako-ni Ziroo-ga Mika-ga zibun-o kiratte-i-ru-to omotte-i-ru-to osiete-kure-ta.

Taroo-TOP Hanako-DAT Ziroo-NOM Mika-NOM self-ACC hate-AUX-PRS-C think-AUX-PRS-C tell-BEN-PST

"Taro$_i$ told Mary$_k$ (for her benefit) that Ziro$_n$ thinks that Mika$_m$ hates self$_{k\ (i,n,m)}$."

This is striking in that a [+empathy] goal argument in the clause immediately above *zibun* cannot be the antecedent of *zibun*. Such a goal argument cannot be an OC controller of zOp because it has the wrong kind of thematic role, 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.

To compare with (126), 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 would be no, because super-LD antecedents depend on empathy and the source argument of 'hear' is [-empathy].

In fact, this sort of antecedence is possible, as shown by (127).

(127)Japanese (Shiori Ikawa, p.c.)
Hanako-wa Taroo-kara Ziroo-ga Mika-ga zibun-o kiratte-i-ru-to omotte-i-ru-to kii-ta.
Hanako-TOP Taro-from Ziro-NOM Mika-NOM self-ACC hate-AUX-PRS-C think-AUX-PRS-C hear-PST
"Hanako heard from Taroo$_i$ **that** Ziroo thinks that Mika hates **self$_i$**."

On a closer look, though, I make the correct prediction if I say that zOps themselves count as being [+empathy], hence they are possible antecedents for an uncontrolled zOp. The source phrase *Taro* can control a zOp in the specifier of the bolded C in (127), since this OC relationship depends on thematic role, not empathy. Then that higher zOp can be the [+empathy] antecedent for the zOp in the extraposed CP complement. Again, super-LD anaphoric relationships turn out to be less constrained than local-LD relationships, because they involve NOC rather than OC.

That zOp can be the [+empathy] antecedent for an uncontrolled zOp is confirmed by (128), 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. Here it seems surprising that *zibun* in the relative clause can be coreferential with 'Taro', a nonempathy argument. However, the surprise disappears when one realizes that 'Taro' can control zOp in the complement of 'hear' and this can be the [+empathy] antecedent that the zOp inside the relative clause needs.

(128)Japanese (Baker & Ikawa 2024: 950 (96))
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-C hear-PST
"Hanako heard from Taroo$_i$ **that** Ziroo found the person who gave birth to **self$_i$**."

Overall, we have seen that the analysis of LD *zibun* in Japanese can be substantially unified with that of logophors in West African languages. Both involve ghostly operators that can undergo OC according to the same principles of control theory. However, they are

different in that zOp can also undergo NOC whereas lOp cannot (and zOp counts as an A-position, whereas lOp does not).

What about other languages with LD/exempt anaphors? Will the same kind of analysis extend to them? The answer has to wait for future research, since I cannot go into every relevant language in the detail that is necessary to address this. However, I am optimistic that the LD anaphors of other East Asian languages will turn out to be very much like Japanese in the relevant respects. This 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). 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 blocking effects than *zibun* and *caki* are, and that needs to be understood; see also Bui (2004) on *minh* in Vietnamese.

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). 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, 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 close 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). In contrast, 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 can be reanalyzed as involving local anaphors, changing the overall picture in relevant ways.[47] Another possibility is that one may be able to allow

[47] 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

for lOps at the edges of non-CP phases in some languages if one can figure out how control theory applies to such lOps—a project with some new challenges but perhaps new opportunities as well. I do not pursue these imaginable projects of integration here. See B&I for further comparison of the current approach to Charnavel's, especially §3 on some of the more semantic aspects of our analyses.

6.3. *n*-pronouns in Abe

In §5.6.2, I broadened the discussion of logophoricity from its narrow sense in West African languages to the much broader sense where it is encompasses at least some LD anaphors, which are found across a large part of Asia and Europe and perhaps beyond. Before closing, I narrow the inquiry again by taking a brief look at aspects of the very language-particular system of the West African language Abe, as described by K&S. This language presents a variation on the theme of logophoric pronouns that is a bit different from anything else that has been described. Nevertheless, the kinds of factors that go into its analysis are by now very familiar.

Abe has two types of pronouns: an ordinary pronoun realized as Ø in nominative subject position and *O* elsewhere, and the special pronoun *n*. In §5.5.3, I took it for granted that *n* is a logophoric pronoun and included it in my discussion of the features that pronouns and lOps can bear across the West African languages ([+log] or [0log]). This is based on the fact that in the complement of a canonical logophoric verb like 'say', *n* preferentially refers to the matrix subject, whereas *O* is obviated from this reading (because lOp is [+log] in Abe).[48]

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recognized by the fact that they allow inanimate antecedents, whereas LD/logophoric uses do not (see also Charnavel and Sportiche 2015). However, this generalization has been challenged by Marty (2020) for French.

[48] K&S's full analysis actually has two null operators: the one I call nOp, which binds *n* and can be in the specifier of any CP, and a special one that is only in the *kO* complements of logophoric verbs—which we could call lOp. However, lOp must be bound by nOp in Abe, so I can gloss over the distinction between the two for current purposes.

(129) Abe (Koopman & Sportiche 1989: 579 (64a))
Yapi hE kO n/O ye sE.
Yapi said that N/he is handsome
"Yapi$_i$ said that he$_i$/he$_{k,*i}$ is handsome."

However, I also flagged the anomalous fact that *n* can appear in root clauses in Abe, whereas *imo* cannot in Ibibio. (130) is an example where *n* in a root clause gets its antecedent from a prior sentence.

(130) Abe (Koopman & Sportiche 1989: 558 (2b), (3b))
F wu Api e? M wu n/O.
you saw Api Q I saw N/her
"Did you see Api$_i$?" "(yes) I saw her$_i$/her$_i$."

I claim that the behavior of *n* in Abe follows from the fact that *n* is a logophoric pronoun, not an anaphor, like *imo* in Ibibio. However, the operator that binds it—call it "nOp"—has intrinsic interpretable features, like zOp in Japanese. The distinctive properties of Abe follow from this new arrangement of familiar elements.

The evidence that *n* is a pronoun is that it cannot refer to the subject of the same clause. To refer to a local c-commanding antecedent, one needs to use a complex anaphor formed by combining *n* with the noun root 'body'. In this way, *n* is just like *imo* in Ibibio.

(131) Abe (Koopman & Sportiche 1989: 561 (14a), (20b))
N mU n-(se).*
N saw N-*(body)
"He$_i$ knows himself$_i$./*him$_i$"

N can however be coreferential with another token of *n* in the same clause if neither *n* c-commands the other. The contrast between (131) and (132) shows that *n* is subject to Condition B; hence, it is pronominal with respect to the Binding theory.

(132) Abe (Koopman & Sportiche 1989: 571 (41))
N ceewu n kolo n.
N friend DET likes N
"His$_i$ friend likes him$_{i,*k}$."

In fact, the two instances of *n* in (132) not only may be coreferential, they must be. *N* is different from *O* in Abe in this respect: two O-type pronouns in the same clause may but need not be coreferential, just like pronouns in English (K&S: 559 (5)). This is a key part of K&S's reasoning that *n* is a variable bound by a special operator in Spec CP, even in root clauses. Given that there is only one of these nOps per clause (like zOp in Japanese, although unlike lOp in Ibibio[49]), (132) must have the representation [nOp_i C [n_i's friend likes n_i]]. Both instances of *n* must be bound by the single nOp, therefore they must get the same referential value as each other. However, two *ns* in an embedded clause need not be coreferential, as shown in (133a).

(133) Abe (Koopman & Sportiche 1989: 571 (44b))
a. Api bO we ye n ceewu kolo n erenyi.
Api believe C N friend likes N house
"Api_i believes that $his_{i,n}$ friend likes $his_{n,i}$ house."

b. [nOp_n C [Api_i believe [nOp_i C [$n_{i,n}$'s friend like $n_{i,n}$'s house]]

In this way, *n* is like *imo* in Ibibio rather than *zibun* in Japanese, as expected given that *n* is pronominal ((131)). This means that either instance of *n* can be bound by the more remote nOp in Spec CP of the matrix clause as well as by the closer nOp in Spec CP of the embedded clause in a representation like (133b).

However, we have to take into account also the fact that *n* is like *zibun* rather than *imo* in that it can appear in a matrix clause. This means that nOp, the necessary binder of *n*, is possible in a root clause. This means that nOp does not have to undergo OC to be interpretable. In

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[49] We have seen that a clause can have two lOps in Ibibio and Yoruba, but not two zOps in Japanese, not two nOps in Abe, and not two Sps in Magahi. This suggests the conjecture that a ghostly DP must lack interpretable features in order to be doubled in the periphery of a clause. In some if not all cases, one could hope to derive this from the semantics of the ghostly DP's features and the C that licenses it. For example, if EmpOp/zOp is [+empathy] and this denotes the locus of the "camera angle" that the event denoted by TP is presented from, it plausibly follows that there can only be one of them. In contrast, if lOp has no intrinsic meaning, there is nothing in its meaning that prevents there from being two of them. However, I do not pursue this further, given the limitations of my understanding of the semantics of the ghostly DPs.

terms of my theory, nOp must be like zOp rather than like lOp in having intrinsic interpretable features. Given this, the theory predicts that nOp should in principle be possible in any sort of finite clause (as long as the C licenses it). This is correct; in particular, nOp is possible in high adjunct clauses and relative clauses as well as matrix clauses and complement clauses. This is shown by the fact that *n* in the embedded clause can refer to an *O*-class pronoun in the matrix clause in (134a,b). (In contrast, (134c) shows that *n* cannot be coreferential with an *O*-class pronoun when they are contained in all the same CPs, such that there is no possibility of there being an nOp in Spec CP that binds and licenses *n* and takes *O* as its NOC controller. If the nOp that binds *n* also c-commands *O*, then the structure violates (87) in Abe.)

(134) Abe (Koopman & Sportiche 1989: 569 (64a,b); 560 (11b))

a. [n asu], Ø hE na hOrE.
N arrive he told the truth
"After $he_{i,k}$ arrived, he_i told the truth."

b. [koko n f kolo n] lE O tE.
love REL you love N bothers him PRT
"The fact that you love $him_{i,k}$ bothers him_i."

c. Ø wu n wo n.
he saw N dog DET
"He_i saw his $dog_{n,*i}$."

It would be nice now to close the circle by producing the intrinsic interpretable feature(s) that nOp has. At least we can say that nOp, like zOp, is [+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 unfortunately give no details about how *n* gets an antecedent from discourse, and whether there are any special constraints on this, but (130) is consistent with *n* being [+topic].)

A takeaway from this is that whether a logophoric-type ghostly DP has interpretable features or not can be a somewhat subtle matter, at least based on existing syntactic descriptions. However, even if this is fixed somewhat arbitrarily (given current knowledge), it results in a robust cluster of differences concerning whether the special pronoun has a wide or narrow syntactic distribution. More generally, logophoric constructions in Abe pattern like Ibibio in one cluster of

ways, having to do with the pronominality of the special logophoric element, and like Japanese in another cluster of way, having to do with whether nOp needs to undergo OC. This is how we want a parametric theory to match up with typological data.

7. Conclusion

This chapter has given a detailed analysis of so-called logophoric constructions, starting with West African languages like Ibibio, which have special pronouns that are used only in embedded clauses to refer to a particular argument of the matrix clause. I showed how they can be analyzed using the same "skeleton" I used to account for indexical shift and the other crosslinguistically uncommon constructions introduced in Chapter 1. Like those constructions, a C-type head licenses the ghostly DP lOp (and, in some languages, its partner AdOp). LOp is then controlled by a nominal argument of the matrix verb that matches its abstract thematic role (initiator), and it binds the pronoun inside its scope. Each of these relationships has been justified, investigated, and compared with the cognate relationships in the other rare constructions. In particular, I have argued for a unified approach to logophoricity and indexical shift along these lines, contrary to the influential view of Anand (2006) and Deal (2020) in which logophors but not shifted indexicals are bound by syntactically represented null DPs. In my view, the only significant difference between the two is that lOp has the language particular feature [+log] whereas Sp has the universal feature [+1], the latter invoking the Person Licensing Condition. Since logophoric construction involve this patently language-particular feature, it is not surprising that they are subject to some notable microparametric variation, as different languages deploy the features [+log], [-log] and [0log] differently over their pronouns and operators. Larger scale differences come from whether the bound pronominal counts as a pronoun or an anaphor and whether lOp has intrinsic interpretable features or not. These parametric choices can be used to explain how long-distance anaphors in East Asian languages like Japanese are and are not like the logophoric pronouns of West Africa. This space of possibilities also allows for some less familiar patterns, such as the one attested in Abe.

I end this chapter by pointing out a new research question that begins to open up: the question of which ghostly DPs can combine with which others in the C-space of particular languages, and whether any combinations should be ruled out in principle. Even at this early-intermediate stage of research, 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 lOp, 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 Shiori Ikawa (p.c.) says that the same is true in Japanese. Some speakers of these languages then allow both Sp/Ad and EmpOp in embedded clauses in the same sentence (although not 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. 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 Niger-Congo languages have both SoK and these instances of Sp and Ad. Overall, there are no obvious gaps in the pattern, except ones involving OoK and AdOp, which are particularly rare, occurring only in a subset of the languages that have SoK and lOp.

One interesting additional combination to point out here arises 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 Adioukrou language of the Ivory Coast is the one shown in (135), 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'.[50]

(135) Adioukrou (Nititina 2012: 238 (9a))

Li dad wɛl nɛnɛ ɔny ùsr ir el.
3SG said them this 2PL build.IMPER LOG house
"She$_i$ said to them$_k$ that they/you$_k$ must build her$_i$ a house."

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[50] 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 *ɔny* as "2.pl.report". It is possible that this is an addressee pronoun, rather than an ordinary second person form found also in root clauses, in which case Adioukrou is 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 lOp and Ad in an embedded clause, even if Adioukrou is not.

So far, I have presented fixed sets of ghostly operators, with Sp paired with Ad and lOp sometimes paired with AdOp. But Adioukrou and similar languages suggest that one can "mix and match" across these pairs to some degree. Embedded clauses in Adioukrou can apparently have lOp, with no [+1] feature, together with Ad (which has a [+2] feature) in the same clausal periphery. It will be interesting to discover what other combinations of ghostly DPs are attested in languages of the world, and what combinations may not be.