Control Theory and the Relationship between Logophoric Pronouns and Logophoric Uses of Anaphors

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1. Introduction

One of the more striking crosslinguistic comparisons involving unrelated languages in the history of generative linguistics is the one between the dedicated logophoric pronouns of certain African languages and long-distance (LD, also called "exempt") uses of anaphors in East Asian languages and Indo-European languages. The view that there is something comparable between the two phenomena goes back to early generative discussions of both. For example, Clements (1975) showed how similar the specialized logophoric pronoun *yè* in Ewe is to the "indirect" uses of reflexive pronouns like *sibi* in Latin. Similarly, Sells (1987) developed a discourse representation theory approach to logophoric pronouns that explicitly draws from African data, East Asian languages (Japanese), and IE languages (Icelandic, Italian). The idea that these are related phenomena has been widely assumed ever since, and is at least mentioned by virtually all works in this area. This is very interesting for the notion of Universal Grammar, because it seems like an unusual grammatical quirk of one particular linguistic area—the dedicated logophoric pronouns found in some West African languages and perhaps only those (Culy 1994: 1059)—is akin to something that exists in a more subtle way—special uses of what are otherwise ordinary anaphors—in a larger range of unrelated languages.

Despite the robust tradition of relating African logophoricity to LD anaphora in Europe and Asia, very few works have compared the two in a truly balanced fashion, looking at languages of both kinds with equal attention and sophistication. This is not surprising, in that few

researchers are equally equipped to study both West African languages and (say) East Asian languages in an even-handed way. But this is a potential problem, because many things look similar only if one looks at them from a distance and while squinting. It is possible, then, that the similarity between West African logophoricity and East Asian LD anaphora could be something of an illusion, which does not provide significant support for universal grammar after all.

In this paper, we capitalize on (i.e., create) an opportunity to study in a balanced way logophoricity in the West African language Ibibio (spoken in the cross river region of Nigeria) and LD anaphora in Japanese. At an empirical level, we have elicited similar materials in both languages, using results gained from each language to guide further inquiry into the other. By doing this, we confirm and sharpen earlier results, showing that there are striking similarities in some subdomains, but also significant differences in other subdomains. At the theoretical level, we claim that advances in the theory of control shed new light on this pattern of similarity and difference. In particular, we argue that Landau's (2013) synthesis of the distinction between obligatory control (OC) and nonobligatory control (NOC) is crucial to both Ibibio and Japanese in distinct but parallel ways. This control-theoretic distinction bears on logophoric phenomena given the familiar hypothesis that both logophoric pronouns and LD anaphors are bound by null DP operators in the periphery of the clauses that contain them. We adopt a version of this view in which the null DP operators can be controlled by an argument of the higher verb in ways that are recognizably like how PRO is controlled in languages like English.

Our top-level findings are that the logophoric pronoun *ímọ̀* in Ibibio and the anaphor *zibun* in Japanese behave very similarly when they are contained in a complement clause or a low adjunct clause. These are exactly the syntactic contexts where OC happens, according to Landau (2013). In these contexts, both *ímọ̀* and *zibun* show a distinctively logophoric pattern of

antecedence, where subjects can be the ultimate antecedents, but so can the oblique source phrase of a verb like 'hear', whereas the goal phrase of a verb like 'tell' cannot. This distinctive logophoric pattern is shown for Ibibo in (1) and (2) (cf. Clements 1975; Pearson (2013: 445)), and for Japanese in (3) and (4) (Sells 1987: 453-454; Oshima (2004); Nishigauchi (2014: 191)).

(1) Okon á-ké-dọ̀kkọ́ Edem [ké Emem í-maá-ghá ímọ̀]. (Ibibio)
Okon 3.SG-PST-tell Edem that Emem 3.SG-like-NEG LOG
'Okon$_i$ told Edem$_k$ [lOp$_{i,*k}$ that [Emem does not like him$_{i,*k}$]].'

(2) Okon a-ke-kop a-to Emem [ke imọ i-ma-i-dia nsa-akʌk].
Okon 3.SG-PST-hear 3.SG-from Emem that LOG 3.SG-PST-3.SG-win lottery
'Okon$_i$ heard from Emem$_k$ [lOp$_{i,k}$ that [he$_{i,k}$ won the lottery]].'

(3) Keizi-wa sono seizika-ni [booryokudan-ga zibun-o sagasi-te-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 blackmailing self$_{i,*k}$].

(4) Keizi-wa sono seizika-kara [booryokudan-ga zibun-o odosi-te-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$_k$ [zOp$_{i,k}$ that gangsters are blackmailing self$_{i,k}$].

This parallelism between Ibibio and Japanese extends to other, second order effects as well.

In contrast, when the clause containing *ímọ̀* or *zibun* is in some other syntactic position—a relative clause, a TP-level adjunct clause, or a matrix clause—Ibibio and Japanese behave quite differently. Ibibio's *ímọ̀* is generally impossible in these contexts, as shown in (5).

(5) a. *Okon a-ma a-duọk [ngwet odo [se imọ i-k-i-dep]].
Okon 3.SG-PST-3.SG-lose book the REL LOG 3.SG-PST-3.SG-buy
('Okon$_i$ lost [the book [lOp$_{*i}$ that he$_{*i}$ bought]].')

b. *Obuut a-ma a-mʌm Okon sia ayín ímọ̀ a-ma-a-sọng Emem ayin.
shame 3.SG-PST-3.SG-hold Okon because son LOG 3.SG-PST-3.SG-strong Emem eye
('Okon$_i$ is ashamed [lOp$_{*i}$ because his$_{*i}$ son insulted Emem].')

In contrast, *zibun* in Japanese is possible in these contexts, as shown in (6).

(6) a. 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$_i$]].' (Nishigauchi 2014: 185)

b. 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 [zOp$_i$ because Yosiko came to visit him$_i$].' (Sells 1987: 464)

Nevertheless *zibun* in these contexts is rather different from *zibun* in complement clauses, as recognized to varying degrees by previous researchers—see especially Kuno (1987) and Oshima (2004). In particular, *zibun* in relative clauses and adjunct clauses does not show the characteristic logophoric pattern of antecedence in (1)-(4), and what is crucial is not the thematic role of a potential antecedent as much as whether it is an empathy locus.

The gist of our claim, then, is that null DP operators are the kinds of things that are subject to control theory, following an insight of Koopman and Sportiche (1989) (K&S) (see also Huang and Liu 2001). In contexts of OC, these null DPs have to undergo control in both languages, which then end up behaving essentially the same. However, Ibibio's version of the operator crashes if it does not undergo OC, whereas Japanese's version can survive to undergo a kind of NOC, getting its antecedent according to quite different (largely pragmatic) principles. We suggest that this difference is ultimately related to the fact that the Japanese operator is in an A-position, whereas the Ibibio operator is in an A-bar position. In this way the theory of OC both explains why *zibun* behaves differently in complement clauses from relative clauses and

adjuncts—something observed but not explained theoretically by Kuno (1987) and Oshima (2004), and largely neglected by recent works such as Charnavel (2019, 2020)—and why logophoric pronouns have a narrower distribution than *zibun*, licensed in complements only.

The paper is organized as follows. First we review why *ímọ̀* in Ibibio must be classified as a pronoun whereas *zibun* in Japanese is an anaphor when it comes to interactions with possible antecedents in the same clause. Then we review why previous researchers have claimed that both logophors like *ímọ̀* and LD anaphors like *zibun* are bound by null DP operators. Next we consider in detail the many similarities between *ímọ̀* and *zibun* when they appear in complement clauses, and how both obey a version of Landau's (2013) *OC signature*. Finally, we look briefly at *ímọ̀* and *zibun* in noncomplement clauses, supporting the idea that Japenese's null operator can undergo NOC (like PRO in English) whereas Ibibio's operator cannot. Then we conclude.

2. Preliminary difference: Anaphor versus pronoun

The similarity between logophoric pronouns like *ímọ̀* in Ibibio and LD anaphors like *zibun* in Japanese in sentences like (1)-(4) is striking not only because Ibibio and Japanese are typologically and historically so different, but also because *ímọ̀* and *zibun* themselves have quite different properties in simpler sentences. In particular, *zibun* in Japanese is clearly a kind of anaphor, whereas *ímọ̀* in Ibibio behaves as a pronoun in important respects. Logophoric pronouns are thus not exactly the same sort of thing as LD anaphors when it comes to their intrinsic properties, making the fact that they converge in certain contexts somewhat surprising.

The reasons for saying that *zibun* in Japanese is an anaphor are straightforward and uncontroversial. *Zibun* is possible with a local subject antecedent both in matrix and embedded clauses, as shown in (7).

(7) (Hanako-wa) Taroo-ga zibun-o seme-ta-(to omotte-i-ru).

Hanako-TOP Taroo-NOM self-ACC blame-PST-that think-AUX-PRS

'(Hanako$_k$ thinks that) Taroo$_i$ blamed (him)self$_{i,k}$'

This canonical local use of *zibun* requires c-command by its antecedent (Nishigauchi 2005). For example, in (8) *zibun* cannot be bound by *Taroo*, the possessor of the subject.

(8) *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.')

Thus, within a clause, *zibun* shows behaviors compliant with Condition A of the Binding theory (Chomsky 1981), and it is similar in these respects with *self* forms in English.

In contrast, the Ibibio logophor *ímọ̀* (plural form: *mm-ímọ̀*) is quite different in these respects. This pro-form cannot be used in a matrix clause with the local subject as an antecedent, as shown in (9). Rather Ibibio's local anaphor is built on the inalienable noun *idem* 'body', with or without an overt possessor pronoun that matches its antecedent in features.

(9) Okon a-(i)-ma idem (omo)/*ímọ̀.

Okon 3.SG-(3.LOG)-love body his / *LOG

'Okon$_i$ loves him$_{*i}$/himself$_i$.' (see also Clements 1975: 150 on Ewe)

Indeed, *ímọ̀* is not generally possible in matrix clauses at all; thus (9) with *ímọ̀* in a neutral context is also bad with *ímọ̀* refers to someone else known from the context.[1]

Ímọ̀ is of course possible in embedded clauses, and indeed it can be in any syntactic position inside that clause: subject ((2), (10)), object ((1)), object of preposition, or possessor.

(10) Okon a-ke-bo ke ímọ̀ i-m-i-sop idem. (AfrQ 44)

[1] However, see note 27 for a systematic exception in contexts of modal subordination. In some African languages, like Edo (Baker 1999) and Yoruba (Pulleyblank 1986, Adesola 2005), what is used as the logophoric pronoun can also be used in matrix clauses as a strong/focused pronoun, especially if it is clefted. Since this does not happen in Ibibio (or Ewe), we do not consider how to account for this dual usage of the same forms here.

Okon 3.SG-PST-say that LOG 3.LOG-PERF-3.LOG-fast body

'Okon$_i$ said that he$_i$ is smart.'

However, it is significant that (11) is not possible, where there are two instances of *ímọ̀*, the first one c-commanding the second one within the embedded clause.

(11) *Okon a-ke-bo ke ímọ̀ i-m-i-kpi ímọ̀.

Okon 3.SG-PST-say that LOG 3.LOG-PERF-3.LOG-cut LOG

('Okon said that he$_i$ cut him$_{*i}$.')

Rather, to have the object refer to a logophoric local subject, Ibibio constructs a special "logophoric anaphor" consisting of the head noun 'body' together with a logophoric pronoun as its structural possessor, as shown in (12). This is parallel to the way that the nonlogophoric anaphor in (9) is constructed from *idem* plus a plain pronoun possessor.

(12) Okon a-ke-bo ke ímọ̀ i-m-i-kpi idem ímọ̀.

Okon 3.SG-PST-say that LOG 3.LOG-PERF-3.LOG-cut body LOG

'Okon$_i$ said that he$_i$ cut himself$_i$.'

In contrast to (12), *ímọ̀* in the embedded object position can be coreferent with a non-c-commanding *ímọ̀* properly contained inside the subject DP, as shown in (13).

(13) Obuut a-ma-a-mʌm Okon ke ayín ímọ̀ a-ma-i-miem ímọ̀.

shame 3.SG-PST-3.SG-hold Okon that son LOG 3.SG-PST-3.LOG--insult LOG

'Okon$_i$ is ashamed that his$_i$ son insulted him$_i$.'

The examples in (11)-(13) show that *ímọ̀* is a pronoun, not an anaphor, in that it is subject to Condition B of the Binding theory: it cannot be coreferential with a pronoun that c-commands it within the same local domain (cf. K&S: 561, 564 on Abe.) In this, it clearly contrasts with *zibun*.

For completeness, we observe that the normal local anaphor in Ibibio does not have LD/logophoric uses. Thus it cannot be used to refer to the matrix subject Okon in an example like (14). Rather the logophor *ímọ̀* (or the plain pronoun *anye*) must be used for this meaning (see also Clements 1975: 150); thus it is not automatic that anaphors have LD/exempt uses.

(14) Okon a-dat ke Mary e-ma ímọ̀/*idem omo (AfrQ 50)
Okon 3.SG-take that Mary 3.SG.3.LOG-like LOG /*body his
'Okon$_i$ thinks that Mary loves him$_i$/himself$_{*i}$.'

3. An abstract similarity: being operator-bound

Since *ímọ̀* and *zibun* have different intrinsic properties with respect to the anaphor/pronoun distinction, it becomes something of a puzzle that they show very similar logophoricity effects in more complex structures, given the fundamental assumption that complex structures are derived from simpler ones in regular (compositional) ways. Part of the explanation for why a pronoun like *ímọ̀* and an anaphor like *zibun* end up behaving so similarly when they appear in complement clauses could be because for both coreference with a superordinate antecedent is mediated via a syntactic *operator*—a null DP near the edge of the clause.[2] There is a robust tradition of saying this both in the African literature and in the literature on exempt anaphors. However, the precise reasons that motivate this hypothesis are a bit different in the two domains, as a result of the pronoun/anaphor distinction. In this section, we review side by side the motivations for positing a null DP operator in the analysis of both kinds of constructions.

3.1 A logophoric operator in Ibibio

[2] Some care needs to be used with this term. We use "operator" in the syntactic sense of a fully phrasal nominal, not the semantic sense in which an operator is often just a functional head that takes an element of some type and returns a meaning of similar type. Even in the syntactic tradition, only null DPs in A-bar positions are usually called operators, whereas we show following Charnavel (2019) that similar elements can count as being in A-positions (in Japanese).

We start with Ibibio's *ímọ̀*. The tradition of positing an operator in logophoric constructions in African languages goes back to K&S's seminal (1989) study of Abe.[3] It is also adopted in Baker (1999), Speas (2004), Adesola (2005), Anand (2006), and Deal (2020: 69, 114-116), among others.[4] One motivation for this is that it provides an understanding for why logophoric pronouns are allowed only in embedded clauses: this follows if we say that logophoric pronouns must be bound by an operator (lOp, short for logophoric operator) which is licensed by a complementizer like the *ke* in Ibibio. A nice demonstration of this (after K&S: 579, 582, Baker 1999, Adesola 2005) is a sentence like (15) in Ibibio. Here there are two pronouns referring to the subject/agent of the telling event: the possessor of the goal argument of 'tell' and the agent of the embedded verb 'buy'. Although they have the same ultimate antecedent, these elements behave differently with respect to logophoricity: the embedded subject is most naturally the logophoric pronoun *ímọ̀*, whereas the possessor cannot be *ímọ̀* but can only be the ordinary possessive pronoun *omo*.

(15) a. Emem a-ma-a-dọkkọ eka omo/*imọ ke imọ i-ma-i-dep ebot.
Emem 3.SG-PST-3.SG-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.'

b. Emem$_i$ told his$_i$/*Log$_i$ mother [lOp$_i$ C [Log$_i$ bought a goat]]

[3] Much of K&S's evidence that logophoric pronouns need to be operator-bound stems from the fact that a plain pronoun cannot be bound by lOp. That condition does not hold in other languages with logophors, including Yoruba (Adesola 2005), Ewe (Pearson 2013) and Ibibio. This means that our argumentation looks a bit different from K&S's. Comparison with Abe is also made more complex by the fact that there are two different operators in K&S's analysis: one which binds pronouns of the special *n*-series and is possible in all CPs, and one which is found only in complement CPs headed by *kO*. The complications that motivate this two-stage analysis are specific to Abe.

[4] Somewhat analogous ideas expressed in different theoretical frameworks can be discerned in Sells (1987) and Pearson (2013: Ch 7). Sells 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 our lOps. Pearson assumes that a logophoric pronoun in Ewe must always be bound by a lambda abstractor in the CP periphery of the complement of an attitude, although she is not committed these being DPs in the CP periphery.

This makes sense if the immediate binder of *ímọ̀* must be an lOp in the specifier of some C-like head. The embedded subject in (15) is in the domain of such an lOp, whereas the possessor of the matrix object is not. Data like this ground the hypotheses in (16).

(16) a. lOp is licensed by a certain set of C-like heads: *ke*, *mme*, *yak*, …

b. A logophoric pronoun must be bound (c-commanded) by a coindexed lOp.

Further motivation comes from the fact that some embedded clauses license logophoric phenomena and others do not, depending on the complementizer(s) of the embedded clause. For example, in Ibibio the finite declarative complementizer *ke* 'that' always licenses logophoric pronouns in its domain, but the complementizer *naña* 'how' does not. (17) gives a minimal pair.

(17) a. Okon a-ma-a-kit ke Emem a-ma-a-yip ebot ímọ̀.
Okon 3.SG-PST-3.SG-see that Emem 3.SG-PST-3.SG-steal goat LOG
'Okon$_i$ saw that Emem stole his$_i$ goat.'

b. Okon a-ma-a-kit naña Emem a-yip ebot ọmọ/*imọ.
Okon 3.SG-PST-3.SG-see how Emem 3.SG-steal goat his/*LOG
'Okon$_i$ saw Emem steal(ing) his$_i$ goat.' (cf. Clements 1975: 157)

This contrast follows from (16) given that *naña* is not one of the lOp-licensing C heads listed in (16a) for Ibibio. Presumably there are deeper reasons for this involving the semantics of the C in perception complements as opposed to proposition-denoting complements, given the crosslinguistic hierarchy of logophor-licensing complements in Culy (1994: sec. 4; see also Speas 2004), but we do not pursue this further here. Which Cs in African languages license lOp seems to be at best partially explainable in semantic terms. The class of lOp-licensers is relatively broad in Ibibio—*naña* may be the only one that does not permit lOp—but in other

languages it is narrower, sometimes limited to a single C head historically related to the verb 'say' (e.g., *kO* in Abe; K&S: 583, *be* in Ewe; Clements 1975: 165).

A closely related point is the fact that logophoric pronouns are not licensed inside derived nominalizations in Ibibio ((18a)), even when the content of the nominalization is similar to that of a clause (cf. (18b)). This also follows from (16), given that derived nominalizations do not come with any C-like heads, so they cannot license lOp, the necessary binder of *ímọ̀*.

(18) a. Okon i-kit-te n-dudue eka ọmọ/*imọ.
Okon 3.SG-see-NEG NMLZ-commit.fault mother his/*LOG
'Okon$_i$ did not see his$_i$ mother's mistake/fault.'

b. Okon i-kit-te ke eka imọ a-ma-a-due.
Okon 3.SG-see-NEG that mother LOG 3.SG-PST-3.SG-commit.fault
'Okon$_i$ does not see that his$_i$ mother committed a fault.'

We can also find evidence from the Weak Crossover effect (WCO) that logophors are bound by null operators in Ibibio, building on a discovery of Baker (1999) concerning Edo. We present this only briefly and at descriptive level here. Compare the familiar WCO contrast in (19) from English (Safir 2004) with the analogous-looking Ibibio contrast in (20).

(19) a. Rex$_i$, who$_i$ his$_i$ accountant loves t_i, is a Republican. (weakest crossover)

b. *?Who$_i$ does [his$_i$ accountant love t_i]? (weak crossover)

(20) a. Okon a-ma-a-kere ke ayín ọ̀mọ̀ a-ma-i-miem ímọ̀.
Okon 3.SG-PST-3.SG-think that son his 3.SG-PST-3.LOG-insult LOG
'Okon$_i$ thinks that his$_{?i}$ son insulted him$_i$.'

b. owo ndomo-keet i-k-i-kere-ke ke eka ọmọ i-sua imọ.
person even-one 3.SG-PST-3.SG-think-NEG that mother his 3.SG.3.LOG -hate LOG
For no x, x thinks [lOp$_x$ that [y's/*x's mother hates x]].

(19b) is a standard WCO violation: on one understanding, it shows that it is degraded the same nonreferential quantifier (the *wh*-phrase *who*) to bind two different kinds of variables—an ordinary pronoun and a wh-trace—when neither variable c-commands the other (see Safir's (1984) Parallelism Constraint on Operator Binding). (20b) in Ibibio presents a similar violation on the view that logophoric pronouns are operator-bound ((16b)): here it is degraded for the logophoric operator controlled by 'nobody' to bind two different kinds of variables—an ordinary pronoun and a logophor—when neither variable c-commands the other. (19a) is a foil for (19b), a case of a so-called weakest crossover: it shows that the structural configuration found in (19b) is possible in a nonrestrictive relative clause in which the *wh*-operator is linked to a referential DP which the pronoun can take as its antecedent instead of the *wh*-operator itself. (20a) is the analogous foil for (20b): it shows that it is relatively acceptable for a plain pronoun to have the same antecedent as a logophor in the same domain as long as the antecedent is a referential DP, so that the pronoun can refer to it directly (so called "accidental" coreference), not by virtue of being bound via the logophoric operator. We see then an analogy between the way that *wh*-phrases and quantifiers relate to pronouns and traces and the way that logophoric antecedents relate to plain pronouns and logophoric pronouns. This supports the idea that logophoric constructions contain A-bar operators analogous to those found in *wh*-constructions.[5]

3.2 An A-position operator in Japanese

The reasons for saying that LD *zibun* is bound by an operator are a bit different, but also substantive. As a local anaphor, *zibun* is not restricted to embedded clauses the way that *ímọ̀* is; one does not need to say that *zibun* is operator-bound for that reason. But the question arises as

[5] Continuing along these lines, one might also expect a sentence like 'No mother$_i$ denies that LOG$_i$ loves her$_i$ son' would be possible in a West African language, parallel to *Who*$_i$ *t*$_i$ *loves his*$_i$ *accountant?* in English, which does not violate WCO. The prediction is true in Edo (Baker 1999 (35)) but false in Ibibio. In Ibibio, this structure violates a feature-matching requirement which we take to be independent.

to why LD readings for *zibun* are possible in embedded clauses, unlike some classical anaphors. Note that it is not very plausible to regard the two uses of *zibun* to be a case of accidental homophony between a LD anaphor and a local anaphor, given that the LD use of a local anaphor is observed in many different languages, as emphasized by Charnavel (2019, 2020). This thus has the characteristics of a systematic ambiguity rather than accidental homophony.

Important works by Nishigauchi (2014) and Charnavel (2019, 2020) address this issue by claiming that anaphors can be bound by a null DP inside the local clause, thereby reducing LD anaphora to local anaphora (see also Huang and Liu 2001: Sec. 5.2 & n.25, (Tenny 2006, Sundaresan 2012, Park 2018, Sundaresan 2018). Consider the example of LD anaphora in (21a). Here *zibun* inside the embedded clause appears to take an antecedent outside of the embedded CP, in violation of Binding Condition A. However, if there is an operator that is coreferential with *Taroo*, as shown in (21b), this operator can serve as a local clause-internal antecedent of *zibun*. In this way, the operator mediates the relationship between *Taroo* and *zibun*, such that there is no actual violation of Condition A. We call this operator zOp (short for *zibun*-operator).

(21) a. Taroo-wa [Hanako-ga zibun-o kiratte-i-ru-to] omotte-ir-u
Taroo-TOP Hanako-NOM self-ACC hate-AUX-PRS-C think-AUX-PRS
'Taroo$_i$ thinks Hanako hates self$_i$'

b. Taroo$_i$ thinks [$_{CP}$ that [zOp$_i$ PoV [Hanako hates self$_i$]]]

According to this line of thought, however, zOp must have a somewhat different theoretical status than lOp does in the African languages, in that zOp must count as an A-position in order to bind the anaphor in accordance with Condition A, as emphasized by Charnavel (2019: Ch. 4). In this, it contrasts with lOp, which is presumably *not* in an A-position since it cannot directly bind an anaphor and it does not trigger a Condition B violation for the

logophoric pronoun the way that a clausemate coreferential subject does (see (11)). This presumably implies that zOp is not licensed by a head in the C-space the way that lOp is, but rather by some head in the high in the T space. (It must be above the subject in order to bind *zibun* in or inside the subject position.) For concreteness, we call the head that licenses zOp PoV, for "point of view", as shown already in (21b), roughly following (but simplifying) Nishigauchi (2014). [6] This PoV head is mostly covert in our examples, but see Nishigauchi (2014) for some possible overt realizations of this head in Japanese, including *soo* (evidential marker) and *simaw* (evaluative marker). A consequence of this difference between zOp and lOp is that LD anaphora in Japanese does not depend on details of what lexical items are in the C-space, the way that logophoricity in African languages does (see (16)). For example, we saw in (17) that in Ibibio a CP complement with C=*ke* can license logophors, but one with C=*naña* cannot. But this sort of contrast is not found in Japanese; LD uses of *zibun* are possible in all complement types found in Japanese, including ordinary *-to* clauses, nominalized *-koto* clauses, and subjunctive *-yooni* clauses, among others. For example, (23) shows that LD *zibun* is possible even inside a perception verb complement—the type of clausal complement that is least likely to license logophoric pronouns in the African languages as noticed already by Culy (1994: 1079).

[6] Charnavel (2019, 2020) calls her version of this head Op_{log}, using "operator" in the semantic sense; see note 2. Her pro_{log} also corresponds fairly well to our zOp. It is doubtful, though, that we can assign her semantics "A is presented from x's first person perspective" to PoV, since *zibun* does not need to be read as referring *de se* (see note 11), and examples of perspective mixing are found in Japanese (and Ibibio) (Sells 1987: 462-463).

Another significant question here is whether PoV/Op_{log} can take constituents other than TP as its complement, such that zOp has scope over units other than a clause. In contrast to much of the literature, Charnavel (2019, 2020) argues that the answer is yes (at least in French). The empirical situation bearing on this is rather complex. For Ibibio, contrasts like (18a) vs (18b) show that lOp only has scope over clauses. In contrast, examples like 'Taro admitted *zibun's* guilt' and '*zibun's* mistake bothered Taro' are possible in Japanese (e.g., see Oshima 2004: 12 (16b)). This might suggest that zOp can have scope over DP, as Charnavel claims. However, it is also possible that these are instances of local anaphora, made possible by *zibun* being an anaphor rather than a pronoun. Also, if zOp can have scope over the vP not including the subject in Japanese, we might well lose the explanation of the fact that two *zibun*s in the same clause have to get the same LD referent in examples like (24) (compare Charnavel 2019: 225-227, especially (32)). The issue calls for close and careful study, though.

(22) Hanako-wa [doroboo-ga zibun-no kaban-o nusumu-no/tokoro-o mi-ta.
Hanako-TOP thief-NOM self-GEN bag-ACC steal-C-ACC see-PST
'Hanako$_i$ saw the thief steal self$_i$'s bag.'

Further support for the operator analysis in Japanese comes from sentences in which there are two possible LD antecedents for *zibun*. *Zibun* can generally take an antecedent not only from the immediately superordinate clause, but also from a higher clause, as shown in (23).

(23) Taroo-wa [Hanako-ga [Ziroo-ga zibun-o semete-i-ta-to] omotte-i-ru-to it-ta
Taroo-TOP Hanako-NOM Ziroo-NOM self-ACC blame-AUX-PST-C think-AUX-PRS-C say-PST
'Taroo$_i$ said Hanako$_k$ thinks that Ziroo was blaming self$_{i,k}$.'

However, when two instances of *zibun* occur in the complement clause, they cannot refer to different LD antecedents, as shown in (24). Here both instances of *zibun* can refer to the matrix subject *Taroo*, and both can refer to the intermediate subject *Hanako*. However, it is quite degraded for one *zibun* to refer to Taro and the other to Hanako (see Huang and Lui 2001: (13) and Park 2018 for similar paradigms in Chinese and Korean). [7]

(24) Taroo-wa Hanako-ga zibun$_1$-no yuuzin-ga zibun$_2$-o
Taroo-TOP Hanako-NOM self-GEN friend-NOM self-ACC
semete-i-ta-to it-ta-to omot-ta
blame-AUX-PST-C say-PST-C think- PST
'Taroo thinks that Hanako said that self$_1$'s friend was blaming self$_2$.'

a. OK: zibun$_1$=zibun$_2$=Taroo
b. OK: zibun$_1$=zibun$_2$=Hanako
c. ??zibun$_1$=Taroo, zibun$_2$=Hanako
d. ??zibun$_1$=Hanako, zibun$_2$=Taroo
e. OK: zibun$_1$=Taroo or Hanako, zibun$_2$=zibun$_1$'s friend

[7] See also K&S: 570-571 for a precursor of this kind of argument: they show that two special *n*-pronouns in the domain of a single C must be instances of the same variable in Abe.

Note that it is too simple to say that two instances of *zibun* in the same clause must have the same antecedent, perhaps because of a surfacy pragmatic principle. (24e) shows that it is possible for one *zibun* in the lowest clause to have the subject of the lowest clause as its (local) antecedent, while another instance of *zibun* takes either of the higher subjects as its (LD) antecedent. This rather complex array of facts follows nicely from the null operator hypothesis. On this view, *zibun* always needs to have a clause-internal (and subject-like) antecedent in accordance with Condition A. There are precisely two candidates in most embedded clauses: the subject of the clause and the unique zOp in the periphery of that clause, as sketched in (25).

(25) Taroo_i thinks that Hanako_k said $[_{\text{PoVP}}\ \text{zOp}_n\ \text{PoV}[\ [\text{self}_n\text{'s friend}]_m$ was blaming $\text{self}_{m,n}]]$
n=i or n=k

zOp in turn can be anteceded by either of the higher subjects (we return to how this works in section 4.3), but *zibun* in the most embedded clause cannot be anteceded by either of these directly, but only by being locally bound by zOp. If zOp refers to Taroo, then both *zibun*s in the embedded clause can refer to Taroo but cannot refer to Hanako. In contrast, if zOp refers to Hanako, then both *zibuns* can refer to Hanako, but neither can refer to Taroo. In addition, 'zibun's friend' is also a possible binder for *zibun* in the object position regardless of what zOp refers to; when that option is taken, the two instances of *zibun* do not corefer. The operator-based analysis thus accounts for the range of possible interpretations of a complex example like (24).

The null operator analysis of LD *zibun* further predicts that whether two LD *zibun*s need to be coreferential or not depends on exactly where the clause boundaries fall. (24) shows that two LD instances of *zibun* in the same clause must corefer, but (26) shows that two LD instances of *zibun* in different clauses can take different antecedents. This is because they can be locally bound by different zOps. In (26), one of the LD-bound *zibuns* is in the middle clause and the other is in the lowest clause (see Park 2018: ch 3 for discussion of a similar structure in Korean).

Here, it is possible to have an interpretation in which the higher *zibun* refers to Taro and the lower *zibun* refers to Hanako, under the analysis sketched in (26b).

(26) a. Taroo-wa [Hanako-ga zibun-ni [Ziroo-ga zibun-o seme-ta-to] it-ta-to] omot-ta
Taroo-TOP Hanako-NOM self-DAT Ziroo-NOM self-ACC blame-PST-C say-PST-C think-PST
'Taroo$_i$ thought [that Hanako$_n$ said to self$_i$ [that Ziroo blamed self$_n$]].'

b. Taroo$_i$ thought [zOp$_i$ PoV [Hanako$_n$ said to self$_i$ [zOp$_n$ PoV [Ziroo$_k$ blamed self$_n$]]]].'

There are thus good reasons to believe that LD *zibun* is also bound by a null operator in the clausal periphery. There is an abstract similarity between Japanese and Ibibio here in that in Japanese like Ibibio it matters to the interpretation whether the special anaphoric element (*zibun*) is within the scope of a particular complementizer or not.

That being said, it is undeniable that the evidence that LD *zibun* and logophoric *ímọ̀* are both bound by operators is not as surface-similar as we might like, due to the fact that *zibun* is an anaphor and *ímọ̀* a pronoun. This implies that *zibun* in a matrix clause is licit, bound by the matrix subject, whereas *ímọ̀* in the matrix clause is (usually) illicit, as already discussed. We have also claimed that *ímọ̀* must be bound by lOp ((16b)), whereas *zibun* being bound by zOp is a possibility but not a requirement. This can be seen also in (25), where *zibun* in the object position can have index m bound by the local subject, but no zOp can have that index; rather zOp has index i or k as shown by the interpretation of the *zibun* possessor of the lowest subject. A third difference is the fact that two *ímọ̀s* inside the same doubly-embedded sentence do not need to have the same LD antecedent in Ibibio, in way that two *zibun*s in Japanese do. This is shown for Ibibio in (27a), with the rough syntactic structure in (27b) (contrast (24) in Japanese).[8]

[8] See also Pearson (2013: 447-448) for Ewe. Pearson (2013: 513) discusses a semantic problem with sentences like (27) stemming from the fact 'think' and 'tell' both quantify over possible worlds, and these worlds do not contain the same individuals. She argues that the problem can be solved by the judicious use of concept generators.

(27) a. Okon á-kére ké Edem á-ké-n-dọ̀kkọ̀ ké èkà ímọ̀ é-kpóno ímọ̀.
Okon 3.SG-think that Edem 3.SG-PST-1.SG-tell that mother LOG 3.SG.3.LOG-respect LOG
'Okon$_i$ thinks that Edem$_k$ told me that his$_{i,k}$ mother respects him$_{k,i}$.'
(4 ways ambiguous: 'his'=Okon or Edem, 'him'=Okon or Edem)

b. Okon$_i$ thinks [lOp$_i$ that [Edem$_k$ told me [lOp$_k$ that [his$_{i,k}$ mother respects him$_{k,i}$]]]].

Since there are two embedded clauses here, there are two left-peripheries which can host lOps. The higher lOp can be anteceded (controlled) by the highest subject *Okon*, while the lower lOp can be anteceded (controlled) by the intermediate subject *Edem*. Then, as bound pronouns, either instance of *ímọ̀* can be bound by either lOp without any syntactic restrictions. Ibibio is crucially different from Japanese at this last step. Since *zibun* is intrinsically an anaphor, not a pronoun, it needs a *local* antecedent—so both *zibuns* in the lowest clause must be bound by the closest zOp. Therefore, it is not surprising that pronominal *ímọ̀* in Ibibio can be bound by more remote operators whereas anaphoric *zibun* cannot, leading to this additional difference in behavior.

We conclude that both LD *zibun* in Japanese and *ímọ̀* in Ibibio are bound by operators—null DPs at the edge of an embedded clause. The reasons for saying this are a bit different in the two languages, as expected given that *zibun* is fundamentally an anaphor whereas *ímọ̀* is fundamentally a pronoun. Intertwined with this difference is the difference that zOp in Japanese can count as an A-position, whereas lOp in Ibibio is an A-bar position.[9]

4. The crucial similarity: logophoric behavior in complement CPs

We now move on to our hypothesis that both logophoric pronouns and LD anaphors being bound by a null operator can lead to a control-theoretic explanation of a striking similarity between the

[9] Another difference is that we do not expect zOp to trigger a weak crossover effect in configurations of the form [QP$_i$ …[zOp$_i$ … pronoun$_i$ … *zibun*$_i$ …]], similar to (20b) in Ibibio, given that WCO is a restriction on A-bar binding, not A-binding. However, the prediction may not be testable given that overt pronouns in Japanese resist bound variable interpretations more generally (perhaps because they are not true pronouns; see Yashima 2015).

two: the fact that when they appear in complement clauses they allow the same distinctive range of DPs to serve as their antecedents. This striking similarity holds despite the fact that one is an anaphor and the other a pronoun, and despite the fact that there is no explanation for the characteristic pattern of antecedence within the terms of the normal Binding theory.

Our strategy for explaining this fact is to say that lOp in Ibibio and zOp in Japanese are (despite their differences) both like PRO in English and similar languages in being intrinsically *controllable* elements—again following a proposal originally due to K&S: 582-583. As such, when they appear at/near the edge of a complement clause, they undergo obligatory control (OC). The principles of controller choice then apply to lOp and zOp in essentially the same way, with the result that the same controllers are assigned to lOp and zOp in parallel structures. That controller is then understood as the ultimate antecedent of the pro-form bound by lOp or zOp (*ímọ̀* or *zibun*, respectively). OC thus neutralizes the intrinsic differences between lOp and zOp, causing the constructions to behave in fundamentally the same way in those environment(s) where OC applies. This use of OC—rather than NOC or simple pronoun binding—to establish the link between the ultimate antecedent and the null operator is a key feature of our analysis, distinguishing it from related ideas by Nishigauchi (2014) and Charnavel (2019), among others.

The theoretical background for this proposal comes from Idan Landau's (2013) synthesis of the results of the decades-long study of control. He states the "OC signature" as follows:

(28) *The OC signature:* (Landau 2013: 29; see also Manzini (1983), Landau (2001))

In a control construction $[\ldots X_i \ldots [_S\ PRO_i \ldots] \ldots]$, where X controls the PRO subject of the clause S:

a. The controller(s) X must be (a) co-dependent(s) of S.

b. PRO (or part of it) must be interpreted as a bound variable.

The fundamental insight of (28a) is that when a clause containing PRO is an (internal) argument of a verb (or adjective), then PRO must be controlled by another argument of the same verb. This is a large part of what Landau means by saying that X and S must be "co-dependents". The upshot of this is that PRO in CP complements must undergo a special form of control that places strong syntactic conditions on what can be the controller, whereas PROs contained in clauses in other syntactic positions (e.g., CP subjects and extraposed clauses in adjoined positions) are much less constrained as to what their antecedent can be—so-called nonobligatory control. We restate and generalize this condition as our working version of the OC Signature in (29).

(29) The Generalized OC Signature: (GOCS, preliminary)

If a clause with an intrinsically null DP (PRO, lOp, zOp, …) at its edge is generated inside VP, then the null DP is controlled by an argument of the verb. Which argument of the verb is the controller is determined by the thematic roles of the DPs involved.

The crucial change between (28) and (29) is that (29) refers to a larger class of controllable elements, including lOP and zOp (and similar elements[10]) as well as ordinary PRO. We assume that this is a natural class of elements, consisting roughly of minimal pronouns that are necessarily phonologically null and are licensed as the specifiers of special functional heads high in the clausal spine (e.g., -finite T for PRO, particular Cs for lOp, the PoV head for zOp). However, we do not attempt a precise definition of this class here. For convenience, we refer to zOp and lOp taken together as a class as *lzOp*.

The other changes between (28) and (29) are more or less housekeeping matters, in pursuit of clarity. Landau's way of stating his precondition in (28) is a bit ambiguous as to

[10] Other elements akin to lOp and zOp to which (29) might apply are the Sp element involved in indexical shift in Magahi according to Alok and Baker (2018) and the null DP in the specifier of CP in Bantu languages with agreeing C given the indirect agreement hypothesis of Diercks (2013). We do not explore these possible extensions here.

whether or not control into a clause dependent on V is required to take place or is merely possible, although his discussion implies that it is required. We make this explicit in (29), putting that control happens as well as where the controller must be on the consequent side of the conditional. Second, we state that the controlled clause must be inside the VP headed by the matrix verb, avoiding Landau's somewhat informal term "co-dependent", since this obscures the fact that some CP adjuncts undergo OC and some do not. Below we claim (in agreement with Landau) that purpose clauses that undergo OC are adjoined to VP whereas other kinds of adjuncts that do not undergo OC are initially merged in higher positions. Third, we drop (28b) from our version of the generalization, since we do not consider the semantics of the relevant constructions in any detail here.[11] Fourth, we make explicit Landau's conclusion, synthesizing much previous work, that which argument of the matrix verb controls the null DP in the verb's clausal complement is not specified by the OC signature, but can vary from example to example in complex ways. We discuss this (up to a point) in section 4.2 below.

4.1 The core pattern

We proceed by exploring the similarities between *ímọ̀* and *zibun* inside complement clauses in more detail, showing that they fit well within the boundaries marked out by the GOCS.

First, if the superordinate verb is a dyadic one, selecting a clausal complement and a thematic subject, *ímọ̀* in the complement clause can generally take the matrix subject as its

[11] This omission is largely because of limitations in our expertise and the space available. However, we also think that the empirical situation needs to be reassessed. The literature makes one want to say that because logophoric pronouns and LD anaphors are operator bound, they must be interpreted as bound variables. This then suggests that they should be read as referring *de se*, that they should allow sloppy but not strict readings, and so on. But this is not necessarily so. Pearson (2013: ch 7) shows that a logophoric pronoun in Ewe does not need to be interpreted *de se*, and that is true for *imo* in Ibibio as well. Similarly, *imo* can receive a strict reading as well as a sloppy one in a sentence like 'Okon hopes that LOG will not get sick, and Emem [does] too' (see also K&S: 584 (82b) on Abe and Culy 1994: 1082 on Ewe). Similarly, in 'Only Okon thinks that LOG will win the lottery', Log can be a variable bound by 'only Okon' or simply refer to Okon. Japanese is not that different: *zibun* is not required to refer to its antecedent *de se*, nor to have a bound variable reading in either OC or NOC contexts (Oshima 2004: 8; Nishigauchi 2014: 172-174). In our view, this whole area needs to be carefully reevaluated, both empirically and theoretically.

antecedent. This is true for a wide variety of matrix verbs and is not particularly sensitive to the thematic role of the matrix subject. It is possible with agentive verbs like 'say' (see (12)) and 'deny', as well as for nonagentive experiencer verbs like 'believe' and 'be surprised'. (See Adesola (2005) for a list of verbs that license logophoricity in their CP complement in Yoruba.)

(30) a. Okon a-ma a-kañ ke imọ i-k-i-yip ebot.
Okon 3.SG-PST-3.SG-deny that LOG 3.LOG-PST-3.LOG-steal goat
'Okon$_i$ denied that he$_i$ stole a goat.'

b. Eno a-nim/ a-diọ̀ñ̀ñọ́ ke Edem i-mma-gha ímọ̀.
Eno 3.SG-believe/3.SG-know that Edem 3.SG.3.LOG-like-NEG LOG
'Eno$_i$ believes/knows that Edem doesn't like her$_i$.'

c. Okon a-me-kop ngkpa idem ke Emem í-maá-ghá ímọ̀.
Okon 3.SG-PERF-hear death body that Emem 3.SG.3.LOG-like-NEG LOG
'Okon$_i$ is surprised that Emem does not like him$_i$.'

A similar range of verbs allows LD *zibun* with the matrix subject as the antecedent in Japanese:

(31) a. Taroo-wa zibun-ga okane-o nusun-da-koto-o hitee-si-ta.
Taroo-TOP self-NOM money-ACC steal-PST-C-ACC deny-do-PST
'Taroo$_i$ denied that self$_i$ stole the money.'

b. Taroo-wa Hanako-ga zibun-no hon-o nusun-da-to sinzite-i-ru.
Taroo-TOP Hanako-NOM self-GEN book-ACC steal-PST-C believe-AUX-PRS
'Taroo$_i$ believes that Hanako stole self$_i$'s book.'

c. Taroo-wa Hanako-ga zibun-o kiratte-i-ru-koto-ni odoroi-ta
Taroo-TOP Hanako-NOM self-ACC hate-AUX-PRS-C-DAT- get.surprise-PST
'Taroo$_i$ got surprised that Hanako hates self$_i$.'

This is in line with what the GOCS mandates, and is broadly similar to OC in English, where it is almost always possible for the subject of a dyadic verb to control PRO inside the clausal complement of the verb.

In contrast, the GOCS does not allow an NP in the matrix clause which is not an argument of the matrix verb to control the operator and thus antecede *ímọ̀* or *zibun*. The most obvious case of such an NP is the possessor of an argument of the matrix verb. Indeed, such an NP cannot in general antecede *ímọ̀* in Ibibio, as shown in (32).

(32) a. Ndiṭọ Okon e-kere ke Edem i-mma-gha mm-ímọ̀/*ímọ̀.
children Okon 3.PL-think that Edem 3.SG.3.LOG-like-NEG PL-LOG/*LOG
'Okon$_i$'s children$_k$ thinks that Edem doesn't like *him$_i$/them$_k$.'

b. ??Ukpọk ekpat Okon a-ma-n-toiyo ke ng-kpina n-dep adesi n-nọ imọ.
empty bag Okon 3.SG-PST-1.SG-remind that 1.SG-should 1.SG-buy rice 1.SG-give LOG
('Okon$_i$'s empty bag reminded me that I should buy rice for him$_i$.')

(32b) shows that the possessor cannot antecede the logophoric pronoun even when the possessed noun is inanimate, hence not a natural antecedent for *ímọ̀* in its own right. This suggests that something structural is at work here (the GOCS), not simply a pragmatic rule like "a logophor refers to the most prominent (animate) discourse referent in the larger sentence." Now there are a few (but salient) examples that seem to point to the opposite conclusion, such as (33).

(33) (?)détá Okon a-́ké-bó ké Edem i-́maá-ghá ímọ̀.
letter Okon 3.SG-PST-say that Edem 3.SG.3.LOG-like-NEG LOG
'Okon$_i$'s letter said that Edem does not like him$_i$.'

Similarly, an example like 'Okon's evidence shows me that LOG (=Okon) is not guilty' was marginally accepted. However, (32) seems to be the general case, whereas something a bit exceptional is at work in (33), where the possessed noun is not only inanimate but the sort of

noun that refers to something that carries propositional content (a letter, but not a bag) and that is closely related to the possessor. We suggest that examples like (33) should be seen as cases of metonymy, in which 'Okon's letter' is a way of referring to Okon; compare Landau's (2001: 135) notion of an NP being a "logophoric extension" of its possessor for purposes of OC in English. On this view, (33) has the meaning 'Okon in his letter said that Edem does not like him', and the logophor is coreferent with the matrix subject after all. We are not sure exactly how to best represent this (if at all) at the various linguistic levels of representation. But our main point is that (33) should be put aside, and (32) versus (30) shows the key grammatical truth—a contrast predicted by the GOCS. And indeed Japanese LD *zibun* is very similar to Ibibio *ímọ̀* in this respect as well: (34a) and (34b) do not allow possessor binding, although (34c) seems to.[12]

(34) a. Taroo-no hahaoya-wa Ziroo-ga zibun-o kiratte-i-ru-to omotte-i-ru.
Taroo-GEN mother-TOP Ziroo-NOM self-ACC hate-AUX-PRS-C think-AUX-PRS
'Taroo$_i$'s mother$_k$ thinks Ziroo hates self$_{*i,k.}$'

b. #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.')

c. Yamada-no tegami-wa [yakuza-ga zibun-o odosi-te-i-ru-koto-o sisa-si-ta.
Yamada-GEN letter-TOP gangster-NOM self-ACC threaten-AUX-PRS-C-ACC suggest-do- PST
'Yamada$_i$'s letter suggested that gangsters were threatening self$_i$.' (Nishiguachi 2014: 168)

The GOCS leaves a degree of latitude when it comes to triadic matrix predicates, saying that one of its two NP/PP arguments controls the null DP in the CP complement, but leaving

[12] Japanese and other East Asian languages allow this metonymy/logophoric extension even in cases of local anaphor binding. Thus 'Taroo's behavior lowers zibun's reputation' is possible, in contrast to (8), whereas *Chris's behavior discredited himself* is not great in English. We do not know why there are these differences.

open which one does. Landau (2013: sec 5.1; (2015)) simply refers to a complex array of syntactic, semantic and pragmatic factors; we add that thematic roles play a prominent role in this, following the spirit of Jackendoff and Culicover (2003) and related work. This holds for logophoric and LD-anaphoric constructions as it does for ordinary control. We mentioned in section one that when the matrix verb is 'tell', the agent/subject can be the antecedent of *ímọ̀* or *zibun*, but the matrix goal cannot be (see (1) and (3)). We now add that other communication verbs with an agent-goal-proposition argument structure show the same pattern.[13]

(35) Eno a-ke-bip Okon mme Emen a-ma-i-kid imọ.
Eno 3.SG-PST-ask Okon Q Emen 3.SG-PST-3.LOG-see LOG
'Eno$_i$ asked Okon$_k$ whether Emen saw her$_i$/him$_{*k}$.' (cf. Clements 1975: 154)

(36) Taroo-wa Hanako-ni Ziroo-ga zibun-o yonde-i-ru-to tutae-ta.
Taroo-NOM Hanako-DAT Ziroo-NOM self-ACC call-AUX-PRS-C convey-PST
'Taroo$_i$ conveyed to Hanako$_k$ that Ziroo is calling self$_{i/*k}$'

In our OC-based view based, these examples are parallel to the fact that 'promise' and other commitment verbs allow subject/agent control and not (usually) goal/oblique control of PRO.

That thematic roles are important here—not just grammatical function/final syntactic position—is confirmed by the fact that in Japanese the passive of 'tell' still allows the oblique agent to antecede LD *zibun* (Kuno 1987: 258). (Ibibio does not have a passive construction.)

(37) Sono seizika-wa keizi-kara [booryokudan-ga zibun-o sagasi-te-i-ru-koto-o] osiet-rare-ta.
that politician-TOP detective-from gangsters-NOM self-ACC search-AUX-PRS-C tell-PASS-PST

[13] We note that when *zibun* appears in (what looks like) embedded subject position and receives contrastive focus, it can be understood as being coreferential with a matrix goal argument. We take this to be an intensifier use of *zibun* modifying a null subject (Charnavel & Sportiche 2021) rather than true LD *zibun*. In order to avoid this as a source of potential confusion, we primarily use examples with *zibun* in object position when what can be the antecedent of LD *zibun* is at issue.

'That politician$_i$ was told by the detective$_k$ that gangsters are searching for self$_{i/k}$.'[14]

However, other triadic matrix predicates behave differently. For example, 'hear' arrays its arguments differently from 'tell', with the source encoded as an oblique internal argument and the goal/experiencer as the subject. With this verb, the internal source argument can be the logophoric antecedent, as shown already in (2) and (4) above. Note that (4) in Japanese is very much parallel to (37) in thematic terms. In addition, the subject of 'hear' can also be the logophoric antecedent. We attribute this to the hearer being an experiencer as well as a goal (e.g., X can tell Y something if Y is in a coma, but Y cannot hear something from X if Y is in a coma). Furthermore, while the argument structure of 'hear' is unusual, it is not unique: thematically similar (complex) predicates like 'learn from' and 'receive a message from' show the same binding pattern (see Clements 1975: 158 for Ewe). This shows that the effect is systematic.

(38) Emem a-ma-a-bọ etop a-to Okon ke imọ i-ya-i-di mfin.
Emem 3.SG-PST-3.SG-get message 3.SG-from Okon that LOG 3.LOG-FUT-3.LOG-come today
'Emem$_i$ got a message from Okon$_k$ that he$_{i,k}$ will come today.'

(39) Taroo-wa Hanako-kara sono gainen-wa zibun-no hatumei-da-to osowat-ta.
Taroo-TOP Hanako-from the idea-TOP self-GEN invention-COP-C learn-PST
'Taroo$_i$ learned from Hanako$_k$ that the idea was self$_{i,k}$'s invention.'

This antecedence pattern is analogous to what one finds in English with *agree* and *propose*, where either argument of the matrix verb can control PRO in the complement (Landau 2013: 124, etc.). Overall, we see that agent, source, and experiencer arguments can control lzOp, but pure goal arguments cannot. Note that while both logophoric/LD-anaphoric constructions and the OC control of PRO are influenced by semantic/pragmatic factors, especially thematic roles, the

[14] Note that *zibun* can also be anteceded by the goal subject of the passive matrix verb (Sells 1987: 453). This probably indicates that this subject counts as an experiencer as well as a goal, as in (39) (cf. Kuno 1987: 131).

precise way that thematic roles influence controller choice is different; for example, internal goal arguments are possible controllers of PRO but not of lzOp. We return to this in section 4.2.

There is a bit more texture to give to our description of thematic influences on control. It turns out that an experiencer argument of the matrix verb can control lzOp, but only if there is no true agent argument in the matrix clause. To see this, consider the Ibibio triple in (40) featuring *toiyo* 'remember'/'remind'. In the dyadic use of this verb as 'remember', the experiencer argument can antecede *ímọ̀* ((40a)). However, in the triadic use of the verb, translated as 'remind', the experiencer cannot antecede *ímọ̀* when the subject is a true animate agent ((40b)). In this respect, 'remind' is just like 'tell' and 'ask'. But if the verb is used triadically and the subject is an inanimate causer argument, then the experiencer can antecede *ímọ̀* again ((40c)).

(40) a. Okon a-ma-a-toiyo ke imọ i-kpina i-dep adesi.
Okon 3.SG-PST-3.SG-remember that LOG 3.LOG-should 3.LOG-buy rice
'Okon$_i$ remembered that he$_i$ should buy rice.'

b. Nditọ e-ma-e-toiyo Okon ke mm-imọ/*ímọ̀ i-ma-i-dep adesi.
children 3.PL-PST-3.PL-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.'

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

Like 'remind' in this respect is 'show' in Ibibio. In contrast, the goal argument of 'tell' resists anteceding *ímọ̀* even if the subject is inanimate; we claim that this is because it is a pure goal in Ibibio, not a goal-experiencer. This shows that there is a kind of "best fit" character to control of lOp: an agent is the best controller, an experiencer is a possible controller if there is no agent,

and a goal is not good enough. Source and experiencer are on a par as second choice controllers. This is like classic thematic hierarchy effects known from other domains. Again analogous effects are found with standard control; for example, the subject of 'ask' can control PRO if there is no object, but (often) not if an object is present as well (*John asked PRO to get himself another drink, vs. John asked Mary PRO to get herself/??himself another drink*).[15]

A superficially somewhat different context of OC according to Landau (2001, 2013: 39-40) is control into the (extraposed) subject of a psychological predicate, as in *It disturbed John [PRO to perjure himself]*. Indeed, a causer/stimulus clause can contain a *zibun* or *ímọ̀* that refers to the experiencer object of the psych predicate, as shown in (41) for Japanese and (42) in Ibibio (e.g. see Nishigauchi 2014: 188-189, Sells 1987: 453, Clements 1975). This is yet another way in which *zibun* and *ímọ̀* work similarly, showing that lzOp can be controlled in this context.

(41) C kyoozyu-ga zibun-o in'yoo-si-ta-koto-ga Takasi-o utyooten-ni si-ta.
C prof-NOM self-ACC quote-do-PST-C-NOM Takasi-ACC crazy-DAT make-PST
'[That [zOp$_i$ Prof C quoted him$_i$]] made Takashi$_i$ crazy.' :

(42) A-ma-a-kpa Okon idem ke ímọ̀ i-ma-i-dia nsa-akʌk.
3.SG-PST-3.SG-die Okon body that LOG 3.SG-PST-3.LOG-win lottery
'It surprised Okon$_i$ [lOp$_i$ that [he$_i$.won the lottery]].'

Along the lines suggested by Landau (2001), we subsume examples like (41) and (42) to the GOCS by assuming that the CP argument of a psych predicate is generated as its complement. In some cases, it can then move to Spec TP over the experiencer argument (Japanese; see Belletti

[15] Unfortunately, we cannot fully replicate (40) in Japanese, since verbs like 'remind' are derived explicitly from 'remember' by the *-sase* causative, and this brings with it relevant additional syntactic structure. But see Nishigauchi (2014: (84)) for a contrast similar to (40b) vs. (40c) involving 'tell' in Japanese.

and Rizzi (1988) and related work), or it can extrapose to the right edge of VP (Ibibio). These examples then obey the GOCS given in (29).[16]

The last OC environment that Landau (2013: 31) discusses is (various kinds of) purposive clauses, where PRO in the purpose clause is controlled by one of the arguments of the matrix verb, usually the agent/subject. Parallel to this is the fact that *ímọ̀* and *zibun* are possible inside purposive clauses, where they refer to the matrix subject, as shown in (43) and (44).

(43) Okon a-ma a-dibe mbaak Emem a-di-kit ímọ̀
Okon 3.SG-PST-3.SG-hide so.that Emem 3.SG-PROHIB-see LOG
'Okon$_i$ hid so that Emem would not find him$_i$' (see Clements 1975: 155, Culy 1994: 1071)

(44) Taroo-wa Hanako-ga zibun-ni kizuka-nai-yooni kakure-ta.
Taroo-TOP Hanako-NOM self-DAT notice-NEG-C hide-PST
'Taroo$_i$ hid so that Hanako would not notice self$_i$'

However, purposive clauses are different from other kinds of adjunct clauses—temporal adjuncts, for example—which do not require OC in English and which do not license *ímọ̀* in Ibibio (see (64) below). It is not so clear how to draw this distinction in terms of Landau's OC signature: we need to interpret "dependent" such that purposive clauses count and other adjuncts do not. Our GOCS in (29) does this by assuming that purposive clauses are adjoined to VP, so they are like complement clauses in being generated inside VP, whereas most other kinds of adjuncts are generated outside VP (see Landau 2013: 231; we are however open to other ways of drawing this distinction that may come to light.)

[16] More complex is what happens with CP subjects of nonpsych causative predicates like 'help' and 'make famous'. Landau (2001) argues that these behave subtly different from CP subjects of psych predicates, often showing NOC behavior rather than OC. Nishigauchi (2014: 188-189) observes a similar contrast in Japanese: (41) is bad when 'crazy' is replaced by 'famous'. Multiple differences come into play in comparing Ibibio and Japanese on this point: Japanese does not allow CP extraposition, whereas Ibibio does not allow CPs in Spec TP; causative predicates may also have a different syntax in the two languages. We thus leave this topic for future research. (At stake theoretically is whether the GOCS should govern clauses generated inside vP rather than just to clauses generated inside VP.)

Overall, the data we have reviewed in this section show two things. First, there are very strong similarities between how the logophoric pronoun in Ibibio behaves and how LD *zibun* in Japanese behaves when they appear inside CPs generated inside VP. In this we confirm and extend an observation that has been in the literature since Clements (1975). Second, there are somewhat more abstract but important similarities between both these constructions and the obligatory control of PRO in languages like English, which can be captured by saying that both fall under a generalized version of Landau's OC signature. This second result is the edgier one, given that logophoric phenomena have, if anything, been more often compared to nonobligatory control than to obligatory control (see, for example, Nishigauchi 2014: sec. 3).

4.2 Toward a unified theory of controller choice

We have seen that there are both similarities and differences between the control of the operators involved in logophoric and LD-anaphoric constructions and the ordinary control of PRO in infinitival clauses. The fundamental similarity is that when the embedded clause is VP-internal, the operator or PRO must be controlled by an argument of the matrix verb—the OC signature. A second similarity is that which argument of the matrix verb is the controller can vary across examples, influenced by the thematic roles of the arguments. However, a salient difference is that the precise thematic principles that determine which NP is the controller seem to be different in the two kinds of constructions: themes and goals are at the bottom of the list of possible controllers for lzOps, but they can be at the top of the list of possible controllers for PRO. As a result, object control is common for PRO but rare in the logophoric constructions, attested only with experiencer objects when there is no agentive subject. This difference is illustrated vividly within a single sentence in the examples in (45), which have both a logophoric element and a PRO subject in the same embedded clause. Here the matrix object is the controller of PRO (as in

the English analog) whereas the matrix subject is the antecedent of the logophor, implying that it can be the controller of lzOp. The question is why is there this systematic difference?

(45) a. Okon a-ma-a-temme Emem edi-kpóno ímọ̀.
Okon 3.SG-PST-3.SG-instruct Emem INF-respect LOG
'Okon$_i$ instructed Emem$_k$ [LogOp$_{i,*k}$ C [PRO$_{k,*i}$ to respect him$_{i,*k}$]].'

b. Taroo-wa Hanako-ni zibun-o itawaru-yoo meizi-ta.
Taroo-TOP Hanako-DAT self-ACC take.care.of-C order-PST
'Taroo$_i$ ordered Hanako$_k$ [zOp$_i$ C [PRO$_{k,*i}$ to take care of self$_{i,k}$].'

This disanalogy has dissuaded many from pursuing an OC approach to logophoric constructions and similar phenomenon (e.g. see Landau 2015: 38). While a full account of controller choice goes far beyond the scope of this paper, in this section we briefly sketch a line of analysis that holds promise for explaining this difference in terms of a difference in the nature of the controlled item. If this sketch is deemed promising, it should mitigate skepticism about a control analysis on these grounds, letting the positive analogies expressed in the GOCS carry the day.

The first point to make relevant to this is that, although the control of lzOp by the subject in triadic predicates does not seem parallel to the seeming rarity of OC subject control, in fact subject control in the presence of an object is not as rare and idiosyncratic to the verb *promise* as is often thought. Rather subject control is the norm for verbs of commitment, including *swear*, *vow*, *pledge*, *threaten*,… as well as *promise* (Sag and Pollard 1991), Jackendoff and Cullicover 2003, Landau 2013: 129). If a language or languages happen to have fewer verbs in this semantic class than in the class of directive verbs like *order*, which favor object control, that need not be of any deep theoretical import. The preference of object control over subject control when it comes to PRO is thus not as unequivocal and syntactically significant as it has been taken to be

in the tradition of the Minimal Distance Principle. Thus, the fact that subject control is normal when it comes to the control of lzOps need not be so troubling.

As the next step, we invoke the phenomenon of "control shift" to show that controller choice is a function not only of the thematic roles of the matrix arguments but also of the thematic role of the controlled item. Although *promise* is usually a subject control verb, it can shift to object control when its CP complement has a nonagentive subject with a beneficiary role, as shown in (46b,c). The collocation *to be allowed to* gives the best-known cases and perhaps the clearest ones, but the control shift phenomenon is not restricted to that, as shown in (46c).

(46) a. $John_i$ promised $Mary_k$ [PRO_i to come to the party].

b. $John_k$ promised $Mary_i$ [PRO_i to be allowed to stay up late for the party].

c. (?)$John_k$ promised $Mary_i$ [PRO_i to be given an extra piece of cake].

Conversely, *persuade* is a canonical object control verb, but it can shift to a subject control reading with infinitival clauses that have the same kinds of nonagentive subjects:

(47) a. $John_k$ persuaded $Mary_i$ [PRO_i to come to the party].

b. $John_i$ persuaded $Mary_k$ [PRO_i to be allowed to stay up late for the party].

c. (?)$John_i$ persuaded $Mary_k$ [PRO_i to be given an extra piece of cake].

Given that which matrix argument controls PRO is influenced by properties of the controlled item, a path opens up to understand the paradoxical (45): PRO and lzOp are different elements, with different semantic roles, so it is not surprising that they can have different controllers.

To flesh this out a bit, we think that some of the best insights into control shift come from Panther and Köpcke (1993) (P&K) and Jackendoff and Culicover (2003) (J&C). P&K point out that when PRO bears a beneficiary role but not an agent role, as in (46b,c) and (47b,c), its controller is the NP that counts as the beneficiary of the event denoted by the matrix verb. The

one who benefits from a promising event is canonically the one who receives the promise, i.e. the object, so (46b,c) have object control. In contrast, the one who benefits from a persuading event is canonically the one who does the persuading, i.e. the subject, so (47b,c) have subject control. P&K thus envision the principle of role identity in (48).

(48) The semantic-pragmatic roles of the controller and PRO are (nearly) identical.

While P&K's view is promising for control shift, it is weak on unshifted control, as in (46a) and (47a). Here PRO has an agent role, and it is indeed controlled by the agent of the matrix verb in (46a)—but not in (47a).[17] On this point, we take inspiration from J&C, who use the notion OBLIGATED to account for (46a) versus (47b) or (better) its equivalent with *order*. Note that the embedded clauses here are semantically like imperatives, in that the subject is obligated to perform the action denoted by the VP. Hence the sentences in (49a) are felicitous parallel to those in (50a), whereas the sentences in (49b) are anomalous parallel to those in (50b).

(49) a. Be quiet! Be examined by a doctor!

b. #Be tall! #Believe that the sky is red!

(50) a. Mary promised/ordered John to be quiet/to be examined by a doctor.

b. #Mary promised/ordered John to be tall/to believe that the sky is red.

Capturing this parallel in syntactic terms, we assume that the infinitival complements of verbs like *promise* and *order* contain a null imperative morpheme (jussive head (Zanuttini 2008)). This head, like the matrix version in (49), assigns an OBLIGATED thematic role to the subject in Spec TP, overlaying it on the thematic role(s) that the subject gets from its first-merge position. Meanwhile, J&C claim that the subject of *promise* is associated with an OBLIGATED thematic

[17] Panther and Köpcke 1993 address this by claiming that PRO, the subject of *promise*, and the object of *persuade* all bear the AG role, where AG is "the prospective performer of the embedded action". However, this is patently not the normal agent role; see Landau (2013: 146) for a critique on these grounds.

role, whereas the object of *order* is associated with an OBLIGATED thematic role. (Note that a given noun phrase can have more than one thematic role according to Jackendoff's decades-long research program.) We imagine that which arguments of a verb are associated with an OBLIGATED role can be discerned apart from control by considering what is implied by a sentence with the verb taking only NP or finite CP arguments, where there is no control. For example, *John promised Mary a favor* implies that John is under an obligation to do something, whereas *?John ordered Mary a difficult task* implies that Mary is under an obligation to do something (although this is a Jackendoff-inspired program, not an established result). Then the unshifted control patterns in (46a) and (47a) also follow from (48), where it is the OBLIGATED role that is matched. This account can then be generalized to other classes of object control predicates by positing other kinds of covert modals in the infinitival complement. For example $CAN_{permission}$ in the infinitival CP could lead to object control with *permit* and *allow*, $CAN_{ability}$ in the infinitival CP could lead to object control with *teach* and *enable,* $WILL_{volition}$ in the infinitival CP could lead to object control with *persuade* and *advise*, and so on.[18]

Given this sketch about how controller choice might work for PRO, we can apply it to logophoric and D-anaphoric constructions fairly easily. The crucial new assumption is (51).

(51) LOp/zOp receives (only) an agent-(like) thematic role from C/PoV.

Given (51), lOp matches the agent argument of *instruct* in (45a) better than it matches the goal/theme argument of *instruct*, so the agent is selected as the controller of lOp. Crucially, there is no modal head associated with the CP or PoVP projection which can overlay another thematic role on its specifier and channel control into other veins. In addition to the fact that it gives the

[18] Given that a single NP can be associated with multiple thematic roles, the question arises as to why the less familiar roles OBLIGATED or VOLITION determine how control happens in (46a) and (47a) rather than the ordinary role of agent. We have nothing insightful to say about this at this point.

result we want, we imagine that (51) can be motivated by the fact that the logophoric C is a grammaticized version of the verb 'say' in some African languages, including Ewe (Clements 1975: 165-168), Abe (K&S: 583), and Edo (Baker 1999: (39)), among others.

(52) Ama (gblo) be yè-Do+Nku nyOnuGi…. (Ewe, Clements 1975: 156)
Ama say that(=say) LOG-remember girl
'Ama$_i$ said that she$_i$ remembered the girl who….'

If C is a grammaticalized version of 'say', it stands to reason that the thematic role that C assigns to lOp is similar to the thematic role that 'say' assigns to its specifier—i.e. agent (cf. K&S: 583). See also Speas and Tenny's (2003) idea of p-roles (pragmatic roles) assigned by left-peripheral heads as a system that is crucially parallel to the normal thematic roles of verbs. The upshot is that lzOp needs to be controlled by the most agent-like argument in the matrix clause—an agent, or lacking an agent a source or experiencer. This provides the other piece for understanding (45).

This analysis sketch makes an interesting prediction which suggests that it is on the right track. Its leading idea is that thematic matching is at the heart of controller choice ((48)), but for control of PRO inside infinitival clauses this is often obscured by the presence of a covert modal head inside the infinitival clause which adds another thematic role to PRO. The question arises, then, are there infinitival complements that do not contain a covert modal? If so, we would expect to see the bias for an agent/subject to control an agent/subject null DP show up with PRO as well. A case in point is control with propositional verbs—a somewhat neglected class discussed by Landau (2013: 158-159). He says that English has only two verbs in this class, *claim* and *pretend*, although the Romance languages have more (Kayne 1984: 112). Now we detect no semantic evidence of a modal in the complement of (53): this does not mean that Mary

must pay the fine, or that she has permission to pay the fine, or the ability to pay the fine, or that she intends to pay the fine, but simply that she *did* pay the fine.

(53) $Mary_i$ claimed [PRO_i to have paid the fine].

So (53) plausibly has a pure infinitival CP, without a modal layer. Now *claim* can also take a goal argument. Nevertheless, our prediction is that, in the absence of any overriding modal flavor, (48) will induce to subject/agent control, not object control. This is correct, as seen in (54); (55) is a similar example in French, where this class of verbs is said to be more common.

(54) a. $Mary_i$ claimed to the $judge_k$ [PRO_i to have paid the fine].

b. *$Mary_k$ claimed to the (male) $judge_i$ [PRO_i to have contradicted $himself_i$].

(55) J'ai affirmé au juge avoir fait une grave erreur.

'I affirmed to the judge to have made an error.' (I made the error, not the judge.)

So subject control in the presence of an internal argument emerges for PRO just where PRO is most like lzOp—where it bears only an agent-like argument, without any modal overlays.[19]

We conclude that it is very possible that the same theory of controller choice—one rooted in the matching of fine-grained and multilayered thematic roles—applies both to the control of PRO and to the control of the operators that underlie logophoric and LD-anaphoric constructions. There is thus no firm reason to be skeptical of the OC analysis of the latter on these grounds.

4.3 On super-LD anaphors and logophors

Before leaving the topic of OC in logophoric and LD-anaphoric constructions, we consider a salient property of both that we have not mentioned yet and that seems problematic for our hypothesis. This is the fact that the antecedents can be the agent/source/experiencer argument not

[19] One might, however, go on to predict that control will shift to the goal of *claim* when the subject of the embedded clause has a goal thematic role, as in *$Mary_i$ claimed to the $judge_k$ [$PRO_{i,*k}$ to have been given a bribe]*. This is false. We do not know why goal shift happens in similar circumstances with *promise* but not with *claim*.

of the immediately superordinate clause, but of an even higher clause. This is shown in (56) for Ibibio (see Clements 1975: 154 for Ewe) and in (57) for Japanese (Nishigauchi 2014: 171).

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

(57) 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$_{i,k}$.'

This seems unlike OC, since an lzOp in the lowest CP can apparently be bound by the highest subject, which is not an argument of the verb that selects the lowest CP. This is one key reason why the two most important forebearers of our operator analysis, Nishigauchi (2014: 171-172) and Charnavel (2019, 2020), both say not that the operator undergoes obligatory control but rather nonobligatory control (Nishigauchi) or syntactically unconstrained pronominal coreference (Charnavel). In this section, we argue to the contrary, showing that these data are compatible with an OC analysis, and in the case of Japanese they provide new support for it.

The key move here is taking into account the fact that there can be an lzOp in the periphery of the intermediate clause as well as one in the lowest clause. That higher lzOp can perfectly well be controlled by the highest subject according to the GOCS: the CP which lzOp is at the periphery of is the complement of the highest verb and the highest subject is an argument of that verb. Thus a possible representation for (56) that fits the theory of control is (58).

(58) Okon$_i$ thinks [lOp$_i$ that [Edem$_k$ told me [lOp$_k$ that [Mfon respects Log$_{i,k}$]]]].

For Ibibio, nothing more needs to be added. As a pronoun, the logophor in the lowest clause can be bound by an operator at any distance. In particular, the logophor can be bound by the higher lOp or the lower lOp in this structure, much as *her* in a sentence like *Every girl thinks that any*

decent mother would agree that her hair should be braided can be bound by either c-commanding subject. Indeed, we already saw this in connection with (27) above.

For Japanese, however, a bit more does need to be said. *Zibun* is an anaphor, so it needs to be locally A-bound in the same clause. Hence, it cannot depend directly on a zOp at the periphery of the intermediate clause, which is too away. However, the presence of a zOp in the intermediate clause is very relevant in Japanese too: we claim that it can be controlled by the highest subject (as in Ibibio), and then it in turn can control the zOp of the lowest clause. In other words, (59) is a possible representation for (57) in Japanese. We call this *chained control*.

(59) Takashi$_i$ thought [C [zOp$_i$ PoV [Mary$_k$ said [C [**zOp$_i$** PoV [everyone elect zibun$_i$]]]].

Although the idea of one operator controlling another one in this way is unfamiliar, it very nearly follows from the principles of control that we have already formulated. Recall that zOp is in an A-position; as such, it is not significantly different in status from the ordinary subject of the clause and it could be a possible controller on these grounds. zOp also has the right kind of theta role to control the next lower zOp: both get an agent-like thematic role from the PoV head according to (51), and those theta roles match in accordance with (48). The higher zOp is also not much farther away from the lower zOp than the intermediate subject *Mary* is: they are both part of the same clausal complex. The only change that we need to make is an adjustment to the GOCS, such that it reads as in (60), with the added phrase highlighted.[20]

(60) *The Generalized OC Signature:* (GOCS, final)

If a clause with an intrinsically null DP (PRO, lOp, zOp, …) at its edge is generated inside VP, then the null DP is controlled by an argument *of a head in the extended projection* of V. Which of these arguments is the controller is determined thematically.

[20] Compare Landau (2001: 118), who presents a version of the OC signature which is explicitly stated in verbs of VP shells, not just simple predicate heads.

In fact, we want to make this change anyway. Our original formulation of the GOCS was a bit informal in that it referred to the arguments of a verb, not taking into account the mainline view that verbs are not unitary syntactic items, but rather the results of amalgamating a series of heads, including V, v/Voice, and perhaps also one or more Appl heads. Given this, in ordinary subject control, the controller is technically the argument of v/Voice, not an argument of the V head that the controlled-into CP is the complement of. Similarly, in ordinary goal control, the controller may technically be the argument of Appl, not of the V head which CP is the complement of. A natural way to recapture what was intended is to state the GOCS over the sequence of theta-role assigning heads that anchors a clause, rather than over a single head. (60) does just that. Now the PoV head that takes zOp as its argument is also part of the verbal extended projection that starts at the V head and ends at C. As such, its argument is not different from the agent argument of v/Voice or the goal argument of Appl: any of them can be the controller in an OC relationship.

It may still seem odd that there are two possible obligatory controllers of the lower zOp in (59) on our analysis: the subject *Mary* and the zOp in the intermediate clause. However, we have seen other cases like this. Recall that with the verb 'hear', either the experiencer argument or the source argument of the matrix clause can control the lzOp in the CP complement, since there is no agent. Similarly, in the domain of conventional control, either the matrix subject or the matrix oblique can control PRO with verbs like *propose* (Landau 2013: 124). The claim that either zOp or the agent can control zOp in (59) is thus not anomalous.

We can confirm that the higher zOp plays a crucial role in mediating the super-LD binding relationship by considering a complex four-clause sentence with a structure like (61). This starts with a structure like (59) and embeds it once more, as the CP complement of 'think'.

(61) John thinks [that Mary said [that zibun$_1$'s mother hopes [that zibun$_2$ will win]]].

Here *zibun*$_2$ in the lowest clause is expected to have the options of referring to the closest superordinate subject 'mother' or to the next highest superordinate subject 'Mary'. Let us focus on the super-LD reading in which *zibun*$_2$=Mary. In addition, the closest superordinate subject 'mother' contains another instance of *zibun*, *zibun*$_1$. The question, then is whether *zibun*$_1$ can also take a more super-LD antecedent, namely 'John', or whether it can only take the closest accessible antecedent 'Mary'. If Nishigauchi and Charnavel are right that *zibun* needs to be bound by a nearby zOp but zOp can refer to any logophoric antecedent in a syntactically unconstrained way, then *zibun*$_1$=John should be possible with the representation in (62a). In contrast, our view predicts that *zibun*$_1$ can only refer to Mary here. Recall that *zibun*$_2$=Mary, by hypothesis. This implies that zOp$_3$ is bound by 'Mary'. Now our OC-based theory crucially says that zOp$_3$ can only be bound by 'Mary' if 'Mary' controls zOp$_2$ and then zOp$_2$ controls zOp$_3$—i.e., by chained control. This is represented in (62b). Then if zOp$_2$ is controlled by 'Mary' and *zibun*$_1$ has to be locally bound by zOp$_2$, we predict that *zibun*$_1$ must refer to Mary as well.

(62) a. John$_i$ thinks that [zOp1$_{(i)}$ Mary$_k$ said that [zOp2$_i$ zibun1$_i$'s mother hopes that [zOp3$_k$ zibun2$_k$ will win]]].

b. John$_i$ thinks that [zOp1$_i$ Mary$_k$ said that [zOp2$_{k,*i}$ zibun1$_{k,*i}$'s mother hopes that [zOp3$_k$ zibun2$_k$ will win]]].

In fact, our prediction is the correct one. An actual example is given in (63). It is possible to have a reading where *zibun*$_1$=*zibun*$_2$=John ((63a)) and *zibun*$_1$=*zibun*$_2$=Mary ((63b)). Crucially, though, the reading where *zibun*$_2$=Mary and *zibun*$_1$=John ((63c)) is ruled out, as predicted (contrast (26)).

(63) John-wa Mary-ga zibun$_1$-no hahaoya-ga zibun$_2$-ga katu-koto-o
John-TOP Mary-NOM self-GEN mother-NOM self-NOM win-C-ACC
negate-i-ru-to it-ta-to omotte-i-ru.

hope-AUX-PRS-C say-PST-C think-AUX-PRS

'John thinks Mary said self$_1$'s mother hopes that self$_2$ will win.'

a. John$_i$ thinks Mary$_k$ said self1$_i$'s mother hopes that self2$_i$ will win.

b. John$_i$ thinks Mary$_k$ said self1$_k$'s mother hopes that self2$_k$ will win.

c. *John$_i$ thinks Mary$_k$ said self1$_i$'s mother hopes that self2$_k$ will win.

d. *John$_i$ thinks Mary$_k$ said self1$_k$'s mother hopes that self2$_i$ will win.

Note that the reading in (63d) is also ruled out and this can be derived with a similar logic. If *zibun*$_2$ refers to John, this must be the result of two instances of chained control: 'John' controls zOp$_1$, which controls zOp$_2$, which controls zOp$_3$, which locally binds *zibun*$_2$. But then the local binder of *zibun*$_1$ is zOp$_2$, which is bound by 'John'. Therefore zibun$_1$ here cannot refer to Mary.

This reasoning confirms that zOp cannot be bound/controlled at extra-long distance after all. It can only be controlled by an A-position in the immediately superordinate clause. It can look like it is controlled from farther away, but in fact this is only possible by way of the zOp in the next higher clause, and that has observable consequences for instances for any *zibuns* immediately contained in that next highest clause. Therefore, it turns out that control of zOp does display the kind of clause-level locality that is enforced by the theory of OC after all. What looked like it might be a serious problem for the OC-based analysis turns out to be a strength.[21]

5. Logophors and LD anaphors outside of OC contexts

So far, we have seen that logophoric pronouns and LD anaphors have some different intrinsic properties, as do the operators that bind them. These differences, however, are largely neutralized when they are minimally contained in a CP generated inside VP, because both kinds of operators undergo the same type of obligatory control. This leads to the question of what

[21] Chained control of one lOp by another lOp might very well be possible in Ibibio too, but we do not know of a way to prove this, given that logophoric pronouns do not need to be locally bound; see the discussion of (58).

happens when they appear in a CP that is not generated inside VP, where OC does not apply. The expectation is that logophoric pronouns and LD anaphors might then diverge in systematic ways. In this last major section, we show that this is true. LOp is simply ruled out in such CPs in Ibibio, severely limiting the use of logophoric pronouns inside them. In contrast, zOp in Japanese is possible, undergoing a form of NOC. When this happens, zOp gets an antecedent that is pragmatically constrained to be an *empathy locus* (e.g., as defined by Kuno and Kaburaki (1977)) but not syntactically constrained by the GOCS (Kuno 1972, Kuno 1987). As such, the range of antecedents *zibun* can have in these contexts is notably different from *zibun* in complement clauses, as mentioned by Kuno (1987: 257-258) and developed by Oshima (2004).

One context that illustrates these differences is adverbial clauses adjoined to the TP space rather than to VP. In Ibibio, lOp is simply not possible in such clauses, as in (64).[22]

(64) a. *Okon á-ma-á-dat íbṓk ké ìnì dṓktṑ á-ké-tèmméké imọ i-bó i-dát.
Okon 3.SG-PST-3.SG-take drug at time doctor 3.SG-PST-instruct LOG 3.LOG-say 3.LOG-take
('Okon$_i$ took the medicine when the doctor told him$_i$ to take it.')

b, Okon a-mé-nèm-ésít sia Emem a-ma i-nọ anye/*imọ íbṓk.
Okon 3.SG-PERF-sweet-heart because Emem 3.SG-PST-3.LOG-give him/*LOG drug
'Okon$_i$ is happy because Emem gave him$_i$ a drug.'

It is more accurate to say that lOp is not licit at the edge of an adjunct clause than to say that *ímọ̀* is ruled out in an adjunct clause. (65) shows that *ímọ̀* is possible inside an adjunct clause if the structure is further embedded in a CP complement; *ímọ̀* here can refer to Okon, although it cannot refer to Emem. This is what we expect if lOp is possible in the complement of 'say' controlled by *Okon*, but not in the

[22] Culy (1994: 1071) mentions two languages, Ewe and Yag Dii, which allow logophoric pronouns in causal adjuncts, citing an example like 'Kofi left because C Ama saw LOG'. To account for this, we probably have to distinguish two kinds of causal adjuncts, one in which the CP adjunct gives content that the matrix subject has in mind that motivates their action and one that is unspecified and includes other nonmental forms of causation. See Charnavel (2018) for relevant discussion. We leave careful manipulation of this factor to future research.

'because' adjunct controlled by *Emem*.

(65) Okon a-ma-a-bo [ke Emem a-me-yat esit [sia ímọ̀ i-ma i-tuak Enọ]].
Okon 3.SG-PST-3.SG-say that Emem 3.SG-PERF-hot heart because LOG 3.LOG-PST-3.LOG-hit Eno
'Okon$_i$ said that Emem$_k$ is upset because he$_i$ hit Eno.'

Note also that a 'when' clause can license a logophoric pronoun when it functions as the complement of 'ask', as in (66), although not when it functions as an adjunct, as in (64a). This shows that (64a) is not bad because there is no room for lOp in the periphery of its embedded clause, but because a lOp in this position cannot undergo OC.

(66) Enọ a-ma-a-bip ndiṭọ-ideen ini ọmmọ e-dighi-nwam ímọ̀.
Eno 3.SG-PST-3.SG-ask children-male time they 3.PL-FUT-help LOG
'Eno$_i$ asked the boys when they will help her$_i$.'

In contrast, zOp binding *zibun* is possible in a wider range of adjunct clauses in Japanese, including 'because' clauses, 'when'-clauses, and 'if' clauses. (67) gives two examples.[23]

(67) 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$_i$.' (Sells 1987: 464).

b. Mari-ga zibun-ni mizu-o kake-ta toki, Takasi-wa hidoku odoroi-ta
Mary-NOM self-DAT water-ACC pour-PST when Takasi-TOP greatly be.surprised-PST
'Takasi$_i$ was surprised when Mary poured water on self$_i$.' (Nishigauchi 2014:165)

Nevertheless, the clause type matters in that the conditions on *zibun's* antecedent are different in this environment than in CP complements. For example, a source phrase or oblique agent in the matrix clause cannot be the antecedent for LD *zibun* in (68) the way it can be in (4).

[23] There are, however, some semantic/pragmatic restrictions, such that LD *zibun* is not always possible in (say) 'when' clauses in Japanese; see Nishigauchi (2014) for discussion. We abstract away from these additional factors.

(68) #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/told-PASS
'When self$_{*i}$ won the lottery, Hanako {heard it from/was told it by} Taroo$_i$ the next day.'

Indeed, for sentence initial adverbs, it is not even automatic that the matrix subject can be the antecedent for an LD *zibun*, but the subject also needs to be topicalized. Thus the antecedent of *zibun* is determined not by thematic role but by empathy and topicality in this environment.[24]

We see the same contrasts in relative clauses, which are adjoined to NP not VP. lOp is not generally possible in this environment in Ibibio, as shown by the badness of (69) with *ímọ̀*.

(69) a. Okon a-ma-a-duọk ngwet odo se anye/*imọ i-k-i-dep.
Okon 3.SG-PST-3.SG-lose book the REL he/*LOG 3.LOG-PST-3.LOG-buy
'Okon$_i$ lost the book that he$_i$ bought.'

b. Okon a-ke-dọ awonwaan a-(i)-maa-gha anye/?*imọ.
Okon 3.SG-PST-marry woman 3.SG-(3.LOG)-PST-like-REL him/?*LOG
'Okon$_i$ married a woman who likes him$_i$.' (contrast (6a) in Japanese)

Furthermore, the same qualifications apply to this as to adjunct clauses. *Ímọ̀* is possible in a relative clause if the whole structure is embedded in a larger complement clause, as in 'Okon$_i$ thinks that I lost the book that LOG$_i$ gave me' (see also Clements 1975: 156; Culy 1994: 1074).[25] *Ímọ̀* is possible in a clause headed by *se* if that clause functions as the complement of a verb,

[24] The Japanese literature discusses other important ways of discerning that the antecedent of *zibun* in noncomplement clauses is subject to an empathy/point of view condition (whereas the antecedent of *zibun* in a complement clause is not). These include the interaction between *zibun* and the empathy-loaded verbs *kure* and *yar* 'give' and interactions between *zibun* and the presence of first and second person pronouns, which are inherent empathy loci (Kuno and Kaburaki 1977; Kuno 1978; Oshima 2004; Nishiguachi 2014, etc.). We do not consider these other sources of support for (73b) in Japanese here for reasons of space, and because these phenomena are not so relevant to Ibibio and the African languages. (See AnQ: 59-62 for evidence that the presence of a first person pronoun does not interfere with a logophoric pronoun taking a third person antecedent in Ibibio.)

[25] There is one additional qualification to make here: logophoric pronouns are sometimes possible inside a relative clause which modifies the object of an intentional verb, such as 'Okon$_i$ is seeking/wants a woman who will marry LOG$_i$' (see Sells 1986: 447 and Culy 1994: 1074 for similar examples). We tentatively assume that some kind of

as in a sentence like 'Okon$_i$ remembered what (=*se*) Eno gave LOG$_i$'. What is impossible is for lOp to be present in the periphery of a CP other than a CP complement, the domain of OC.

In contrast, LD *zibun* in Japanese is readily available inside relative clauses, taking an antecedent inside the immediately superordinate clause. But here again the conditions on the antecedent of zOp are different from those on zOp in a CP complement: the matrix subject can generally serve as the antecedent, but a matrix source cannot unless it is also an empathy locus ((70a)), and a matrix goal can if it is an empathy center (aided in (70b) by the use of *kure*).[26]

(70) 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 [zOp$_{*i}$ that Taro told self$_{*i}$]].'

b. 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$_{i,k}$]].'

A third non-OC environment where these forces are at work is simple matrix clauses embedded in a discourse. Ibibio's *ímọ̀* is generally impossible in this situation; it cannot be assigned an antecedent from the linguistic discourse. Thus *ímọ̀* is bad in (71), even in a "free indirect discourse" context.[27]

(71) *Idem a-maa-kpa Okon adi-kit ndise omo ke ngwet odo. Nso se ímọ̀ i-di-dokko eka ímọ̀?

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reanalysis happens at LF in such examples, such that they can be analyzed as 'Okon$_i$ woman+wants that she will marry LOG$_i$', with the relative clause counting as a complement of the verb at a semantic level.

[26] Nishigauchi (2014: 193) claims that *zibun* can refer to the matrix goal even in a CP complement of 'tell' if (and only if) the complement also contains empathy loaded elements like 'come' and *kure* 'do as favor'. This partly motivates his denial of Oshima's claim that the syntactic role of the CP containing *zibun* is a crucial factor as to whether it is logophoric or empathetic (in our terms, whether it undergoes OC or NOC). We assume that this is because *kure* can introduce an operator in its specifier distinct from the zOp we have emphasized here; see Ikawa (2022) for independent evidence. Since this operator is not at the edge of CP (but rather below T), it is not subject to OC. Therefore it also undergoes a type of NOC, sensitive to pragmatic prominence (including empathy) rather than thematic role. To avoid this factor, we restrict ourselves to examples without *kure* in the clause containing *zibun*.

[27] Here too there is a robust exception that has confused the literature some. Like other African languages, Ibibio's logophoric pronoun can be used in what looks like a matrix clause in a sequence like 'Okon$_i$ told me that LOG$_i$ bought yams. (Then) LOG$_i$ cooked the yams.' In particular, this is possible if and only if 'Then he cooked the yams' is a continuation of what Okon says to me (see also Clements 1975: 170-171; Adesola 2005: 216, Pearson 2013: 446). The second sentence is thus interpreted somehow as being under the scope of "Okon told me lOp that…" We leave open exactly how this is done.

body 3.SG-PST-3.SG-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?'

In contrast, Japanese does allow *zibun* in a root clause to take an antecedent in discourse. As expected by now, that antecedent must be a subject or other empathy locus (Oshima 2004: 12; see also Sells 1987: 455, Nishigauchi 2014: 172).[28]

(72) Tokiko-wa aozame-ta. Masaki-wa zibun-o okizari-ni-site itte-simat-ta-no-da.

Tokiko-TOP pale-PST Masaki-TOP self-ACC leave.behind go-end.up-PST-EMPH-COP

'Tokikio$_i$ turned pale. Masaki had gone leaving self$_i$ behind.'

Similarly, *zibun* (and Korean *caki*: Park 2018) is possible in a root clause following an adjunct like 'according to X' or 'in X's opinion', whereas *ímọ̀* in Ibibio is not.

We see, then, that there is a systematic difference between Ibibio and Japanese in this regard. The difference can be summarized in the generalizations in (73).[29]

(73) a. If lOp does not undergo OC in accordance with the GOCS, it is ruled out.

b. If zOp does not undergo OC, it is assigned a prominent [+empathetic] antecedent.

[28] Oshima (2004: 5 n.3) mentions that zibun can also be used in a matrix clause with arbitrary/generic force, and Nishigauchi (2014: 159) that it can be used (dialectally) with reference to the speaker or addressee. This is parallel to NOC PRO in English, and we tentatively consider this to be part of the same phenomenon as the discourse uses; these are other ways that an NOCed null DP can be assigned a value in discourse. And as expected, *imo* in Ibibio cannot be used in matrix clauses for arbitrary reference or as a way to refer to the speaker either.

[29] Many previous researchers have detected some duality in what can be an antecedent for an LD anaphor in Japanese and other languages. Sells (1987) discusses this as Source/Self versus Pivot. Oshima (2004) talks of logophoric versus empathic *zibun*. Nishigauchi (2014) talks about pro binding *zibun* taking a sentient focus or an empathy focus as its (NOC) controller. Charnavel (2020) talks about pro$_{Log}$ taking as its antecedent an attitude holder or an empathy locus. We are squarely in this tradition. One distinctive aspect of our view is supporting the Kuno/Oshima hypothesis that what kind of antecedent an LD anaphor can take is heavily correlated with the role/position of the clause containing the anaphor (adopted also by Park 2018 for Korean and suggested by Huang and Liu 2001: sec 5.3 for Mandarin; see also Sells 1987: 466). Nishigauchi (2014) downplays this correlation (esp. p. 180 n.19); for him the key factor is what kind of PoV head zOp is the specifier of: one of the Sentient class or one of the Axis class; see note 26 for a partial response to this. The other distinctive feature of our view is our analysis of the self/sentient/attitude type of antecedence in terms of the theory of OC, including a strengthened theoretical connection with the African languages. In contrast, we have nothing distinctive to say about the restriction that NOC zOp takes +empathic antecedents, which for now we simply stipulate in (73b).

This of course raises the question of why this fundamental difference holds. We can only present a conjecture here. It does not seem to have anything to do with a difference in phi-features: both zOp and lOp can have second person antecedents as well as third person ones, plural antecedents as well as singular ones, and so on. Rather, we conjecture that the difference is rooted in the fact that zOp is in an A-position whereas lOp is in an A-bar position. Indeed, PRO in English is in an A-position, and it can also undergo NOC when OC does not apply in a way that is akin to (73b). In contrast, null operators in complex adjectival constructions in English need to be assigned a very local antecedent by control/predication. For example, in (74) the A-bar operator must be equated with the NP in the immediately superordinate clause, *Pat*, whereas PRO can be LD-controlled by the more remote *Chris*. This may be (more remotely) akin to (73a).

(74) Chris$_i$ thinks that Pat$_k$ is too stubborn [Op$_{k,*i}$ [PRO $_{i,arb}$ to talk to t$_k$]]..

Given the idea from Charnavel (2019, 2020) that exempt uses of anaphors across languages are the result of binding by A-operators like zOp, this conjecture predicts that other LD anaphors will be like *zibun* in being possible in adjunct clauses, relative clauses and matrix clauses. This seems to be true for many of the better studied languages with LD anaphors, including Korean (Park 2018), Chinese (Huang and Tang 1991, Huang and Liu 2001), French (Charnavel 2019, 2020), and English.[30] In contrast, other languages with logophoric pronouns would be predicted to be like Ibibio in this regard. It is known that logophoric pronouns are often not possible in matrix clauses (except as in note 27) or in relative clauses (except as in note 25) (see Clements (1975) on Ewe, for example), but closer study of this is needed, and relatively little is known about logophoric pronouns in different kinds of adjunct clauses.

[30] However, Icelandic may be a problem for this view, based on the discussion in Sells (1987: 450-453).

(73b) makes some interesting additional predictions about *zibun* in Japanese. In (63) above, we considered a four-clause structure to prove that zOp in a deeply embedded complement clause can only access a super-LD antecedent by way of a chain of zOps such that one zOP controls the next highest zOp. (73b) implies that a zOp in a deeply embedded relative clause should work differently: it should be able to access super-LD antecedents directly, as long as they meet the empathy/prominence condition. This direct access would leave intervening zOps free to be controlled by other nPs, allowing two *zibuns* to have different referents in a way that differs from (63). Example (75) is relevant to checking this: here whether zOp_2 is controlled by zOp_1 or 'friend' is independent of whether zOp_3 is anteceded by Hanako or 'friend' (cf. (76)).

(75) Hanako-wa tomodati-ga zibun$_1$-no hahaoya-ga zibun$_2$-ga nakusi-ta okane-o
Hanako-TOP friend-NOM self-GEN mother-NOM self-NOM lose-PST money-ACC
mituke-ta-to omotte-i-ru-to it-ta.
find-PST-C think-AUX-PRS-C say-PST
'Hanako said that (pro's) friend thinks that self$_1$'s mother found the money self$_2$ lost.'
OK: self$_1$=Hanako or friend; independently OK: self$_2$ =Hanako or friend

(76) Hanako$_i$ said that [zOp$_i$ (her) friend$_k$ thinks that [zOp2$_{i\text{ or }k}$ self$_{i\text{ or }k}$'s mother found the money that [zOp3$_{k\text{ or }i}$ self2 lost]]].

Indeed, we find that the two *zibun*s can take different antecedents in (75), unlike in (63).

One final question is whether zOp in a relative clause or a TP adjunct can take a higher zOp as its antecedent. An example like (77) shows that this seems to be possible.

(77) 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$_i$.'

(78) Hanako heard from Taro$_i$ that [zOp1$_i$ Ziro found the person who [zOp2$_i$ give birth to self$_i$]].

Here *zibun* can refer to the source Taro, even though that is not an empathy focus, whereas this is not felicitous in the simpler (70a). However, here the source phrase *Taro* can control zOp_1 in the CP complement of 'hear'; this zOp_1 can then serve as the proximal antecedent for zOp_2 inside the relative clause, as shown in (78). As a result, *zibun* can refer to Taro by this sequence of zOps. Conversely, (79) shows that a NOCed zOp in a relative clause can control zOp in a complement clause, broadening its range of possible antecedents to include the matrix goal.

(79) Hanako-ga Taroo-ni Ziroo-ga zibun-ni niau-hazu-da-to itte-i-ta
Hanako-NOM Taro-DAT Ziro-NOM self-DAT suit-should-COP-C say-AUX-PST
syatu-o okutte-kure-ta.
shirt-ACC send-BEN-PST
'Hanako sent $Taroo_i$ the shirt which Ziroo was saying will suit $self_i$.'

(80) Hanako sent $Taroo_i$ the shirt that [$zOp1_i$ Ziroo said that [$zOp2_i$ *t* will suit $zibun_i$.]]

In a simpler sentence, zOp in a complement clause cannot refer to a goal argument (see (3)). But in (79) it can, because zOP in the relative clause can be anteceded by an empathetic goal argument, and the zOp1 in the relative CP can be an obligatory controller of the zOp2 in the complement clause, parallel to other cases of chained control. There are obviously more interactions to consider than we can take up here, but the first order predictions are very promising. A practical upshot of this is that if one wants to see the different antecedent-taking possibilities for OC zOp and NOC zOP one needs to be careful to make the structure as simple as possible, because the presence of additional zOps that can control or antecede the zOp of interest can make a significant difference.

6. Conclusion

In this paper, we have sharpened our understanding of the familiar comparison between dedicated logophoric pronouns in West African languages (specifically Ibibio) and long-distance uses of anaphors in IE and East Asian languages (specifically Japanese) and what it means for linguistic theory. The comparison has several layers. The first layer is one of difference: dedicated logophors are indeed pronominal whereas anaphors are anaphoric with respect to the clause-internal interactions regulated by classical Binding theory. The second layer is one of similarity: both elements can be bound by a null DP operator in the clausal periphery, and the null operator in both cases undergoes obligatory control, yielding a characteristic logophoric pattern of antecedence for pro-forms contained in VP-internal clauses. The third layer is one of difference again: when null DP operators are in clauses that are not generated inside VPs, the logophoric operator in the African language is ruled out, whereas the anaphoric operator in the East Asian language can be assigned a prominent (empathetic) antecedent from the larger sentence or discourse. These layered patterns are indeed a testimony to a robust universal grammar. First, UG provides for the licensing of null DP operators in the clausal periphery, a formal resource that languages can coopt for partly different functions. Second, UG provides the theory of obligatory control, which crucially distinguishes CP complements from CP subjects and adjuncts. In this form, it connects not only dedicated logophors and long distance anaphors, but also ordinary PRO, another specialized null DP at the edge of a clause.

Abbreviations:

1 = first person, 3 = third person, ACC = accusative, AUX = auxiliary, C = complementizer, COP = copula, DAT = dative, EMPH = emphatic, FUT = future, INF = infinitive, LOG = logophoric pronoun, NEG = negative, NMLZ = nominalizer, NOM = nominative, PASS = nominative, PERF = perfect, PL = plural, PROHIB = prohibitive, PRS = present, PST = past, Q = question, REL = relative, SG = singular, TOP = topic

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