

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

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Abstract: Long distance (or exempt) uses of anaphors in Eurasian languages are often compared to the special logophoric pronouns found in certain West African languages. By undertaking a close comparison, we show that Ibibio’s (Nigerian) dedicated logophor *imo* and Japanese’s anaphor *zibun* display both striking similarities and some systematic differences, which we analyze using control theory. In terms of their intrinsic properties, *imo* acts like a pronoun whereas *zibun* acts like an anaphor. Nevertheless, there is evidence that both can be bound by a null DP operator in the left periphery of the clause that contains them. We claim that when the containing clause is a complement or low adjunct clause, then the null DP operator undergoes obligatory control, such the argument of the matrix verb that best matches its thematic role controls the null DP, thereby becoming the ultimate antecedent of *imo* or *zibun*. This captures the similarities between the two. The differences appear when the clause containing *imo* or *zibun* is not in a position where obligatory control applies: when it is a relative clause, high adjunct, sentential subject, or matrix clause. In these contexts, the pronoun-binding version of the null DP is ruled out in Ibibio, whereas the anaphor-binding version of the null DP is permitted in Japanese, being assigned a prominent (empathetic) antecedent from the sentence or discourse. This noncanonical application of control theory thus sheds light on both the similarities between logophoric pronouns and long-distance anaphors and their differences.

Keywords: logophoric pronouns, long distance anaphors, Ibibio, Japanese, obligatory control

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 a very interesting case 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 this 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 appear 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 (create) an opportunity to study in a more 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 language. 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 *ímò* 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 *ímò* 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 Ibibio 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

- (1) Okon á-ké-dòkkó Edem [ké Emem í-maá-ghá ímò]. (Ibibio)
 Okon 3.SG-PST-tell Edem that Emem 3.SG-like-NEG LOG
 ‘Okon_i told Edem_k [IOp_{i,*k} that [Emem does not like him_{i,*k}]].’
- (2) Okon a-ke-kop a-to Emem [ke imò i-ma-i-dia nsa-akak].
 Okon 3.SG-PST-hear 3.SG-from Emem that LOG 3.SG-PST-3.SG-win lottery
 ‘Okon_i heard from Emem_k [IOp_{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.
 detective-TOP the politician-DAT gangsters-NOM self-ACC search-AUX-PRS-C-ACC tell-PST
 ‘The detective_i told the politician_k [zOp_{i,*k} that gangsters are searching for self_{i,*k}].’

¹ New data from Ibibio comes from [omitted for anonymous review]. New data from Japanese comes from [omitted for anonymous review]. Note that the indices in our examples show the readings of primary interest (good or bad), but not necessarily all the readings that a given sentence may have. This is particularly true for Japanese examples, where readings in which *zibun* takes a local subject antecedent are often not indicated.

- (4) Keizi-wa sono seizika-kara [booryokudan-ga zibun-o odosi-te-i-ru-koto-o] kii-ta.
 detective-TOP that politician-from gangsters-NOM self-ACC blackmail-AUX-PRS-C-ACC hear-PST
 ‘The detective_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 *ímò* 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 *ímò* is generally impossible in these contexts, as shown in (5).

- (5) a. *Okon a-ma a-duok [ngwet odo [se imò i-k-i-dep]].
 Okon 3.SG-PST-3.SG-lose book the REL LOG 3.LOG-PST-3.LOG-buy
 (‘Okon_i lost [the book [IOp*_i that he*_i bought]].’)
- b. *Obuut a-ma a-mam Okon sia ayín ímò a-ma-a-song 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 [IOp*_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 the same way 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 (section 2) we review why *ímò* 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 (section 3) we review why previous researchers have claimed that both logophors like *ímò* and LD anaphors like *zibun* are bound by null DP operators. Next (section 4) we consider in detail the many similarities between *ímò* and *zibun* when they appear in complement clauses, and how both obey a version of Landau's (2013) *OC signature*. Finally (section 5), we consider *ímò* and *zibun* in noncomplement clauses, supporting the idea that Japanese's null operator can undergo NOC (like PRO in English) whereas Ibibio's operator cannot. Then we conclude (section 6).

2. Preliminary difference: Anaphor versus pronoun

The convergence between logophoric pronouns like *ímò* 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 *ímò* and *zibun* themselves have quite different properties in simple sentences. In particular, *zibun* in Japanese is clearly a kind of anaphor, whereas *ímò* 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 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 otosímò no-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 *ímò* (plural form: *mm-ímò*) 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 noun *idem* 'body', with or without an overt possessor pronoun that matches its antecedent in features.

- (9) Okon a-(i)-ma idem (omo)/*ímò.
 Okon 3.SG-(3.LOG)-love body his / *LOG
 'Okon_i loves him_{*i}/himself_i.' (see also Clements 1975: 150 on Ewe)

Indeed, *ímò* is not generally possible in matrix clauses at all; thus (9) with *ímò* in a neutral

context is also bad with *ímò* referring to someone known from the context.²

Ímò 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 *ímò* i-m-i-sop idem. (AfrQ 44)
 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 *ímò*, the first one c-commanding the second one within the embedded clause.

- (11) *Okon a-ke-bo ke *ímò* i-m-i-kpi *ímò*.
 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 *ímò* i-m-i-kpi idem *ímò*.
 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 (11), *ímò* in the embedded object position can be coreferent with a non-c-commanding *ímò* properly contained inside the subject DP, as shown in (13).

- (13) Obuut a-ma-a-mam Okon ke ayín *ímò* a-ma-i-miem *ímò*.
 shame 3.SG-PST-3.SG-hold Okon that son LOG 3.SG-PST-3.LOG-insult LOG
 ‘Okon_i is ashamed that his_i son insulted him_i.’

The examples in (11)-(13) show that *ímò* 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 *ímò* (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 *ímò*/*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.’

² However, see note 31 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 when 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.

3. An abstract similarity: being operator-bound

Since *ímò* 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 *ímò* 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.³ 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

We start with Ibibio’s *ímò*. The tradition of positing an operator in logophoric constructions in African languages goes back to K&S’s seminal (1989) study of Abe.⁴ It is also adopted in Baker (1999), Speas (2004), Adesola (2005), Anand (2006), and Deal (2020: 69, 114-116), among others.⁵ 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 (IOp, short for logophoric operator) which is licensed by a complementizer like *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 *ímò*, whereas the possessor cannot be *ímò* but can only be the ordinary possessive pronoun *òmò*.

- (15) a. Emem a-ma-a-dòkko eka òmò/*ímò ke imò i-ma-i-dep ebot.
 Emem 3.SG-PST-3.SG-tell mother his/*LOG that LOG 3.LOG-PST-3.LOG-buy goat

³ 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 follow Charnavel (2019) in saying that similar elements can count as being in A-positions.

⁴ 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 IOp. 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.

⁵ 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 IOps. 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.

‘Emem_i told his_i mother that he_i bought a goat.’

- b. Emem_i told his_i/*Log_i mother [IOp_i C [Log_i bought a goat]]

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

- (16) a. IOp 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 IOp.

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 ebót ímò.
 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 ebót ɔmɔ/*ímò.
 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 IOp-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 IOp seems to be at best partially explainable in semantic terms. The class of IOp-licensors is relatively broad in Ibibio—*naña* may be the only one that does not permit IOp—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. As a result, they cannot license IOp, the necessary binder of *ímò*.

- (18) a. Okon i-kit-te n-dudue eka ɔmɔ/*ímò.
 Okon 3.SG-see-NEG NMLZ-commit.fault mother his/*LOG
 ‘Okon_i does not see his_i mother’s mistake/fault.’
 b. Okon i-kit-te ke eka ímò 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 òmò a-ma-i-miem ímò.
 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 omò i-sua imò.
 person even-one 3.SG-PST-3.SG-think-NEG that mother his 3.SG.3.LOG -hate LOG
 For no *x*, *x* thinks [IOp_{*x*} that [*y*’s/**x*’s mother hates *x*]].

(19b) is a standard WCO violation: on one understanding, it shows that it is degraded for 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 by 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 partly analogous to those found in *wh*-constructions.⁶

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 *ímò* is; one does not need to say that *zibun* is operator-bound for that reason. But the question arises as 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

⁶ Continuing along these lines, one might also expect a sentence like ‘No mother_{*i*} denies that LOG_{*i*} loves her_{*i*} son’ to 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 morphological feature-matching requirement which we take to be independent.

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_k hates self_{i,k}’

- b. Taroo_i thinks [_{CP} that [zOp_i PoV [Hanako_k hates self_{i,k}]]]

According to this line of thought, however, zOp must have a somewhat different theoretical status than IOp 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 IOp, 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 IOp 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).⁷ 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 IOp 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. This sort of

⁷ Charnavel (2019, 2020) calls her version of this head Op_{log}, using “operator” in the semantic sense; see note 3. 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 12), and examples of perspective mixing are found in Japanese (and Ibibio) (Sells 1987: 462-463).

Another significant question 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 IOp 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 *zibuns* 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 more careful study.

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, (22) 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).

- (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).⁸

- (24) Taroo-wa Hanako-ga zibun₁-no yuuzin-ga zibun₂-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 self₁’s friend was blaming self₂.’
- a. OK: zibun₁=zibun₂=Taroo b. OK: zibun₁=zibun₂=Hanako
 c. ??zibun₁=Taroo, zibun₂=Hanako d. ??zibun₁=Hanako, zibun₂=Taroo
 e. OK: zibun₁=Taroo or Hanako, zibun₂=zibun₁’s friend

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 [_{PoVP} zOp_n PoV [self_n’s friend]_m was blaming self_{m,n}]]

⁸ 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.

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 *zibuns* in the embedded clause can refer to Taroo but neither can 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 *zibuns* 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]]]].⁹

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 must be acknowledged that the evidence that LD *zibun* and logophoric *ímò* are both bound by operators is not as surface-similar as we might like, due to the fact that *zibun* is an anaphor and *ímò* a pronoun. This implies that *zibun* in a matrix clause is licit, bound by the matrix subject, whereas *ímò* in the matrix clause is (usually) illicit, as already discussed. We have also claimed that *ímò* 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 *ímò*s inside a doubly-embedded sentence do not need to have the same LD antecedent in Ibibio, the way that two *zibuns* in Japanese do. This is shown for Ibibio in (27a), with the rough syntactic structure in (27b) (contrast (24) in Japanese).⁹

- (27) a. Okon á-kére ké Edem á-ké-n-dòkkò ké èkà ímò é-kpóno ímò.
 Okon 3.SG-think that Edem 3.SG-PST-1.SG-tell that mother LOG 3.SG.3.LOG-respect LOG

⁹ 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.

‘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 [IOp_i that [Edem_k told me [IOp_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 IOps. The higher IOp can be anteceded (controlled) by the highest subject *Okon*, while the lower IOp can be anteceded (controlled) by the intermediate subject *Edem*. Then, as bound pronouns, either instance of *ímò* can be bound by either IOp 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 *ímò* in Ibibio can be bound by more remote operators whereas anaphoric *zibun* cannot, leading to this difference in behavior.

We conclude that both LD *zibun* in Japanese and *ímò* 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 *ímò* is fundamentally a pronoun. Intertwined with this difference is the difference that zOp in Japanese can count as an A-position, whereas IOp in Ibibio is an A-bar position.¹⁰

4. The crucial similarity: logophoric behavior in complement CPs

We are now ready for our central 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 two: the fact that when they appear in complement clauses they allow the same distinctive range of DPs to serve as their antecedents. This 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 this characteristic pattern of antecedence within the terms of the normal Binding theory.

Our strategy for explaining this fact is to say that IOp in Ibibio and zOp in Japanese are 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 IOp and zOp in essentially the same way, with the result that the same controllers are assigned to IOp and zOp in parallel structures. That controller is then understood as the ultimate antecedent of the pro-form bound by IOp or zOp (*ímò* or *zibun*, respectively). OC thus neutralizes the intrinsic differences between IOp 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 that distinguishes 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:

¹⁰ Another difference is that we do not expect zOp to trigger a weak crossover effect in configurations of the form [QP₁...[zOp_i ... pronoun_i ... *zibun*_i ...]], parallel 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).

- (28) *The OC signature:* (Landau 2013: 29; see also Manzini (1983), Landau (2001))
 In a control construction [...X_i ... [s PRO_i ...] ...], 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, IOp, zOp, ...) at its edge is generated inside VP, then the null DP is controlled by an argument of the verb that heads that VP. 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 IOP and zOp (and similar elements¹¹) 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., nonfinite T for PRO, particular Cs for IOp, the PoV head for zOp). However, we do not attempt a precise definition of this class here. For convenience, we refer to zOp and IOp 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 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. In this, we are treating the GOCS as an active principle of grammar, whereas Landau arguably was thinking of (28) as more of a taxonomic generalization, setting out which instances of control count as OC as opposed to NOC. 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 that purpose clauses which 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)

¹¹ Other elements akin to IOp 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.

Like (28), (29) does not take into account the fact that overt anaphors (and perhaps pronouns) can appear in controlled positions in some languages, including the East Asian languages; see Landau (2013: 117-119) for an overview. This is relevant to how we should think of the class of controllable elements, which we leave open here.

from our version of the generalization, since we do not consider the semantics of the relevant constructions in any detail here.¹² 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.

This section is organized as follows. Section 4.1 presents the basic case for (29): that arguments of the superordinate verb can control lzOp, depending on their thematic roles, whereas nonarguments in the superordinate clause cannot. Section 4.2 considers why the principles of controller choice seem to be different for lOp and zOp as opposed to PRO. Section 4.3 discusses how subjects higher than the immediately superordinate subject can come to antecede *ímò* and *zibun* by a chain of control relationships. Finally, section 4.4 shows that logophoric/LD-anaphoric relationships are sometimes possible with nonattitude verbs and (in Ibibio) with inanimate antecedents, just as OC relationships are.

4.1 The core pattern

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

First, if the superordinate verb is a dyadic one, selecting a clausal complement and a thematic subject, *ímò* in the complement clause can generally take the matrix subject as its antecedent. This is true for a wide variety of matrix verbs and is not particularly sensitive to the thematic role of the matrix subject. In Ibibio, it is possible with agentive verbs like ‘say’ (see (12)) and ‘deny’, for stative verbs like ‘believe’ and ‘know’, and for experiencer verbs like ‘be surprised’. (See Adesola (2005) for a list of verbs that license logophoricity in Yoruba.)

- (30) a. Okon a-ma a-kañ ke imò 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. Enò a-nim/ a-diòññó ke Edem i-mma-gha ímò.
 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 ímò.
 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.’

¹² This omission is largely because of limitations in our expertise and in the space available. However, we also think that the empirical situation needs to be reassessed carefully. Existing 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 understood 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 *ímò* in Ibibio as well. Similarly, *ímò* 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 area needs to be carefully reevaluated empirically and theoretically.

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 the subject of a dyadic verb often can 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 *ímò* 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 *ímò* in Ibibio, as shown in (32).

- (32) a. Nditò Okon e-kere ke Edem i-mma-gha mm-ímò/*ímò.
 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 them_k /*him_i.’
- b. ??Ukpòk ekpat Okon a-ma-n-toiyo ke ng-kpina n-dep adesi n-nò imò.
 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 *ímò* 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.” And indeed Japanese LD *zibun* is very similar to Ibibio *ímò* in this respect as well: (33a) and (33b) do not allow possessor binding, even though the matrix subject is inanimate in (33b).¹³

¹³ There are a few examples in the literature that seem to point to the opposite conclusion, and (i) is reasonably acceptable in Ibibio.

- (i) (?)détá Okon a-ké-bó ké Edem i-máá-ghá ímò.
 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.’

However, (32) seems to be the general case, whereas something a bit exceptional is at work in (i), where the possessed noun refers to something that carries propositional content and is closely related to the possessor. We believe that (i) should be considered a case of metonymy, in which the DP ‘Okon’s letter’ is used to refer to Okon

- (33) a. Taroo-no hahaoya-wa Ziroom-ga zibun-o kiratte-i-ru-to omotte-i-ru.
 Taroo-GEN mother-TOP Ziroom-NOM self-ACC hate-AUX-PRS-C think-AUX-PRS
 ‘Taroo_i’s mother_k thinks Ziroom 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.’)

The GOCS leaves a degree of latitude when it comes to triadic matrix predicates, asserting that one of its two NP/PP arguments controls the null DP in the CP complement, but leaving 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 well as for ordinary control. We mentioned in section one that when the matrix verb is ‘tell’, the agent/subject can be the antecedent of *ímò* 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.¹⁴

- (34) a. Eno a-ke-bip Okon mme Emen a-ma-i-kid imò.
 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)
- b. Okon á-ké-dòkkò Edem [ké Emem í-máá-ghá ímò]. (= (1))
 Okon 3.SG-PST-tell Edem that Emem 3.SG-like-NEG LOG
 ‘Okon_i told Edem_k [IO_{i,*k} that [Emem does not like him_{i,*k}]].’
- (35) a. Keizi-wa sono seizika-ni [booryokudan-ga zibun-o sagasi-te-i-ru-koto-o] osie-ta.
 detective-TOP the politician-DAT gangsters-NOM self-ACC search-AUX-PRS-C-ACC tell-PST
 ‘The detective_i told the politician_k [zOp_{i,*k} that gangsters are searching for self_{i,*k}]. (= (3))
- b. Taroo-wa Hanako-ni Ziroom-ga zibun-o yonde-i-ru-to tutae-ta.
 Taroo-NOM Hanako-DAT Ziroom-NOM self-ACC call-AUX-PRS-C convey-PST
 ‘Taroo_i conveyed to Hanako_k that Ziroom is calling self_{i,*k}’

(compare Landau’s (2001: 135) on an NP being a “logophoric extension” of its possessor for purposes of OC in English). In other words, (i) has the meaning ‘Okon in his letter said that Edem does not like him’, such that the logophor is coreferential with the matrix subject after all. Evidence for this is the fact that ‘Okon’s letter’ behaves like an animate DP rather than an inanimate one in preventing an experiencer object from controlling IO in a sentence like ‘Okon’s letter showed the children_i that he doesn’t like them(*Log_i)’; contrast (39c). Nishigauchi (2014:168) gives an example similar to (i) in Japanese. However, in Japanese, the choice of Cs and predicates seem crucial for this effect. We leave open the question how broadly metonymy is available in these cases.

¹⁴ 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 (or other nonsubject position) when what can be the antecedent of LD *zibun* is at issue.

In our OC-based view based, these examples are analogous 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.)

- (36) Sono seizika-wa keizi-kara [booryokudan-ga zibun-o sagasi-te-i-ru-koto-o] osiet-rare-ta.
that politician-TOP detective-from gangsters-NOM self-ACC search-AUX-PRS-C tell-PASS-PST
‘That politician_i was told by the detective_k that gangsters are searching for self_{i/k}.’¹⁵

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 (36) 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 pattern (see Clements 1975: 158 for Ewe). This confirms that the effect is systematic.

- (37) a. Okon a-ke-kop a-to Emem [ke imo i-ma-i-dia nsa-akak].
Okon 3.SG-PST-hear 3.SG-from Emem that LOG 3.SG-PST-3.SG-win lottery
‘Okon_i heard from Emem_k [IOp_{i,k} that [he_{i,k} won the lottery]].’ (= (3))
- b. Emem a-ma-a-bo etop a-to Okon ke imo 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.’
- (38) a. Keizi-wa sono seizika-kara [booryokudan-ga zibun-o odosi-te-i-ru-koto-o] kiita.
detective-TOP that politician-from gangsters-NOM self-ACC blackmail-AUX-PRS-C-ACC heard
‘The detective_i heard from the politician_k [zOp_{i,k} that gangsters are blackmailing self_{i,k}].’ = (4)
- b. 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 I_{zOp}, 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 precise way that thematic roles influence controller choice is different; for example, internal goal arguments are possible controllers of PRO but not of I_{zOp}. We return to this in section 4.2.

¹⁵ 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 (38) (cf. Kuno 1987: 131).

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 in the matrix clause. To see this in Ibibio, consider the triple in (39) featuring *toiyo* ‘remember’/‘remind’. In the dyadic use of this verb as ‘remember’, the experiencer argument can antecede *ímò* ((39a)). However, in the triadic use of the verb, translated as ‘remind’, the experiencer cannot antecede *ímò* when the subject is a true animate agent ((39b)). In this respect, ‘remind’ is just like ‘tell’ and ‘ask’ (see (34)). But if the verb is used triadically and the subject is an inanimate causer argument, then the experiencer can antecede *ímò* again, as in (39c).

- (39) 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/*ímò 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 *ímò* even if the subject is inanimate; we claim that this is because it is a pure goal in Ibibio, not a goal-experiencer. Similar forces are at work in Japanese. We cannot fully replicate (39) in Japanese, since verbs like ‘remind’ are derived explicitly from ‘remember’ by the *-sase* causative, which brings with it relevant additional syntactic structure. However, Nishigauchi (2014: 191-192) gives a contrast very similar to (39b) vs. (39c) involving ‘tell’ in Japanese. He compares (35a), where LD *zibun* can only refer to the human agent ‘detective’, with the minimally different (40), where the matrix subject is an inanimate NP ‘letter’. In (40), *zibun* can refer to the matrix goal, as long as the politician actually reads and understands the letter—i.e., as long as ‘the politician is an experiencer as well as goal.

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

These data show that there is a kind of “best fit” character to control of lzOp: an agent is the best controller, an experiencer is a possible controller if there is no agent, and a pure goal is not good enough. Sources and experiencers are on a par as second choice controllers. This is like classic thematic hierarchy effects known from other domains. Moreover, 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*).

Finally, consider the possibility of OC into the surface subject of a psychological predicate. Building on earlier work, Landau (2001, 2013: 39-40) argues that the control of PRO inside the extraposed subject of a psych verb (*It disturbed John [PRO to perjure himself]*) counts as OC, whereas the control of PRO inside the extraposed subject of a nonpsychological causative

verb (*It helped John [PRO to perjure himself]*) counts as NOC. This distinction is relevant to LD *zibun* in Japanese as well: Nishigauchi (2014: 188-189) gives the minimal contrast in (41), where *zibun* in the CP subject can take the experiencer object as its antecedent in (41a) but not the nonexperiencer object as its antecedent in (41b). (Note that Japanese does not extrapose clauses to the right periphery of the sentence.)

- (41) a. C kyoozyu-ga zibun-o in'yoo-sita koto-ga Takasi-o utyooten-ni si-ta.
 Prof C-NOM self-ACC quote-do.PST that-NOM Takasi-ACC crazy-DAT make-PST
 ‘That Prof C quoted him made Takashi crazy.’ (see also Sells 1987: 453)
- b. *C kyoozyu-ga zibun-o in'yoo-sita koto-ga Takasi-o yuumei-ni si-ta.
 Prof C-NOM self-ACC quote-do.PST that-NOM Takasi-ACC famous-DAT make-PST
 ‘That Prof C quoted him made Takashi famous.’

An analogous contrast can be seen in Ibibio: *ímò* in an extraposed CP can refer to the experiencer object in (42a), but not to the object of a simple causative verb in (42b).¹⁶

- (42) a. A-ma-a-kpa Okon idem ke ímò i-ma-i-dia nsa-akak.
 3.SG-PST-3.SG-die Okon body that LOG 3.SG-PST-3.LOG-win lottery
 ‘It surprised Okon_i [IOp_i that [he_i won the lottery]].’
- b. *A-ma-a-nam Okon a-do àwùóétòp ke imò i-ma-i-dia nsa-akak.
 3.SG-PST-3.SG-make Okon 3.SG-be famous that LOG 3.SG-PST-3.LOG-win lottery
 ‘It made Okon_i famous that he_i won the lottery.’

Along the lines suggested by Landau (2001), we subsume examples like (41a) and (42a) to the GOCS by assuming that the CP argument of a psych predicate is generated as the complement of the psych verb. It can then move to Spec TP over the experiencer internal argument (see Belletti and Rizzi (1988) and related work; note that on some assumptions this might count as movement to a theta-position, i.e. causer), as in Japanese, or stay in situ, as in Ibibio. Then these examples obey the GOCS under the assumption that CP subjects can reconstruct in Japanese. In contrast, the CP argument of a predicate like ‘make X famous’ is a true external argument, first-merged in Spec VoiceP. As such, a null IOp or zOp at its edge does not undergo OC given (29).¹⁷

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,

¹⁶ The grammatical analog of (42b) not only uses the plain pronoun *anye* rather than the logophor *ímò*, but also has the C *sia* ‘because’ rather than *ke* ‘that’. This might imply that true CP subjects cannot extrapose in Ibibio, the way they can in English, with the consequence that only NPs can be generated in Spec VoiceP in Ibibio.

¹⁷ Moreover, if IOp does not undergo OC in Ibibio, then it is ruled out (see section 5), so (42b) is ungrammatical. As for (41b) in Japanese, NOC might be possible in principle, but the uncontrolled zOp in the periphery of the sentential subject cannot take *Takashi* as its antecedent because *Takashi* is not a topic or empathy locus here.

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 (43), 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 is the controller of lzOp. The question, then, is why is there this systematic difference?

- (43) a. Okon a-ma-a-temme Emem edi-kpóno ímò.
 Okon 3.SG-PST-3.SG-instruct Emem INF-respect LOG
 ‘Okon_i instructed Emem_k [lOp_{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 theta-roles 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 even for PRO subject control in the presence of an object is not as rare and idiosyncratic to the verb *promise* as is often thought. Subject control is in fact 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 importance. 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. In this light, 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 (44b,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 (44c).

- (44) 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:

- (45) 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 (43): PRO and I_{zOp} 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 (44b,c) and (45b,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 (44b,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 (45b,c) have subject control. P&K thus envision the Principle of Role Identity in (46).

- (46) 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 (44a) and (45a). Here PRO has an agent role, and it is indeed controlled by the agent of the matrix verb in (44a)—but not in (45a).¹⁸ On this point, we take inspiration from J&C, who use the notion OBLIGATED to account for (44a) versus (45a) 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 (47a) are felicitous parallel to those in (48a), whereas the sentences in (47b) are anomalous parallel to those in (48b).

- (47) a. Be quiet! Be examined by a doctor!
 b. #Be tall! #Believe that the sky is green!

¹⁸ 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.

- (48) 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 green.

Capturing this parallel in syntactic terms, we assume that the infinitival complements of verbs like *promise* and *order* contain a null imperative morpheme (a Jussive head (Zanuttini 2008, Zanuttini et al. 2012)).¹⁹ This head, like the matrix version in (47), 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 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 a fully established result). Then the unshifted control patterns in (44a) and (45a) also follow from (46), 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.²⁰

Given this sketch of how controller choice might work for PRO, we can apply it to logophoric and LD-anaphoric constructions. The crucial new assumption is (49).

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

Given (49), IOp matches the agent argument of *instruct* in (43a) better than it matches the goal/theme argument of *instruct*, so the agent is selected as the controller of IOp. 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 result we want, we imagine that (49) 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.

- (50) Ama (gblo) be yè-Do+Nku nyOnuGi....
 Ama say that(=say) LOG-remember girl
 ‘Ama_i said that she_i remembered the girl who....’

¹⁹ Alternatively, we might say that the complement of ‘order’ has an imperative head, whereas the complement of ‘promise’ has a distinct volitional/promissive head—a different element of the category Jussive. That would track better what can be seen overtly in Korean and Japanese (Zanuttini et al. 2012; Landau 2013: 98).

²⁰ Given that a single NP can be associated with multiple thematic roles, the question arises as to why the less familiar roles like OBLIGATED or VOLITION determine how control happens in (45a) rather than the ordinary role of agent. We unfortunately have nothing insightful to say about this at this point.

If C is a grammaticalized version of ‘say’, it stands to reason that the thematic role that C assigns to IOp 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 IZOp 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 (43).

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 ((46)), 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 toward having an agent/subject 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 (51): 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.

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

So (51) 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, (46) will induce to subject/agent control, not object control. This is correct, as seen in (52); (53) is a similar example in French, where this class of verbs is said to be more common.

(52) 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].

(53) 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 IZOp—where it bears only an agent-like thematic role, without any modal overlays.²¹

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

²¹ 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 t a bribe]*. This is false. We do not know why control shift happens in similar circumstances with *promise* but not with *claim*.

Next we consider a salient property of both logophoric and LD-anaphoric constructions 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 of the immediately superordinate clause, but of an even higher clause. This is shown in (54) for Ibibio (see Clements 1975: 154 for Ewe) and in (55) for Japanese (Nishigauchi 2014: 171).

- (54) Okon á-kére ké Edem á-ké-n-dòkkò ké Mfon é-kpóno ímò.
 Okon 3.SG-think that Edem 3.SG-PST-1.SG-tell that Mfon 3.SG.3.LOG-respect LOG
 ‘Okon_i thinks that Edem_k told me that Mfon respects him_{i,k}.’
- (55) 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 that these data are compatible with an OC analysis, and in the case of Japanese, that 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 (54) that fits the theory of control is (56).

- (56) 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 discussed this briefly in connection with (27) above.

For Japanese, however, 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 far 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, (57) is a possible representation for (55) in Japanese. We call this *chained control*.

- (57) 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 (49), and those theta roles match in accordance with (46). 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 (58), with the added phrase highlighted.²²

(58) *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.

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. (58) 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 (57) 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 (57) 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 (59). This starts with a structure like (57) and embeds it once more, as the CP complement of ‘think’.

(59) 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 (60a). In

²² Compare Landau (2001: 118), who presents a version of the OC signature which is explicitly stated in terms of VP shells, not just simple predicate heads.

contrast, our view predicts that *zibun*₁ can only refer to Mary here. Recall that *zibun*₂=Mary, by hypothesis. This implies that zOp₃ is bound by ‘Mary’. Now our OC-based theory crucially says that zOp₃ can only be bound by ‘Mary’ if ‘Mary’ controls zOp₂ and then zOp₂ controls zOp₃— i.e., by chained control. This is represented in (60b). Then if zOp₂ is controlled by ‘Mary’ and *zibun*₁ has to be locally bound by zOp₂, we predict that *zibun*₁ must refer to Mary as well.

- (60) a. John_i thinks that [zOp_{1(i)} Mary_k said that [zOp_{2i} *zibun*_{1i}’s mother hopes that [zOp_{3k} *zibun*_{2k} will win]]]. (OK if zOp’s antecedent unconstrained)
 b. John_i thinks that [zOp_{1i} Mary_k said that [zOp_{2k,*i} *zibun*_{1k,*i}’s mother hopes that [zOp_{3k} *zibun*_{2k} will win]]]. (required if zOp must be locally controlled)

In fact, our prediction is the correct one. An actual example is given in (61). It is possible to have a reading where *zibun*₁=*zibun*₂=John ((61a)) and *zibun*₁=*zibun*₂=Mary ((61b)). Crucially, though, the reading where *zibun*₂=Mary and *zibun*₁=John ((61c)) is ruled out, as predicted (contrast (26)).

- (61) John-wa Mary-ga zibun₁-no hahaoya-ga zibun₂-ga katu-koto-o
 John-TOP Mary-NOM self-GEN mother-NOM self-NOM win-C-ACC
 negatte-i-ru-to it-ta-to omotte-i-ru.
 hope-AUX-PRS-C say-PST-C think-AUX-PRS
 ‘John thinks Mary said self₁’s mother hopes that self₂ will win.’
 a. John_i thinks Mary_k said self_{1i}’s mother hopes that self_{2i} will win.
 b. John_i thinks Mary_k said self_{1k}’s mother hopes that self_{2k} will win.
 c. *John_i thinks Mary_k said self_{1i}’s mother hopes that self_{2k} will win.
 d. *John_i thinks Mary_k said self_{1k}’s mother hopes that self_{2i} will win.

Note that the reading in (61d) 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 zOp₁, which controls zOp₂, which controls zOp₃, which locally binds *zibun*₂. But then the local binder of *zibun*₁ is zOp₂, 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 any instances of *zibun* 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.²³

4.4 A note on syntax versus semantics in logophoric constructions

A distinctive feature of our account of logophoric phenomena is its use of obligatory control in connecting an antecedent to a logophoric pronoun by way of a logophoric operator. This may seem misguided to those whose intuitions about these matters have been formed by semantic/pragmatic approaches to so-called logophoric uses of PRO and exempt anaphors. For example, it is often thought that logophoric pronouns are only possible in the complements of

²³ Chained control of one IOp by another IOp 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 (56).

attitude verbs (e.g. see Pearson 2013: 443-445; note that her example (18a) seems to be a bit garbled). In contrast, OC of PRO can take place in the complements of nonattitude verbs such as *manage* and *force*, as emphasized by Landau (2015). Similarly, it is often said that a logophoric element can only refer to an animate/human antecedent. Indeed, current literature uses this as a crucial test to distinguish logophoric phenomena from both ordinary local anaphora (Charnavel 2020, 2021) and true OC (Landau 2021), which do not have humanness requirements.²⁴

In fact, there is some evidence that logophors and LD-anaphors can be licensed in the clausal complements even of nonattitude verbs. Although most examples with logophors do involve attitude verbs, there are attested cases around the edges of the phenomenon that do not fully fit this profile. For example, logophoric pronouns are sometimes accepted in the complements of verbs like ‘make’, ‘let’ and ‘stop’ in *Ibibio*. (62) gives two examples.

- (62) a. Okon a-ma a-nam Koko é-kpóno ímò.
 Okon 3.SG-PST 3.SG-make Koko 3.SG.3.LOG-respect LOG
 ‘Okon_i made Koko respect him_i.’
- b. ?Okon a-ma a-tre Emem u-tań-ikọ ye eka imọ.
 Okon 3.SG-PST-3.SG-stop Emem NMLZ-talk-word with mother LOG
 ‘Okon stopped Emem from talking with his_i mother.’

Similarly, ‘stop’ allows LD-anaphoric *zibun* to refer to the matrix subject in (63a) in Japanese.

- (63) a. Taroo-wa Hanako-ga zibun-o suisen-suru-no-o tome-ta.
 Taroo-TOP Hanako-NOM self-ACC nominate-do-C-ACC stop-PST
 ‘Taroo_i stopped Hanako from nominating self_i.’
- b. Taroo-wa guuzen-ni-mo Hanako-ga sono supai-o suisen-suru-no-o tome-ta.
 Taroo-TOP accidentally Hanako-NOM that spy-ACC nominate-do-C-ACC stop-PST
 ‘Taroo accidentally stopped Hanako from nominating that spy.’

‘Stop’ is not an attitude verb in Japanese, in that substituting one DP inside its complement for another coreferential DP preserves the truth value of the sentence. For example, if Takashi happens to be a spy that Hanako is about to unwittingly nominate to a place of responsibility, and Taro doesn’t know this but he stops her nomination for a different reason, (63b) is still felicitous as long as the speaker and the addressee know that Takashi is a spy. ‘Stop’ is different from attitude verbs like ‘say’ or ‘think’ in this respect. Similarly, one cannot sincerely say ‘John stopped Mary from riding a unicorn’ in Japanese unless one believes in unicorns, whereas one can say ‘John thinks that Mary rode a unicorn.’ We do not have this kind of language-internal evidence that ‘make’ and ‘stop’ are not attitude verbs in *Ibibio*, but it is generally assumed that verbs with the same meanings in different languages largely behave the same in this respect. These examples then challenge the belief that logophoric pronouns are only possible in the complements of attitude verbs.

Turning to the issue of animacy, Clements (1975: 168-169) mentions that in Ewe an inanimate subject can be the antecedent of a logophoric pronoun at least in a semi-idiomatic

²⁴ But see Marty (2020) for acceptable examples of LD anaphors with inanimate antecedents in French, and Landau (2021: sec. 11.4) acknowledges that topicalized inanimate DPs can be NOC controllers in English.

construction where the form ‘X wants that Log V’ is used to mean ‘X is about to V’. Ibibio has a construction like this too, as in (64a). (64b,c) give other reasonably acceptable cases of a logophoric pronoun with an inanimate subject.

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

Examples like (64b,c) are sometimes deemed a bit unnatural, but this seems simply to be because such verbs do not often have an inanimate subject in Ibibio, not because of the logophoric pronoun per se. The same sense of markedness persists even if the logophoric pronoun is replaced by the plain pronoun *anye*, which is not in any sense a logophoric item. (Japanese *zibun* does always need to have a person-denoting NP as its antecedent. But we can simply say that it happens to have a [+person] feature in the lexicon, unlike Ibibio’s *ímò*, especially given that it has to have a person-denoting antecedent even when it is used as a local anaphor.)

We see, then, that logophoricity can be licensed with inanimate antecedents and with nonattitude verbs, as long as the syntax of clausal embedding is present. Just as OC of PRO in English extends a bit beyond animate controllers and attitude verbs, so does Ibibio’s logophoric construction. The fuller picture of this class of facts thus supports an OC analysis with a serious syntactic component to it, rather than telling against one.

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 *ímò* and *zibun* 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 happens when they appear in a CP that is not generated inside VP, where OC does not apply. Then we might expect logophoric pronouns and LD anaphors to 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 is 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 those that *zibun* in a complement clause can have, as mentioned by Kuno (1987: 257-258) and developed by Oshima (2004). These overarching generalizations are stated in (65).

- (65) a. If IOp 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 (=“NOC”).

We discuss three environments where these systematic differences can be observed: relative clauses, higher adjunct clauses, and matrix clauses. We then offer a conjecture about why this difference exists that makes clear typological predictions.

5.1 Relative clauses

Consider first relative clauses. These are generated inside NP/DP, not inside VP. As such, they are not a context of obligatory control according to the GOCS. Indeed, to the extent that infinitival relative clauses are possible in English, their PRO subjects do not need to be locally controlled, as seen in (66).

- (66) Mary_i thinks that over there on the table there is [a good book [PRO_{i,arb} to read to herself_i/oneself at bed time]].

Given this, the generalization in (65a) says that IOp should not be possible in the CP-periphery of a relative clause in Ibibio. The result of this is that logophoric pronouns should be very limited inside relative clauses in this language. And in general, that is true, as shown by the badness of the examples in (67) with *ímò* referring to the subject of the matrix clause.

- (67) a. Okon a-ma-a-duok ngwet odo se anye/*imò 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-dò awonwaan a-(i)-maa-gha anye/*imò.
 Okon 3.SG-PST-marry woman 3.SG-(3.LOG)-PST-like-REL him/*LOG
 ‘Okon_i married a woman who likes him_i.’

It would not, however, be accurate to say that *ímò* is impossible inside a relative clause. It is possible as long as the whole structure is embedded in a larger complement clause, as in (68) (see also Clements 1975: 156; Culy 1994: 1074). Here there is an IOp in the CP complement of ‘think’ which can be the (LD) antecedent of the pronoun *ímò* inside the relative clause.

- (68) Okon a-kere ke ami m-ma n-duok ngwet se imò i-ki-n-ño miin.
 Okon 3.SG-think that I 1.SG-PST-1.SG-lose book REL LOG 3.LOG-PST-1.SG-give me
 ‘Okon_i thinks [IOp_i that I lost [the book [(**IOp*) that he_i gave me]].’

So it is more precise to say that a relative clause cannot have IOp in its periphery (=65a), than to say that it cannot have a logophoric pronoun inside it. Another instructive comparison is between the relative clause in (67a) and the interrogative complement in (69).

- (69) Okon a-ma a-toiyo se Enò a-ki-nò **ímò**.
 Okon 3.SG-PST-3.SG-remember what Enò 3.SG-PST-3.LOG-give LOG
 ‘Okon_i remembered what Enò gave him_i.’

The goodness of (69) implies that a IOp is licit in the periphery of a +wh complement clause, which features the same C-space element *se* as the relative clause does in (67a). This implies that (667) is not ruled out because there is no room for an IOp in the CP-periphery of a clause that has a wh-movement dependency. Rather, the position of the clause as a whole is the crucial factor: whether it is the complement of the verb, as in (69), or not, as in (67). This supports our claim that the configurational constraint on OC formulated in the GOCS is the central factor.²⁵

In contrast to *ímò* in Ibibio, LD *zibun* in Japanese is readily available inside relative clauses, taking an antecedent inside the immediately superordinate clause, as seen again in (70).

- (70) Takasi-wa [[zibun-o sonkee-suru] onna-to] kekkon-si-ta. (=6a)
 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)

There is nevertheless an important difference between *zibun* in relative clauses and *zibun* in complement clauses in that the conditions on the antecedent of zOp are different. The matrix subject can generally serve as the antecedent for *zibun* in both cases, but a matrix source cannot antecede *zibun* inside a relative clause unless it is also an empathy locus ((71a)), and a matrix goal can antecede it if it is an empathy locus (aided in (71b) by the use of *kure*).²⁶

- (71) a. #Yuuzin-wa Hanako-kara [[Taroo-ga zibun-ni tutae-ta] nyuusu-o] kii-ta.
 friend-TOP Hanako-from Taroo-NOM self-DAT tell-PST news-ACC hear-PST
 ‘The friend heard from Hanako_i [the news [that zOp_{*i} 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 Ziroo-NOM self-DAT leave-PST words-ACC tell-BEN-PST
 ‘That person_i told Hanako_k [the words [Ziroo left for self_{i,k}]] (benefiting Hanako).’

These examples contrast with (3) and (4) where *zibun* is in a complement clause: in that context, a source phrase can antecede *zibun* without being a special locus of empathy, and a goal phrase

²⁵ There is one additional (more surprising) qualification to make: logophoric pronouns are sometimes possible inside a relative clause which modifies the object of an intentional verb, such as (i).

- (i) Okon a-sak a-yem awonwaan se i-di-dọ ímò.
 Okon 3.SG-AUX 3.SG-look.for/want woman REL 3.SG-FUT-marry LOG
 ‘Okon_i is looking for a woman who will marry him_i.’

See Sells (1986: 447) and Culy (1994: 1074) for similar examples. A generalization is that this is only possible in Ibibio if the matrix verb is one that can select a CP complement as well as an NP direct object. Guided by this, we tentatively assume that a kind of 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. If this is on the right track, such examples should not distract us from the general fact that logophoric pronouns are not licensed inside relative clauses in African languages.

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 (2004) 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*.

cannot antecede *zibun* even if it is prominent/a locus of empathy. In other words, the thematic role is paramount for the antecedent of *zibun* in CP complements, whereas discourse prominence (topicality, empathy) is paramount for the antecedent of *zibun* in relative clauses. This is in accordance with (65b). The distinction between OC environments and NOC environments is significant in Japanese too, but in a more subtle way than in Ibibio: zOp is possible in NOC environments, but how it is controlled is detectably different.

5.2 Adjunct clauses

Another context that illustrates these differences is adverbial clauses adjoined to the TP or VoiceP rather than to VP. Landau (2021) argues at length that adjunct clauses adjoined at these higher levels are consistently contexts that allow NOC when it comes to PRO in English. Assuming that high CP adjuncts only allow NOC,²⁷ the generalization in (65a) implies that IOp will not be possible in periphery of an adjunct clause in Ibibio, severely constraining the use of logophoric pronouns inside such clauses. Indeed, *ímò* is not generally used inside temporal, causal, and conditional adjuncts in Ibibio, as shown in (72).

- (72) a. *Okon á-ma-á-dat íbòk ké ìnì dòktó 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-ke-ka Lagos sia anye/*ímò a/i-ki-yem adi-kit Enò.
Okon 3.SG-PST-go Lagos because he/*LOG 3.SG/LOG-PST-want INF-see Eno
(‘Okon_i went to Lagos because he_i wanted to see Eno.’)
- c. Akpedo Emem i- koot-to anye/*ímò usọrọ odo, Okon i-di-kan-na adi-di.
if Emem 3.SG -call-NEG him/*LOG party the, Okon 3.SG-FUT-can-NEG INF-come
(‘If Emem doesn’t invite him to the party, Okon will not be able to come.’)

Again, it is more accurate to say that IOp is not licit at the edge of these adjunct clauses than to say that *ímò* is ruled out in an adjunct clause across the board. (73) shows that *ímò* is possible inside an adjunct clause if the structure is further embedded in a CP complement; *ímò* here can refer to Okon, although it cannot refer to Emem. Again, this is what we expect if IOp is possible in the complement of ‘say’ controlled by *Okon*, but not in the ‘because’ adjunct controlled by *Emem*.

- (73) Okon a-ma-a-bo [ke Emem a-me-yat esit [sia ímò i-ma i-tuak Enò]].
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 [IOp_i that Emem_k is upset [(/*IOp_k) because he_i,*_k hit Eno]].’)

²⁷ This is not Landau’s (2021) view; rather, he argues that adjuncts to VoiceP and TP allow both OC and NOC in English. His major reason for saying that OC is possible is that an inanimate subject can control PRO in the adjunct clause, and Landau assumes that this is a reliable test for OC. However, it is by no means impossible for a topical inanimate DP to be an NOC controller, as Landau (2021: sec. 11.4) himself discusses. We hypothesize that this is more common and less marked than Landau assumes, and that the bulk of his examples of local subject control into an adjunct clause by an inanimate NP are actually instances of this. There are some more subtle issues to reanalyze on this view (e.g. stronger vs weaker island effects and sloppy vs strict readings under ellipsis)—issues that go beyond our discussion here. We claim, though, that the best overall fit between Landau’s English data and our Ibibio and Japanese data comes from assuming that high adjuncts allow NOC but not OC.

Furthermore, a ‘when’ clause can license a logophoric pronoun when it functions as the complement of ‘ask’, as in (74), although not when it functions as an adjunct, as in (72a). Again, this indicates that (72a) is not bad because there is no room for IOp in the periphery of its embedded clause, but because a IOp in this position cannot undergo OC according to the GOCS.

- (74) Eno a-ma-a-bip ndito-ideen ini ommọ e-dighi-nwam ímò.
 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 wide range of adjunct clauses in Japanese, including ‘because’ clauses, ‘when’-clauses, and ‘if’ clauses. (75) gives two examples.²⁸

- (75) 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 (76) the way it can be in (4).

- (76) #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} Taro_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*; the subject also needs to be topicalized. Thus the antecedent of *zibun* inside an adjunct clause is determined not by thematic role but by empathy and topicality.²⁹

There is, however, at least one kind of adjunct clause that does allow the control of an IOp at its periphery in Ibibio, namely a purposive clause, as in (77) (see also Clements 1975: 155, Culy 1994: 1071). Purposive clauses also allow LD *zibun* in Japanese, as shown in (78).

- (77) Okon a-ma a-dibe mbaak Emem a-di-kit ímò,
 Okon 3.SG-PST-3.SG-hide so.that Emem 3.SG-PROHIB-see LOG

²⁸ There are, however, some semantic/pragmatic restrictions, such that LD *zibun* is not always possible in ‘when’ clauses in Japanese; see Nishigauchi (2014) for discussion. We abstract away from these additional factors.

²⁹ 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 possible sources of support for (65b) 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.)

‘Okon_i hid so that Emem would not find him_i.’

- (78) 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.’

That some CP adjuncts might license logophoricity in Ibibio should not be unexpected. After all, Landau (2021) argues that some classes of CP adjuncts in English allow only OC, not NOC. Furthermore, he shows that OC-only adjuncts are always generated inside VP, in a lower position than most adjuncts that allow NOC. Such adjuncts thus fall within the domain of the GOCS, which refers to CPs generated inside VP, not just CPs that are complements of V. Indeed, some of the OC-only adjuncts that Landau discusses are subtypes of purpose clause (“goal clauses”, “subject purposive clauses”). Other subtypes of purposive clauses (“rationale clauses”) can be generated in higher positions and can undergo NOC according to Landau. But this possibility does not undermine our account as long as it is also possible for the relevant clauses to be adjoined lower, where they do undergo OC. A full study of the exact structural position of different kinds of adjunct clauses in Ibibio must be left to future work, but an encouraging fact is that purposive clauses are weaker islands for extraction than temporal and causal adjuncts are.³⁰

- (79) a. Anie ke Okon a-di-ka Lagos mbaak anye a-di-kit?
 Who FOC Okon 3.SG-FUT-go Lagos so.that he 3.SG-FUT-see
 ‘Who will Okon go to Lagos [so that he will see t]?’
- b. ??Anie ke Okon a-di-ka Lagos sia anye a-ke-yem adi-kit?
 Who FOC Okon 3.SG-FUT-go Lagos because he 3.SG-PST-want INF-see
 ‘Who will Okon go to Lagos [because he wanted to see t]?’

This suggests that there is indeed a structural difference in where purposive adjuncts are generated as opposed to other kinds of adjunct clauses, which control theory is sensitive to.

5.3 Matrix clauses

A third non-OC environment where these forces are at work is matrix clauses contained in a connected discourse. Ibibio’s *ímò* is generally impossible in this situation. Thus *ímò* is bad in (80), even in a so-called “free indirect discourse” context.³¹

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

³⁰ One might well think that purposive clauses are special in licensing logophoric pronouns not because of their special syntactic position but because of their attitude-like semantics, the purpose clause saying something about what is in the mind of the agent of the matrix clause in doing the action (see Pearson 2013: 444 n.121). This kind of semantics may facilitate the use of logophors in an adjunct clause, but it is not a sufficient condition for it. Thus the example in (72b) involves a kind of mental causation crucially involving the mind of the matrix subject (cf. Charnavel 2019b), but nevertheless a logophoric pronoun is not allowed in this case.

³¹ There is a robust exception. 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 said 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_i 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).

- (81) 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
 'Tokiko_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 *ímò* in Ibibio is not possible in this context:

- (82) a. Ke akikere Okon, Emem/*ímò i-ma i-due . (Ibibio)
 in thought Okon, Emem/LOG 3.LOG-PST-3.LOG-guilty
 'In Okon_i's opinion, Emem/*he_i was guilty.'
- b. Taroo-ni.yoruto zibun-wa waruku-nai-?(n(o)-da-)soo-da. (Japanese)
 Taroo-according.to self-TOP bad-NEG-no-COP-EVID-COP
 'According to Taroo_i, self_i is not bad.'

Finally, *zibun* is sometimes possible in an unembedded clause with generic reference (Oshima 2004: 5 n.3), whereas *ímò* in Ibibio cannot be used in this way. We conclude from this that zOp is licit in unembedded clauses in Japanese; it is then assigned a prominent antecedent from the discourse context in ways similar to how NOC PRO can be. In contrast, lOp is not in general possible in unembedded clauses in Ibibio, this clearly not being a context of OC.

5.4 Discussion

We see, then, that there is a systematic difference between Ibibio logophoric pronouns and Japanese LD anaphors when they are used outside of canonical environments of obligatory control. The difference was stated in (65), repeated here as (83).³²

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

³² 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 fall 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). Charnavel (2019, 2020) neglects this factor, and Nishigauchi (2014) downplays it (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 we stipulate in (83b).

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

The question then arises as to why this 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 (83b). In contrast, null A-bar operators in complex adjectival constructions in English need to be assigned a very local antecedent by control/predication. For example, in (84) the A-bar operator must be equated with the NP in the immediately superordinate clause, *the soup*, whereas PRO can be LD-controlled by the more remote *Chris*. This may be (more remotely) akin to (83a).

- (84) Chris_i thinks that [the soup_k is ready [Op_{k,*i} [PRO_{i,arb} to eat t_k]]].

Given Charnavel's (2019, 2020) idea 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 (and also CP subjects, where available). 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.³³ In contrast, other languages with logophoric pronouns are 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 31) 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.

(83b) makes some interesting additional predictions about *zibun* in Japanese. In (61) 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. (83b) 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 (61). Example (85) is relevant to checking this: here whether zOp₂ is controlled by zOp₁ or 'friend' is independent of whether zOp₃ is anteceded by Hanako or 'friend' (cf. (86)).

- (85) Hanako-wa tomodati-ga zibun₁-no hahaoya-ga zibun₂-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 self₁'s mother found the money self₂ lost.'
 OK: self₁=Hanako or friend; independently OK: self₂=Hanako or friend
- (86) Hanako_i said that [zOp_{1i} (her) friend_k thinks that [zOp_{2i or k} self_{i or k}'s mother found the money that [zOp_{3k or i} self₂ lost]]].

³³ However, Icelandic may be a challenge for this view, based on the discussion in Sells (1987: 450-453).

Indeed, we find that the two *zibun*s can take different antecedents in (84) more readily than in (61), although parsing these examples is a bit of a challenge.

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 (87) suggests that this is possible.

- (87) 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.’

- (88) Hanako heard from Taro_i that [zOp_{1i} Ziroo found the person who [zOp_{2i} 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 (71a). However, here the source phrase *Taro* can control zOp₁ in the CP complement of ‘hear’; this zOp₁ can then serve as the proximal antecedent for zOp₂ inside the relative clause, as shown in (88). As a result, *zibun* can refer to Taro by this sequence of zOps. Conversely, (89) 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.

- (89) 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.’

- (90) Hanako sent Taroo_i the shirt that [zOp_{1i} Ziroo said that [zOp_{2i} *t* will suit zibun_i].]

In a simpler sentence, zOp in a complement clause cannot refer to a goal argument (see (3)). But in (89) 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 VP, 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 applies not only to 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, AGR = agreement, 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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