Toward a Shared Syntax for Shifted Indexicals and Logophoric Pronouns

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Abstract: I argue that indexical shift is more like logophoricity and complementizer agreement than most previous semantic accounts would have it. In particular, there is evidence of a syntactic requirement at work, such that the antecedent of a shifted "I" must be a superordinate subject, just as the antecedent of a logophoric pronoun or the goal of complementizer agreement must be. I take this to be evidence that the antecedent enters into a syntactic control relationship with a null operator in all three constructions. Comparative data comes from Magahi and Sakha (for indexical shift), Yoruba (for logophoric pronouns), and Lubukusu (for complementizer agreement).

1. Introduction

Having had an office next to Lisa Travis's for 12 formative years, I learned many things from her that still influence my thinking. One is her example of taking semantic notions, such as aspect and event roles, and finding ways to implement them in syntactic structure, so as to advance the study of less familiar languages and topics.[1] In that spirit, I offer here some thoughts about how logophoricity and indexical shift, topics often discussed from a more or less semantic point of view, might have syntactic underpinnings—and indeed, the same syntactic underpinnings.

On an impressionistic level, it would not seem too surprising for logophoricity and indexical shift to have a common syntactic infrastructure. Canonical logophoricity as it is found in various West African languages involves using a special pronoun inside the finite CP complement of a verb to refer to the subject of that verb. (1) is an example from Yoruba: the logophoric pronoun *òun* can only refer to the announcer *Olú*, whereas an ordinary pronoun *ó* used in this position is free to refer to any salient person in the discourse or context.

(1) Olú$_k$ ti kéde pé òun$_{k,*i}$/ó$_{k,i}$ máa wá ní òla. Yoruba
Olu ASP announce that LOG/he will come at tomorrow
'Olu announced that he will come tomorrow.' (Adesola 2005: 163)

In comparison, (2) shows canonical cases of indexical shift in the Turkic language Sakha (Vinokurova 2011; compare Shklovsky and Sudo 2014 on related Uyghur) and Magahi, an Indo-Aryan language of Northeastern India. In these languages a first person pronoun inside a complement clause can be used to refer to the subject of the matrix verb.

(2) a. Misha min baaj-byn dien san(aa)-yyr. Sakha
Misha I rich-1sS that think-AOR
'Misha thinks that he (Misha) is rich.'

[1] One of things that I learned was not, alas, to clean my desk on a frequent basis.

b. Jaun socha h-ai ki ham tej h-i. Magahi
John think be.3S that I smart be-1S
'John thinks that he (John) is smart.' (Deepak Alok, personal communication)

The two are similar in that both are special ways languages have for referring to the subject of a verb of speaking or thinking, as opposed to another person or object one might want to refer to. As a result, there have been proposals that first person pronouns are simply homophonous with logophoric pronouns in some languages, reducing (2) to (1) (Higginbotham 2003, Safir 2005).

In contrast to this, an influential view in the literature treats indexical shift quite differently from logophoricity, explicitly contrasting the two. This view is put forward clearly by Anand (2006); see also Deal (2017) for a recent version, For logophoricity, this Anandian tradition adopts a view with origins in Koopman and Sportiche's (1989) study of Abe, which claims that finite clauses in the relevant African languages have a special nominal operator in the periphery of the clause (roughly Spec CP). This nominal operator is controlled by an argument of the matrix verb, and it in turn syntactically (and semantically) binds logophoric pronouns in the complement clause. This is presented schematically in (3).

(3) Olu_i announced $[OP^{log}_i$ that $[LOG_i$ will come]]
|_____ | |_____|
"control" binding

In contrast, the Anandian approach to indexical shift is different: this is accomplished by a non-nominal operator in the vicinity of C (a functional head, for Deal) that does not enter into any syntactic relationship with a matrix argument or with an embedded pronoun. The operator simply changes the context in which an embedded indexical pronoun is interpreted, so that it comes out referring to the author of the speech event denoted by the matrix verb, rather than to the author of the sentence as a whole. This can be represented schematically as in (4).

(4) Misha thinks $[OP_{AUTH}$ [that [I am rich]]]]

The hypothesis that I explore here is that the analysis of indexical shift should be brought more into line with that of logophoricity, and that there is value to using the same infrastructure of control and binding for indexical shift. The analysis of indexical shift that I am aiming for is sketched in (5), where the only difference between logophors and shifted indexicals might be a simple difference in phi-features: the operator in (5) has first person features, which it transfers to a pronoun that it binds, whereas the operator in (3) does not, but rather a special feature +log.

(5) $Misha_i$ thinks $[OP^{Sp}_i$ that $[I_i$ will come]]
|_____| |_____ |
"control" binding

The crux of my argument is that using (4) rather than (5) would miss an important generalization: it is not enough that the antecedent of a shifted first person pronoun be the author of the content of the embedded CP in some general semantic sense; it must also be the syntactic subject of the higher clause. This is stated in (6).

(6) NP can be the antecedent of a shifted first person indexical or a logophoric pronoun only if it is a syntactic subject in the clause immediately above one containing the pronoun.

I endeavor to show that (6) is true (with one notable exception that will come to light) and bears witness to the existence of a syntactic control relationship in (5) as in (3). The inspiration for the tests that I use to support this is Diercks's (2013) study of a distinct but plausibly related construction: upward complementizer agreement in Lubukusu, shown in (7). Here the complementizer *li* in the CP complement agrees in number and gender with the matrix subject.

(7) Alfredi ka-bol-el-a ba-ba-ndu a-li ba-kha-khil-e. (Lubukusu)
1.Alfred 1S-say-APPL-FV 2-2-people 1-that 2S-FUT-win-FV
'Alfred told the people that they would win.'

Recasting Diercks's analysis slightly, we can assume that there is a null DP near C in Lubukusu, which is controlled by a matrix argument and which C then agrees with locally.[2] Diercks then presents a battery of tests to show that the "controller" of this DP near C in Lubukusu is an immediately superordinate subject, not some kind of semantically defined "logophoric center." Since this is an agreement phenomenon, with minimal semantic content, many will be pleased that the conditioning factors are largely syntactic. But then we can apply analogous tests to logophoric constructions in Yoruba, and to indexical shift constructions in Magahi and Sakha, to get evidence that these have a similar syntactic component: what the C agrees with in Lubukusu is closely analogous to what antecedes a logophoric pronoun in Yoruba or a shifted first person indexical in Sakha or Magahi. Then the door will be open to a more unified analysis of indexical shift and logophoricity (and upward C-agreement) than theorists like Anand and Deal imagine.

2. 'Hear' versus 'Tell'

The first of Diercks's tests involves comparing a prototypical logophoricity/indexical shift inducing predicate like 'tell' with its lexical semantic inverse 'hear'. (8a) and (8b) can report the same event, but they are packaged differently as to which event participant is the syntactic subject and which is the oblique object.

(8) a. Mary said to John that she will come tomorrow.
b. John heard from Mary that she will come tomorrow.

If a straightforward semantic notion like the "source" or "author" of the information is central to C-agreement, logophoricity, and indexical shift, then 'Mary' should be the antecedent nominal in both versions. In contrast, if syntactic subjecthood is crucial, then the antecedent nominal should be 'Mary' in (8a) but 'John' in (8b). In fact, Diercks shows that it is the syntactic subject that determines complementizer agreement in Lubukuku examples analogous to (8b), not the source/author. This is shown in (9), which can be compared with (7).

(9) Khw-a-ulila khukhwama khu Sammy khu-li ba-limi ba-a-funa ka-ma-indi.
1pS-T-hear from LOC Sammy 1p-that 2-farmers 2S-T-harvest maize
'We heard from Sammy that the farmers harvested maize.' (**a-li*, agree with 'Sammy')

[2] Diercks assumes that the null DP in CP is a subject oriented anaphor, related to its antecedent by binding theory rather than control theory. The difference is not particularly crucial here.

If logophoric pronouns in Yoruba involve a similar "control" relation between matrix subject and something in the C domain, then we expect a similar effect, and that is what we find. (10) shows that in a sentence with matrix verb 'hear', the syntactic subject is a natural antecedent for a logophoric pronoun in the embedded clause, whereas the semantic source of the information is not.[3] This is not surprising for the Anandian tradition, which accepts (3).

(10) Olú gbọ́ láti ẹnu Adé pé ó rí bàbá òun. (Yoruba)
Ólu hear from mouth Ade that 3s see father LOG
'Olu heard from Ade that he saw his (=Olu's, ??Ade's) father'

Now the crucial question is whether indexical shift is different from logophoricity and C-agreement in this respect. My evidence shows that it is not. (11a) shows that the subject of 'hear' can be the understood antecedent of a shifted 'I' in Magahi. (11b) shows that the source phrase associated with 'hear' cannot be.[4]

(11) a. Santeeaa sun-kai ki ham parichhaa paas ho ge-l-i. (Magahi)
Santee heard-3S that I exam pass be go-PST-1S
'Santee heard that I (Santee, or speaker) passed the exam'.

b. Santeeaa Banteeaa- se sun-kai ki ham parichha paas ho ge-l-i
Santee Bunty-from heard-3S that I exam pass be go-PST-1S
'Santee heard from Bantee that I (=Santee. Not =Bantee) passed the exam.'

Similarly, (12a) shows that the subject of 'hear' is a possible antecedent for shifted 'I' in Sakha; (12b) shows that the oblique source of 'hear' is not.

(12) a. Misha min lotereja-qa süüj-düm dien ihit-te,(ol gynan baran onnyk buolbatax ebit).
Misha I lottery-DAT win-1sS that hear-3sS (but it is not true).
'Misha heard that I (=Misha) won the lottery, but it is not true.' (Sakha)

b. #Misha Masha-ttan min xannyk lotereja-qa süüj-büppün ihit-te?
Misha Masha-from I which lottery-DAT win-PST.1sS hear-PST.3sS
Not as: 'Which lottery did Misha hear from Masha that I (=Masha) won?'

This supports the hypothesis that the syntactic control relationship that underlies C- agreement in Lubukusu and logophoricity in Yoruba also underlies indexical shift in Magahi and Sakha.

3. Subjects and Possessors of Subjects

[3] Note that so-called logophoric uses of reflexive anaphors may be different in these respects. For example, Japanese *zibun* can take a source phrase associated with 'hear' as its antecedent (see Anand 2006). I leave it as an open question to what degree the analysis of anaphors bound long distance should be unified with the analysis of the dedicated logophoric pronouns of the West African languages.

[4] Interestingly, it is possible for 'I' to shift to the source of 'hear' in Magahi in one special case: if the embedded sentence also has a second person pronoun 'you' which is shifted to refer to the hearer—a unique pattern in Magahi, as far as we know. This complication crucially involves the additional layer of control relations involved in second person indexical shift, a topic that goes beyond what I can discuss here. (See section 6 for a brief comment.)

Another of Diercks's arguments involves comparing sentences like (13a) and (13b).

(13) a. Mary said that she will arrive tomorrow.
b. Mary's letter said that she will arrive tomorrow.

There is a clear sense in which Mary is the source and author of the information that she will arrive in both sentences; however, *Mary* is the syntactic subject of the matrix verb only in (11a). If only semantic authorship is crucial, the two sentences might behave similarly; if syntactic subjecthood is crucial, then 'Mary' will function as an antecedent in examples like (13a) only. Again, it is the second prediction that is correct for C-agreement in Lubukusu, as shown by (14). The complementizer *–li* can bear class 9 agreement with the subject 'letter', but not class 1 agreement with 'Nelson', the author of the letter and the ultimate source of the information.

(14) E-barua y-a Nelsoni y-ekesie e-li ka-sangaala. (Lubukusu)
9-letter 9-of 1.Nelson 9-showed 9-that 1S-be.happy
'Nelson's letter showed that he is happy.' (**a-li*, agreeing with Nelson)

Let's apply this then as a probe into logophoricity and indexical shift. The results in this domain are a bit more mixed, in a way that calls for further investigation, but some of them point toward the syntactic approach. This is especially true for indexical shift in Sakha: (15a) cannot have a reading in which 'I' refers to Masha, the author of the letter, and source of the information that Masha will come. My consultant spontaneously offered (15b) as a correction, where 'Masha' is the subject of the matrix clause, and 'letter' has been relegated to a PP adjunct.

(15) a. Masha surug-a xahan kel-yex-im dien ep-pit-e? (Sakha)
Masha letter-3sP when come-FUT-1sS that say-PST-3sS
'When did Masha's letter say that I (speaker, not=Masha) will come?'

b. Masha surugu-gar xahan kel-yex-im dien ep-pit-e?
Masha letter-DAT when come-FUT-1sS that say-PST-3sS
'When does Masha say in her letter that I (=Masha) will come.'

Example (16) shows the same effect for indexical shift in Magahi: 'I' in the embedded clause only has an unshifted reading, not one where it is coreferential with 'Santee', syntactically the possessor of the subject.

(16) Santeeaa ke imel Banteeaa -ke batal-kai ki ham parichha me fel ho gel-i.
Santee GEN email Bundy-ACC tell.PST-3S that I exam in fail be go-1S
'The email of Santee told Bantee that I (not =Santee) passed the exam.' (Magahi)

This supports the role of a syntactic control relation: note that a subject can control PRO in English, but the possessor of the subject cannot (cf. *Mary$_i$ promised [PRO$_i$ to visit us soon]* but not **Mary$_i$'s letter promised [PRO$_i$ to visit us soon]*).

However, I have found some variation in this internal to Magahi. Indexical-shift of 'I' to Santee is possible in (16) if the matrix subject is 'Santee's face' rather than 'Santee's letter.' My

tentative conjecture is that the difference between alienable and inalienable possession plays a role here: Santee's face is in fact Santee in a way that that Santee's email is not. This allows the sentence to go through: the controller of OP^{sp} is technically 'Santee's face', but that counts as coreferential with a pronoun referring to Santee.

Similarly, the possessor of the subject of 'show' or 'say' can antecede a logophoric pronoun inside the complement clause in (17), the only Yoruba example that I have tried.

(17) Lẹ́tà Adé fi hàn pé ó rí bàbá òun
Letter Ade show that she see father LOG
'Ade's letter shows that she (not Ade) saw his (=Ade's) dad.'

(17) looks less like a possible case of inalienable possession, but it is not out of the question that it could be: what counts as alienable and inalienable is known to vary somewhat from language to language and even from context to context. there is more to understand here, clearly.

These data then don't show so clearly that indexical shift is like logophoricity—but they do still show that indexical shift is like complementizer agreement in Lubukusu. That supports my primary hypothesis that syntactic control is at work in indexical shift, as it is in C-agreement, the most uncontroversially syntactic of this set of constructions.

4. Causer and Causee Arguments

The third of Diercks's arguments that I use here has to do with sentences that involve some kind of causation, whether syntactically, morphologically, or lexically expressed. 'John thinks that Z' is a canonical environment for complementizer agreement, 'John' agreeing with 'that'. This can be compared with sentences reporting an event in which Mary causes John to think that Z. There are two ways of doing this: using a lexical causative verb like 'convince' as in (18a), or using a syntactic causative construction like (18b). Again, the two can express similar events. If a purely semantic notion of author (or 'self', cf. Sells 1987) is at work, 'John' might trigger C-agreement in both structures, as it does in the noncausative sentence. However, if subjecthood is a crucial condition, then we expect a contrast, since 'John' is a syntactic subject in some senses in (18b) (it is the subject of a small clause, or of the vP complement of 'make') but 'John' is probably not a subject in (18a) in any relevant sense.

(18) a. Mary convinced John that he passed the test.
b. Mary made John think that he passed the test.

Once again, syntactic subjecthood is vindicated as a condition on C-agreement in Lubukusu: the causee can trigger C agreement in the periphrastic construction in (19b) but not in the lexical causative in (19a). (Note that the verb does bear a causative suffix in (19a), but this is a listed lexical item, with a not-fully-compositional meaning.)

(19) a. Ba-sasi ba-many-isya Sammy ba-li ba-keni b-a-cha. (Lubukusu)
2-parents 2S-know-CAUS 1Sammy 2-that 2-guests 2S-T-leave
'The parents informed Sammy that the guests left.' (**a-li*, agreeing with Sammy)

b. Sammy ka-ingil-ile ba-ba-ana ba-buule ba-li ba-limi ba-funile kamaindi

Sammy 1S-forced 2-2-children 2S-reveal 2-that 2-farmers 2-harvested maize
'Sammy forced the children to reveal that the farmers harvested maize.'

What about logophoricity? (20) shows a Yoruba example similar to (19a), where 'remind' is a kind of lexical causative meaning roughly 'cause to remember'. Here the causer subject is a natural antecedent for the logophoric pronoun in the embedded clause, but the causee (remindee) object is not. This supports the hypothesis that syntactic subjecthood plays a similar role in the binding of logophoric pronouns to the one that it plays in C-agreement.

(20) Olú ran Adé léti pé ó rí bàbá òun.
Olu reminded Ade PRT that 3s saw father LOG.
'Olu reminded Ade that he saw his (=Olu's, ??Ade's) father.'

Next I compare indexical shift to both logophoricity and C-agreement in this regard. (21) shows a kind of lexical causative in Magahi (based on a light verb construction, 'trust' plus light verb 'give'). Here the one convinced cannot be the antecedent of 'I', but only the convincer can be—even though the mental state of the object 'Bantee' is clearly relevant.

(21) Santeeaa banteeaa-ke bharosa del-kai ki ham parichha paas ho ge-l-i.
Santee Bantee-ACC trust give-3S that I exam pass be go-1S
'Santee convinced Bantee that I (=Santee, not = Bantee) passed the exam.'

Example (21) can be contrasted with (22), which has what counts as a syntactic causative in Magahi (it is expressed as a morphological causative, with the verb 'think' plus productive causative affix *-wa*, but I assume that this is a complex syntactic construction with a structure similar to that of (18b) in English). In this case, the causee *Bantee* does count as a syntactic subject, even though it is case marked accusative (a kind of ECM), and it can be the antecedent for a shifted reading of 'I'.[5]

(22) Santeeaa Banteeaa ke soch-wa-l-kai ki ham parichha paas ho gel-i..
Santee Bantee-ACC think-CAUS-PST-3S that I exam pass be go-1S
'Santee made Bantee think that I (=Santee or = Bantee) passed the exam.'

Similarly (23) from Sakha has a lexical causative construction using the verb 'remind' (an idiosyncratic lexical causative built on the root *sanaa* 'to think', Vinokurova 2005:309). As in (21) from Magahi, the causee-object cannot be the antecedent of shifted 'I' in this example, even though Masha's mental state is important to the meaning of the sentence.[6]

(23) Misha Masha-ny min xahan kel-er-bin sanat-ta.
Misha Masha-ACC when come-AOR-1sS remind-PST.3sS
'When did Misha remind Masha that I (=speaker, not =Masha) am coming?'

[5] 'I' can also refer to Santee in (22). This is an interesting example for fleshing out the locality condition "in the clause immediately above one containing the pronoun" in my hypothesis in (6). Apparently finite clauses count for this locality, but the small clauses of causative constructions do not. I do not pursue this issue further here.
[6] My consultant also did not accept 'I' referring to the causer-subject 'Misha' here, for reasons that are unknown to me (circumstances did not allow me to follow up very much).

Once again, the subjecthood of the antecedent of a shifted indexical is an important factor, analogous to the role it plays in complementizer agreement and logophoricity in Niger-Congo languages. This supports my hypothesis.

5. Adjunct clauses

The three phenomena that I am comparing are all normally thought of as happening in complement clauses. To the extent that they hinge on the semantics of attitude reports and speech events, that might be considered crucial. But if they really involve syntactic control of an operator in CP by a matrix clause NP, this might not be crucial at all. After all, subjects in English can control PRO inside adjunct clauses just as much as they can control PRO inside complement clauses (cf. *Chris decided [PRO to buy bread]* and *Chris drove to the store [PRO to buy bread]*). There is no obvious complement-adjunct asymmetry in this particular domain.

In fact, all three constructions can occur in adjunct clauses as well as in complement clauses. C-agreement in Lubukusu again provides the baseline. Diercks (2014) does not mention C-agreement in adjunct clauses, but Justin Sikuku (p.c.) provides the following examples.

(24) a. Wekesa a-pa baba-ana a-li khubele ba-nywa ka-mabeele. (Lubukusu)
1.Wekesa 1S-hit 2-children 1-that because 2S-drank 6-milk
'Wekesa hit the children because they drank the milk.'

b. Wekesa a-pa baba-ana a-li ne ba-kesiye.
1.Wekesa 1S-hit 2-children 1-that so.that 2S-be.clever
'Wekesa hit the children so that they would be clever.'

Similarly, a logophoric pronoun in a purposive clause in Yoruba can refer to the subject of the main clause, as in (25).

(25) Olú tètè jí kí òun má baà pẹ́ ní tirẹ̀. (Yoruba)
Olu quickly wake that LOG NEG-FUT late on his-own
'Olu woke up quickly so that he (=Olu) would not be late.'

And a first person pronoun in a purposive clause can refer to the subject of the main clause in both Magahi and Sakha, as shown in (26).

(26) a. Santeeaa ghare rukla-ai taaki ham bimaar na paD-i. (Magahi)
Santee home stay-PST-3S so.that I sick not fall-1S
'Santee stayed home so that I (=Santee) would not get sick.'

b. Masha [min yaldj-ya-m dien] tönün-ne. (Sakha)
Masha I sick-fall.FUT-1sS that return-PST.3sS
'Masha returned for fear that I (=Masha) would get sick.'

This is yet another way in which indexical shift is similar to logophoricity, rather than different from it. These examples may be problematic for a standard indexical shift analysis, in

that it is not clear that there is an "author" for the adjunct clause. Moreover, many accounts attribute the presence or absence of a context shifting operator to the selectional properties of the matrix verb, especially 'say' and 'tell', with possible extension to other predicates, depending on the language. But here we see that logophoricity and indexical shift are not necessarily tied to a particular class of attitude verbs, but can happen with a wide variety of verbs. I suggest that this is analogous to the fact that control is not limited to a particular class of control verbs, but the subject of almost any (agentive) verb can participate once one includes control into adjunct clauses in the picture. It is true that there is an "attitude" in (25) and (26) in the extended sense that the mind of the agent contains a mental representation of the state of affairs that they are trying to bring about, so it is presumably no accident that logophors and shifted indexicals are found in purposive clauses in particular. But a semantic account in terms of selection for a context-shifting operator with a well-defined author parameter has some work to do to show that it can match the expectations of a view based on syntactic control in this domain.

6. Discussion

In this short paper, I have given a series of reasons to think that indexical shift is subject to similar conditions to logophoric pronouns and C-agreement. In particular, several of the reasons to think that syntax plays an important role in C-agreement also apply to say that it plays a major role in indexical shift as well, contrary to Anand (2006), Deal (2017), and others.

I have also said more specifically that the subject of the matrix clause controls the operator in the embedded clause, taking it for granted that control is a familiar syntactic relation. However, control is certainly not a simple or uncontroversial phenomenon. Indeed, some of the complexities that are relevant to familiar control of PRO have analogs in the current domain as well—complications that may or may not threaten my hypothesis. For example, it is not always the closest subject that controls PRO in English. For adjunct clauses (other than low purposive clauses), subject control is certainly the norm, with few or no complications. That is part of why I think it is significant that that this is what we find with logophors and shifted indexicals in adjunct clauses as well (section 5). In complement clauses, however, PRO can be controlled by the matrix object rather than the matrix subject, depending on the verb. Indeed, there are even some cases in which whether it is the matrix subject or the matrix object that controls shifts depending on subtle thematic or pragmatic factors, as in the phenomenon of "control shift" (see Landau (2013:136-148) for an overview). It is thus simultaneously heartening and disheartening that similar factors are at work with logophoricity and indexical shift.

We saw in section 4 that the object of a verb like 'remind' or 'convince' cannot be the antecedent of a logophor or shifted first person indexical, whereas the subject of the verb can be. But the examples were ones in which the subject was an agentive person. The subject of this kind of verb can also be an inanimate NP. In this case, the object can be the antecedent, both for a logophoric pronoun in Yoruba and for a shifted first person pronoun in Magahi (I do not have data on this point for Sakha).

(27) Páálí yìí rán Bọ́lájí létí pé òun gbọ́dọ̀ ra míl̀îkì sí i. (Yoruba)
box this sow Bolaji at-ear that LOG must/should buy milk to it
'This box reminds Ade that he (=Ade) should buy more milk.'

(28) Khaalii bartan santeaa-ke yaad diyall-ai ki hamara dudh kharidelaa jaruri halai.

empty container Santee-DAT remember tell- 3S that I.GEN milk buy-INF need be-3S
'The empty container reminded Santee that I (=Santee) need to buy milk.' (Magahi)

This is heartening in that logophoricity and indexical shift are acting in the same way, more groundwork for a unified analysis. It is also heartening that these phenomena can behave like control (sort of) in allowing either the matrix subject or the matrix object to be the controller. But it is disheartening in that we now remember that control is more complex—and less obviously syntactic—than we may have thought.

One might use the contrast between (20)/(21) and (27)/(28) to start to build an argument that logophoricity and indexical shift are more semantic than syntactic after all. But I think such an approach would probably lose more than it gained. What would it be like? It would have to say something along the lines of "logophors and shifted first person pronouns refer to the most prominent attitude holder in their environment." But what would "most prominent" mean here? How is the agent of 'remind' more prominent than the experiencer-theme of 'remind' if both are present? It seems to me that syntax is very likely to come into it here, to spell this out accurately. My interpretation of this contrast is that one needs to refer to fine-grained thematic roles as well as to grammatical functions, distinguishing agent-subjects from causer-subjects (the first can control OP^{sp}/OP^{log}, the second cannot), and experiencer-objects from mere theme-objects (again the first can control OP^{sp}/OP^{log}, the second cannot). Then one says roughly that the closest agent is the controller of the operator, if any, otherwise the closest experiencer, where "closest" is crucially measured syntactically. This gives the system some flexibility when it comes to subject versus object control of the operator, but otherwise the system is predominantly syntactic. As a result of the syntactic part, only a subject can control into adjuncts, and only the closest subject can control, not a higher subject in cases of multiple embedding, regardless of what the thematic or pragmatic relations might be. Canonical control is broadly similar, with thematic roles influencing the choice of the local subject or local object for control into complement clauses, but not for control into adjunct clauses and it does not permit more remote subjects to control.[7]

Before closing, I should admit that this work has offered only one significant step toward a unified theory of indexical shift and logophoric pronouns, focusing on what is the ultimate antecedent of these pronouns. There are other issues to consider as well. For example, in the indexical shift literature, it is common for second person pronouns to shift to the goal-object of 'tell' just as first person pronouns shift to the agent-subject of 'tell'. A control-and-binding account of first person indexical shift thus needs to be generalized to second person, and then it needs to be evaluated whether the generalized theory makes indexical shift more like logophoricity or less like it. I think there are reasons to be optimistic about a unified theory here too. For example, Mupun has "addressee pronouns" as well as logophoric pronouns (Frajzyngier 1993), and the analogy that logophoric pronoun are to shifted first person indexical as addressee pronouns are to shifted second person indexical looks promising. But not that much is known about dedicated addressee pronouns, so it is hard to be certain at this point.

[7] The fine-grained thematic factors that decide between subject control and object control are probably different for control of PRO and for control of OP^{sp}/OP^{log} . Hopefully these differences follow from the fact that the thematic roles in acts of promising and persuading are different from those in telling and thinking. Impressionistically, it seems that subject control predominates with logophoricity and indexical shift, whereas object control is more common in normal control—but see Landau (2013) for evidence that subject control is more widespread and systematic than many have thought, the verb *promise* being just one member of a larger class of commitment verbs.

Finally, I note that Anand (2006) has two other reasons for treating logophoric pronouns differently from shifted indexicals: logophoric pronouns are subject to the *de re* blocking effect, whereas shifted indexicals are not, and shifted indexicals obey a "no intervening binder" condition, whereas logophoric pronouns do not. I think that the first of these reasons need not hold one up very much. In fact, Anand documents lots of variation in *de re* blocking judgments, in dream reports in English, with shifted indexicals in Amharic, and with logophoric pronouns in Yoruba (and also with *ziji* 'self' in Chinese, if that is relevant). So there is probably no robust grammatical constraint that neatly divides two kinds of constructions here. The "no intervening binder" difference seems both more substantive and more syntactic, where shifted first person pronouns need to be bound by the closest c-commanding operator, whereas logophoric pronouns can be bound by any c-commanding operator. This issue deserves to be on the agenda of any theorist who wants to fully unify logophoricity and indexical shift, and I hope to return to it myself in future work.

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Abbreviations

Abbreviations used in the glosses include: ACC, accusative; AOR, aorist; APPL, applicative; ASP, aspect; CAUS, causative; FUT, future; DAT, dative; FV, final vowel (Bantu); GEN, genitive; INF, infinitive; LOG, logophoric pronoun; NEG, negative; PRT, particle; PST, past; T, tense marker. 1(s)S and 3(s)S are subject agreement morphemes (Sakha distinguishes singular and plural but Magahi does not); 3sP is possessor agreement. In Lubukusu, numbers refer to Bantu noun classes, not to person features.

References

Adesola, Oluseye. 2005. Pronouns and null operators: A-bar dependencies and relations in Yoruba, Rutgers University: Ph.D. dissertation.

Anand, Pranav. 2006. De *de se*. MIT: Ph.D. dissertation.

Deal, Amy Rose. 2017. Shifty asymmetries: Universals and variation in shifty indexicality. Ms. University of California-Berkeley.

Diercks, Michael. 2013. Indirect Agree in Lubukusu complementizer agreement. *Natural Language and Linguistic Theory* 31:357-407.

Frajzyngier, Zygmunt. 1993. *A grammar of Mupun*. Berlin: D. Reimer Verlag.

Higginbotham, James. 2003. Remembering, imagining, and the first person. In *Epistemology of language*, ed. Alex Barber, 496-533. Oxford: Oxford University Press.

Koopman, Hilda, and Sportiche, Dominique. 1989. Pronouns, logical variables, and logophoricity in Abe. *Linguistic Inquiry* 20:555-589.

Landau, Idan. 2013. *Control in generative grammar*. Cambridge: Cambridge University Press.
Safir, Ken. 2005. Person, context, and perspective. *Rivista di Linguistica* 16.
Sells, Peter. 1987. Aspects of logophoricity. *Linguistic Inquiry* 18:445-479.
Shklovsky, Kirill, and Sudo, Yasutada. 2014. The syntax of monsters. *Linguisitic Inquiry* 45:381-402.
Vinokurova, Nadezhda. 2005. Lexical categories and argument structure: a study with reference to Sakha, University of Utrecht: Ph.D dissertation.
Vinokurova, Nadezhda. 2011. Shifting indexicals in Sakha. In *Proceedings of the 10th Seoul International Altaistic Conference*, 239-262. Seoul: Altaic Society of Korea.