

Chapter 4: Indexical Shift as the Control of Ghostly Nominals

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April 2023

4.1 Introduction

My exploration of rare constructions in which complementizers relate to the nominal phrases around them has begun with upward C-agreement in (mostly) African languages and moved from there to allocutive (addressee) agreement in a variety of languages, but especially Magahi where allocutive marking is robust in embedded clauses. The next step is to extend this framework to indexical shift constructions. Recall that these are constructions in which first and second person pronouns inside an embedded clause are understood as referring to the subject or object of a superordinate clause, rather than to the speaker and the the addressee of the sentence as a whole—a phenomenon found in Amharic (Leslau 1995, 1999, Schlenker 2003, Park 2016), Zazaki (Anand and Nevins 2004, Anand 2006), Slave (Rice 1989), Uygur (Sudo 2012, Shklovsky and Sudo 2014), and Nez Perce (Deal 2020) as well as Magahi (Alok and Baker 2018, Alok 2020) and others (see Deal 2020 for comprehensive references).

My hypothesis is that these constructions involve the same kind of licensing and control of null DP operators as upward C-agreement and allocutive agreement do. Indeed, I argue that the operators involved in indexical shift are the very same ones that are involved in allocutive marking: the intrinsically second person element Ad and (for analogous speaker agreement) the intrinsically first person element Sp. The only difference is that the possibility of C-space heads agreeing with these ghostly DPs now fades into the background, while the possibility of the ghostly DPs binding pronouns inside the clause selected by the C-head that licenses them comes to the fore. Magahi plays a special role in this discussion because it has both allocutive agreement and indexical shift, making it possible to observe that the two phenomena are deeply intertwined, as originally argued by Alok and Baker (2018). However, I argue that the same theory of indexical shift can be used in other languages in which the C heads do not happen to be probes for Agree, with the result that they do not have allocutive marking, but only indexical shift. Indeed, the interaction with allocutive marking is close to the only thing that is empirically remarkable about indexical shift in Mahagi; otherwise its indexical shift patterns fall comfortably within the bounds of what is known about indexical shift in other languages, such that an effective theory of the Magahi phenomenon is well on its way to being an effective theory of indexical shift more generally.¹

Since the ghostly DP operators that are involved in indexical shift constructions are the same ones that are involved in allocutive marking, there is relatively little new theoretical machinery that needs to be introduced in this chapter to get started. I thus begin by simply recapping the discussion from chapter 3 about how the standard generative theory of allocutive agreement leads very naturally to a (nonstandard) theory of indexical shift in Magahi.

The story starts with the observation that in some languages allocutive marking is a form of agreement, parallel to ordinary T-agreement with the subject. Given standard assumptions

¹ There is also an interesting contrast between null first person pronouns and overt first person pronouns in Magahi, which I will take to be instructive about the nature of the Shift Together phenomenon. See xx.

about agreement, this implies that there must be a DP in the representation of the sentence that the relevant head is agreeing with—a DP that, in ordinary root clauses, refers to the addressee of the sentence as a whole (Speas and Tenny 2003). However, in some embedded clauses, this agreed-with DP does not express features of the addressee of the sentence as a whole, but rather those of the goal argument of the matrix clause. This covaluation relationship has properties that can be attributed to the theory of obligatory control, particularly given its similarities with the behavior of the proximal target of upward C-agreement in African languages, and (at more remove) with the behavior of controlled PRO in European languages, properties attributable to the Generalized Obligatory Control Signature (Landau 2013). At the same time, there are both formal and semantic reasons to say that the crucial DP has a second person feature: formally, it shows the three-way honorification distinctions seen only with second person elements in Magahi; semantically, it refers to the addressee in simple sentences.

Up to this point, this is simply an implementation of the standard generative theory of allocutive agreement. Then the turn toward indexical shift is the idea that this DP (Ad), like any other, can bind a pronoun inside its c-command domain. The bound pronoun shares phi-features with the DP that binds it; therefore, it too is second person. But when Ad is controlled by a matrix argument, rather than left free, the bound pronoun refers to the matrix argument, not the addressee of the sentence as a whole. Voila, a theory of second-person indexical shift (henceforth *u-shift*), as sketched in (1b) for the canonical Magahi example in (1a).

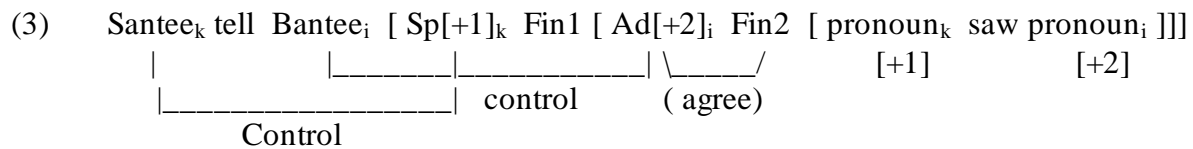
- (1) a. Santee-aa Bantee-aa-ke kahk-ain ki Ram toraa/#okraa dekh-l-au.
 Santee-FM Bantee-FM-DAT told.3.NS.S-HH.AL that Ram you.NH.ACC/#3SG.NH see-PFV.3.NH.S-NH.AL
 ‘Santee told Bantee_i that Ram saw you_i /#him_i.’ (said to a teacher)
- b. Ad_k Fin [Santee tell Bantee_i [Ad[+2]_i Fin [Ram pronoun_i saw]]
 HH agree | NH | NH / [+2]
 |_____| _____/ *[-2,+3]
 control (Agree)

There are of course other theories of *u-shift*, which have different starting points from this one. For example, there is the context-shifting operator theory championed by Anand (2006) and Deal (2020), among others. I compare the theory just sketched with the shifty operator theory below at various points when they come up, and then somewhat more systematically in the final section of the chapter. But the theory sketched in (1) is one that emerges quite naturally from assumptions that we need anyway, hence one well-worth serious consideration, I claim. Moreover, this is a contender not only for Magahi but for other languages that have indexical shift without allocutive marking. The analysis in (1b) could very well hold for them too, with the simple difference that Fin (and the other C heads) happens not to be a probe for agreement in such languages, as indeed it commonly is not in the IE languages originally analyzed by Rizzi (1997) and related work.

This account can also be generalized to first person indexical shift (henceforth *i-shift*), where pronouns like ‘I’ and ‘me’ are interpreted as referring to a second or third person nominal in the matrix clause. Magahi does not have “speaker agreement” on a par with its overt allocutive (addressee) agreement, although other languages like Dargwa arguably do (see Chapter 3). However, Magahi does have first-person indexical shift. In fact, this happens under the same verbs that allow second person indexical shift (among others), as in (2).

- (2) a. Santee-aa Bantee-aa-ke kahk-ai ki ham toraa dekh-l-i-au ha-l.
 Santee-FM Bantee-FM-DAT told.3.NS.S that I you.NH.ACC see-PFV-1.S-NH.AL be-PFV
 ‘Santee_i told Bantee_k that I_{i,*sp*} saw you_{k,*ad*}.’
- b. Santee-aa profesar saaheb-kekah-kai ki ham apne-ke dekh-l-i-ain ha-l.
 Santee-FM professor HH-DAT told.3.NS.S that I you.HH.ACC see-PFV-1.S-HH.AL be-PFV
 ‘Santee_i told the professor_k that I_{i,*sp*} saw you_{k,*ad*}.’

This is parallel to the u-shift like in (1a). Indeed, i-shift is entangled with u-shift, as in the classic Shift Together effect of Anand and Nevins (2004) and Anand (2006): ‘I’ shifts if and only if ‘you’ shifts, which in turn shifts if and only if allocutive marking does (if any). It is natural, then, to generalize the account of u-shift in (1) to give a parallel account of i-shift. The Fin head selects a second ghostly DP, Sp, which has intrinsic first person features and which denotes the speaker in matrix clauses. (More precisely, Fin1 selects Sp and Fin2 selects Ad; see xx.) In some embedded clauses, this Sp is controlled by a suitable argument of the matrix verb, typically its agent argument, in accordance with the principles of obligatory control. As usual, Sp can bind a pronoun inside the CP headed by the Fin that licenses it. Such a pronoun will match Sp in phi-features, so it will be first person. In matrix clauses, where Sp denotes the speaker, so does the first person pronoun that it binds. But in embedded clauses where Sp is controlled by the matrix agent, the first person pronoun that it binds also is bound by that agent. The result is i-shift, as sketched in (3). It so happens that no C-head in Magahi agrees with Sp, but apart from that the analysis of i-shift is point-by-point parallel to the emergent analysis of u-shift presented in (1).



This analysis was first presented in chapter 3 in a supporting role, as evidence that the operators involved in allocutive agreement have intrinsic [+2] features and those involved in speaker agreement have [+1] features, differing in this respect from the operators involved in upward C-agreement in the African languages. But now it takes center stage, as an important topic in its own right. And indeed indexical shift seems to be both more widely distributed in the languages of the world than allocutive marking is, and it has been a more weighty topic for linguistic theory since Schlenker (1999).

The discussion unfolds as follows. Section 4.2 briefly supports my claim that Magahi has true indexical shift, rather than ordinary direct quotation. Section 4.3 reintroduces and explores the consequences of the Person Licensing Condition, introduced in passing at the end of the last chapter but more prominent here where the focus is on bound pronouns. The heart of the chapter is section 4.4, showing that Sp and Ad are controlled by the same principles of control theory as SoK and OoK are—the Generalized Obligatory Control Signature and the Edge Condition (but not the T/Agree Condition). For Ad, this was already shown using evidence from allocutive marking in Chapter 3; here I replicate the result with converging evidence from u-shift. For Sp, this is a new result, which can only be established now using evidence from i-shift. Indeed i-shift is possible with a wider range of matrix verbs than u-shift is, since it happens with dyadic matrix verbs as well as triadic ones. Furthermore, the control of Sp is more obviously parallel to the control of SoK in the African languages, since the thematic roles involved are parallel. Thus, the

control paradigm that I can present in this chapter is significantly richer than what I could show in the previous chapter, making the overarching line of argument stronger. Section 4.5 faces some special concerning the Shift Together phenomenon, deriving it from the obligatoriness of obligatory control. This involves considering the fact that indexical shift appears to be obligatory in certain kinds of CP complements in some languages, whereas it is optional or even forbidden in others—one of the most important parameters of variation in this domain. Finally, section 4.6 briefly takes up the twin tasks of briefly surveying the other ways that indexical shift is known to vary across languages and of comparing my analysis to the shifty operator analysis of Anand and Deal.

4.2 True indexical shift in context

This preliminary section makes two relatively basic empirical points. First, I briefly present three arguments that Magahi has genuine indexical shift, not just direct quotation, drawing from previous work (Alok and Baker 2018, Alok 2020). Then I reconfirm that having Sp and Ad operators present and controlled in a clause does not have the same semantic effects that having a controlled SoK does, consistent with the basic claim that these are different operators, introduced by different functional heads.

Empirically one needs to show that examples like (1a) and (2a,b) have true indexical shift rather than being direct quotations, as comparison with English might suggest. There are by now quite standard tests for doing this, and Alok and Baker (2018) and Alok (2020: xx) apply them to Magahi. One very standard test is whether a question word associated with the embedded clause can take scope over the matrix clause to form a direct question. In English direct quotation this is impossible, but in Magahi, as in other languages with indexical shift, it is possible, as shown in (4).²

- (4) a. Kab Ram soc-l-ai [ki ham t mar-b-ai]?
 when Ram think-PFV-3.NH.S that I die-FUT-3.NH.S
 ‘When does Ram_i think that he/I_{i,sp}* will die?’ (time of dying questioned).
- b. Kab Santeeaa Raam-ke kah-l-ai ki tu mar-b-a?
 when Santee Ram-DAT tell- PFV-3.NH.S that you.NH die-FUT-2.NH.S
 ‘When did Santee tell Ram_i that he/you_{i,Ad}* will die?’ (time of dying Qed)

Note that (4a,b) also imply the Sp and Ad in Sped FinP do not create wh-islands the way that question phrases in Spec CP do in languages like English.

A second standard test involves the licensing of negative polarity items (NPIs). This involves putting an NPI in the embedded clause which is licensed by negation in the matrix clause, such that the embedded clause would not be grammatical in its own right as a sentence which could be quoted. (5) shows that when this is done in Magahi shifted readings for the indexical pronouns are still possible, whether ‘I’ in (5a) or ‘you’ in (5b).

² This test works best with adjunct extraction. Questioning an argument of the verb in the embedded clause tends to use an indirect dependency/scope marking construction in Magahi, and this interferes with indexical shift; see Alok (2020) for some discussion. Also whether wh-in-situ is possible or not with matrix scope seems somewhat variable. However, when using adjunct extraction one needs to be careful to make sure that the adjunct (‘when’ in (7a,b)) is interpreted with respect to the embedded clause rather than the matrix clause.

- (5) a. Bantee-aa-ke **na** laga h-ai ki hamraa **kuchhbhii** almaari me milt-ai.
 Bantee-FM-DAT NEG seem be-3.NS.S that I.DAT anything closet in find-3.NS.S
 ‘It doesn’t seem to Bantee_i that he/I_{i,sp*} will find anything in the closet.’
- b. Santee-aa Banteeaa-ke **na** kah-kai ki toraa **koi kitaab** paRhe-ke chah-ai.
 Santee-FM Bantee-FM-DAT NEG tell-3.NS.S that you.DAT any book read-ACC should-3.NS.S
 ‘Santee didn’t tell Bantee_i that he/you_{i,ad*} should read any book.’

In addition to these two tests which have been applied to many languages, Alok and Baker (2018) also present a more Magahi-specific test for direct quotation that involves allocutive marking. It turns out that there is a negative interaction between indexical shift and allocutive agreement under a dyadic verb like ‘think’ or ‘say’ in Magahi. As a result, ‘I’ in the embedded clause of a sentence like (6) can refer to the same person as the subject of the matrix clause only if allocutive marking is absent on the embedded verb (so yes in (6a) but no in (6b)).

- (6) a. John kahk-au ki **hamtej** h-i.
 John say-NH.AL that I smart be-1.S
 ‘John_i said that he/I_{sp,i} am smart.’ (said to a peer)
- b. John kahk-au ki **ham** tej h-i-au.
 John say-NH.AL that I smart be-1.S-NH.AL
 ‘John_i said that I_{sp,*i} am smart.’ (said to a peer)

This restriction makes little sense if there is no true indexical shift in Magahi. Then ‘I am smart’ would have to be a direct quotation in the relevant reading of (6a). Then the fact that allocutive agreement is ungrammatical with this reading, as seen in (6b), would become inexplicable. After all, *Ham tej hiau* is a fine thing for someone to say in Magahi; it is a very normal way to say ‘I am smart’ (depending on who one is talking to). So no explanation of the restriction in (6) would be forthcoming if Magahi allows for direct quotation but not indexical shift.

Indeed, this suggests a stronger conclusion of practical importance: that examples with the form of (6) *cannot* easily be read as direct quotations. In this, *ki* clauses in Magahi seem to be like clauses introduced with *that* in English, which cannot be direct quotations (*Chris said (*that) “I am tired.”*).³ Given this, I assume that confusing syntactic complementation with indexical shift and direct quotation is not a very serious danger in Magahi. Therefore, I do not include wide scope adjunct question words or negative polarity items in most of my examples, except when special care might be needed for theoretical reasons. This is a good thing, since both long distance adjunct extraction and long distance negative polarity licensing bring with them a considerable additional processing burden in Magahi, making it harder to judge already complex and potentially ambiguous sentences.

Another basic empirical point to settle early involves the semantics of having controlled Sp (or Ad) in a sentence. The ghostly DP Sp that is involved in i-shift constructions is

³ It is probably too strong to say that a clause introduced by the C-like element *ki* can never be interpreted as a direct quotation in Magahi. It seems like it can be, but probably this requires special intonational marking that does not immediately occur to speakers when presented with sentences like these in neutral contexts. Alok and I have not investigated the intonational factors involved in this.

comparable to SoK involved in upward C-agreement in that it is a subject-like element in the C-space, so it is controlled by the agent/thematic-subject of the matrix verb. This contrasts with Ad (and SoK in Kipsigis, if upward object agreement is real), which is an object-like element controlled by the goal of the matrix verb. However, Sp is not the same as SoK. First, they differ in phi-features: Sp is [+1] and therefore binds [+1] pronouns, whereas SoK lacks intrinsic phi-features and takes on the phi-features of its controller. Second, and perhaps related, Sp and SoK have different semantics, attributable to the different C-heads that license them. Whether SoK is present in a particular CP makes a detectable difference, as I argued at length in Chapter 2: it means that the matrix subject has a distinctive responsibility for the CP complement. In contrast, having Sp (or Ad) in a particular structure in Magahi does not make this kind of difference. I-shift (and u-shift) are optional in Magahi, and this does *not* correlate with a difference in factivity or hearsay comparable to what we see with the choice of an agreeing complementizer in Kinande, Ibibio, and Lubukusu. For example, factive verbs of emotion like ‘resent’ or ‘be angry’ resist C-agreement in their CP complements across the African languages. However, these verbs do allow i-shift in Magahi, as shown in (7). Nor is there a discernable difference in how the CP complement is interpreted that goes along with this variation.

- (7) Santee-aa gossaayel h-ai ki ham parichha na paas ho-l-i.
 Santee-FM angry.PFV be-3.NH.S that I exam not pass become-PFV-1.S
 ‘Santee_i is angry/resents it that he/I_{i,sp*} did not pass the test.’

The subject controlling SoK which results in C-agreement with it goes with an interpretation in which the subject has a special responsibility for the content of the CP in the African languages, and this is in tension with the meaning of factive verbs, where the content of the CP is accepted in the common ground. But the subject controlling Sp which results in i-shift does not go with this interpretation and is not in tension with the meaning of a factive verb.

Conversely, a verb like ‘want’ requires an agreeing C in Kinande, but the Magahi analog does not require i-shift—although it does permit it. Again, this optionality does not go along with any discernable shift in the interpretation of the CP complement in Magahi.

- (8) Santeeaa chaaha hai ki ham parichha paas ho jaa-i.
 Santee want be-3.NH.S that I exam pass become go-1.S
 ‘Santee_i wants that he/I_{i,sp*} pass the test.’

Similarly with more neutral verbs like ‘think’ and ‘say’, C-agreement is optional in the African languages but expresses a quasi-evidential difference in the status of the content of the CP. In Magahi, i-shift is also optional with this class of verbs, but whether it happens or not does not change the interpretation of the CP.

The same holds true for u-shift construction. This is possible with any CP-selecting verb that also takes a goal argument, but it is never required, and there is no detectable meaning difference that goes with the optionality. In particular, C-agreement with the object in Kipsigis gives the effect of (something like) verum focus on the matrix verb according to Diercks and Rao (2019). However, shifting second person pronouns in Magahi does not give this effect, as can be seen with the examples involving ‘tell’ in (1) and (2) above, as well as many others. This then is another reason for saying that SoK (and OoK) is different from Sp (and Ad). They are arguments of different heads: Eval versus SA or Fin. Both are DPs, indeed both are minimal pronouns

without lexical semantic content, but they are arguments of different heads, with different lexical semantics, so the final meaning that is computed is different. My hypothesis is that Sp and Ad have meanings, but their meanings are largely redundant with aspects of meaning already present on typical matrix verbs like ‘tell’. As a result, they are not very noticeable; their effects are seen only in certain carefully controlled environments.⁴

4.3 The Pronoun Licensing Condition and Indexical Shift.

The main difference between allocutive agreement constructions and indexical shift constructions according to my hypothesis is that allocutive agreement involves Agree and indexical shift involves bound variable anaphora. In particular, i-shift is the result of first person pronouns being bound by a controlled instance of Sp and u-shift is the result of second person pronouns being bound by a controlled instance of Ad. We need to ask, then, if there are any special syntactic principles that govern this type of bound variable anaphora. The answer is yes: near the end of the previous chapter, I invoked the Person Licensing Condition (PLC) in the sense of Baker (2008: 126), which is stated as follows.

- (9) a. A [+1] feature on a pronoun that does not otherwise have a grammatically assigned semantic value must be bound by the closest c-commanding element that is [+1].
 b. A [+2] feature on a pronoun that does not otherwise have a grammatically assigned semantic value must be bound by the closest c-commanding element that is [+2].

These conditions can be seen as a specific type of Relativized Minimality (Rizzi 1990), in that a binding relationship between an operator X and a bindee Y cannot be established over another operator of the same type as X. As such, it is abstractly like wh-islands and similar phenomena. In chapter 3, (9b) played a supporting role, helping to answer one relatively narrow question: why does an Ad that is not controlled by an argument of the immediately superordinate verb need to be bound by the next highest Ad—not just any higher Ad. In this chapter, the PLC comes into its own as an important constraint on indexical shift and indeed on the use of first and second person pronouns more generally. Now, then, is the time to discuss the cluster of ideas associated with the PLC more fully.

The leading idea here is that being first or second person is a kind of recursively defined notion. A very small number of linguistic items are intrinsically first or second person in both a

⁴ Another way in which indexical shift constructions do not come with as many overlays of meaning as one might expect is that shifted ‘I’ can sometimes take an inanimate NP as its antecedent. This is possible, indeed “very natural”, at least with subjects that refer to meteorological events as in (i) and (ii). These then have a raising verb like meaning like ‘it seems like it will rain’ or ‘it is about to rain’ (compare Clements 1975: xx on logophors being used in similar contexts in Ewe). How general this is, and whether it involves active anthropomorphization, needs further investigation.

- (i) Paanii kah-it he ki ham padbe karam.
 Water say-PROG be.PRES that I fall.FUT do.FUT
 (I have to go to the market and) it is about to rain. (lit. ‘The water is saying that it/I will fall.’)
- (ii) AndhaD chaah-it he ki ham sab toD d-i.
 Storm want-PROG be.PRES that I all break do-1.s
 ‘This storm will destroy everything.’ (lit. This storm wants that it/I break everything)

formal and a semantic sense. This set might indeed contain only Sp* and Ad*, the arguments of SA1 and SA2 (speech act head), unembeddable functional heads that are found only in root clauses, presumably for semantic reasons (because they denote a speech act; see Portner et al. (2019) for recent discussion). This is stated in (10), which provides the basis step for the recursion.

- (10) a. The DP specifier of SA1 denotes the speaker of the speech act expressed by SAP and is [+1]. (This DP is called Sp*.)
b. The DP specifier of SA2 denotes the addressee of the speech act expressed by SAP and is [+2]. (This DP is called Ad*.)

Because Sp* and Ad* are assigned an interpretation explicitly by the functional heads that select them, they are not subject to the PLC in (9). This allows them to appear at the top of a root clause, where nothing else c-commands them. I like to think of Sp* as a syntactically represented version of the so-called “author” coordinate in a Kaplanian context (Kaplan 1989), and Ad* as a syntactically represented version of the “addressee” coordinate (see Spadine (2020) and others for a similar idea).⁵ The big advantage of having these coordinates represented as DPs in the syntax, not just as members of a tuple that exists only in the semantic machinery, is that then they can be targets for Agree in the syntax, as happens with addressee agreement in Magahi and (more tentatively) with speaker agreement in certain other languages (Rose 2015).

Elements with participant features that do not have an intrinsic interpretation and hence are subject to the PLC include ordinary first and second person pronouns in Magahi and presumably in all languages. Pronouns like ‘I’, ‘me’ and ‘you’ do not have what they refer to fixed by the meaning of the heads they are arguments of, the way that Sp* and Ad* do. Rather, typical verbs like ‘see’ and typical Voice heads like active/agentive Voice allow their DP arguments to refer to any individual in the domain of discourse. Neither do verbs, Voice heads, or other standard theta-markers (Ps, applicative heads,...) fix the phi-features of their argument(s); those arguments may in general be first person, second person, or third person. Even if the argument of a V or Voice happens to be first or second person, that does not fix its interpretation directly in the current view. My proposal is that [+1] and [+2] are not semantically interpreted features per se, but formal features that signal to the language user which of several operators a given pronoun happens to be bound by. [+1] pronouns are ones that are ultimately bound by Sp* (perhaps by way of other [+1] items, which are themselves bound by Sp*). In such cases, [+1] pronouns end up denoting the speaker of the speech act because that is what their binder denotes. Similarly, [+2] pronouns are ones that are ultimately bound by Ad*, and which therefore end up denoting the addressee of the speech act. (Looking ahead, I am treating person here on a par with the feature [+log] in languages with dedicated logophoric pronouns: [+log] is a formal feature, with distinctive exponents at PF in some languages, which has no intrinsic meaning but signals that a particular pronoun happens to be bound by a particular operator.) These, then, are elements that are subject to the PLC. This can be thought of as a syntactically expressed version of the Kaplanian idea that first person pronouns have their reference fixed by the author coordinate of the context (here equated with Sp) and second person pronouns have their reference fixed by the addressee coordinate of the context (here equated with Ad*).

⁵ However, I acknowledge that there might be semantic subtleties to this claim that I am not fully aware of, so I leave this at an intuitive level. Ideally one would not need both a Kaplanian context tuple and syntactically represented Sp* and Ad*, since that seems like a duplication of effort. There are, however, worse things.

Moreover, as a condition in the Relativized Minimality family, the PLC states that [+1] and [+2] pronouns not only need to be bound by an operator that matches their diacritic features, but they must be bound by the closest such operator. I return to this directly.

The PLC together with (10) implies that second person pronouns in a root clause must be bound by Ad*. Magahi offers some empirical support for this given that it makes Ad* visible apart from its pronominal bindees by its allocutive agreement. Fin in the matrix CP copies the formal features of Ad* in Magahi. In addition, the formal features of Ad* and a pronoun bound by Ad* must be compatible, as in other cases of bound variable anaphora. It follows that allocutive marking and second person pronouns in argument positions must match in features in Magahi. In particular, they must have the same honorificity features, which are the features other than [+2] itself that are active in the morphosyntax in Magahi.⁶ This is correct, as shown in (11): the high honorific second person pronoun *apne* cannot be used with nonhonorific allocutive marking *-au* ((11a)), nor can the not-high-honorific second person pronoun *tora* be used with the high honorific marking *-ain* ((11b)).⁷ As far as Alok and I were able to tell, this is true even if one imagines complex situations in which there might be different kinds of addressees present simultaneously. For example, a person might have their honored professor and her young child over for tea. One can imagine offering coffee to the young child (in an NH relationship to the speaker) but intending the primary audience of the sentence to be the professor (the person who the speaker wants to impress, and who will probably decide whether the child gets coffee or not, who is in an HH relationship to the speaker). Even in a socially complex situation like this, (11b) is not judged to be possible with the subject *tora*.

- (11) a. **Tora**/**apne-ke* *kauphii chah-**au***?
 you.NH.DAT/*HH-DAT coffee want.3.NH.S-NH.AL
 ‘Do you want coffee?’
- b. **Apne-ke**/**Tora* *kauphii chah-**ain***?
 You.HH-DAT /*you.NH.DAT coffee want.3.NH.S-HH.AL
 ‘Do you want coffee?’

For the same reason, two second person pronouns in the same one-clause sentence must match in features and reference because both are bound by the same Ad*, there being only one Ad* in the structure. In intuitive terms, one cannot shift addressees internal to a single CP, for syntactic reasons. This is shown in (12).⁸

⁶ We expect plural features to be more complex, since they are semantically interpreted and a plural pronoun can be partially bound by a singular DP. I expect, then, that examples like ‘you-PL prize won-SG.AL’ would be possible where one is talking directly to a single person saying that a group of people including that person won a prize. However, agreement in Magahi does not copy number features, so this case does not arise in this language.

⁷ Here it is important that the second person pronoun is a dative subject, not a nominative one, because nominative subjects trigger subject agreement on the verb, and second person subject agreement is incompatible with allocutive marking (see Alok and Baker (2018) for a possible analysis). The same strict matching effect can be seen between a second person pronoun in object position and allocutive marking on the verb.

⁸ In English it is possible to some degree to have two second person pronouns in the same sentence refer to different people if they are accompanied by pointing devices of some kind (e.g. *You on the right side of the room must not talk over you on the left side of the room*). This does not seem to work in Magahi. I don’t know why the languages seem to be different in this way..

- (12) #Ram apne-ke tor kitaab lauTal-ai.
 Ram you.HH-DAT you.NH,GEN book return.PFV-3.NH.S
 ('Ram returned your book to you.' Bad even with pointing gestures.)

Similarly, two first person pronouns in the same clause must match in reference, since they are both bound by the Sp*; if they were not bound by Sp*, they could not be first person by the PLC. This however is less striking empirically, since Magahi does not have overt speaker agreement to give an independent look at the features of Sp* and first person pronouns are not differentiated for honorificity in Magahi. It is also hard to imagine natural scenarios in which who is the speaker shifts as a single clause is being uttered.⁹

Crucial to my theory of indexical shift is the claim that there is a third kind of grammatical element, which is intermediate between Sp*/Ad*, the arguments of the SA heads, and 'me' and 'you', the arguments of normal verbs. These are Sp and Ad, the arguments of Fin heads. These are parallel to Sp* and Ad* in many respects, but with the crucial difference that Fin does not have the same specialized speech-act denoting meaning that SA does. One consequence of this is that FinPs (or larger CPs containing them) can be selected by verbs as complements, and can appear in other embedded positions, like adjunct clauses and relative clauses. Another consequence of this is that Fin1 and Fin2 do not fix a specific interpretation for their arguments the way that SA1 and SA2 do. Nevertheless, I assume that Fin1 does impose the formal feature [+1] on its argument and Fin2 does impose the formal feature [+2] on its argument. Fin1 and Fin2 can be thought of as bleached/grammaticalized versions of SA1 and SA2, which retain the formal features of the originals but not the semantic substance (compare the fact that the verb 'say' is often used as a complementizer in languages with indexical shift). These observations are summarized in (13), which can be compared to (10).¹⁰

- (13) a. The DP specifier of Fin1 is [+1]. (This DP is called Sp.)
 b. The DP specifier of Fin2 is [+2]. (This DP is called Ad.)

⁹ However, the issue of dream contexts comes up here where there can be two first persons with different semantic values in sentences like Lakoff's famous *I dreamed that I was Brigitte Bardot and I kissed me*. Even here, though, I and me in some sense refer to the same person in different guises. I have not tried this in Magahi and do not speculate about how it might fit into my framework.

¹⁰ According to my discussion in chapter 3, the Jussive head Imperative imposes [+2] on a DP in its local context in a way that is similar to how SA2 makes Ad* [+2] and Fin2 makes Ad [+2], following Zanuttini (2008) and Zanuttini et al. (2012). We could go on to ask whether Imperative is more like SA2 in fixing its DP as referring to the addressee, or more like Fin2 in making it formally [+2] but not constraining it semantically. In fact, Alok (2023) shows that imperative clauses can be embedded in Magahi, and when they are, the subject of the imperative optionally undergoes u-shift, in the same way that intrinsically second person pronouns not related to a jussive head do. This implies that the jussive head makes its subject formally [+2] but does not fix it as referring intrinsically to the addressee, at least in Magahi. (It is possible that in languages where imperative cannot be embedded, Jussive is bundled with SA and such languages might be different in this respect.)

- (i) ?Kab Santee-aa-ke baabaa kahlathi [ki t dillii j-o (Alok 2020: 203)
 When Santee-FM-DAT grandfather told-3.H.S that Delhi go-IMPER.NH
 'When did Grandfather tell Santee to go to Delhi?' (time of going questioned)

These elements then have the fixed formal features of first and second person pronouns, but not the special semantics that is usually attributed to them (which in the current proposal is found inherently only on Sp* and Ad*, but then is inherited by their bindees).

This leads to one of two possible outcomes, I claim. One outcome is that Sp and Ad can undergo obligatory control, when the clause containing them is in the right structural position (see section 4.4 for detailed discussion). Since Sp and Ad do not have intrinsic interpretations, this does not lead to semantic incoherence; rather, it results in indexical shift given the structure in (3), repeated as (14). Obligatory control is a way of Sp and Ad receiving a “grammatically assigned semantic value”, on a par with having an interpretation imposed on them by SA1 and SA2. Therefore, these instances of Sp and Ad are also not subject to the PLC: they are not bound by [+1] and [+2] elements, and do not need to be. Here first and second pronouns in the core of the embedded clause are subject to the PLC and satisfy it by being bound by Sp and Ad, respectively. However, Sp and Ad are not subject to the PLC, and are bound only by ‘Santee’ and ‘Bantee’, both third person nominals.

- (14) Santee_k tell Bantee_i [Sp[+1]_k Fin1 [Ad[+2]_i Fin2 [pronoun_k saw pronoun_i]]]
 |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
 |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
 Control (agree) [+1] [+2]

The second possibility is that Sp and Ad are not controlled by arguments of the verb that selects the CP that contains them. Control always fails when the clause that immediately contains Sp and Ad is not generated inside VP—in relative clauses and high adjunct clauses, for example. Control can apparently fail to take place even in complement clauses, given that indexical shift appears to be optional in Magahi. (I return to this optionality below in section 4.5.2, claiming that in Magahi it is the result of CP-extrapolation, which can right-adjoin a CP complement to TP, putting it in the same structural position as high adjunct clauses.) When obligatory control does not happen, Sp and Ad do not get a syntactically defined semantic value, so they become subject to the PLC. As a result, they need to be bound by elements that are themselves [+1] and [+2]—namely, by higher instances of Sp and Ad (possibly Sp* and Ad*). Indeed, they have to be bound by the closest higher instances of Sp and Ad, given the Relativized Minimality character of the PLC. This can be seen in an example like (15), already discussed near the end of chapter 3, under the analysis sketched in (16).

- (15) Santee-aa baabaa-ke kahk-**au** ki Bantee-aa socha h-**o**
 Santee-FM gr³father-DAT told.3.NH.S-NH.AL that Bantee-FM think be.3.NH.S-H.AL
 ki Ram parichha paas ho ge-l-**o**/*ge-l-**au**.
 that Ram exam pass become go-PFV.3.NH.S-H.AL/*go-PFV.3.NH.S-NH.AL
 ‘Santee told grandfather that Bantee thinks that Ram passed the test.’ (to a peer)

- (16) [Ad*_n C Santee told grandfather_i [Ad_{2i} that Bantee think [Ad_{3i,*n} that Ram passed]]]
 NH H H H,*NH

Here Ad* in the root clause is nonhonorific, since the sentence as a whole is said to a friend. Ad₂ in the complement of ‘told’ is honorific, since it is controlled by ‘grandfather’, the goal argument of ‘told’. (This control is optional, but we can see that it happened in (15) because the allocutive marking on ‘think’ is -o, not -au matching the NH marking on the highest verb ‘tell’.) The

instructive thing is what happens with Ad3. This cannot be controlled by an argument of ‘think’, because ‘think’ does not have a thematically suitable argument (it has no goal). Therefore, it has to be bound by the closest [+2] element, namely Ad2 (not Ad*).¹¹ As a result, Ad3 must be honorific, and the allocutive marking that surfaces on the lowest verb ‘pass’ can be *-o* but not *-au*. This conclusion is recapped from chapter 3, now presented in a somewhat fuller context.

We are now in a position to use *i*-shift to show that the the same locality condition holds of Sp when the immediately superordinate subject does not control it. So consider (17), with the structure in (18) and a reading in which ‘my’ in the intermediate clause shifts to refer to ‘Santee’, the higher subject.

- (17) Santeeaa socha h-ai ki Banteeaa hamar baabaa-ke kahk-ai
 Santee think be-3.NH.S that Bantee my.GEN grandfather DAT told-3.NH.S
 ki ham igjaam me phel ho ge-l-i.
 that I exam in fail happen go-PFV-1.S.
 ‘Santee thinks that Bantee told my grandfather that I failed the exam.’

- (18) Sp*_i C Santee_k thinks [Sp2_k that Bantee_n told my_k grandfather [Sp3_{k,(n),*i} that I_{k,(n),*i} failed the exam]]

Here Sp* refers to the speaker, as usual. Sp2, however, is controlled by ‘Santee’ on the hypothesized reading.¹² Again our interest is what happens with Sp3 in the lowest clause, the complement of ‘tell’. This must be the binder of ‘I’ in the lowest clause, by the PLC. Therefore, we can tell what Sp3 refers to by observing what ‘I’ refers to. In fact, in this context (where ‘my’ refers to Santee), ‘I’ can also refer to Santee, but it cannot refer to Sp*, the speaker of the sentence as a whole. (‘I’ can also refer to Bantee, if Bantee controls Sp3, a reading not relevant to the point at hand.) Thus Sp3 can be bound by Sp2 but not by Sp*. This is again the relativized minimality-style pattern described by the PLC, parallel to what we observed in (15)-(16) for Ad using allocutive marking.¹³

Next let us condiser in more detail the implications of the PLC in (9) for ordinary pronouns like ‘I’/‘me’ and ‘you’. The heads that they are arguments of do not determine what they refer to, the way that SA1 and SA2 do. Nor are they subject to obligatory control, since they are not intrinsically null pronouns at the periphery of the clause. Therefore, they must be bound by the closest *c*-commanding element with the same [+1] or [+2] feature. In a simple root clause with one participant pronoun, this will be Sp* for [+1] pronouns and Ad* for [+2] pronouns,

¹¹ Assuming that rightward CP extraposition plays a role in this structure, explaining why control by the arguments of the immediately superordinate verb seems to be optional (see section 4.5.2, I need to add the assumption that the extraposition of the lowest clause in (16) puts the clause no higher than adjoined to the TP of the intermediate clause headed by ‘think’). Therefore, it is still in the domain of Ad2, and Ad2 is a closer binder for Ad3 than Ad* is, even after extraposition. This assumption is in accordance with locality conditions on movement, such as the Right Roof Constraint of Ross (1967) and subsequent work.

¹² It is also possible for ‘my’ to refer to Sp* in (17). In that case, Sp2 is bound by Sp*. Then Sp3 must be controlled by ‘Bantee’ or bound by Sp2 and ultimately Sp*. The result is that ‘I’ refers to Bantee or Sp* but not Santee. This is evidence for the locality of the obligatory control of Sp; see section 4.4 below.

¹³ See Anand and Nevins (2004) for a parallel analysis of a similar sentence in Zazaki illustrating “no intervening binder” (see also Deal (2020: 42), who calls the relevant constraint “local determination”. Although closely related, there is a difference in that the Anandian analysis has no shifting operator in the lowest clause, whereas I have DP operators but ones that are bound rather than controlled. On my analysis, this is forced at least for Ad by the fact that there needs to be something in the vicinity of the lowest Fin for it to agree with in (15).

which are always present in root clauses by hypothesis. Therefore, ‘I’ in this context refers to the speaker of the sentences and ‘you’ in this context refers to the addressee, as in (19a) with the analysis in (19b).

(19) a. Ham toraa dekha-l-i-(au)
 I you.ACC see-PFV-1.S-(NH.AL)
 ‘I saw you.’

b. $Sp^*_i Ad^*_k$ [I_i saw you_k]

Technically something slightly different happens when the root clause has two instances of ‘I/me’ or ‘you’, one of which c-commands the other, as in (20).¹⁴

(20) a. Ram hamraa hamar kitaab lauTal-ai.
 Ram you.NH-DAT you.NH.GEN book return:PFV-3.NH.
 ‘Ram returned your book to you.’
 $Sp^*_i Ad^*_k$ [Ram returned me_i my_i book].

b. Ram toraa tor kitaab lauTal-ai.
 Ram you.NH-DAT you.NH.GEN book return:PFV-3.NH.S
 ‘Ram returned your book to you.’
 $Sp^*_i Ad^*_k$ [Ram returned you_k $your_k$ book].

Here the PLC implies that ‘my’ must be a variable bound by ‘me’, rather than by Sp^* , and ‘your’ must be a variable bound by ‘you’, rather than by Ad^* . But since ‘me’ is itself bound by Sp^* given the PLC, and ‘you’ is bound by Ad^* , this makes little difference in practice, at least in ordinary situations.¹⁵ Either way, ‘my’ ends up referring to the speaker and ‘you’ to the addressee. The PLC does nothing remarkable in such sentences, but it does nothing embarrassing either. In this context, the claim that a [+1] pronoun must be bound by Sp^* is equivalent to the Kaplan style claim that a [+1] pronoun refers to the author in the context in which the sentence is spoken, given that Sp^* can be thought of as a syntactic representation of the author coordinate—and similarly for Ad^* and the addressee coordinate.¹⁶

¹⁴ Note that one cannot probe this issue using the equivalent of ‘I found my book’ or ‘You found your book’ in Magahi, because the language has a subject-oriented possessive anaphor (apan) that does not vary for phi-features and that must be used in such sentences.

¹⁵ In fact, Rule H might force the pronouns to be directly dependent on the closest antecedents anyway, apart from the PLC, unless it makes a semantic difference. It is possible that more subtle consequences would hold for fancier cases like when the first or second person is quantified or focused, or in sloppy identity environments. I do not consider such issues here.

¹⁶ The other side of the Kaplanian view is that indexicals are not sensitive to quantification over worlds, hence the strangeness of (ia). This contrasts with (ib), where the referent of definite description ‘the speaker’ can vary with different worlds. (See Deal (2020: 14-16) for discussion.) (ii) confirms that *ham* ‘I’ in Magahi is an indexical in this sense too.

- (i) a. #Whenever Obama talks, I am tall.
 b. Whenever Obama talks, the speaker is tall.

The PLC becomes more interesting for first and second pronouns inside an embedded clause. Then there is another kind of [+1] or [+2] element that they could be bound by, other than Sp* and Ad* or another first or second person pronoun. In embedded clauses, they can be bound by Sp and Ad, in the FinP of the embedded clause. Moreover, in Magahi Sp and Ad do not have to depend ultimately on Sp* and Ad*; rather, they can be controlled by other DPs, which are not necessarily [+1] or [+2]. Here the PLC will have work to do, regulating which [+1] or [+2] item a given pronoun will take as its antecedent.

Consider first the second person case, where the possibility of allocutive agreement gives us a relatively direct picture of what is happening with Ad, apart from how overt [+2] pronouns are interpreted. Alok and Baker (2018) and Alok (2020) observe that empirically there is a tight relationship between the form of allocutive marking in an embedded clause and whether a second person pronoun in that clause is interpreted as shifted or not. Consider the examples in (21). Here the allocutive marking on the embedded verb ‘see’ differs in honorification features from the allocutive marking on the main verb ‘tell’. This shows that Ad in the embedded clause, the goal of the Agree initiated by Fin, is controlled by the object of ‘tell’. As a result, the embedded allocutive marking is nonhonorific *-au* in (21a), matching the social status of Bantee, the goal of the telling event. In (21b) it is high honorific *-ain*, matching the status of the professor, the goal of the telling event in that example.

- (21) a. Santeeaa Bantee-aa-ke kahk-ain ki Ram toraa/*apne-ke dekh*l-i-au* ha-l.
 Santee-FM Bantee-FM-DAT told-HH.AL that Ram you.NH.ACC/*you.HH-ACC saw-1.S-NH.AL be-PFV
 ‘Santee told Bantee_k that Ram saw him/you_{k,*Ad*}.’ (said to a teacher)
- b. Santeeaa profesar saaheb-kekah-au ki Ram apne-ke/*toraa dekh*l-i-ain* ha-l.
 Santee-FM professor HH-DAT told-NH.AL that Ram you.HH-ACC/*you.NH.ACC saw-1.S-NH.AL be
 ‘Santee told the professor_k that Ram saw him/you_{k,*Ad*}.’ (said to a peer)

The representation of (21a) is (22).

- (22) Sp* Ad*_i Santee told Bantee_k [Sp Ad_k Fin [Ram saw you_{k,*i}]]
 Agree

So far this is a chapter three topic. The new chapter 4 twist is what happens when the embedded clause contains a second person pronoun, as the examples in (21) do. As it happens, the second person pronoun in the embedded clause must get the shifted reading in which it refers to the goal of the matrix verb. For example, in (21a) the second person pronoun in the embedded clause

-
- (ii) #Jab kabhii Santee-aa bola h-ai, ham baRi lambaa h-i.
 When sometimes Santee-FM speak be-3.NH.S I very tall be-1.S
 ‘Whenever Santee_i speaks, I_{*i(sp*)} am very tall.’

In my terms, the idea would be that Sp* and Ad* are at the very top of the root clause, outside the scope of the quantificational time adjuncts. Therefore, they cannot be bound by the quantifier, and ‘I’ and ‘you’ must depend on them directly by the PLC. The immunity of indexicals to this kind of quantification is thus not evidence that the speaker and addressee coordinates are not present in the syntactic representation on this view, but rather is evidence about where they are in the syntactic representation (at the very top of it). (This is parallel to Deal’s (2020: 35-36) assumption that context-shifting operators are very high in the C-domain, higher than the highest possible attachment site of adverbial quantifiers.)

must be the nonhonorific form *tora*, matching the *-au* suffix on the embedded verb ‘see’; it cannot be the high honorific form *apne-ke*, matching the *-ain* suffix on the matrix verb. Furthermore, this pronoun must refer to Bantee, and cannot refer to the teacher who is being addressed. In other words, indexical shift is both possible and necessary given this kind of allocutive marking. Conversely, in (21b), the second person pronoun in the embedded clause must be the HH form *apne-ke*, not *tora*, and it must have the shifted reading in which it refers to the professor, not to speaker’s friend who is being addressed. Theoretically, I conclude that the [+2] pronoun ‘you’ in (22) must be bound by one of the intrinsically [+2] Ads that c-commands it. But more specifically, it must be bound by the closest such Ad—by Ad rather than Ad* in (22). This is what the PLC in (9b) requires.

As a foil to these examples, consider also the slightly different example in (23). The overall sentence structure of (23) is similar to that of (21a), and here too the goal argument of the matrix verb ‘tell’ is the nonhonorific Bantee while the addressee of the sentence is a high honored person (e.g. a teacher). The key difference is in the allocutive marking on the embedded verb ‘should’: here it is HH, matching the matrix addressee rather than the matrix goal.

- (23) Santee-aa Bantee-aa-ke kahk-**ain** ki Ram-ke apne-se/*tora-se baat karke chah-**ain**.
 Santee-FM Bantee-FM-DAT told-HH.AL that Ram-DAT you.HH-INS/*you.NH-INS talk do-INF should-HH.AL
 ‘Santee told Bantee_k that Ram should talk to you_{ad*,*k}.’ (said to a teacher)

This then is the case in which Ad in the embedded clause is not controlled by an argument of the matrix verb; rather it is bound by the Ad (Ad*) in the matrix clause—the other option that is generally available to Ad in this position. So (23) has the same overall structure as (22), but a different indexing, as in (24).

- (24) Sp* Ad*_i Santee told Bantee_k [Sp Ad_i Fin [Ram should talk to you_{i,*k}]]
 Agree

Crucially the behavior of the [+2] pronoun ‘you’ in the embedded clause is different too. With this kind of allocutive marking, indexical shift of ‘you’ in the embedded clause is impossible: ‘you’ must refer to the addressee of the sentence as a whole in (23), and must accordingly be the HH form *apne-se*, not *tora-se*. This is also in accordance with the PLC. ‘You’ cannot be bound directly by the matrix goal *Bantee*, because ‘you’ is [+2] and Bantee is not. The only c-commanding [+2] elements in (24) are Ad and Ad* which binds Ad. Therefore, ‘you’ has to be bound by Ad, with the effect that there is no indexical shift in this case. The examples in (21)-(24) show that indexical shift and allocutive marking are indeed closely related topics in Magahi, as emphasized by Alok and Baker (2018) and Alok (2020). The PLC in (9b) provides the connection, on my account. We see that control of Ad necessarily results in indexical shift in (22), and that indexical shift is impossible apart from control of Ad in (24).

Now let us consider first person pronouns, to confirm that they behave similarly. Again, Magahi does not have speaker agreement parallel to allocutive (addressee) agreement which would provide a window on whether Sp is controlled in a particular example. But one can get similar evidence by having two first person pronouns in the same embedded clause. In any such structure, if one of the first person pronouns has a shifted reading in which it refers to the subject of the matrix verb rather than Sp*, then the second first person pronoun must also refer to the subject of the matrix verb. If there is no c-command relationship between the two pronouns, the

result is grammatical but constrained as to what it means, as in (25a). If one of the pronouns c-commands the other inside the embedded clause, then the result is ungrammatical, ruled out by condition B of the binding theory.

- (25) a. Santee soch-l-ai ki hamar mammii hamraa dekh-l-ai.
 Santee think-PFV-3.NH.S that my.GEN mother me.ACC see-PFV-3.NH.S
 ‘Santee_i thinks that his/my_i mother saw him/me_{i,*sp*}.’ [confirm in a note audit]
 Or ‘Santee_i thinks that his/my_{ap*} mother saw him/me_{sp*,*i}.’
- b. *Santee soch-l-ai ki (ham) hamraa dekh-l-i.
 Santee think-PFV-3.NH.S that I me.ACC see-PFV-1.S
 (‘Santee thinks that he/I saw him/me.’)

The structure of (25a) would be (26). Suppose the ‘my’ here refers to Santee. This means that Sp must be controlled by ‘Santee’ and ‘my’ takes Sp as its local antecedent; otherwise, ‘my’ would violate the PLC. Then consider the [+1] pronoun ‘me’ in object position. According to the PLC, it must be bound by the closest c-commanding [+1] element, which in this case is Sp, rather than Sp*. Hence it too must refer to Santee in this case.

- (26) Sp*_k Santee_i thinks [Sp_n that [my_n mother saw me_n]].
 n=i or n=k

The other possibility is that Sp is bound by Sp* rather than controlled by ‘Santee’. In that case, both ‘my’ and ‘me’ must refer to Sp*—which is another possible interpretation of (25a). What is ruled out is having one of the first person pronouns refer to Santee and the other to Sp*. This is the famous Shift Together effect, originally pointed out (for Zazaki) by Anand and Nevins (2004) and Anand (2006), and taken to be strong evidence in favor of the shifty operator theory. In my account, it follows from the PLC.¹⁷ (25b) is similar, except that here the readings in which ‘I’ and ‘me’ are bound by the same antecedent (Sp) happen to be ruled out by Condition B of the binding theory: the pronominal object is coreferential with a c-commanding antecedent in the same domain. Therefore, the structure is unacceptable, forced to violate either the PLC or Condition B. This shows that the PLC is a strong grammatical effect, not merely a pragmatic preference which can be overridden by other factors.

Second person pronouns in the same embedded clause must also shift together, as expected, given that they are subject to essentially the same condition. This is shown in (27). The

¹⁷ Deal (p.c.) has pressed me on the claim that Shift Together follows more organically from the shifty operator view, whereas I stipulate it by including a locality condition in (9) that does not hold for other bound pronoun constructions. I push back on this in two ways. First, I’m not convinced that this isn’t stipulated in the shifty operator view as well, although it is done so more axiomatically. The shifty operator view invokes context overwriting, which says that an indexical can only be interpreted relative to the local context, which is a close analog of the PLC that an indexical must be bound by the closest Sp or Ad. Second, I believe that (9) is independently motivated in that it also has relevance to other kinds of items that are [+1] or [+2], including pronouns with complex phi-feature bundles (indexiphors; see chapter 6) and agreeing heads (Baker 2008). There are also apparent counter examples to Shift Together in languages like Amharic. The shifty operator view treats these as not being true indexicals but rather as “indexiphors”—logophors that look in some respects like indexicals on the surface. I also adopt this idea in chapter 6, but it will help some that the PLC can be parameterized in ways that the context shifting view cannot naturally be (as far as I can see). I come back to some further comparison of the two theories below.

second person analog of the structure in (26) is (28). Again the two pronouns in (27a) must have the same reference: either both refer to Bantee or both refer to the addressee Ad* --no mixing and matching. And again (27b) is bad, where coreference between the two pronouns runs afoul of Condition B.

- (27) a. Santee-aa Bantee-aa-ke kah-l-ai ki tor mammii toraa ekh-l-ai
 Santee-FM Bantee-FM-DAT tell- PFV-3.NH.S that your.NH mother you.NH.ACC see-PFV-3.NH.S
 ‘Santee told Bantee that your mother saw you.’
- b. *Santee-aa Bantee-aa-ke kah-l-ai ki (tu) toraa dekh-l-eN
 Santee-FM Bantee-FM-DAT tell- PFV-3.NH.S that (you.NH) you.NH.ACC see-PFV-2.NH.S
 (‘Santee told Bantee that you saw you.’)
- (28) Sp* Ad*_k Santee_i told Bantee_i [Sp Ad_n that [your_n mother saw you_n]].
 n=i or n=k

There is a second kind of Shift Together effect in the literature, which concerns the behavior of two different kinds of indexicals in the same clause—for example, one first person pronoun and one second person pronoun. Like many other languages with indexical shift, Magahi obeys this sort of Shift Together as well, as shown in (29). Here either ‘I’ refers to Santee and ‘you’ refers to Bantee (both shifted) or ‘I’ refers to Sp* and ‘you’ refers to Ad* (both nonshifted). The logically possible reading in which ‘I’ refers to Santee and ‘you’ refers to Ad* and the one in which ‘I’ refers to Sp* and ‘you’ refers to Bantee are both unavailable.

- (29) Santee-aa Bantee-aa-ke kahl-ai ki ham toraa dekh-l-i.
 Santee-FM Bantee-FM-DAT told-3.NH.S that I you.ACC see-PFV-1.S
 ‘Santee_i told Bantee_k that I_i saw you_{k,*ad*}.’ Or ‘Santee_i told Bantee_k that I_{sp*} saw you_{ad*,*k}’

I refer to this effect as “Shift Together 2”, to distinguish it from cases where two indexicals of the same kind need to shift together (Shift Together 1). This further effect seems to vary some across languages in that there are some constructions in some languages (primarily Slave; Rice 1989) that violate this form of Shift Together but not the other kind. For Deal’s shifty operator view, the issue is whether the operator that overwrites the addressee coordinate is bundled together with the operator that overwrites the author coordinate. The analog of this in my analysis is that Ad must be controlled by an argument of the matrix verb if and only if Sp is controlled by an argument of the matrix verb. This is a separate condition; it will follow in part from the Edge Condition, but there will also be a residue. I return to this in section 4.5. For now it is worth having (30) in mind as a descriptive generalization, which is relevant to the range of examples that are constructable.

- (30) Shift Together 2: Sp in an embedded clause is controlled by an argument of the superordinate verb if and only if Ad in the same clause is controlled by an argument of the same verb.

There is also a Magahi-specific effect of Shift Together 2, which involves allocutive marking. The example in (31) has a first person pronoun in the embedded clause but no (overt) second person pronoun. It does, however, have allocutive marking. Indeed, it has shifted

allocutive marking, which reflects the honorificity features of the matrix goal *Bantee* rather than those of the addressee Ad*. In this situation, ‘I’ must receive the shifted reading: it must refer to Santee rather than to Sp*.

- (31) Santee-aa Bantee-aa-ke kahl-ain ki ham Ramke dekh-l-i-au hal.
 Santee-FM Bantee-FM-DAT told.3.HN.S-H.A L that I Ram- DAT saw-1.S-NH.AL be.PFV
 ‘Santee told Bantee that I (=Santee, *=Sp*) saw Ram.’

This follows from (30) plus the PLC. The structure is sketched in (32). The matrix goal controls Ad, as shown by the honorificity features copied onto Fin, realized on the verb. Therefore the matrix subject controls Sp, by (30). Moreover, ‘I’ must be bound by Sp, not Sp*, by the PLC. Therefore ‘I’ must refer to Santee.

- (32) [Sp* Ad*:HH SA Fin [Santee_i told Bantee_k:NH [Sp_i Ad_k:NH Fin [I_i saw Ram]]]].
 Agree:HH Agree:NH

In contrast, if the allocutive marking on the embedded verb is *-ain* rather than *-au* in (31), then ‘I’ must refer to Sp* rather than to Santee in (31), as predicted.

A question that arises given the PLC (or the shifty operator theory) is how one realizes a structure like (33) in Magahi or other languages with indexical shift.

- (33) Sp*_i SA Fin [Santee_k think [Sp_k Fin that [I_k saw pronoun_i]]]

Here ‘pronoun’ cannot be a first person form ‘me’, as we saw above: that sort of pronoun would have to be bound by Sp_k (and indeed by I_k), by the PLC—a Shift Together 1 effect. Nor of course could ‘pronoun’ be second person, since it is not bound by Ad or any other [+2] element on the intended interpretation. The interesting question is whether it could be a third person pronoun. The answer is potentially yes, if third person pronouns are the elsewhere case, used wherever the more specific first and second person pronouns are unavailable. And that seems to be the right answer for Slave, where Rice (1989) reports many examples like (34). Here the first person pronoun in the complement of ‘want’ refers to the nurse, the subject of ‘want’ and the controller of Sp, and the third person pronoun in the complement of ‘want’ can be interpreted as referring to the speaker of the sentence as a whole. Indeed, this is the only way to refer to the speaker from this position. (The third person pronoun can also refer to some other person known from context, not surprisingly.)

- (34) a. Judóné ri nurse [Teddy gho beghárayuhdá] sudeli?
 When Q nurse Teddy about 1SG.S.OPT.see.3SG.O] 3SG.S.want.1SG.O
 ‘When does the nurse_k want of me_{sp*} that she_k [lit. I] see me_{sp*} [lit. her] about Teddy?’
 b. When Q [Sp*_i C [nurse_k want me_i [Sp_k C [pro[+1]_k see pro_i[*+1] about Teddy.]]]

Leslau (1995: sec 142.8, 142.11) also has some examples of this kind from Amharic. However, Alok and I have not been able to get this judgment in Magahi. The crucial difference seems to be that indexical shift is obligatory in the complements of certain verbs in Slave, whereas it is always optional in Magahi. In Magahi if one wants to convey what is intended in (33), the

natural way to do it is not to use indexical shift, as attempted in (35a), but to simply say (35b) with no indexical shift, which has the structure in (35c) rather than (33).

- (35) a. #Santee-aa sochl-ai ki (pro) okraa dekh-l-i.
 Santee-FM think.PFV-3.NH.S that (I) him.ACC see.PFV-1.S
 ‘Santee_i thinks that he/I_i saw him.’
 (no interpretation recognized with him referring to Sp*)
- b. Santee-aa sochl-ai ki [pro] hamraa dekh-l-ai.
 Santee-FM think.PFV-3.NH.S that (he) me.ACC see.PFV-3.NH.S
 ‘Santee_i thinks that he_i saw me_{sp*}.’
- c. Sp*_i SA [Santee_k think [Sp_i Fin that [he_k saw me_i]]]

However, (35b/c) is not an option in Slave, given the obligatoriness of first person indexical shift. This forces (34) to be used despite the unusual ambiguity in which a third person pronoun can be used to refer to the speaker or some non-speech act participant known in the discourse.¹⁸ I tentatively assume that Magahi’s preference for (35c) over (33) is a pragmatic one, given that indexical shift is a bit marked anyway and (35) is a bit less ambiguous, but leave this open.

Now that we are thinking about third person pronouns as well as first and second person pronouns, let us briefly consider how they are affected by contexts of indexical shift. In fact, they clearly are affected in Magahi. Apart from indexical shift, third person pronouns can refer to NPs in the matrix clause in the usual way, just as in English (the just-mentioned (35b) is also an example of this).

- (36) a. Santee soch h-ai ki u tej h-ai.
 Santee think be-3.NH.S that he intelligent be-3.NH.S
 ‘Santee_i thinks that he_{i,k} is intelligent.’
- b. Santee-aa Bantee-aa-ke kahl-ai ki u hamraa/Ram-ke dekh-l-ai.
 Santee-FM Bantee-FM-DAT tell.PFV-3.NH.S that he me.ACC/Ram-ACC see-PFV-3.NH.S
 ‘Santee_i told Bantee_k that he_{i,k} saw Ram/me_{sp*}.’
- c. Santee-aa Bantee-aa-ke kahl-ai ki u okraa dekh-l-ai.
 Santee-FM Bantee-FM-DAT tell.PFV-3.NH.S that he him.ACC see-PFV-3.NH.S
 ‘Santee_i told Bantee_k that he_i saw him_k.’

¹⁸ If my conjecture is right that the structure in (33) is only clearly manifested in languages with obligatory indexical shift, then Matses would be another language to look for it in. However, Munro et al. (2012) do not discuss this type of example. Uyghur is another possible case, but in this language indexicals can move out of the domain of the monstrous operators (for me, Sp and Ad) and thereby avoid shifting (Shklovsky and Sudo 2014), and that might influence the space of possibilities in a way that is relevant to the pragmatics.)

Another very intriguing way that languages with indexical shift can realize the structure in (33) is by using a first person pronoun in the embedded clause that triggers third-person agreement (rather than normal first person agreement) on the embedded verb. See Spadine (2020) for clear discussion of such a case in Tigrinya. This leads into a discussion of the possibility of pronouns bearing more than one set of phi-features—the topic of Chapter 6.

However, a third person pronoun often loses the ability to refer to matrix arguments when there is a shifted indexical along with it in the embedded clause. This can be seen in the examples in (37).

- (37) a. Santee-aa soch-l-ai ki okar maiyaa hamraa kaul kar-k-ai.
 Santee-FM think-PFV-3.NH.S that his mother me.ACC call do-PFV-3.NH.S
 ‘Santee_i thinks that his_{k,*i} mother called him/me_i.’ (if me=Santee, then *his=Santee)
- b. Santee-aa Bantee-aa-ke kah-l-ai ki okar maiyaa toraa kaul kar-k-ai.
 Santee-FM Bantee-FM-DAT tell-PFV-3.NH.S that his mother you.NH.DAT call do-PFV-3.NH.S
 ‘Santee_i told Bantee_k that his_{*I,*k,n} mother called him/you_k.’
 (if ‘you’=Bantee, then ‘his’ not=Bantee or Santee)
- c. Santee-aa Bantee-aa-ke kah-l-ai ki u toraa dekh-l-ai.
 Santee-FM Bantee-FM-DAT tell-PFV-3.NH.S that he you.NH.ACC see-PFV-3.NH.S
 ‘Santee_i told Bantee_k that he_{*i,n} saw you_k.’ (If ‘you’=Bantee, not ‘he’=Santee.)
- d. Santee-aa Bantee-aa-ke kah-l-ai ki u hamraa dekh-l-ai.
 Santee-FM Bantee-FM-DAT tell-PFV-3.NH.S that he me.ASS see-PFV-3.NH.S
 ‘Santee_i told Bantee_k that he_{=*k,n} saw me_i.’ (If ‘me’=Santee, then not ‘he’=Bantee.)

However, there is no blanket prohibition against a third person pronoun referring to an NP in the matrix clause from out of a complement clause that contains a shifted indexical. This is possible when the third person pronoun refers to an NP in the matrix clause which is not one that could be referred to using ‘I’ or ‘you’—such as the possessor of the subject. So ‘him’ him can refer to ‘Santee’ in (38) while ‘I’ refers to Santee’s mother.

- (38) Santee-aa-ke maiyaa soch-l-ai ki (ham) okraa bazaar-me dekh-l-i. .
 Santee-FM-GEN mother think-PFV-3.NH.S ki (I) him.ACC market-in saw-PFV-1.S
 ‘Santee_i’s mother_k thinks that she/I_k saw him_{i,n} in the market.’

This effect is not part of the core data that Deal (2020) tries to explain within her shifty operator analysis. Nor is it obvious why it should be in those terms. Third person pronouns are not interpreted relative to the context in the way that indexicals are. Therefore, there is no obvious reason why the presence of a context-shifting operator should affect them. Patterns like this have been observed in the previous literature from time to time. Anand (2006: sec 2.6.5) has a brief discussion under the heading the “obviation effect”, which he relates to Schlenker’s (2003) discussion of presupposition maximization, leading speakers to avoid the use of negative feature values like third person.¹⁹ (See also Podobryaev (2014: 101) for a “Elsewhere 3rd person principle” and Spadine (2020: 169) for a “Realize Person Features” principle—blocking type preference principles of unclear theoretical status). Along these lines, ‘he’ in (37) referring to Santee or Bantee is blocked by the preferred possibility of shifted ‘me’ referring to Santee or shifted ‘you’ referring Bantee. This is descriptively accurate, and far be it from me to say that this analysis could not be made to work. However, the pragmatic account needs to be stated with

¹⁹ Anand (2006: 114(342)) makes the intriguing observation that this effect does not hold in Zazaki, although it does in Amharic, Navajo and Slave. I do not know why this difference should exist.

considerable care, given that a third person pronoun referring to a matrix argument is not blocked in (36), even though ‘I’ would be possible referring to Santee and ‘you’ would be possible referring to Bantee in these examples too. One thus needs to be very careful about what is compared to what on a pragmatic blocking account.

In contrast, my analysis can attribute this robust effect in Magahi to the familiar Rule H (Fox 2000, Safir 2004, Buring 2005). This says that in a structure like [... NP > pronoun1 > pronoun2...], where each element c-commands the following element and pronoun1 depends on the NP, pronoun2 can only depend on NP by depending directly on pronoun1. This condition can play a role in explaining why (39c) is bad in English, even though (39a) and (39b) are both possible. (39b) shows that it is possible in general for *her* in the embedded clause to take the matrix subject *Mary* as its antecedent. However, this is not possible in (39c), where *she* also takes *Mary* as its antecedent and *she* c-commands her. Rather, Rule H implies that in this configuration a pronoun in the object position of the embedded clause can only refer to *Mary* by taking *she* as its direct antecedent—and that requires the pronoun to have the reflexive form *herself*, as in (39d), since its antecedent c-commands it within the same clause.

- (39) a. *Mary_i thinks that she_i saw John at the rally.*
 b. *Mary_i thinks that John saw her_i at the rally.*
 c. **Mary_i thinks that she_i saw her_i at the rally.*
 d. *Mary_i thinks that she_i saw herself_i at the rally.*

In the current context, this Rule H can also be used to explain (37). Consider for example (37c), with the structure given in (39).

- (40) Sp* Ad* SA Fin [*Santee_i told Bantee_k [Sp_i Ad_k Fin that [he_i saw you_k]]].*

Here Ad must be controlled by *Bantee* in order for ‘you’ to refer to Bantee, as intended. Therefore, Sp must be controlled by *Santee*, given Shift Together 2 ((30)). Now ‘he’ refers to Santee on the intended interpretation. But so does Sp, and Sp c-commands ‘he’ and is c-commanded by Santee. Therefore, ‘he’ must depend directly on Sp, not *Santee*, by Rule H, just as *her(self)* must depend on *she* rather than *Mary* in (39).²⁰ But Sp is [+1]. Therefore the pronoun that it binds must be [+1] as well. In other words, it must be ‘I’ not ‘he’. The other examples in (37) can be explained in analogous fashion. Note that this account is possible precisely because Sp and Ad are syntactically represented on my account, rather than just being part of the interpretative apparatus. Since they are syntactically represented, they have well-defined c-command domains that are visible to binding theoretic principles like Rule H.

This has some further practical significance for comparing theories. Part of Anand’s oft-cited argument that some *de se* items (shifted ‘I’) do not involve pronoun binding while others (logophors) do is based on the so-called *de re* blocking effect. Logophors are supposed to be susceptible to this effect, whereas shifted indexicals (by implication) are not. *De re* blocking gives a contrast like (41) in Yoruba (Adesola 2005). (41b) shows that it is possible in principle for a logophor and a plain pronoun to refer to the same matrix clause antecedent in Yoruba. But (41a) shows that this is not possible when the plain pronoun c-commands the logophoric

²⁰ Again, Rule H might imply that the pronoun must depend on Sp, unless depending on *Santee* would give a different interpretation. I do not explore whether there might be special situations (non *de-se* interpretations, focus, sloppy identity) in which ‘he’ can depend directly on *Santee*.

pronoun. Anand assumes that logophors refer to their antecedents *de se*, plain pronouns refer to their antecedents *de re*, and a *de se* element cannot be c-commanded by a *de-re* element—drawing a connection between this Yoruba contrast and the behavior of pronouns in dream complements in a language like English.

- (41) a. Olu so pé o rí bàbá òun. (Anand 2006: 57)
 Olu say that he see father LOG
 ‘Olu_i said that he_{k,*i} saw his_i father.’
- b. Olu so pé bàbá rẹ̀ ti rí iyá òun.
 Olu said that father his ASP see mother LOG
 ‘Olu_i said that his_{i,n} father saw his_i mother.’

I return to this contrast in a range of logophoric languages in chapter 5 (different languages work somewhat differently in this respect). Now indexical shift analogs of this contrast would be (42): in (42a) an ordinary third person pronoun c-commands a shiftable *de se* first person pronoun capable of referring to Santee; in (42b) there is a third person pronoun that does not c-command the first person pronoun.

- (42) a. Santee sochl-ai ki Bantee-aa okraa hamar kitab lauTaa det-ai.
 Santee think.PFV-3.NH.S that Bantee-FM him.DAT my book return give-3.NH.S
 ‘Santee_i thinks that Bantee will return to him_{k,*i} his/my_i book.’ (if ‘my’=Santee, then *’him’=Santee)
- b. Santee-aa sochl-ai ki okar maiyaa hamraa kaul kar-k-ai.
 Santee-FM think.PFV-3.NH.S that his mother me.ACC call do-PFV-3.NH.S
 Santee_i thinks that his_{,*i} mother called him/me_i.’ (if ‘me’=Santee, *’his’=Santee)

Indeed, (42a) is bad in Magahi with my=him=Santee, as (41a) is Yoruba, and we have a reason why: like (40), (42a) violates Rule H plus the feature matching condition on bound pronouns. We could also describe this as *de re* blocking, assuming that the shifted indexical ‘my’ refers to its antecedent *de se* and the third person pronoun refers *de re*. There is no clear difference between a logophor and a shifted indexical here. However, (42a) is not clearly recognizable as *de re* blocking, because (42b) where there is no c-command relationship between the two pronouns is also ruled out by the same principles, whereas (41b) is possible in some languages. I show in chapter 5 that this is because logophoric pronouns (including logophoric operators parallel to Sp) are nondistinct in formal features from ordinary pronouns in some languages, whereas first person pronouns (including Sp) are distinct from third person pronouns in all languages. [+1] and [+2] are universal features that conflict with third person pronouns in all languages. In contrast, [+log] is a language particular feature and a subtype of third person; whether it conflicts in features with an ordinary third person pronoun or not depends on the details of the feature system of a particular language. Once this difference is abstracted away from, it is not clear that there is an important difference between shifted indexicals and logophoric pronouns in terms of *de re* blocking. When all the pieces are lined up, I will claim that this undecuts Anand’s argument that logophoric pronouns are bound variables whereas shifted indexicals are not.

This concludes my inquiry into the binding relationship between the ghostly DP operators Sp and Ad and the pronouns that they bind, which is a crucial part of the story about indexical shift in Magahi and other languages. UG trivially makes such a relationship possible, and we expect the operator and the bound pronoun to match in features—crucially here in person features. The Person Licensing Condition also applies to further constrain the binding possibilities for items with first or second person features, making them behave somewhat differently from third person pronouns (including logophors, as we shall see). This captures the Shift Together 1 effect, where two first person pronouns in the same clause must have the same referent—shifted or not—as must two second person pronouns. Feature-matching between the binder and the bindee taken together with Rule H also has the effect that third person pronouns cannot refer to arguments of a matrix verb when they are inside a clause that also contains shifted indexicals. Finally, we have observed some effects of a Shift Together 2 constraint, which says that first person pronouns in a given domain shift if and only if second person pronouns do, but we have not derived this from more general principles. I return to that topic in section 4.5.

4.4 Control of Sp and Ad as seen from indexical shift

The principles of pronoun binding, which regulate the relationship between Sp and Ad and pronouns in the embedded clause—and especially the PLC—are what is new about indexical shift within my unified theory of ghostly operator constructions. In contrast, the principles of obligatory control, which regulate the relationship between Sp and Ad and arguments of the matrix clause are what should be old/familiar about indexical shift, given my leading ideas. In this section, I turn to this aspect of the indexical shift construction. If indeed Sp and Ad show evidence of being controlled by the same principles as SoK, which agreement shows to be syntactically realized, this is an advantage of saying that Sp and Ad are syntactically realized too, subject to the same partially syntactic principles as syntactically represented elements like SoK and ordinary PRO. The goal of this section, then, is to show that the same core conditions that regulate the arguments of the matrix verb controlling SoK and OoK, the targets of C agreement in African languages, also regulate the arguments of the matrix verb controlling Sp and Ad in Magahi. To some extent, this was already shown for Ad in chapter 3 using data from allocutive agreement. Now I replicate this result for Ad using data from u-shift and extend it to Sp using data from i-shift. Moreover, since i-shift happens with a wider range of predicates than u-shift does, and since Sp is more comparable to SoK than Ad is, the comparison becomes richer and thus more compelling, in support of the hypothesis that indexical shift involves the obligatory control of syntactically represented null DPs.

First let us remind ourselves of the principles of control that were in play in the analysis of upward C agreement and allocutive agreement. The central principle is a version of Landau’s Obligatory Control Signature, repeated in (43), with Sp now explicitly joining Ad in the extensional list of controllable DPs.

(43) *The Generalized OC Signature: (GOCS)*

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

The thematic role condition on control has been fleshed out as in (44).

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

The key idea here is that arguments with the roles agent, causer, source, and experiencer match the (proto)-agent role of SoK and now Sp, whereas arguments with the roles goal, patient, and theme match the (proto)-goal role of Ad (and OoK, if that exists).

As a secondary condition on control, I argued that when the matrix verb has only one non-CP argument and this has a thematic role that can be treated as either subject-like or object-like (e.g., an experiencer-goal argument), that argument must control the subject-like operator rather than the object-like one. This was stated as the Edge Condition in (45).

- (45) a. *The Edge Condition:*
Only the higher of two null DPs associated with a complex head can be controlled from outside the clause.
b. The Edge Condition is subject to the Principle of Minimal Compliance (Richards 1998).

However, one difference that we saw between upward C-agreement and allocutive agreement is that the former is subject to the T/Agree Condition whereas the latter is not—a difference that I derived from the fact that Ad already has phi-features when the relevant C-like head (Fin2) enters into Agree with it for the first time, whereas SoK (entering into Agree with Eval1) does not. In this section, we also see in passing that the control of Sp, and hence i-shift, is also not subject to the T/Agree condition, as expected.

If the empirical case that I build is convincing, this will be significant in two respects. First, it will help to justify the GOCS as an active principle of UG. It might be thought that a single phenomenon like upward C-agreement which is attested mostly in one region of the world is too slender evidence to be worth doing a significant refinement (and generalization) of the principles of control. If, however, the same principles work for not-obviously related phenomena in different parts of the world, then the plausibility that core aspects of UG are at work here is much greater.

This demonstraton should also go long way toward motivating/solidifying/confirming the new theory of indexical shift proposed in Baker and Alok (2018) and Alok (2020). My analysis of C agreement is a variant of one of the standard views in that literature (Diercks's 2013). My analysis of allocutive agreement is a standard view as well—essentially the only existing generative view. But the analysis of indexical shift outlined here is *not* standard. In particular, it is rather different from the influential Anand/Deal analysis, where indexical shift is accomplished by a context shifting C-like head—an operator in the semantic sense—without pronoun binding, control, or a CP-peripheral DP being involved. But if African upward C-agreement needs to involve control of one DP by another and cannot be the result of purely semantic operators, and African C-agreement is demonstrably like Magahi indexical shift such that the two should fall under the same theory, then we can infer that there must be a more control-like theory of indexical shift too. This is a higher level argument that I am developing the empirical raw materials for here.

4.4.1 The thematic matching condition

A signature property of C-agreement in Africa is that the superordinate subject controls it and the superordinate object does not—despite the object being structurally closer to SoK than the subject is. That is true for i-shift in Magahi too: the matrix subject of a verb like ‘tell’ can control Sp, but the object of ‘tell’ cannot. If it could, we would expect ‘I’ and ‘me’ to shift such that they can corefer with *Bantee*, the goal of the matrix verb in an example like (46). But this is impossible.

- (46) Santee-aa Bantee-aa-ke kahl-ai ki ham tej h-i.
 Santee-FM Bantee- FM-DAT told-3.NH.S that I intelligent be-1.S
 ‘Santee_i told Bantee_k that I_{i,sp*,*k} am intelligent.’

In contrast, the goal can control the Ad of its CP complement, such that ‘you’ in the embedded clause bound by Ad shifts to the goal Bantee, as in (47). This is like upward C-agreement with the goal in Kipsigis, assuming that to be a real phenomenon.

- (47) Santee-aa Bantee-aa-ke kahl-ai ki tu tej h-eN.
 Santee-FM Bantee- FM-DAT told-3.NH.S that you.NH intelligent be-2.NH.S
 ‘Santee_i told Bantee_k that you_{k,ad*,*i} are intelligent.’

Conversely, the matrix subject cannot be the understood antecedent of a shifted ‘you’, as can also be seen in (47). This is like the fact that the subject of ‘tell’ cannot control suffixal C-agreement in Kipsigis, but only prefixal C-agreement. So the high-level parallel between C-agreement and indexical shift holds over these central data. This is in line with the thematic matching condition in (44), under the assumption that Sp gets a subject/agent-like thematic role from Fin(1) and Ad gets an object/goal-like role from Fin(2).

One classic way to see that controller choice is determined more by the thematic roles of the potential controller than by its syntactic position/grammatical function is to consider examples in which the matrix verb is passive. For example, in Kinande the passived goal argument cannot control SoK, hence agreement on C, because the covert agent or the *by*-phrase is a better thematic match. Similarly, in Magahi the goal argument of a passive is not able to control Sp, hence it cannot be the antecedent of a shifted ‘I’. This is seen in (48). Here *Chhotu* cannot be the antecedent for shifted ‘I’ in the CP complement for essentially the same reason that *Bantee* cannot be in (46).

- (48) Chhotu-aa-ke kahal gel-ai ki (ham) Ram-ke madad kar-bai
 Chhotu-FM-DAT told go.PFV-3.NH.S that (I) Ram-ACC help do-FUT.3.NH.S
 ‘Chhotu_i was told that I_{*i,sp*} will help Ram.’

This is not as striking in Magahi as it is in the African languages, in that the goal argument in such sentences retains dative case and (therefore) does not trigger person agreement on the verb. In these respects, it is not a fully canonical subject. However, this is still a similarity with African languages like Kinande rather than a difference. Moreover, the dative argument of ‘seem’ can control i-shift, as shown in (49).

- (49) Santee-aa-ke laga h-ai ki ham tej h-i.

Santee-FM-DAT seem be-3.NH.S that I smart be-1.S.
 ‘It seems to Santee_i that he/I_{i,sp*} is/am smart.’

Thus-i-shift in (48) cannot be ruled out purely on superficial morphosyntactic grounds involving the case of the antecedent of ‘I’. Rather, it is plausible to say that the covert agent plays a role in blocking i-shift controlled by ‘Chhotu’ in (48).²¹

What the goal argument of passivized ‘tell’ can do is control Ad, just as it does in the active version in (47). As a result, it can be the ultimate antecedent of shifted ‘you’ in the complement, as in (48).

(50) Chhotu-aa-ke kahal gel-ai ki (tu) Ram-ke madad kar-beN.
 Chhotu-FM-DAT told go.PFV-3.NH.S that (you.NH) Ram-ACC help do-FUT.2.NH.S
 ‘Chhotu_i was told that he/you_{i,ad*} will help Ram.’

Even more strikingly, the *by*-phrase in a Magahi passive can control Sp, making it the antecedent of i-shift in (51).²²

(51) Chhotu-aa-ke Bittu-aa diyaa ?kah-al/kah-waa-wal gel-ai ki (pro) toraa dekh-i.
 Chhotu-FM-DAT Bittu- FM by tell-PASS/tell-CAUS-PASS go-3.NH.S that (I) you.ACC saw-1.S
 ‘Chhotu_i was told by Bittu_k that he/I_{k,sp*} saw him/you_{i,ad*}.’

The control/indexical-shift pattern in these passives is essentially the same as in versions with an active matrix verb like ‘tell’: the agent controls i-shift and the goal controls u-shift, regardless of their surface grammatical functions. This supports the claim that control is determined thematically, in that it does not matter whether the agent is the surface subject or not.²³ ‘Seem’ and ‘tell-PASS’ constitute an instructive minimal pair. The difference is that there is a covert agent with ‘tell-PASS’ but not with ‘seem’. This covert agent can control Sp, opening up CP for the goal of ‘tell-PASS’ to control ‘you’ (see the Edge Condition in (45)), whereas this does not happen with ‘seem’ (see also below). In addition, the covert or oblique agent prevents the goal argument from being parsed as an experiencer, so it blocks the goal of ‘tell-PASS’ from controlling Sp and thus being the antecedent of i-shift,²⁴ whereas the experiencer of ‘seem’ can do this. We also see clearly here that in Magahi control of Sp is not subject to a T/Agree

²¹ Specifically in terms of Chapter 2, an agent prevents a goal from being interpreted as an experiencer, which thereby prevents it from controlling Sp.

²² Like many South Asian languages, the true simple personal passive is not common in the spoken language, especially with a *by*-phrase. The version in which the passive verb bears causative morphology as well as periphrastic passive morphology (the main verb in perfective particle form -l together with intransitive auxiliary ‘go’) is more natural. This morphological variation does not affect the syntactic points being made, as far as I know.

²³ Looking ahead, this is a known property of control of PRO in languages like English too, although other factors can complicate the picture. For example, the *by*-phrase of a passive can control PRO on a par with an agentive subject in examples like (ib); see Landua (2013) for a discussion of “Visser’s Generalization”.

- (i) a. The high command_i decided [PRO_i to bomb Transylvania].
 b. It was decided by the high command_i [PRO_i to bomb Transylvania].

²⁴ There seems to be some lower-level crosslinguistic variation on this point, though. An oblique passive agent does not block a goal argument from counting as an experiencer in Lubukusu and Japanese, although it does in Kinande and Magahi (and agent-subjects have this effect in all these languages). Whether this is related to any other observable properties of the passive constructions in these languages is a topic for future research.

Condition, the way that C-agreement in the Niger Congo languages is. Magahi then gives clear evidence that *by* phrases are subjects in the sense relevant to this kind of control.

Consider next indexical shift patterns when the matrix verb is a verb like ‘hear’, which is not a passive verb but is thematically similar in that it has an experiencer/goal as the subject and an agent/source can be present as an oblique phrase not in Spec TP or not at all. In the African languages, ‘hear’ constructions were interesting in that the hearer subject could control C-agreement via SoK when it is by itself, but in a subset of the languages this was blocked when a source phrase is present. This may have seemed a bit quirky and idiosyncratic. But Magahi turns out to be strikingly parallel. ‘Hear’ without a source phrase can control indexical shift of ‘I’, as shown in (52). This is different from ‘was told’, which is similar in semantic content, but the tellee controls u-shift not i-shift, as shown just above. An NP with a goal-like role can be considered an experiencer in the absence of an agent argument, and experiencer arguments are qualified to control Sp. Passive verbs have agents, covertly or overtly, which inhibits this control, but ‘hear’ (like ‘seem’) does not.

- (52) a. Jaun-waa sunl-ain ki hamar bahinii await h-ai.
 John-FM heard.3.NS.S-HH.AL that my sister come.PROG be-3.NS.S
 ‘John_i heard that his/my_{i,sp*} sister came.’ (said to a teacher)
- b. Santee-aa sunk-ai ki ham parichhaa paas ho gel-i.
 Santee-FM heard-3.NS.S that I exam pass become go.PFV-1.S
 ‘Santee_i heard that he/I_{i,sp*} passed the exam.’

Indeed, in Magahi the hearer can control i-shift even when a source phrase is present, as in (53). I claim that this is because a source phrase is a little different from an agent phrase in that it does not prevent a goal argument from being categorized as an experiencer.²⁵

- (53) Santee-aa Bantee-se sunk-ai ki ham parichhaa paas ho gel-i.
 Santee-FM Bantee-INS heard-3.NS.S that I exam pass become go.PFV-1.S
 ‘Santee_i heard from Bantee that he/I_{i,sp*} passed the exam.’

However, when a source phrase is present along with the verb ‘hear’, Magahi also allows another possibility. The source phrase is enough like an agent that it can control indexical shift of ‘I’, rather than the experiencer subject. When this happens, the hearer can control Ad, resulting in u-shift, as seen in (54).

- (54) Santee-aa Bantee-aa-se sunl-ai ki (tu) hamraa bazaar-me dekh-eN.
 Santee-FM Bantee-FM-INS heard-3.NS.S that (you) me.ACC market-in see.PFV-2.NH.S
 ‘Santee_i heard from Bantee_k that he/you_{i,ad*} saw him/me_{k,sp*} in the market.’

Experiencer-goal arguments are thus on the borderline of the core distinction of thematic theory: they can count as either agent-like arguments that control Sp or as object-like arguments that

²⁵ We might also infer from this that the source phrase in Magahi can count as either a PP-ad adjunct, as in Lubukusu, or as an oblique NP argument of the verb, as in Kinande. The particle *se* would be ambiguous as to whether it is an adposition or a case marker, as is not uncommon.

control Ad. (54) also shows again that a nominal need not trigger agreement on T in order to control Sp and thus be the antecedent of a shifted ‘me’ in Magahi.

It is interesting to compare constructions with ‘hear’ to constructions with the verb ‘ask’ in Magahi. Like ‘tell’ and ‘hear’, this verb can take two nominal arguments as well as a CP complement. As for the case-marking of its arguments, ‘ask’ looks very much like ‘hear’ in that its internal argument, the askee, is marked with the postposition *se*. Despite this, its thematic structure is more like ‘tell’ than like ‘hear’, since the question content is directed *from* the subject to the oblique internal (whereas the answer is expected to come back *from* the oblique). Therefore with ‘ask’ the internal argument is thematically a goal as well as a source, whereas the internal argument of ‘hear’ is a pure source. This fine-grained thematic analysis matters for how control of Sp and Ad precedes: ‘ask’ behaves like ‘tell’ rather than like ‘hear’ in that its subject can control i-shift in the presence of the oblique internal argument, and the oblique can control allocutive marking and u-shift. (55) shows a C-agreement examples in which allocutive marking on the embedded verb is determined by the matrix internal argument and its social rank relative to the matrix subject.

- (55) Raam profesar saahab-se puchhk-au ki kaa Sitta ait-ain.
 Ram professor-HH-INS ask-NH.AL that Q Sita come-HH.AL
 Ram asked the professor whether Sita will come.’ (said to a peer)

The example in (56) adds indexicals to the embedded clause. Here ‘you’ in the embedded clause refers to the goal/source of the matrix clause and embedded ‘I’ refers to the subject of the matrix clause. Note also that ‘ask’ here obeys shift together, as examples with ‘tell’ and ‘hear’ do.

- (56) Raam profesar-saahab-se puchhk-au ki kaa ham apne-ke dekh-i-ain he.
 Ram professor-HH-INS ask-NH.AL that Q I you.HH-ACC saw-1.S-hh.al be
 ‘Ram_i asked the professor_k whether he/I_i saw him/you_k.’

This comparison of ‘ask’ with ‘tell’ and ‘hear’ shows that a thematic analysis of the matrix verb is crucial, not its surface case pattern. This is consistent with (44), the thematic condition on control.

One additional kind of NP that counts as a thematic subject without being in Spec TP position is the causee of a syntactic causative construction. In Kinande and Ikalanga, we saw some evidence that the causee can control SoK, even though it cannot license C-agreement with SoK given the T/Agree Condition. In Magahi indexical shift, the evidence for this is clearer. Consider for example (57), a causative built on the triadic verb ‘tell’. This has a reading where ‘I’ refers to the causee ‘Chhotu’ and ‘you’ refers to ‘Ram’ the goal of the telling. This is expected if ‘tell’ counts as a separate verb from causative ‘make’. Then the agent of ‘tell’ controls Sp and its goal controls Ad, in accordance with the unalloyed thematic control condition. The causee ‘Chhotu’ not being agreed with and not being in Spec TP does not prevent it from controlling Sp, and hence being the antecedent for i-shift. A structure for (55) is (56).

- (57) Bittu-aa Chhotu-aa-se Ram-ke kah-wal-k-ai ki pro toraa dekh-i.
 Bittu-FM Chhotu-FM-INS Ram-DAT tell-CAUS-PFV-3.NH.S.that (I) you.ACC saw-1.S
 ‘Bittu_n made Chhotu_i say to Ram_k that he/I_i (n,sp*) saw him/you_k (k,ad*).’

- (58) [Bittu_n T [t_n Voice [make [Chhotu_i Voice [tell Ram_k [Sp_i Ad_k that [I_i saw you_k]]]]]]]]

Similarly, (59) has the causatives of the dyadic verb ‘think’. Here too the causee can control Sp and hence i-shift, supporting the claim that the controller of Sp is thematically determined rather than structurally determined (to the extent that the two are different).²⁶

- (59) Bittu-aa Chhotu-aa-se/ke soch-wal-k-ai ki pro Ram-ke dekh-i.
 Bittu-FM Chhotu-FM-INS/DAT think-CAUS-PFV-3.NH.S that(I) Ram.ACC saw-1.S
 ‘Bittu_n made Chhotu_i think that he/I_{i,(n,sp*)} saw Ram.’

The causee in these examples is also like the *by*-phrase in a passive and the *from*-phrase associated with ‘hear’ in that it can control Sp without triggering subject agreement on the finite verb.

4.4.2 The Edge Condition in Magahi

Next let us consider more carefully the Edge Condition in (45). We can see reflexes of this condition being at work in Magahi too. In part, this explains some aspects of the Shift Together 2 effect that I mentioned above. First, suppose that ‘you’ shifts in the complement of a verb like ‘tell’, showing that Ad has been controlled by the matrix verb. (45) implies that this is only possible if something controls Sp, given that Sp is the more peripheral (higher) DP in the Fin projection in Magahi. Moreover, that controller of Sp has to be the thematic subject of ‘tell’ by thematic role matching. That in turn implies that a first person pronoun inside the embedded clause will be shifted to refer to the matrix subject. Thus, an example like (60) has a reading where both ‘you’ and ‘I’ shift, and a reading where neither of them do, but it lacks a third reading in which ‘you’ shifts but ‘I’ does not. This is indeed a subcase of the Shift Together 2 generalization stated in (30), following Anand and Nevins (2004) and others. (60b,c) shows that the same restriction is found with triadic matrix verbs other than ‘tell’.²⁷

- (60) a. Santee-aa Bantee-aa-ke kahl-ai ki ham toraa dekh-l-i.
 Santee-FM Bantee-FM-DAT told-3.NH.S that I you.ACC see-PFV-1.S
 ‘Santee_i told Bantee_k that I_{i,*sp*} saw you_k.’
 (Also: ‘Santee_i told Bantee_k that I_{sp*} saw you_{ad*,*k}’)
- b. Ram John-se puuchhk-ai ki kaa ham toraa dekh-l-i he.
 Ram John-INS ask-3.NH.S that what I you.ACC see-PFV-1.S be
 ‘Ram_i asked John_k whether he/I_{i,*sp*} saw him/you_k.’
 (Also: ‘Ram_i asked John_k whether I_{sp*} saw you_{ad*,*k}’)
- c. Bittuaa Chhotu-aa-se/ke soch-wal-k-ai ki pro toraa dekh-i.
 Bittu-FM Chhotu-FM-INS/DAT think-CAUS-PFV-3.NH.S that(I) you.ACC see-PFV-1.S

²⁶ It is also possible for the causer to be the antecedent of i-shift in both (58) and (59). On my account, this must be because these verbs can also be analyzed as lexical causatives. Under this analysis, ‘make-say’ and ‘make-think’ are simple triadic verbs, not significantly different from ‘tell’. As such, the (morphologically complex) verb that selects the CP complement also has an agent argument that controls Sp inside that complement, compatible with the GOCS. I do not know if Magahi has causative verbs that cannot function as simple triadic verbs in this way or not.

²⁷ Note that ‘convince’ in (60c) is derived from the root for ‘think’ by a causative suffix, but it behaves as a simple transitive verb in this case; contrast (59).

‘Bittu_n convinced Chhotu_i that he/I_{in,sp*} saw him/you_k.’

The fact that u-shift happens only if i-shift happens means within my theory that Ad is controlled by the goal only if Sp is controlled by the agent. This is parallel to the fact that in Kipsisigis C agrees with the object, showing that the object controls OoK, only if C agrees with the subject, showing that the subject controls SoK. (Note, however, that this derives only one half of the classic Shift Together 2 phenomenon: there is a fourth potential reading in which ‘I’ shifts but ‘you’ does not, which the examples in (60) also do not have. I come back to this below, in section 4.5.)

There is an asymmetry built into the Edge Condition, in that it does allow Sp to be controlled without Ad being controlled, given that Sp is the higher/more peripheral of the two operators within FinP. In Kipsisigis, this allows C to agree with the matrix subject (via SoK) without agreeing with the object. An apparent Magahi analog is seen with matrix verbs like ‘think’ ‘believe’, and ‘say’—verbs which have a subject argument but no goal argument. These verbs do allow ‘I’ in the complement to shift to the matrix subject, even though there is no possibility of shifting ‘you’ to a matrix argument, there being no other matrix argument to shift to. Indeed it is possible to have i-shift, as seen in (61).

- (61) a. Santee-aa soch-l-ai ki ham tej h-i.
 Santee-FM think-PFV-3.NH.S that I intelligent be-1.S
 ‘Santee_i thought that I_{i,sp*} am intelligent.’
- b. Santee-aa soch-l-ai ki hamokra/#toora dekh-l-i.
 Santee-FM think-PFV-3.NH.S that I 3.NH.ACC/you.NH.ACC see-PFV-1.S
 ‘Santee_i thought that he/I_i saw him/*you.’
 (Also OK: ‘Santee_i thought that I_{sp*} saw you_{ad*}.’)

However, there is a bit more to say about why ‘you’ in (61b) is ruled out when ‘I’ refers to Santee, rather than being possible with unshifted reference to Ad*, the addressee of the sentence as a whole. I return to this also in section 4.5.

Another reflex of the Edge Condition in Magahi can be seen in examples in which the matrix verb takes only a dative argument in addition to a CP complement, as happens with verbs like ‘seem’ and ‘remember’. These dative arguments count as thematic experiencers, not agents. As such, they could qualify as internal arguments, like the *to* phrase selected by ‘seem’ in English. This is in line with the fact that oblique experiencer arguments are thematically akin to the goal arguments of verbs like ‘tell’ in various ways. Simple examples with dative matrix subjects where there is no issue of indexical shift in the embedded clause are given in (62).²⁸

- (62) a. Santee-aa-ke laga h-ai ki Ram tej h-a.
 Santee-FM-DAT seem be-3.NH.S that Ram smart be-3.NH.S.
 ‘It seems to Santee that Ram is smart.’
- b. Ram-ke yaad ha-l-ai ki Santee almira-me paisa chhupai-l-ai hal.
 Ram-DAT memory be-PFV-3.NH.S that Santee drawer-in money hide-PFV-3.NH.S was

²⁸ Note that the Niger-Congo languages do not have dative subject constructions because they do not have dative case. Therefore, this issue does not come up so clearly in them.

‘Ram remembered that Santee hid the money in the drawer.’

One might imagine, then, that this would be the opposite of what we see with verbs like ‘think’: the matrix verb has a goal internal argument that is suitable for controlling Ad, but no agent argument suitable for controlling Sp. If the thematic-role matching condition on control in (44) was in effect but not the Edge Condition in (45), then it could be possible for the matrix experiencer to control shifted ‘you’ (and shifted allocutive marking). If in addition the embedded clause had a first person pronoun, it would either be ungrammatical or would refer to Sp*, the speaker of the sentence as a whole. But this is not true; ‘you’ cannot refer to the dative subject of these verbs, regardless of what happens with any first person pronoun in the embedded clause.

- (63) a. #Santee-aa-ke laga h-ai ki Ram tor bejjati kar-l-ai.
 Santee-FM-DAT seem be-3.NH.S that Ram you.GEN insult do-PFV-3.NH.S.
 ‘It seems to Santee_i that Ram insulted him/you*_{i,ad}*.’
- b. #Santee-as-ke laga h-ai ki (pro) hamar bejjati kar-l-eN.
 Santee-FM-DAT seem be-3.NH.S that (you) my.GEN insult do-PFV-2.NH.S.
 ‘It seems to Santee that he/you*_{i,ad}* insulted me_{sp}*.’
- c. #Ram-ke yaad ha-l-ai ki tu almira-me paisa chhupai-l-eN hal.
 Ram-DAT memory be-PFV-3.NH.S that you.NH drawer-in money hide-PFV-2.NH.S was
 ‘Ram remembered that he/you*_{i,ad}* hid the money in the drawer.’

Rather, what is possible with both ‘seem’ and ‘remember’ is for the matrix experiencer to be the antecedent of a shifted first person pronoun. This shows that it controls Sp, not Ad, despite its dative marking and its nonagentive theta role.

- (64) a. Santee-aa-ke laga h-ai ki ham tej h-i.
 Santee-FM-DAT seem be-3.NH.S that I smart be-1.S.
 ‘It seems to Santee_i that I_{i,sp}* smart.’
- b. Ram-ke yaad ha-l-ai ki ham almira me paisa chhupai-l-i hal.
 Ram-DAT memory be-PFV-3.NH.S that I drawer-in money hide-PFV-1.S was
 ‘Ram remembered that I_{i,sp}* hid the money in the drawer.’

Apparently then, an experiencer role is somewhat intermediate between agent and theme/goal. As such, it can match Sp if there is no true agent in the matrix clause, and it can match Ad if there is no better goal in the matrix. ‘Remember’ is particularly interesting in that it participates in a transitivity alternation with ‘remind’: the two predicates are constructed from the same nominal ‘memory’ being used with different light verbs (intransitive ‘be’ or ditransitive ‘give’). It turns out that the rememberer can control Ad and thus be the antecedent for u-shift when and only when there is a reminder argument that can control Sp and thus be the antecedent for i-shift. Thus *tu* ‘you’ can refer to Ram in (65) but not in (63c).²⁹

²⁹ Recall also that a goal argument cannot be interpreted as an experiencer in the presence of an agent argument. This correctly implies that the NP *Ram-ke* cannot control Sp and be the antecedent of i-shift in (65), even though it can in (64b).

- (65) Santee-aa Ram-ke yaad dia-lk-ai ki tu almira me paisa chhupai-l-eN hal.
 Santee-FM Ram-DAT memory give-PFV-3.NH.S that you.NH drawer-in money hide-PFV-2.NH.S be
 ‘Santee_i reminded Ram_k that he/you_{k,ad*} hid the money in the drawer.’

However, when the experiencer is the only matrix argument, in the absence of an agent, it has to control Sp, not Ad, as in (64b). This is strong evidence for the Edge Condition in (45). Again, there is an inherent asymmetry between controlling Sp and controlling Ad in Magahi, and this is abstractly parallel to the one between controlling SoK and OoK in Kipsigis.

The examples in (64) also show again that the controller of Sp does not have to be a possible target of subject agreement in Magahi, the way the controller of SoK must in the Niger Congo languages. Magahi is like other IE languages in that a dative DP cannot trigger agreement on T. But this does not detract from its ability to control Sp and thus be the antecedent of i-shift. This further strengthens the claim that the T/Agree Condition in Niger Congo languages not a condition on the control of ghostly operators in CP, but only a condition on manifesting agreement with the ghostly DP.

Indexical shift with the verb ‘hear’, discussed in the previous subsection, gives similar support for the Edge Condition. Recall that the hearer subject can be the antecedent of either shifted ‘I’ or shifted ‘you’, depending on the example. But there is an asymmetry: the subject of ‘hear’ can only be the antecedent of shifted ‘you’ if a source phrase is present in the clause as well. This is seen in the contrast in (67): u-shift is possible in (67a) but not in (67b).

- (66) a. Jaun-waa Santee-aa-se sun-l-ain ki tor bahinii awa-it h-au.
 John-FM Santee FM-from heard-HH.AL that your sister come-PROG be.3.S-NH.AL
 ‘John_i heard from Santee_i that his/your_{i,(ad*)} sister came.’ your=John is possible.
- b. Jaun-waa sunl-ai ki tor bahinii awa-it h-au.
 John-FM heard-3.NH.S that your sister come-PROG be.3.S-NH.AL
 ‘John_i heard that your_{*i,(sp*)} sister came.’

This is analogous to the contrast between ‘remember’ and ‘remind’. In (66b) ‘John’ cannot control Ad in the CP complement of ‘hear’ even though it has a suitable thematic role, because there is no other argument that can control the outmost operator Sp. In contrast, the source phrase ‘Santee’ can control Sp in (66a), and this makes it possible for ‘John’ to control Ad and hence be the antecedent for ‘your’. As a further contrast to (66b), (67) shows that it is possible for ‘John’ to control Sp even when there is no argument present to control Ad. This asymmetry is induced by the Edge Condition on my analysis.

- (67) Jaun-waa sunl-ain ki hamar bahinii awa-it h-ai.
 John-FM heard-3.NH.S.HH.AL that my.GEN sister come-PROG be.3.NH.S
 John heard-HH that my sister come-PROG be-3S
 ‘John heard that my sister came.’ My=John is possible.

There is thus robust evidence in favor of the Edge Condition applying in indexical shift constructions in Magahi.

4.4.3 The Generalized Obligatory Control Signature applied to Sp and Ad

Next let us consider the evidence that indexical shift in Magahi obeys the strictures of the GOCS, the most fundamental syntactic condition on obligatory control. This puts syntactic conditions both on where an NP must be in order to obligatorily control something and on where a CP must be to have null DPs at its edge undergo obligatory control.

Consider first the restrictions on what can be the controller. The GOCS states that an NP can be an OC controller of a controllable null DP if it is an argument of the verb that heads the phrase containing the clause that the null DP is at the edge of. One core consequence of this is that a characteristic sort of clause-level locality holds of obligatory control relationships. Consider an abstract structure like (68), where there are two levels of clausal embedding. Here the GOCS implies that Sp2 and Ad2 can be controlled by Z and W, arguments of the next higher clause, but not by X and Y, arguments of a still higher clause. Upward C-agreement in the African languages does show this kind of clause-level locality, as do cases of the obligatory control of PRO in languages like English.

(68) X told Y [Sp1 Ad1 that [Z told W [Sp2 Ad2 that [I saw you]]]].

However, we have to be a bit careful about how we look for this effect in Magahi, because indexical shift is in some sense optional in this language. As a result, an example like (69) is possible with ‘I’ in the lowest clause shifting to refer to the higher subject ‘Santee’ rather than the lower subject ‘Bantee’.

(69) Santee-aa kahl-ai ki Bantee-aa socha h-ai ki (ham) tej h-i.
 Santee-FM said-3.NH.S that Bantee-FM think be-3.NH.S that (I) smart be-1.S
 ‘Santee_i said that Bantee_k thinks that he/I_{i,k,sp*} am smart.’

My analysis of this with plenty of precedents is that this is not the result of Sp in the lower CP being controlled directly by the matrix subject ‘Santee’ past subject ‘Bantee’. Rather, it is the result of ‘I’ in the lowest clause being bound at a distance by the controlled Sp 1 of the higher CP—probably via the Sp2 of the lower CP being bound by Sp1. In other words, the representation of the relevant reading of (69) is (70b), not (70a).

(70) a. Sp*_n Santee_i said that [Sp1_n Ad1 that [Bantee_k think [Sp2_i Ad2 [I_i am smart]]]

b. Sp*_n Santee_i said that [Sp1_i Ad1 that [Bantee_i think [(Sp2_i) Ad2 [I_i am smart]]]

We can confirm that this is true by placing a first person indexical in the middle clause and seeing how that relates to the interpretation of an indexical in the lowest clause. Suppose that (70a) were a possible representation for (69). Then it should still be possible for ‘I’ to refer to Santee even if there is an unshifted indexical in the middle clause, because such an ‘I’/‘me’ in the middle clause would not be c-commanded by the controlled Sp, Sp2_i. But this prediction is false. (71) shows that if ‘I’ or ‘my’ in the middle clause refers to the speaker Sp*, then ‘I’ in the lowest clause cannot be coreferential with the highest subject *Santee*. If however, ‘I’/‘my’ in the middle clause does shift to refer to Santee, then ‘I’ in the lowest clause can too. This is the pattern we expect if (70b) is a possible representation and (70a) is not. (Note that a significant

assumption here is that any first person pronoun must be bound by the closest Sp element, as required by the PLC.)

- (71) a. Santeeaa kahl-ai ki (ham) socha h-i ki (pro) toraa bazaar-me dekh-i.
 Santee-FM said-3.NH.S that I think be-1.S that (I) you.ACC market-in saw-1.S
 ‘Santee_i said that I_{sp*} think that he/I_{*i,sp*} saw you_{ad*} in the market.’
 ‘Santee_i said that I_i think that he/I_{i,*sp*} saw you_{ad*} in the market.’
- b. Santee-aa socha h-ai ki Bantee-aa hamar baabaa-ke kahk-ai
 Santee-FM think be-3.NH.S that Bantee-FM my.GEN grandfather-DAT told-3.NH.S
 ki ham igjaam me phel ho ge-l-i.
 that I exam in fail happen go-PFV-1.S
 ‘Santee_i thinks that Bantee told my_{sp*} grandfather that I_{*i,sp*} failed the exam.’
 ‘Santee_i thinks that Bantee told my_{i*} grandfather that I_{i,*sp*} failed the exam.’

The above examples show the local control of Sp, which is the ghostly DP most parallel to SoK, found in all the African languages. But the same kind of reasoning should apply to Ad. And indeed it does, as I showed in Chapter 3 using data from allocutive marking (see (xx)). It should be possible to replicate the result using u-shift as well. The critical example would be something like (72).

- (72) Santee told Bantee [Sp1 Ad1 that [you told Chhotu [Sp2 Ad2 that [Grandfather saw you]]]].

If ‘Bantee’ can control Ad2 directly, long distance, then it should be possible for ‘you’ in the lowest clause (the “see-ee”) to refer to Bantee, even when ‘you’ in the middle clause (the one who spoke to Chhotu) refers to Ad*. In contrast, if control of Ad shows clause-level locality in accordance with the GOCS, then ‘you’ in the lowest clause should only be able to refer to Bantee if ‘you’ in the middle clause also refers to Bantee. I have not tested this prediction with this type of data. However, I am optimistic, and no counterexamples to this claim are attested in the literature that I know of. (Note that the shifty operator analysis makes the same prediction in this case.)

This line of reasoning does not depend on the details of the structure of the middle clause. All that matters is that the clause that immediately contains the controlled Sp and Ad is not in the VP headed by the verb that the putative long distance controller is an argument of. In particular, it should not matter whether the intermediate clause is a full-fledged CP or not, as an account purely in terms of the Phase Impenetrability Condition might. Nor should it matter whether the intermediate clause hosts Sp and Ad coordinates of its own, as an account in terms of Relativized Minimality might. Thus consider (73), where the highest verb ‘expect’ takes an infinitive/nominal complement, rather than a full finite CP, and the subject of the intermediate verb ‘say’ is an oblique nominal, not a nominative subject. There is no full CP structure associated with the nonfinite clause built around ‘say’; rather it is like an English gerund construction. Nevertheless, the thematic subject ‘Bantee’ of this nonfinite clause can control the Sp associated with the finite clause built around ‘pass the exam’, resulting in shift of ‘I’ to refer to Bantee. In contrast, the highest subject ‘Santee’ cannot control the Sp of the most embedded clause, because the CP ‘that I passed the exam’ is not the complement of the verb ‘expect’. Therefore, ‘I’ in the most embedded clause cannot refer to Santee. (Note that the finite CP

complement of ‘say’ extraposes rightward here, but the nonfinite complement of ‘expect’ does not.)

- (73) Santee-aa [Banteeaa-se t_{CP} kah-e-ke] ummid kar h-ai] [ki ham parichha paas
Santee-FM Bantee-FM-INS say-INF-GEN expect do be-3.NH.S that I exam pass
ho ge-l-i].
happen go-PFV-1.S
‘Santee_i expects Bantee_k to say that I_{k,*i,sp*} passed the exam.’

The other major consequence that the GOCS has for the controllers of Sp and Ad is that they must be arguments of the matrix verb, not some other constituent of the matrix clause.³⁰ For example, the subject of the matrix verb can control Sp in an example like (74a), but the possessor of the subject cannot ((74b)), nor can the subject of a relative clause that modifies the subject ((74c)). This seems to be a syntactic restriction on indexical shift, one that is reminiscent of obligatory control.³¹

- (74) a. Santee-aa kaha h-ai ki ham jaldiye mil-e aibo.
Santee-FM say be-3.NH.S that I soon meet-INF come.FUT.1.S
‘Santee_i said that he/I_{i (sp*)} will come soon.’
- b. #Santee-aa-ke likhkal ChiThii-aa kaha h-ai ki ham jaldiye mil-e aibo
Santee-FM-GEN written letter-FM say be-3.NH.S that I soon meet-INF come.FUT.1.S
‘Santee_i’s letter said that I_{*i (sp*)} will come soon.’ (see also Alok 2020: 176 (83))
- c. #ChiThii-aa je Santee-aa likhk-ai kaha h-ai ki ham jaldiye
letter-FM REL Santee-FM write:PFV-3.NH.S say be-3.NH.S that I soon
mile aibo.
meet-INF come.FUT.1.S
‘The letter that Santee_i wrote said that I_{*i (sp*)} will come soon.’

Similarly, (75) gives tentative evidence that the goal argument can control Ad and hence antecede u-shift, but the possessor of the goal argument cannot: having *Bantee* in the expression ‘Bantee’s phone’ be the antecedent of u-shift ((75b)) seems to be degraded compared to having *Bantee* as the goal argument as the antecedent of u-shift ((75a)).³²

- (75) a. Santee-aa Bantee-aa-ke text bhej di-au ki (tu) parichaa paas ho gel-eN.
Santee-FM Bantee-FM-DAT text send give-NH.AL that you exam pass become went-2.NH.S

³⁰ Some of this discussion comes from Alok and Baker (2022).

³¹ However, Alok (2020: 176 fn. 16) reports that a sentence like ‘Santee’s face told Bantee that I passed the exam’, ‘I’ can refer to Santee, the inalienable possessor of the subject. I assume that this is a case of metonymy, where Santee’s face is very closely associated with Santee and can be used as a way of referring to him. If so, then ‘Santee’s face’ and ‘I’ are actually coreferential. See Chapter 5 for more discussion of metonymy in the context of logophoric pronouns.

The examples in (74b,c) are a bit awkward in Magahi even with ‘I’ referring to Sp*, in that Magahi does not like to have inanimate subjects. Nevertheless, the examples are much worse with ‘I’ referring to Santee.

³² This is a bit tentative in that we tried this kind of sentence only once, and the homophony of genitive case and dative case on Bantee caused a bit of confusion.

‘Santee send a text to Bantee_i that he/you_i (ad*) passed the exam.’

- b. #Santee-aa Bantee-aa-ke phonmaa-ke text bhej diau ki (tu) parichaa paas
 Santee-FM Bantee-FM-GEN phone-DAT text send give-NH.AL that you exam pass
 ho gel-eN.
 become went-2.NH.S
 ‘Santee send a text to Bantee_i’s phone that he/you_{??i} (ad*) passed the exam.’

This also follows from the GOCS.

This point is worth harping on a bit, because it is a reasonably clear difference between my control-based theory and the shifty operator account. In purely semantic terms, it seems reasonable to say that Santee counts as the author in the context associated with the matrix event of saying in all three examples in (74); certainly he is the source of the content expressible as “I will come to visit soon” in all three. Therefore, the shifty operator account might well predict that I=Santee will be possible in all three examples. Indeed, some constructions that are perspectival or “logophoric” in a broad sense do show this kind of grammatical laxity. For example NOC PRO in English is possible in (76b,c), where the antecedent of PRO is not an argument of the matrix clause, as well as in (76a), where the antecedent of PRO is an argument of the matrix clause.

- (76) a. It damaged John_i [PRO_i to perjure himself]. (Landau 2001: 110)
 b. It damaged John_i’s reputation [PRO_i to perjure himself].
 c. It damaged the reputation John_i built up over the years [PRO_i to perjure himself].

This is different from indexical shift in Magahi, which does *not* have this kind of latitude, being possible in (74a) but not in (74b) or (74c). Thus, there is an additional constraint on indexical shift: not only does the understood antecedent of ‘I’ in the embedded clause need to count as an author semantically, but it needs to be a grammatical argument of the matrix verb. By attributing this syntactic restriction to obligatory control, I am saying that the indexical shift paradigm in (74) and (75) in Magahi is akin to the standard OC paradigm in (77) rather than to the NOC paradigm in (76), where (77b,c) have only the anomalous meaning that the letter is promising that the letter will come soon.

- (77) a. Mary_i promised [PRO_i to come soon].
 b. #[Mary_i’s letter]_k promised [PRO_{k,*i} to come soon].
 c. #[The letter [Mary_i sent]]_k promised [PRO_{k,*i} to come soon].

The GOCS also has implications for where the clause containing the shifted indexical pronouns can be. It says that obligatory control is something that happens specifically with null DPs contained in clauses that are generated inside VP (or, more generally, inside the projection of the lexical head which CP is an argument or modifier of—it could also be an NP or AP). In other words, obligatory control is something that happens with complements and low adjuncts. So far, we have only considered CP complements. Now let us consider the possibility of indexical shift in other types of CPs.

Consider first relative clauses, which are canonically adjoined somewhere inside an NP/DP projection, and thus are not immediate constituents of the verb phrase. These are indeed a context in which upward C-agreement with the matrix subject has not been attested in the

literature, and is not possible in Ibibio. In Magahi, relative clauses can have unshifted allocutive agreement, reflecting the social status of the addressee of the sentence as a whole, as in (78).

- (78) [Laikwaa [je uhan khaRaa h-**au**] hamar bhaai h-ai. (Alok 2020: 11 (16))
 boy REL there stand be.3.NH.S-NH.AL my brother be-3.NH.S
 ‘The boy who is standing there is my brother.’ (spoken to a peer)

This shows that the CP that constitutes the relative clause can contain Ad; it is a full FinP (and more), not some kind of truncated clause that does not have room for such an element. As such, the relative clause presumably has room for Sp as well, given that Sp and Ad are both arguments of the Fin head(s) in Magahi. However, Sp and Ad cannot be controlled by arguments of the matrix verb in this environment. For Sp, this is shown by the comparison in (79). ‘Me’ can shift to the subject of a verb like ‘imagine’ when it is in a CP complement, as in (79a), but not when it is in a CP relative clause that modifies a DP complement, as shown in (79b).

- (79) a. Santee kalpanaa kark-ai ki ego sudar laiki hamraa-se baaah kart-ai.
 Santee imagine did-3.NH.S that one.CL beautiful girl me-INS marriage do-3.NH.S
 ‘Santee_i imagines that a beautiful girl will marry him/me_{i (sp*)}.’
- b. Santee, ego sudar laiki je hamraa-se baaah kart-ai,
 Santee one.CL beautiful girl REL me-INS marriage do-3.NH.S
 okra baare-me kalpanaa kark-ai.
 her about-LOC imagine did-3.NH.S.
 ‘Santee_i imagined (about) a beautiful girl who will marry me_{*i (sp*)}.’

Here are two other examples illustrating the impossibility of i-shift in a relative clause in Magahi.³³ (Note that in these examples the relative clause has been extraposed to postverbal position, as is common in Magahi.³⁴)

- (80) a. Saantee-aa kitabi-aa bhulaa del-ai je (ham) kharid-l-i ha-l.
 Santee-FM book-FM lost gave-3.NH.S REL I buy-PFV-1.S be-PFV
 ‘Santee_i lost the book that I_{*i(sp*)} bought.’
- b. Saantee-aa ego bartan ban-l-ai je ham Bantee-aa-ke de-b-ai.
 Santee-FM one pot make-PFV-3.NH.S REL I Bantee-FM-DAT give-FUT-3.NH.S
 ‘Santee_i made a pot that I_{*i(sp*)} will give to Bantee.’

It is worth noting that there is no absolute ban on ‘I’ inside a relative clause receiving a shifted reading. Such a reading is possible in the more complex sentence in (81). Here ‘me’ in

³³ Notice that it does not make a difference in Magahi whether the main verb of the sentence is an intensional verb like ‘imagine’ or ‘look for’ or a nonintensional verb like ‘lose’. I-shift in Magahi is a bit simpler than logophor-licensing in Ibibio in this respect; see section 5.xx on Ibibio.

³⁴ It is possible that these are corelative constructions (cf. Srivastav 1991) rather than simple extraposed relative clauses. If so, then I assume they are basically a kind of high adjunct clause, with a special interpretation, and such adjuncts are also not a domain of OC, hence not on context for indexical shift, as discussed below (see (xx)).

the relative clause can be coreferential with the highest subject *Santee* or to Sp^* , although it cannot be coreferential with the closer subject *Bantee*.

- (81) Santee-aa kahk-ai ki Bantee-aa ego sudar laiki-ke baare-me
 Santee-FM say-3.NH.S that Bantee-FM one.CL beautiful girl-GEN about-LOC
 sochk-ai je hamraa-se biah kart-ai.
 thought-3.NH.S REL me-INS marriage do-3.NH.S
 ‘Santee_i said that Bantee_k imagined (about) a beautiful girl who will marry me_{i,*k (sp*)}.’

Here there are two embedded Sps, one in the relative clause ‘who would marry me’ and one in the complement of ‘say’. The one in the relative clause cannot be obligatorily controlled by *Bantee* (or anything else), in line with the GOCS. However, Sp in the complement of ‘say’ can be controlled by *Santee*. That Sp is then the closest [+1] binder for Sp in the relative clause and an ultimate binder for ‘me’ in the relative clause. Therefore ‘me’ can end up referring to *Santee*, but not to *Bantee*. The structure is roughly (82).

- (82) Sp^*_i Santee_k said [$Sp1_{k,(i)}$ that Bantee_n imagined [a beautiful girl [$Sp_{k,*n,(i)}$ who would marry me
_{k,*n,(i)}]]]]}

Similarly, allocutive marking shows that Ad inside a relative clause cannot be controlled by a goal argument of the matrix verb in a sentence like “Santee told Grandfather the news that Bantee told him”; see chapter 3, example (49).³⁵

Consider next the domain of adjunct clauses. The expectation that comes from the GOCS is that there should be two kinds of behavior: high adjuncts which are merged into the clause outside the (greater) verb phrase should not show indexical shift, whereas low adjuncts which are merged inside the verb phrase could allow it. And indeed there are two kinds of CP adjuncts along these lines. One class includes temporal adjuncts, causal adjuncts, and conditional clauses. Like relative clauses, their verbs can bear unshifted allocutive marking, showing that they contain an Ad, close enough for the Fin head in the adjunct clause to agree with it. However, they do not allow i-shift, showing that Sp cannot be controlled by the matrix subject (and this should be the easier operator to control, given the Edge condition).

- (83) a. Santee-aa Bantee-aa-ke bejjattii karl-ai kaaheki Bantee-aa pahile hamar bejjattii
 Santee-FM Bantee-FM-DAT insult did-3.NH.S because Bantee-FM first my.GEN insult
 did-3.NH.S was.
 karl-ai hal
 ‘Santee_i insulted Bantee because Bantee had insulted me_{*i (sp*)}.’
- b. Jab Santee-aa hamar bejjattii karl-ai ta Bantee-aa okra baRaalii
 When Santee-FM my.GEN insult did-3.NH.S PRT Bantee-FM his.GEN praise
 do-PROG be-PFV-3.NH.S
 kar-ti ha-l-ai.
 ‘When Santee insulted me_{*i (sp*)}, Bantee_i was praising him.’

³⁵ It should be possible to test this with u-shift as well, but I have not done so. An example would be something like ‘Santee gave Grandfather the note that your friend left for you.’ The prediction would be that ‘your’ and ‘you’ cannot refer to the grandfather in such a sentence.

In contrast, *i*-shift is possible in ‘so that’ adjuncts, introduced by the C-like head *taaki*, as shown in (82).³⁶

- (84) a. Bantee lukaa gel-ai taaki hamraa koi na dekh sake.
 Bantee hide go.PFV-3.NH.S so.that me.ACC someone not see can
 ‘Bantee_i hid so that no one will see him/me_i.’
- b. Bantee-aa ghare rukl-ai taaki ham bimmar na ho jaa-i.
 Bantee-FM home stay3.NH.S so.that I sick not become go-1.S
 ‘Bantee_i stayed home so that he/I_i (sp*) would not become sick.’

This should not be surprising. Syntactically, we can take these to be generated lower than other adjunct clauses, inside VP. Indeed, given the connection between purposes/goals and agency, it is plausibly right for rationale clauses to be added at the VP level, in the scope of Voice/*v* which adds the agent. (Again, however, I do not have independent evidence for the precise attachment sites of these different kinds of adjunct clauses. This will be revised slightly in section 4.5.) Semantically, these rationale clauses can have an attitude-like semantics in that they express a goal that is in the mind of the person who performs the action denoted by the matrix clause; rationale clauses are thus the argument clauses that are most like CP complements in this respect.³⁷ Moreover, the matrix subject can trigger C-agreement on a purposive clause in Lubukusu, Ibibio, and Chokwe, so there is a parallel here between C-agreement and indexical shift in Magahi, as expected if both involve obligatory control of ghostly DP operators.

Although ‘so that’ clauses allow *i*-shift, it turns out that they do not allow *u*-shift, or shifted allocutive marking—a potentially surprising asymmetry. I discuss this in section 4.5, in the context of the Shift Together 2 phenomenon. There I will claim that ‘so-that’ clauses are basically argument-like dependents of an agentive Voice head.

A third syntactic environment which is relevant to this is CPs in subject positions. These also would be expected to not allow indexical shift where the CP is a true external argument, although they might in cases where the CP is initially merged in a complement position as some kind of internal argument. When it comes to CPs occupying the true syntactic subject position (Spec TP), the issue is moot in Magahi: *ki* clauses apparently cannot end up in this position, perhaps because they are more verbal than nominal in their categorial properties. Thus, (85) is bad with CP in the preverbal subject position unless CP is embedded in a NP/DP with a carrier noun like ‘rumor’ or a demonstrative like *ii* ‘this’.

- (85) [* (Aphawaah) ki Santee-aa inaaam jitl-au] sahii ha-l-ai.
 Rumor that Santee-FM prize won-NH.AL true be-PFV-3.NH.S
 ‘That Santee won the prize was true.’ (OK: ‘The rumor that Santee won...’)

³⁶ The ordinary complementizer *ki* can also be used to introduce this type of adjunct clause, with no obvious difference in meaning or structure. *Ki*-clauses can be ambiguous, however, between being complement clauses and being rationale clauses, whereas *taaki* clauses can only be adjuncts.

³⁷ So ‘Mary went out into the yard in order to catch a unicorn’ doesn’t imply that unicorns exist, the way that ‘Mary caught a unicorn’ does. Similarly ‘Lois Lane waited for an hour in order to interview Superman’ does not imply that ‘Lois Lane waited an hour to interview Clark Kent.’ Moreover, logophoric pronouns are also possible in purposive clauses (see chapter 5).

In this respect, Magahi is like many other languages, including Kinande and Ibibio. It is, however, possible to have a CP that is associated with an external argument thematic role appear after the verb, extraposed to the right periphery. For example, in (86) the *ki*-clause that appears sentence finally is the understood subject of the predicate ‘help’. The sentence is grammatical, but unlike clauses extraposed from object position, ‘I’ inside the clause cannot refer to Santee, an argument of the matrix clause.

- (86) Santee-aa-ke (ii) parasid hobe me madad kark-ai ki ham puruskaar jit-l-i.
 Santee-FM-ACC this famous become LOC help do-3.NH.S that I prize win-PFV-1.S
 ‘It helped Santee_i become famous that I_{*i,sp*} won the prize.’

The subject clause is not inside VP, either before or after extraposition. Rather, it starts in Spec VoiceP, above the VP, and lands right-adjoined to TP. Neither of these structural positions is a context of obligatory control according to the GOCS, so Sp in the periphery of the embedded CP cannot be controlled by *Santee*, the other argument of ‘help’, and i-shift does not happen here.³⁸ Compare Landau (2001), who shows that complement clauses are domains of OC whereas subjects and clauses extraposed from subject position are contexts of NOC in English and a range of other European languages.

Another construction of interest is CPs that function as the complement of a noun like ‘rumor’ or ‘news’. These were interesting in the African languages in that the head C can agree out of the NP in the ones that allow straightforward versions of this structure. Apparently, then, this structure does allow OC. And indeed Magahi also allows i-shift in this context, when the N+CP collocation counts as the object of the matrix verb. Often this kind of CP is extraposed rightward, such that it does not form a constituent with the noun on the surface, as in (87a). However, it is also possible for the CP and the noun to appear as a unit before the verb (along with the demonstrative *ii* ‘this’). In both versions, ‘I’ in the CP can have shifted reference to Santee, the subject of the main verb.

- (87) a. Santee-aa [aphawaah] suruu kark-ai [ki ham viraasat-me baRimanii paisaa pai-l-i].
 Santee-FM rumor start did-3.NH.S that I inheritance-LOC much money get-PFV-1.S
 ‘Santee_i started a rumor that he/I_(sp*) inherited a lot of money.’
- b. Santee-aa [ii aphawaah [ki ham puruskaar jiti ge-l-i]] sagaro phailak-ai.
 Santee-FM this rumor that I prize win go-PFV-1.S everywhere spread-3.NH.S
 ‘Santee spread everywhere the rumor that I won the prize.’ OK I=S

These can be analyzed in a way that is parallel to what I said for the African languages, such that the CP is an argument of the noun ‘rumor’, Sp inside the CP is OCed by a covert argument of ‘rumor’, and the covert argument is in turn bound by the matrix subject *Santee*. This analysis is consistent with the GOCS. Interestingly, this N+CP structure is possible in subject positions too; this is another way Magahi has of getting the effect of a CP subject, alongside CP extraposition. Interestingly, this version does not allow i-shift in the complex subject anteceded by an object of

³⁸ Another factor here is that as the object of ‘help’ Santee in (86) might not have the right agent-like thematic role to control Sp in the extraposed CP. However, some examples of LD anaphora in Japanese (?) suggest that the object of ‘help’, arguably a benefactee (note that ‘help’ takes a dative-case object in many languages), is close enough to an experiencer to be a possible controller of Sp/LogOp.

the root clause (even though the object here is an experiencer who has the content “I failed the exam” in mind).

- (88) [Ii batiyaa [ki ham parichhaa-me phel ho ge-l-ai]] Santee-aa-ke gossaa di-laa de-l-ai.
 This news that I exam-LOC fail become go-PFV-3.NH.S Santee-FM-DAT anger give-PFV give-PFV-3.NH.S
 ‘The news that I_I(sp*) failed the exam made Santee_i angry.’

Here the CP built around ‘fail’ is clearly not generated inside the VP headed by ‘give anger’, so direct OC does not happen. Apparently, it is also not the case that there is a null argument of ‘news’ that can be the OC controller of Sp and can itself be controlled/anteceded by the experiencer ‘Santee’. Perhaps that form of NOC is blocked here by the presence of the demonstrative along with the NP subject in (88).³⁹ We see then that carrier nouns do not affect control and indexical shift much in Magahi: indexical shift is possible inside a CP associated with an internal argument position, with or without a carrier noun, and indexical shift is impossible inside a CP associated with a thematic subject position, with or without a carrier noun. This is in line with the fundamental inside-VP/outside-VP distinction built into the GOCS, although there is more to understand about the possible role of null arguments of N in these constructions.

A final place where CPs can occur that is worth some more discussion is as unembedded root clauses. These obviously are not contexts of obligatory control according to the GOCS: they are not merged with the projection of a verb or other lexical predicate; indeed, they are not merged with anything at all. Sp and Ad can appear in the periphery of a root clause. For Ad, this is shown by the possibility of allocutive marking in root clauses, as discussed in Chapter 3. A more theory-internal reason to say this for both Sp and Ad is that first and second person pronouns are possible in root clauses, and they must be bound by Sp or Ad according to the PLC. The question now is whether Sp and Ad in this context can be controlled by another NP—in this case, another NP in the discourse context. For PROs that are subject to NOC in English, discourse antecedents are possible, as in sequences like *Mary_i was in trouble. [PRO_i perjuring herself_i before the judge] was a serious mistake*. But the evidence shows that Sp and Ad in a matrix clause cannot receive a discourse antecedent in this way in Magahi. For example, (89) is not a well-formed discourse in Magahi in which ‘me’ in the second sentence is interpreted as referring to *Santee*, the subject of the first sentence. If the Sp in the periphery of the second sentence could take *Santee* as its antecedent in discourse, NOC style, this should be possible. (Note that not only NOC PRO but exempt anaphors like *zibun* in Japanese can be used in this way; see section 5.xx for discussion.)⁴⁰

³⁹ The conjecture that the demonstrative in (88) may play a role in preventing the psych object *Santee* from NOC/anteceded a null argument of ‘news’ is inspired in part by the fact that logophoric pronouns and LD anaphors are possible in contexts like these in Ibibio and Japanese. See section 5.xx for discussion. Ibibio does not like to use a demonstrative along with the N+CP construction the way that Hindi does.

⁴⁰ One limited and principled counterexample to this is that a shifted indexical that does not refer to the speaker is possible in what looks like a root clause in an example like (i). This is possible if and only if the content of the second sentence is also something that *Santee* said. See Baker and Ikawa (in press) and chapter 5 for discussion of the parallel (better-known) fact for logophoric pronouns. There we argue that the second sentence really is syntactically embedded under “*Santee* said that...” but then it undergoes focus movement and the rest of the sentence is elided. I assume that the same is true for (i) in Magahi.

- (i) Santee-aa kahl-o ki hamraa gossaa aa-yel h-o. Bantee-aa hamra bejjatii kar-o he.

- (89) #Santee-aa-ke gossaa aayel ho. Bantee-aa hamra bejjatii kar-o he.
 Santee-FM-DAT anger come.PFV be-H.AL Bantee-FM my.GEN insult do-H.AL be
 ‘Santee_i was angry. Bantee had insulted him/me_{i(sp*)}.’

Nor can Sp in the root clause pick up its reference from a perspectival adverb, as shown in (90). Again, indexical shift is different from exempt anaphors in some languages in this respect (OK in English and French is *According to Eric_i, his children only depend on himself_i*; see Charnavel (2020: 685).)

- (90) a. Santee-aa-ke anusaar, Sita hamraa pasand kara h-ai
 Santee-FM-DAT according Sita me.ACC like do be-3.NH.S
 ‘According to Santee_i, Sita likes me_{i(sp*)}.’

Thus, it is not enough to say that shifted ‘I’ must refer semantically to some kind of perspectival center, and the subject of an attitude verb is merely a special case of that. Rather, the syntactic context matters: shifted ‘I’ can only be in an environment of obligatory control, such as the complement of a verb or a low adjunct clause. Again, Sp and Ad are possible in root clauses, but they cannot undergo some sort of discourse-sensitive nonobligatory control in such clauses. Rather, they are fixed as referring to the speaker of the sentence (Sp*) and the addressee of the sentence (Ad*) by the special rule of interpretation in (10)—which in turn may be reducible to the semantics of the functional heads that select them (the Speech Act heads SA1 and SA2).

Overall, this section has investigated conditions on the control of Sp and Ad by arguments of the superordinate verb in Magahi as revealed by data from indexical shift. As part of this, it has shown that there are many substantive parallels between the control of Sp in Magahi and the control of SoK in the African, which results in upward C-agreement. Both language groups are subject to the GOCS, which includes a thematic role matching condition, and the Edge Condition. In contrast, the T/Agree Condition governs the realization of C-agreement with SoK for the reasons analyzed in section 2.xx, but this predicably not apply control of Sp and Ad in Magahi. The similarities include complements of ‘tell’ type verbs, ‘think’ type verbs, clausal locality effects, causatives, passives, the special properties of ‘hear’, and purposive adjuncts. Distinctive Magahi constructions that follow the same general principles include dative subject constructions and triadic verbs with oblique objects like ‘ask’. Also covered is the fact that neither C-agreement nor indexical shift is possible in relative clauses, high adjunct clauses, sentential subjects, or root clauses. The African languages are not identical with each other in every respect, but the range of variation was small, and the behavior of Magahi falls very well within the limits of that variation. (Parameterized matters include whether a source phrase is an argument or not, whether a morphological causative is lexical or syntactic or both, and perhaps whether carrier nouns like ‘new’ have covert subjects or not.) Allocutive marking is done by agreement with a null DP in the CP periphery. So is C-agreement in Bantu in the original Diercks/Baker proposal, plus the fact that the null DP is anteceded/controlled by a matrix argument. If that is the right theory for Bantu C-agreement,

Santee-FM said-H.AL that me.DAT anger come-PFV be-H.AL Bantee-FM my.GEN insult do-H.AL be
 ‘Santee_i said that he/I_{i(sp*)} was angry. Bantee had insulted him/me_{i(sp*)}.’

then the strong similarities with the distribution of indexical shift in Magahi are evidence that it is the right theory for that too.

4.5 More on Shift Together

One significant topic in the theory of indexical shift that still calls for some further discussion is the Shift Together 2 (ST2) Condition, mentioned above but not fully accounted for yet. This is the fact that in many constructions and languages, first person indexicals (if any) shift in an embedded clause if and only if second person indexicals (if any) also shift. A standard kind of example of this is (91) from Magahi.⁴¹ The sentence has two readings: an unshifted one in which ‘I’ refers to the speaker of the sentence as a whole (Sp*) and ‘you’ refers to the person they are addressing (Ad*), and a shifted one in which ‘I’ refers to Santee, the referent of the matrix subject, and ‘you’ refers to Bantee, the referent of the matrix goal. However, the sentence does not have either of two other imaginable meanings: one in which ‘I’ refers to Sp* and ‘you’ refers to Bantee, or one in which ‘you’ refers to Ad* and ‘I’ refers to Santee. Either both indexicals shift, or neither one does.

- (91) Santee-aa Bantee-aa-ke kahk-ai ki ham toraa dekh-l-i ha-l.
 Santee-FM Bantee-FM-DAT told-3.NH.S that I you.ACCsee-PFV-1.S be-PFV
 ‘Santee_i told Bantee_k that I_{sp*} saw you_{*k,ad*}.’
 Or: ‘Santee_i told Bantee_k that he/I_i saw him/you_{k,*ad*}.’

This pattern and its significance was first pointed out by Anand and Nevins (2004) for Zazaki. It has also been observed in Uyghur (Sudo 2012, Shklovsky and Sudo 2014), Nez Perce (Deal 2020), and Magahi (Alok and Baker 2018, Alok 2020), among other languages. It shows that although both kinds of indexical shift are in some sense optional in most of these languages, they are not *independently* optional. This needs to be understood.

In the discussion above, I pointed out that this can be derived in part from the Edge Condition. In particular, this condition can explain why the inner operator Ad can be controlled, making u-shift possible, only if the outer operator Sp is controlled as well, providing the groundwork for i-shift. This Edge condition is independently motivated, as we have seen. However, this account does not say anything about why i-shift should be possible only if u-shift is possible in these languages.

To come to grips with this, I first assess how universal ST2 is, considering whether it is parameterized or not. I claim that it is more universal than has been thought. Then informed by that I propose an account of ST2 in which it follows from the obligatoriness of obligatory control plus the fact that certain structural features that can disrupt obligatory control—in particular, nominalization and extraposition—disrupt it for both Sp and Ad alike.

4.5.1 On the Universality of Shift Together 2

Based on her extensive review of the indexical shift literature up to that time, Deal (2020) claims in effect that ST2 varies parametrically. In her terms, the operator that accomplishes second person indexical shift (Op_{ADDR}) is bundled with the operator that accomplishes first person

⁴¹ This is the sentence in (2), but without allocutive marking on the lower verb, which reduces the ambiguity of the example.

indexical shift (Op_{AUTH}), whereas in other languages they are two distinct functional heads, with Op_{AUTH} lower than Op_{ADDR} in the functional sequence. Languages like Zazaki, Uyghur, Nez Perce, and Magahi have bundled Ops (Op_{PERS}, see also Anand 2006), so they obey ST2. But other languages can have Op_{AUTH} present without Op_{ADDR} (but not vice versa; for Deal the fixed functional sequence does work analogous to the Edge Condition in my theory). Her principal language in which first person indexical shift can happen without second person indexical shift is Slave. In the examples in (92) from Rice (1989), first person elements in the embedded clause refer to the matrix subject, whereas second person elements refer to Ad*.

(92) a. Simon náseneineht'u hadi. (Rice 1989: 1279)

Simon 2.SG.S.hit.1.SG.O-3.say
'Simon_i said that you_{ad*} hit him/me_i.'

b. William neghōʔeníetō hadi.
William 1.SG.S-have.love-for-2.SG.O 3-say
'William_i says that he/I_i has love for you_{ad*}.'

b. Negháyhudá nudeli. (Rice 1989: 1283)

1.SG.S.OPTsee.2.SG.O 3.SG.S-want-2.SG.O
'She_i wants (of you_{ad*}) the she/I_i see you_{ad*}.'

But there are some reasons to be dubious about this conclusion. One is that it is verb-specific in Slave in a particular way. As it happens, Slave verbs that select a goal argument do obey ST2. This is the case with the verb(s) meaning 'tell' and 'ask'. Both first and second person indexicals in their complements must shift, as seen in the examples in (93). There is no option of 'I' referring to the matrix subject and 'you' referring to Ad* in this situation, according to Rice's thorough and precise discussion.

(93) a. Rosie ʔerákeeʔée wihsj sedeyjídí. (Rice: 1273 (5))

Rosie parka 1.SG.S.made 3.S.-told-1.SG.O
'Rosie_i told me_{sp*} that she/I_i (*sp*) made a parka.'

b. John ʔaranjla yéhdí. (Rice: 1277 (23))

John 2.SG.S.go.home 3.S -told-4.SG.S
'John_i told her_k for her/you_k to go home.'

c. Segha náuhdí sédjidi yjilé (Rice:1277 (26)).

1.SG-for 2.SG.S.buy 2.SG.S-tell-1.SG.O PST
'You told me to buy it for you. (Lit: You_{ad*} told me_{sp*} you_{sp*} buy it for me_{ad*}.)'

One could take this to be a selectional matter, saying that 'say' and 'want' select for Sp/Op_{AUTH} but not for Ad/Op_{ADDR} in Slave, whereas 'tell' and 'ask' select for both. One could even say that this selection is not entirely arbitrary, but rooted in the lexical semantics of these verbs. But if ST2 is really parameterized across languages, one should be able to see some language in which

a verb with both agent and goal arguments selects only Op_{AUTH} (Deal’s version) or controls only Sp (my version). And this does not seem to be attested—a very suspicious gap in the data.⁴²

A rather curious detail of Magahi also sheds some light on this matter. When the subject of the CP complement of a dyadic verb like ‘think’ is a null pronoun (pro) licensed by rich agreement on the verb, then Magahi behaves like Slave in (92): the first person null pronoun can refer to the matrix subject while ‘you’ refers to Ad^* . This is seen in (94a). But like Slave, this possible violation of ST2 is only possible under intransitive matrix verbs like ‘think’ and ‘say’, never under a ditransitive verb with a goal argument like ‘tell’, ‘ask’ or ‘remind’. Even more curiously, the possible ST2 violation goes away when the subject of the embedded clause is the overt first person pronoun *ham*. Thus, (94b) is different from (94a) in that ‘I’ can only refer to Sp^* in (94b) as ‘you’ continues to refer to Ad^* .

- (94) a. Santeeaa soch-l-ai ki (pro) toraa dekh-l-i. (Alok 2020: 253 (5))
 Santee think-PFV-3NHS that I you.NH see-PFV-1S
 ‘Santee_i thought that he/ $I_{i(sp^*)}$ saw you_{ad^*}.’
- b. Santee-aa soch-l-ai ki ham toraa dekh-l-i. (think sheet)
 Santee-FM think-PFV-3.NH.S that I you.NH.ACC see-PFV-1.S
 ‘Santee_i thought that $I_{sp^*,*i}$ saw you_{ad^*}.’

So ST2 violations when they arise are narrow and fragile. Even languages that have some such examples have closely related constructions in which ST2 is obeyed.

What we see in (94b) is really what Deal (2020: 84-85) presents as a defective addressee effect. How does Shift Together work in a sentence where the matrix clause has no goal for second person elements to shift to? The answer is that second person elements get a null value—and hence are ruled out. The effect is particularly striking in Uyghur, where indexical shift is obligatory in certain kinds of complements. Obligatory shift, plus ST2, plus there being nothing for ‘you’ to shift to conspires to give the result that ‘you’ cannot be used in the CP complement of the relevant verbs (cognitive verbs) in Uyghur(!). (95a) shows that *i*-shift is obligatory when ‘believe’ takes a finite CP complement headed by *dep* in Uyghur. (95b) shows that a second person pronoun has no possible interpretation in this grammatical context, making the sentence as a whole ungrammatical.

- (95) a. Ahmet [(pro) kim-ni jaxshi kör-iman dep] bil-du? (Sudo 2021: 231)
 Ahmet I who-ACC well see-IPFV.1.SG.S that believe-IPFV.3.S
 ‘Who does Ahmet_i believe that he/ $I_{i,*sp^*}$ like(s)?’
- b. *Ahmet [(pro) kim-ni jaxshi kör-isen dep] bil-du? (Sudo 2021: 231)
 Ahmet you who-ACC well see-IPFV.1.SG.S that believe-IPFV.3.S
 (‘Who does Ahmet_i believe that you_{ad^*} like?’)

⁴² The transitive verb ‘want’ in Slave does trigger *i*-shift in its complement but not *u*-shift. But I attribute this to the fact that the object of ‘want’ is not a goal argument, hence not thematically eligible to control *Ad*. Rather it seems to be a sort of proleptic object, which has to be coreferent with some DP in the complement clause (e.g. She_i wants of you_{ad^*} that she/ I_i sees you_{ad^*}’ Rice 1989 1283 (66)). With this proleptic object set aside, (quasi)-transitive ‘want’ behaves like ‘say’ and intransitive ‘want’ in Slave.

Nez Perce and Magahi are similar except that indexical shift is optional. If it applies, ‘I’ can shift, but ‘you’ cannot be in the sentence, as in Uyghur. If it does not apply, then ‘I’ refers to Sp* and ‘you’ refers to Ad*. In other words, i-shift is ruled out in the context of ‘you’ in these language-constructions (for Nez Perce, see Deal (2020: 94 (171)); for Magahi, see (94b)).

The important thing to grasp here is that this defective addressee effect is fundamentally a kind of ST2, given a particular understanding of the goal role. According to ST2, the agent of a verb like ‘think’ is the same as Sp in the complement clause if and only if the goal of ‘think’ is the same as Ad. Then since ‘think’ has no goal, Ad has no reference, and ‘you’ in its scope cannot be used to refer to anyone. As a result, it cannot be used at all. (This is more or less a transposition of Deal’s way of handling this into my terms; see also Deal’s (2020: 73) definition of the *addr* function.) I would not have foreseen that the absence of a goal is taken to be the equivalent of there being a goal with no reference in this way. But apparently it is. What seems clear, though, is that this is a funny kind of ST2 effect, *not* a counter example to ST2. In its own way, this points to the robustness of the Shift Together phenomenon, since if a language is ever going to tolerate Shift Together violations, this seems like the perfect opportunity to do so.

Why then is *pro* different from the overt pronoun in Magahi in (94)—an effect quite specific to this language? I return to this in chapter 6, arguing that it is really an indexiphoric effect. Anticipating the discussion there, the idea is that since the subject is null in (94a), we cannot observe directly what its features are. I claim that it is an *indexiphor* in (94a): a logophoric (or LD-anaphoric) pronoun that triggers first person agreement on the verb, not a true first person indexical pronoun. Since logophors are bound to be a different kind of ghostly DP operator than true indexicals are, there is no expectation that their behaviors will be linked. On this view, (94a) is not a counterexample to the claim that true indexical pronouns shift together. The subject here is not a true indexical, but only looks like one because it triggers a particular kind of agreement on the verb (plus it happens not to look like much of anything).

Slave is now left as an anomaly, as the only language that has robust ST2 violations. But the anomaly can be removed if we take into account that Slave is also a *pro*-drop language of sorts, so the shifted first person elements could be indexiphors rather than indexicals.⁴³ Indeed, all arguments are agreed with (or expressed by clitics) in Slave, so the “anomalous” behavior of first person pronouns under verbs like ‘say’ and ‘think’ can be seen in any position in the clause. The door is open, then to, say that ST2 is really universal for indexicals across languages and constructions. (See chapter 6 for more on the analysis of indexiphors in Slave and other languages.)

Another construction in Magahi that bears on these matters is the ‘so-that’ adjunct clauses in the language discussed briefly in section 4.4.3 above. Recall that these allow i-shift, as shown again in (90).

- (96) Bantee-aa ghare rukl-ai taaki ham bimmar na ho jaa-i.
 Bantee-FM home stay3.NH.S so.that I sick not become go-1.S
 ‘Bantee_i stayed home so that he/I_i (sp*) would not become sick.’

However, I mentioned briefly that even this kind of adjunct does not allow u-shift. For example, in (97) the matrix verb ‘speak’ does have a goal argument of sorts; nevertheless, ‘you’ in the adjunct clause cannot refer to the goal ‘Bantee’ in this case.

⁴³ Indeed, the only kind of pronoun that Slave has is bound morphemes attached to verbs, nouns, or postpositions.

- (97) Baabaa Banteaaa-se batiaail-thi taaki tu dukhii na ho.
 Grandfather Bantee-FM-INS speak-3.H.S so.that you sad NEG be
 ‘Grandfather talked to Bantee_i so that you_{*i (ad*)} would not be sad.’

This then is another place where one might well expect to find ST2 violations, if those are allowed at all. For example, one might think that the special complementizer *taaki* has the lexical property of licensing Sp but not Ad. (Alok and I thought this for some time; see Alok 2020: 271-272). That would account for why ‘you’ cannot shift to the goal of the matrix verb ‘speak with’ in (97)—even though this shift is possible when the same verb appears with a *ki*-clause argument rather than a *taaki* clause adjunct, as in (98).

- (98) Baabaa Banteaaa-se batiaail-thi ki tu dukhii na ho.
 Grandfather Bantee-FM-INS speak-3.H.S that you sad NEG be
 ‘Grandfather talked to Bantee_i (saying) that he/you_{i (ad*)} should not be sad.’

But on closer examination, it turns out to be wrong to account for this difference by saying that *ki* licenses both Sp and Ad but *taaki* licenses only Sp. One clear fact that this hypothesis misses is that allocutive marking is possible in a *taaki* clause, as shown in (99).

- (99) Bantee-aa ghare ruk-l-o taaki (pro) bimmar na ho ja-i-o.
 Bantee-FM home stay-PFV-H.AL so.that (I) sick NEG become go-1.S-H.AL
 ‘Bantee_i stayed home so that I_{sp*,*i} do not get sick.’ (to grandfather)

This shows that there must be an Ad in the ‘so-that’ clause after all; otherwise there would be nothing nearby for Fin in the adjunct clause to agree with in (99). So it is not that there is no Ad in the structure, but rather that Ad cannot be controlled by the goal of the matrix verb in this case. This leaves it free to be bound by Ad* in the root clause.

A more subtle fact pointing to the same conclusion is that *taaki* clauses show a defective addressee effect on a par with the one found under verbs like ‘think’ in examples like (94b). To see this, suppose that the *taaki* clause contains both a first person pronoun and a second person pronoun, as in (100). Since there is no argument that can control Ad in the *taaki* clause, this Ad can only refer to Ad*. Given this, the first person pronoun must refer to Sp*, by ST2, just as ‘I’ must in (94b). (Indeed, the same is true in (99) with unshifted allocutive marking.)

- (100) Baaba Bantee-aa-se bola-thi taaki (ham) tor samaachar jaan saki.
 Grandfather Bantee-FM-INS speak-3.H.S so.that (I) your news know can
 ‘Grandfather_i talked with Bantee_k so that I_{sp*,*i} can know your_{ad*,*k} news.’

These facts fall into place if ‘so-that’ clauses really count as dependents of active Voice, not the verb, generated in active VoiceP rather than VP. According to the standard view, Voice takes an agent argument but no goal argument—rather a goal role is assigned lower down, in the VP or ApplP complement of Voice. As such, active Voice is essentially like ‘think’ and dyadic ‘say’, rather than (by itself) like a triadic verb like ‘tell’ or ‘ask’. There is an Ad inside the ‘so-that’ clause, and it must shift together with Sp, but because of the special position of this type of adjunct clause, this only shows up in the form of a defective addressee effect (since active Voice never has a goal argument. This pattern also testifies the robustness of ST2. It also provides an

interesting new argument for decomposing verbs into different theta-marking heads, separating Voice from V and Appl.⁴⁴

I conclude that Shift Together 2 is actually a very robust phenomenon, potentially universal, once one puts aside a handful of cases that can be analyzed as indexiphors. The question, then, is why. What should we make of this descriptive generalization theoretically?

4.5.2 Explaining Shift Together 2

At its heart, ST2 is an issue about the nature of optionality in this domain. I-shift is in a sense optional in Magahi and assorted other indexical shift languages, in that ‘I’ in the embedded clause can in general refer to Sp* or to the matrix subject. U-shift is also optional in these languages, since ‘you’ in the embedded clause can in general refer to Ad* or to the matrix object. However, the two options are not independent of each other. Why not? What is the intrinsic link between these two apparently free choices?

In fact, from the point of view of the theoretical tools I have adopted, we might not expect either form of indexical shift to be optional at all. A key ingredient of the theory is that Sp and Ad undergo obligatory control by suitable arguments of the matrix verb. Now a natural understanding of so-called “obligatory control is that it is obligatory (although this is not the only, inevitable understanding). If that were so in this case, it would make one aspect of ST2 essentially trivial. U-shift happens when i shift happens (and vice versa), because both shifts are obligatory. Ad must be controlled by the goal of the matrix verb, an instance of OC. Sp must be controlled by the agent of the matrix verb, another instance of OC. Therefore, both must be controlled. Therefore, pronouns bound by them all shift—they shift together. QED.

At this point, it becomes very relevant that in some language-constructions, indexical shift *is* obligatory on the surface. The best-known case is Uyghur (Sudo 2012, Shklovsky and Sudo 2014). In this language, a first person pronoun in a structure like (101a) must refer to the matrix subject, and cannot refer to Sp* (see also (95a)). Similarly, the second person pronoun in (101b) must refer to the matrix goal, and cannot refer to Ad*. It is no surprise, then, that in (101c) both ‘I’ and ‘you’ shift together.

⁴⁴ There is probably a bit more to say here about the implications of this for the mechanics of obligatory control. The Sp of the complement of V can be controlled by the agent, which is technically the argument of a distinct head Voice. However, the Ad of the clause that depends on Voice cannot be controlled by the goal inside VP (or ApplP). This asymmetry suggests that c-command plays a role in OC on top of the GOCS: the agent c-commands into the clause inside VP, but the goal does not c-command into the ‘so-that’ clause merged with a projection of Voice. See xx for a bit more on this.

- (101) a. Ahmet [men ket-tim] di-di. (S&S 2014: 383, (4b))
 Ahmet 1SG leave-PST.1.SG.S say-PST.3
 ‘Ahmet_i said that he/I_{i,*sp} left.’
- b. Tursun Muhemmet-ke [pro xet jaz-ding] di-di. (S&S 2014: 383, (5b))
 Tursun Muhemmet-DAT you letter write-PST.2.SG say-PST.3
 ‘Tursun told Muhemmet_i that he/you_{i,*ad*} wrote a letter.’
- c. Ahmet Aygül-ge [men seni yaxshi kör-yemen] di-di. (S&S 2014: 395 (38))
 Ahmet Aygül-DAT 1SG 2SG.ACC well see-IPFV.1SG say- PST.3
 ‘Ahmet told Aygul that he/*I likes her/*you.’

Another case where indexical shift is obligatory is with certain verbs in Slave, including ‘say’. In (102a), the first person pronoun must refer to the matrix subject, not the speaker (see also (93a)). Similarly, in (102b) the second person pronoun in the embedded clause must refer to the matrix goal, not to the addressee of the sentence as a whole.

- (102) a. John h̄idowedzíné k’e desh̄ita duh̄la hadi.- (Rice 1989: 1279, (37))
 John tomorrow on bush 1.SG.S.OPT.go 1.S-say
 ‘John_i said that he/I_{i,*sp*} is going to the bush tomorrow.’
- b. John ts’ódanike yerigha yejai tá?erese gho góhdi. (Rice 1989: 1277, (24))
 John child.PL why window 2.PL.S.broke about 3.S.ask.4.PL.O
 ‘John asked the children_i why they/you_{i,*ad*} broke the window.’

A third case is Matses, a Panoan language, where indexical shift is obligatory in the complements of the verbs ‘say’, ‘tell’ and ‘suppose mistakenly’. Thus Munro et al. (2012: 48) write that in this language “The overarching constraint that can be seen is perspective persistence: indexicals must remain from the point of view of the original speaker” (i.e. the referent of the subject of a verb like ‘say’). Thus, the null first person pronoun in the complement clause of (103a) refers to Dashe, not to Sp*, and the second person pronoun in the complement clause of (103b) refers to Sp*, the person that the referents of ‘they’ were talking to, not Ad*, the person that Sp* is talking to.

- (103) a. Dashe [kachina pe-o-mbi] ke-o-ṣh. (Munro et al. 2012: 47 (14))
 Dashe chicken eat-PST-1 say-PST-3
 ‘Dashe_i said that he/I_{i,*sp*} ate chicken.’
- b. [mibi bëda-mbo ik-e-k] ke-o-ṣh, ubi chui-ek. (Munro et al. 2012: 51 (22))
 you good-AUG be-NPST-IND say-PST-3 I speak about-ss
 ‘They said about me_{sp*} that I/you_{sp*,*ad*} are a good person.’

Other languages that Deal (2020) mentions as having constructions with obligatory indexical shift include Laz (Demirok and Öztürk 2015), Navajo (Schauber 1979, Speas 2000), and Dobon (Davies 1981). This is a substantial subset of the languages in which indexical shift has been

studied. For these languages, Shift Together is almost trivial, following from the obligatoriness of indexical shift, which is consonant in my terms with the obligatoriness of obligatory control.

However, other syntactic structures in the same languages may block indexical shift. In Uyghur, some embedded clauses are nominalized, as in (104a,b). Nominalization here is easily recognized by the convergence of several factors: the subject of the embedded “clause” is genitive; the nominalizing affix *lik* is found on the verb, agreement with the subject comes from the possessive paradigm, and the embedded clause as a whole bears accusative case. All these properties are different from the form of complementation seen in (90). Correlated with this structural difference is the fact that indexical shift is blocked in these examples: ‘I’ in (93a) must refer to Sp*, not Ahmet, and the null ‘you’ in (93b) must refer to Ad*, not to Muhemmet.

- (104) a. Ahmet [mening ket-ken-lik-im-ni] di-di.
 Ahmet 1SG.GEN leave-REL-NMLZ-1SG-ACC say-PST.3
 ‘Ahmet_i said that I_{*i,sp*} left.’ (Shklovsky and Sudo 2014: 383, (4a))
- b. Tursun Muhemmet-ke [*pro* xet jaz-ghan-lik-ing-ni] di-di
 Tursun Muhemmet-DAT you letter write-REL-NMLZ-2SG-ACC say-PST.3
 ‘Tursun told Muhemmet_i that you_{*i,ad*} wrote a letter.’ (p. 383, (5a))

So indexical shift in Uyghur is optional in a sense in that there are two (synonymous, as far as we know) forms of complementation to choose from, one which requires it and one which forbids it. However, it is either obligatory or forbidden given a particular form of complementation. This is readily capturable within given the GOCS. We can say that any clause-like constituent containing Sp and Ad is not the direct complement of the verb in (104), because the nominal head of the nominalized clause intervenes. For example, CP in (104b) is technically the complement of NMLZ, not ‘told’, so Ad and Sp in CP cannot be controlled by an argument of ‘tell’. Rather any Sp and Ad inside the nominalized clause must be bound by higher Sp and Ad, in this case Sp* and Ad*, as happens with Ad and Sp in high adjunct clauses or relative clauses. This can be compared with Landau’s (2013: 43-46) observation that in English OC is not required in certain gerund complements with the nonfinite verb bearing the affix *-ing*, which can be nominal rather than verbal, whereas complement clauses using the *to*-infinitive always show OC (perhaps by a null controller). Similarly, in Japanese embedded clauses headed by *koto* require OC when *koto* is categorically a C, but allow NOC when *koto* is categorically a N (Fujii 2006).⁴⁵

⁴⁵ The structure in (105) looks essentially identical to one like (i) for the [N+CP] construction found in an example like (87b). The only evident difference is that the NP is headed by an affixal noun NMLZ in (105) but by the ordinary noun ‘rumor’ in (i). Yet (87b) allows indexical shift, whereas (104b) does not. The difference, I claim, is that carrier nouns like ‘rumor’ and ‘news’ can also have covert arguments, which count as the possessor/agent argument of the noun. This (often) covert argument is the true OC controller of Sp in (i). When it is itself anteceded by the agent-subject *Santee*, the result is indexical shift. In contrast, I propose that NMLZ in (105) has no additional arguments (other than its clausal complement) that can mediate control in this way.

- (i) Santee_i [_{VP} spread [_{NP} (*eci*) rumor [_{Fin1P} Sp Fin1 [_{Fin2P} Ad Fin2 [I_i win prize]]]]]

(105) Tursun [_{VP} told Muhammet [_{NP} NMLZ [_{Fin1P} Sp Fin1 [_{Fin2P} Ad Fin2 [you/I wrote a letter]]]]]

Crucially the same structural factor—the presence of NMLZ—that blocks OC for Sp also blocks OC for Ad. This follows under the assumption that nominalization cannot take place between the head that licenses Sp and the head that licenses Ad. In Magahi terms, this would happen if a nominal head took a Fin2P complement and was itself the complement of Fin1. It seems plausible to rule this out in as much as the two Fin heads can be thought of in a sense as two projections (“shells”) of the same head, or closely related heads. (Compare Speas and Tenny’s idea that Sp and Hr are introduced in the analog of a Larsonian shell structure.) This then gives a form of Not-Shift Together. Averaging over the two complementation structures available in Uyghur, both Sp and Ad must be controlled if there is no nominalizing layer to hide them, and neither can be controlled if there is a nominalizing layer. This amounts to a kind of ST2.

Another language in which nominalization plays a role in conditioning indexical shift is Slave. Rice (1989) claims that some clausal complements in Slave are dominated by an NP node, whereas others are not. A relatively clear sign of nominalization is if the clause triggers object agreement on the selecting verb (with the so-called areal gender *go-*). The verb ‘know’ is an example, as in (106). Rice (1989: 1230) writes “The complements are dominated by NP: the areal pronoun *go-/ke-* is present and other nouns can occur in the place of the complement sentence.”

(106) [John ʔode nágwɛ] kodɨhshɔ. (Rice 1989: 1229 (43))
 John where 3.S-lives 3.S-know-area.O
 ‘He knows where John lives.’

Moreover, all such verbs count as what Rice calls “indirect discourse” verbs in Slave; they do not allow indexical shift.

(107) a. John [ʔerákeʔée wihsi gú] kodɨhshɔ. (Rice 1989: 1272 (2), with C=*gu*)
 John parka 1.SG.S.made COMP 3.S-know-area.O
 ‘John_i knows that I_{sp*,*i} made a parka.’
 b. [Judeni ráhgwɛ] kodɨhshɔ yɨle. (Rice 1989: 1275 (10), with C=∅)
 where 1.SG.S.live 3.S-know-area.O NEG
 ‘She_i doesn’t know where I_{sp*,*i} live.’

In contrast, verbs like ‘say’ that require indexical shift have complements that do not trigger object agreement on the verb (there no *go-/ke-* prefix in (102) above). Similarly, Rice (1989: 1274) says that all verbs in Slave that select an overt complementizer (*gu* or *ni*) are verbs that do not allow indexical shift (see (107a)), whereas verbs that require indexical shift never occur with an overt complementizer. Both complementizers seem to be at least semi-nominal in the sense that they are possible with CP subjects as well as with CP complements (Rice 1989, sec. 43.1).

Pushing this farther, there could be some more subtle, harder to recognize, forms of “nominalization” as well. In addition to verbs like ‘know’ and ‘say’, Slave has verbs that select complement clauses that do not have overt Cs and do not trigger areal-gender agreement on the verb, but that nevertheless do not allow indexical shift in their complement. These differences notwithstanding, Rice (1989: 1161, 1274) gives evidence from question-movement that there is a structural distinction between the complements that allow indexical shift and those that do not.

Verbs that allow indexical shift (‘say’ and ‘want’) allow adjunct question words to move out of the CP complement to the beginning of the sentence as a whole when the question word has matrix scope, as in (108).

- (108) a. Hod_i nurse [-- negháuhndá] néndi. (Rice 1989: 1161, (177))
 where nurse 1.SG.S.OPT.see-2.SG.O 3.S-told.2.SG.O
 ‘Where_k did the nurse_i tell you_{ad*} [she/I_i would see you_{ad*} t_k]?’
- b. yeri gha Denise [-- sika gudee] sudeli. (Rice 1989: 1161, (178))
 what for Denis 1.SG.to 3.S.OPT-talk 3.S.wants.1.SG.O
 ‘Why does Denise want me to call her?’
 (lit. ‘Why_k does Denise_i want [her_{sp*} to call me_i t_k]?’)

In contrast, verbs that do not allow indexical shift allow NP-argumental question words to move out of the complement to sentence-initial position, but they do not allow non-nominal adjunct question words to do so. In the parlance of island theory, the complements of such verbs are weak islands but not strong islands.

- (109) a. *ʔode netá [-- nimbáa enáih?á] kenéhdzáh. (Rice 1989: 1163, (186))
 where 2.SG.father tent 3.S-pitched 3.S.tried
 ‘Where_k did your father_i try [(fom him_i) to pitch the tent t_k]?’
- b. *wodʔ sé moot’ike [-- neté] ?agihthe. (Rice 1989: 1163, (187))
 when FOC 3.people.PL 3.lie 3.S.cause-4.O
 ‘When_k do his parents force him_i [for him_i to go to bed t_k]?’

Largely on this basis, Rice (1989: ch 42) draws a three-way distinction between complements in Slave. In her terms, some take S complements (indexical shift verbs), some take S’ complements (non-indexical shift verbs) and some take NP-over-S’ complements (agreement-triggering complements). However, agreement-triggering complements are like the ones in (109) in acting like weak islands for adjunct extraction:

- (110) *Jeden_i ri Raymond [Jane -- yil_i] kodihshʔ. (Rice 1989: 1162, (185))
 where FOC Raymond Jane is 3.S.know.area.O
 ‘Where_k does Raymond know [Jane to be t_k]?’

Therefore, it seems fair to interpret weak-islandhood as being a sign of some kind of nominalization, leading to the view that the examples in (109) contain a more subtle form of nominalization. For example, they could have a null C-like head that is nominal in bearing a referential index but no marked phi-features, causing it not to trigger agreement on the verb. (In Baker 2003, I entertained this possibility for *that*-complements in English.)⁴⁶

⁴⁶ Note that Deal’s (2020) account does not obviously expect that complements with and without indexical shift should differ in extraction possibilities in this way. For her, verbs in a particular language can decide directly whether they select for the functional heads that change contexts or not. At one level, this is similar to my proposal, where verbs can select for whether their complements are nominalized (subtly or obviously) or not. However,

Now if “subtle nominalization” is possible in Slave, blocking indexical shift, it is a possibility in Magahi too. The language could perhaps have a superhigh form of covert nominalization—a partially nominal null C (like *koto* in Japanese, perhaps). When this head is present, it blocks the control of both Sp and Ad, yielding no indexical shift, as in Uyghur and Slave. When this head is absent, it permits the control of both Sp and Ad, control being obligatory when possible. It should also be borne in mind that the extra structure that blocks OC, hence indexical shift, need not be nominal to have this effect. The category of the intervening head that stands between the clause containing Sp and Ad and the selecting verb does not play any crucial role in my account; all that matters is that it prevents there from being a direct selectional relationship between the verb and the constituent that licenses Sp and Ad. A head of any category might do, as long as it is not part of the same extended projection as the V-T-C complex. A nominalizing head is the most familiar such head, but it need not be the only one.

While not ruling out this possibility, I want to present an alternative which I consider more promising for Magahi and some other indexical shifting languages. This alternative takes into account the possibility of CP extraposition. The languages with obligatory indexical shift complements in (101)-(103)—Uyghur, Slave, and Matses—are all verb final languages, and indeed the verb comes after the CP complement in these languages. Rice (1989: 1239) is explicit that CP complements cannot extrapose rightward in Slave (although CP subjects can). Laz has obligatory indexical shift in certain complements and this characteristic word order.

- (111) Arte-k [ma noseri vore ya] iduʃun-am-a. (D&Ö 2015: 46 (2a))
 Arte-ERG I smart be.1.SG that think-IPFV-3.SG
 ‘Arte_i thinks that he/I_{i,*sp*} am smart.’

Magahi is also a verb-final language when it comes to normal word order between the verb and NPs and PPs. However, finite *ki*-clause complements may, indeed must extrapose rightward in Magahi (Alok 2020: 233), such that they come at the end of the sentence, as can be seen in all the examples in this chapter and the last. (See Alok (2020: sec 5.3.1) for some discussion of *ki*-complements and the status of *ki* in Magahi.) Indeed, such clauses leave the VP headed by the verb that selects them. As in other languages, this can be seen by the fact that the CP follows not only the thematic verb but also the finite auxiliary whenever there is one, as seen in (112).

context shifting heads are not expected to affect extractability of question-phrases, whereas nominalization does (depending on the language).

Laz and Tigrinya would be an interesting case to look into more to investigate these issues. For Laz, Demirok and Öztük (2015) describe two complementation structures: one with the C head *na-*, which can appear with a wide variety of verbs, and one with C-head *ya/ma*, which is used only with ‘say’/‘tell’ and ‘think’. (*Ya/ma* also shows impoverished upward C-agreement with the matrix subject.) *Ya*-complements require indexical shift and *na* complements forbid it. It would be nice, then, if *na* turned out to be nominal—or at least not part of the ordinary extended projection of the verb—in a way that *ya* is not. There is some kind of structural difference, in that *na* comes before the embedded verb and *ya* after it, but it is not immediately clear what (if anything) this means. Another possibility is simply that the *ya/ma* complementizer is specified as licensing Sp and Ad by selection, whereas the *na* complementizer is not.

The situation in Tigrinya is very similar to Laz (Spadine 2020). It too has two forms of complementation, one that requires indexical shift (with C=*ʔil*+Agr) and one that forbids it (with C=*kim*-zi-). Again, there are some structural differences between the two kinds of clauses, in terms of the position of the C-like head (after TP or procliticized onto V) and in terms of how perfective verbs are realized. However, it is not clear that the visible differences are due to some kind of nominalization, or how they relate to the possibility of control/indexical shift.

- (112) Santee-aa **chaaha h-ai** [ki ham parichha paas ho jaa-i].
 Santee-FM want be-3.NH.S that I exam pass become go-1.S
 ‘Santee_i wants that he/I_{i,sp}* pass the test.’
 Not: *Santeeaa **chaaha** [ki ham parichha paas ho jaai] **hai**.

This extraposition is potentially very relevant to our topic. The GOCS says that OC applies to clauses that are inside VP. Is that where finite CP complements are in Magahi? The answer is sometimes: CP complements are (by hypothesis) generated inside VP but move outside of VP by PF. I suggest then that the optionality we see in Magahi indexical shift is a connectivity effect: the moved CP can be interpreted for purposes of control either in its base position inside VP or in its derived position outside VP. If it is interpreted inside VP, then the GOCS applies; both Sp and Ad are controlled by the corresponding arguments of the matrix verb, and indexicals shift together. If, however, CP is interpreted outside of VP, the structure is not significantly different from one with a high CP adjunct adjoined to TP, like a ‘because’-clause or a ‘when’-clause. This is not a context of obligatory control, according to (my version of) the GOCS. Indexicals do not shift in these CP-adjuncts (see (83)), and I suggest that they can not shift in extraposed CP complements for the same reason. On this account, the fact that ‘I’ inside a moved clause has two readings in (112) is parallel to the fact that *herself* inside a moved DP has two readings in (113), depending on whether the DP containing it is interpreted for Binding theory in its base position or its moved position (Chomsky 1993) among many others).

- (113) Mary_i wonders [[which picture of herself_{i,k}]_n [Sara_i likes t_n best]].

This account of the optionality of indexical shift in CP complements in Magahi can explain the ST2 phenomenon given reasonable auxiliary assumptions. First, we must hold that it is impossible for a constituent including Ad to extrapose leaving a constituent containing Sp behind (and vice versa). In terms of the structure proposed by Alok (2020), we must rule out Fin2P moving out of Fin1P, leaving Sp behind inside the VP. If that were possible, then Ad could be interpreted outside VP, as bound by the higher Ad, while Sp is interpreted inside VP as controlled by the matrix subject. But this is easy to rule out, given that it is invariably whole clauses that extrapose, not partial clauses stranding some C-like heads in situ (for example, *ki* cannot come before *chaaha* in (112)). Just as the two Fin heads behave like one discontinuous head that cannot be split by nominalization, so they cannot be split by extraposition either.

We should also consider whether other possible landing sites for CP extraposition are expected to give different indexical shift patterns. Suppose, for example, that CPs can also extrapose to right-adjoin to VoiceP, an intermediate location in the structure of the clause. We might expect that complement clauses that land there could behave for indexical shift like ‘so-that’ clauses in Magahi, which allow i-shift but not u-shift (see (96) versus (97)). But recall that ‘so-that’ clauses in Magahi do not violate ST2 despite this; rather they show a defective addressee pattern, such that second person pronominals are impossible inside the adjunct clause if first person pronouns are shifted. This implies that the range of possibilities that are expected if CP adjoins to VoiceP are a proper subset of those that are allowed if CP is simply interpreted inside the core VP: i-shift is allowed from either position, whereas u-shift is allowed with CP interpreted in situ and ‘you’ is ruled out if CP is interpreted in the intermediate position. Thus, it does no harm to allow the possibility of CP extraposing to an intermediate position like VoiceP in the system. This would not be a way of circumventing the ST2 effect.

The last point to shore up here is how reconstruction works. We have to rule out the possibility that CP as a whole extraposes, but then Sp is interpreted inside VP and Ad is interpreted outside VP (or vice versa). However, it is fairly standard to say that connectivity effects must be coherent: a moved constituent is interpreted for a given purpose in one position or another but not both (Fox 2000). I assume that something like that holds in this domain. This leads to a new research question: how does the optionality of indexical shift in a language like Magahi interact with other types of reconstruction effects? For example, does one get obligatory reconstruction for condition C in clauses with shifted indexicals but not in clauses unshifted indexicals? I have not investigated this, and it goes beyond the bounds of this inquiry, but it could be a worthy topic for future investigation.

A typological question that arises now is whether this extraposition account of optional indexical shift scales up to other languages. Initial results look promising. I already mentioned that the better-studied languages in which indexical shift is obligatory do not have rightward CP extraposition: Uyghur, Slave, Navajo, Matsigenka, and Laz.⁴⁷ On the other hand, Zazaki is a classic case of optional indexical shift (Anand and Nevins 2004). It has mixed word order, with nominal objects appearing before the verb. However, finite CPs come after the verb, apparently extraposed rightward as in Magahi.⁴⁸

- (114) Vizeri Rojda Bill-ra va [kε εz to-ra miradiša]. (A&N 2004 (13))
 Yesterday Rojda Bill-to said that I you-to angry.be-PRES
 ‘Yesterday Rojda_i said to Bill_k that she/I_{i,sp*} is/am angry at him/you_{k,ad*}.’

Nez Perce is another language with optional indexical shift. The language has very free word order when it comes to NPs and verbs, but Deal (2020) consistently gives finite CP complements in sentence-final position, suggesting that they extrapose rightward as well.

- (115) a. Isii-ne A. hi-i-caa-qa [cewcewin’es-ki *pro* ‘e-muu-ce-∅ t]?
 Who-ACC A. 3.S-say-IPFV-REC.PST phone-with I 3.O-call-IPFV-PRES
 ‘Who_i did A_k say she/I_{k,sp*} was calling *t_i*?’ (Deal 2020: 56)
- b. Manaa we’nikt ‘u-us haama-nm, ke ko-nya T-nm
 How name.NOM 3.GEN-be.PRES man-GEN C REL-ACC T-ERG
 pee-∅-n-e R-ne [‘ee ‘o-opayata-yo’qa t]?
 3.S/3.O-say-PFV-REM.PST R-CC 2.SG 3.O-help-MOD
 ‘What is the name of the man_k that T told R_i that he/you_{i,ad*} should help *t_k*?’

⁴⁷ Different from CP extraposition rightward is CP topicalization leftward. Rice (1989) shows that this is possible in Slave, and it appears to be independent of indexical shift. CPs of verbs that require indexical shift still show indexical shift if the CP is topicalized, and CPs of verbs that forbid indexical shift still forbid it if the CP is topicalized. If this is right, then I have to say that reconstruction is obligatory with this form of movement in Slave.

⁴⁸ However, because of Zazaki’s mixed word order, a Kayne (1994)-style analysis in which complements follow the head but NP objects move leftward might be more plausible for Zazaki than for some other languages.

These cases support the idea that rightward CP-extrapolation is a source of optional indexical shift in languages of the world.⁴⁹

Rightward CP-extrapolation is a very common process crosslinguistically. It may well happen in Niger-Congo languages too. Since they are VO languages, the basic fact that the CP complement comes after the verb does not require this, but the fact that CP complements come at the right periphery after objects and PP arguments may itself imply extrapolation. How does this theoretical possibility affect the theory of upward C-agreement that was developed in Chapter 2? Empirically, the answer seems to be that there is no effect: C-agreement with the immediately superordinate subject is obligatory (if the Agreeing C is selected), and the possibility of CP-movement in the African languages does not negate this or create other possible targets for agreement. Furthermore, this is what I expect given my assumptions. Remember that agreeing Cs are not found in high TP-level adjunct clauses in the relevant languages, especially *Ibibio*. I attributed this to the fact that *SoK*, the ghostly DP involved in upward agreement constructions, does not have intrinsic phi-features, but needs some phi-features to be interpreted at LF (different from *Sp* and *Ad*, which are intrinsically [+1] and [+2], respectively). Therefore, *SoK* must undergo OC as a way of getting phi-features in the syntactic derivation. But OC does not happen into CPs interpreted outside of VP. Therefore, *SoK* is not possible in adjunct clauses which must be interpreted high. By the same reasoning, *SoK* inside an extraposed complement clauses has to be interpreted low, in reconstructed position, rather than high in its derived position, so it can get phi-features via OC. Given this, CP extrapolation is not expected to expand the possibilities for upward C-agreement the way it does for indexical shift (and allocutive marking) in *Magahi*.⁵⁰

⁴⁹ Amharic is a potentially problematic case, as described by Anand (2006). It has optional indexical shift without extraposing CP rightward and without there being any visible difference in the internal structure of the clause that goes along with whether indexicals shift or not. This can be seen in (i), originally from Schlenker (2003).

- (i) John *jiəgna n-ññ* *yil-all*
 John hero COP.PRES-1.SG says- AUX.3.M.SG
 ‘John says that {I am, he is} a hero.’

However, all his examples like this have the main verb ‘say’. Indexical shift is also possible in Amharic with verbs like ‘think’/‘believe’, but only when they are used along with ‘say’ as a C-like element. Anand (2006: 76 fn.18, exx (vii) vs (vii)) contrasts (ii) and (iii); see also Leslau 1995: sections 142.11-13).

- (ii) John *jiəgna n-ññ* *yiSəllig-all*.
 John hero COP.PRES-1.SG think.IPFV-AUX.3.M.SG
 ‘John says that {I am, *he is} a hero.’
- (iii) John *jiəgna n-ññ* *bilo y-amn-allə*.
 John hero COP.PRES-1.SG saying 3.M.SG -believe-AUX.3.M.SG
 ‘John says that he (lit I) is a hero.’

Now Anand does not mark (iii) as being ambiguous, with ‘I’ able to refer to *Sp** as well as to the matrix subject. If it cannot, then complements that allow indexical shift and ones that forbid it are structurally distinguished for most verbs in Amharic. The difference could be neutralized on the surface with matrix verb ‘say’ by the common fact that a ‘say’ complementizer is deleted in the complement of the verb ‘say’ to which it is etymologically related. (This is common for agreeing Cs in African languages as well.) Then Amharic is very much like its cousin *Tigrinya*, in fact (see note xx). If in fact indexical shift is optional in (iii), the puzzle for my theory of what conditions it is potentially more severe.

⁵⁰ A question for chapter 8, the Grand Unified Theory of Control, is whether CP-extrapolation changes the control possibilities for PRO.

In summary, in this section I have argued that Shift Together 2 is a very robust phenomenon, perhaps universal once a few cases of indexiphors are recognized and put aside. Correspondingly, I have sought to derive it from a fundamental principle: the fact that obligatory control is obligatory. As such, it applies equally to Sp and Ad, causing both i-shift and u-shift. When neither kind of shift happens, it is because some structural factor blocks obligatory control, I claim. At least two different structural factors seem to have this effect. One is nominalization, as happens in Uyghur and Slave, and perhaps less obviously in some other languages-constructions. Another is rightward extraposition of CPs which puts them in a position like that of CP adjuncts, where OC need not apply. That is plausible for Magahi, Zazaki, and Nez Perce. How well this extends to other languages with indexical shift—and whether there might be other factors to consider—is a topic for future research into the particular languages.⁵¹

4.6 Other languages; other theories

In the earlier parts of this chapter, I shamelessly let Magahi data and my own theory control the exposition. Inasmuch as, the patterns of indexical shift in Magahi fall squarely in the center of how indexical shift has been found to behave in other relatively well studied languages, I trust that this does no damage to the topic, and serves to foreground the new data that I have to offer. However, this focus began to broaden out in the last section, as interest in the ST2 phenomenon led me to consider the nature of optionality in indexical shift, which raised the question of why indexical shift seems to be optional in some languages and constructions and not others. Indeed, this is perhaps the most important parameter of crosslinguistic variation that we know about when in this domain, other than the basic question of why indexical shift is possible in some languages but not others. But this is not all there is to say about the topic of crosslinguistic variation. I now round out the discussion by considering briefly other types of crosslinguistic variation in indexical shift, taking Deal's (2020: chapter 3) as my outline. At the same time, I further compare my theory of indexical shift to Deal's (2020) version of the shifty operator theory. I focus on this one because it is quite recent, comprehensive, and explicitly strives to account for crosslinguistic variation in indexical shift (as well as her new Nez Perce data). As such, the goals of her theory are very similar to mine. My theory and hers also share the core idea that indexical shift is fundamentally caused by certain kinds of operators (functional heads or null DPs licensed by them) which are found only in the peripheries of certain kinds of complement clauses (see Deal 2020: 45-48). For discussion of earlier theories of indexical shift and some criticism of them, I refer the reader to Deal's work, especially her Chapter 2, which for the most part I agree with (and the empirical basis for which Alok and I have for the most part replicated in Magahi).⁵²

4.6.1 Variation in what matrix verbs are involved in indexical shift

⁵¹ Another language with optional indexical shift is Amharic. Its CP complements are not extraposed rightward, nor are they obviously nominalized. ... [Any speculation.]

Other languages to consider are Korean (cf. Park 2016, Deal 2020) and Japanese, where indexical shift is somewhat marginally possible for some speakers (but as far as I know, obligatory for none).

⁵² The exception is that my theory includes aspects of what Deal calls the Binding theory, and attributes to von Stechow (2003). Her primary argument against such a view, following Anand (2006), is that it does not capture Shift Together effects, especially Shift Together 1. In my version, these effects follow once the Person Licensing Constraint is added to the system. See section 4.3 and chapter 6 for discussion. (Also relevant is the de re blocking effect, discussed some in the same places.)

The first type of variation that Deal discusses is variation in which matrix verbs allow indexical shift in their CP complements. Some languages allow this only with ‘say’ class verbs, including Zazaki, Farsi, Kurmanji, Dhaasanac, and Somali. Others extend this to ‘think’ class verbs (nonfactive cognition verbs) but not to ‘know’ class verbs (factive verbs). This set includes Navajo, Slave, Laz, Korean, and Japanese. Still others allow indexical shift even with ‘know’ class verbs—indeed with essentially all verbs that take finite CP complements. Nez Perce is such a language, according to Deal. So too is Magahi; see Alok (2020: section 3.5.1). Examples with ‘say’, ‘tell’, and ‘think’ have been amply illustrated above. (116) adds an example with ‘know’.

- (116) Santee-aa jaana ge-l-o ki hamraa dillii jaa-yelaa he. (Alok 2020: 145 (26a))
 Santee-FM know go-PFV-H.AL that me.DAT Delhi go-INF be
 ‘Santee_i knew that he/I_{i,sp*} have to go to Delhi.’ (said to grandfather)

Deal’s account of this variation is essentially a selectional one: some verbs select larger clauses than others. Those that select larger clauses have room for the functional heads that constitute context-shifting operators in Deal’s framework, whereas those that select smaller clauses may not. My framework allows for essentially the same approach. The only difference is that for Deal a verb may or may not select a complement that includes the functional heads which shift contexts, whereas in my account a verb may or may not select a complement that includes the functional heads that license the ghostly DPs Sp and Ad, which are the vehicles of indexical shift.

Considering this a bit further, what might set ‘say’ class verbs apart from others in some languages is that they can select the largest complements, SAPs, which express speech acts. Then languages that have such verbs and that license only Sp in Spec SA1P (Sp*) and Ad only in Spec SA2P (Ad*) will only allow indexical shift under ‘say’ class verbs. (See Miyagawa (2012) for this sort of reasoning applied to embedded allocutive marking.)⁵³ In contrast, languages like Magahi which license Sp and Ad in a lower projection such as FinP will allow indexical shift in a much wider range of complement clauses.

On the other hand, the resistance of complements of verbs like ‘know’ to indexical shift in some languages might very well be related to the tendency of such verbs to have nominalized complements, where nominal projections can disrupt the obligatory control relation that indexical shift depends on, as discussed in section 4.5 (see, for example, the tradition of saying that factive verbs have complements with NP-over-CP structures, dating back to at least Kiparsky and Kiparsky 1970.) For example, Slave’s verb ‘know’ selects a CP that is nominal in the sense of bearing (areal) gender and triggering object agreement on the verb, and this rules out indexical shift in the CP (see (106)-(107) and discussion. Similarly, Deal (2020: 69) mentions Korean as a language where the complement of ‘know’ is a nominalized clause, and hence does not allow for indexical shift. In contrast, the complement of ‘know’ in Magahi is not different in structure or morphology from the complement of ‘think’ in the language, and both allow indexical shift. These then might be the primary “joints” in selectional phenomena across languages. There is also the possibility of more idiosyncratic selectional properties being stipulated for individual verbs as well, as in Slave, where Rice (1989: 1276) says that which verbs allow for indexical shift and which do not is not semantically predictable (although some general tendencies are respected as well).

⁵³ Moreover, languages which do not all indexical shift at all—like English—are languages in which only the SA heads license Sp and Ad and no verb can select for SAP as its complement. See xxx.

4.6.2 Issues about which indexicals can shift, including locatives and temporals

The second primary area of crosslinguistic variation that Deal discusses involves which indexicals shift in a given language. She considers four types of indexicals—first person, second person, locative, and temporal—whereas I only discuss the first two types in this work. Deal argues for an implicational hierarchy, such that locative indexicals shift only if first and second person indexicals shift, second person indexicals shift only if first person indexicals shift, and first person indexicals shift only if temporal indexicals shift. The only part of this hierarchy that falls firmly within my purview is the relationship between first person indexical shift and second person indexical shift, and here I interpret the crosslinguistic evidence a bit differently from Deal, as discussed in section 4.5. Her primary example of a language-construction in which i-shift happens but u-shift does not is Slave with the matrix verbs ‘say’ and ‘want’ (whereas both i-shift and u-shift are required under ‘tell’). I proposed that this otherwise unique case is really an instance of indexiphoricity, not true indexical shift—like Magahi sentences with a pro-dropped DP triggering first person agreement, rather than like Magahi sentences with an overt unambiguous first person pronoun. Therefore, I do not have an analog of Deal’s parameter that the author-shifting functional head can be bundled together with the addressee-shifting functional head into a single unit, or it can appear by itself, depending on the language. Logically speaking, I could include an analog of Deal’s view in my framework: there could be C-like heads that license Sp but not Ad. When the Sp of such a clause is controlled by an argument of the matrix verb, there would be i-shift, but there would be no Ad in the embedded clause that could be controlled to result in u-shift. Rather, second person pronouns would all have Ad* in the root clause as their closest binder. There is nothing obviously wrong with such a representation, and I am open to the possibility that sufficient examples will come to light to show that natural languages do make use of it. But for now I am struck with how few plausible cases of this type have come to light so far: maybe only Slave, and then only a certain class of verbs at that.⁵⁴

How do I justify offering an analysis of first and second person indexical shift without considering how the theory might apply to locative and temporal indexicals? This will seem like an artificially narrow study of the phenomenon to some. However, I have chosen to study i-shift and u-shift in comparison with phenomena like allocutivity and upward C-agreement on the one hand and logophoricity on the other hand. These phenomena do not have any clear analog for ‘here’-shift or ‘now’-shift to give me leverage on those topics using my chosen method. Moreover, from the perspective of indexicality, ‘I’, ‘you’, ‘here’ and ‘now’ may seem like a natural class, but from other perspectives they may not be. For example, the notion of grammatical person, a core feature for Agree and inflectional morphology, is relevant to ‘I’ and ‘you’ but not to ‘here’ and ‘now’. Of course, one would like to understand everything all at once, but that is two big a task to do in one step. As we work toward that goal, it is practical, perhaps inevitable, to group subtopics in different ways and make different comparisons and see what sticks on the road to the grand unified theory of everything.

⁵⁴ At one point, I thought that *taaki* ‘so that’ in Magahi was a C that selected Sp but not Ad, but this turned out to be the wrong analysis given that purposive adjuncts show a defective addressee effect (even when the matrix verb has a goal). See section 4.5.1 for discussion. Note also that Slave verbs like ‘say’ and ‘want’ do not have a visibly different C than ‘tell’ does (both are null). This suggests that the crucial difference between the constructions is the the argument structure of the matrix verb, not in whether C has a Ad or not (whether Op-Add is present or not, in Deal’s terms).

There are also more empirical/typological reasons for taking a narrower approach to indexicals for now. We just do not have that much good data available on locative and temporal indexical shift yet, in my view. For example, Deal’s conclusion that locative indexical shift implies first and second person indexical shift depends rather heavily on Nez Perce. That is the only language she discusses in which locative indexical shift is optional, first and second person indexical shift is optional, and whether the former happens depends on whether the latter happens.⁵⁵ Moreover, Magahi facts do not necessarily fit with Deal’s picture on this point. Alok (2020) has a very preliminary discussion of locative and temporal indexicals in Magahi. He shows that locative indexicals can shift along with first person indexicals in an example like (117).

- (117) Content: Santee is in his village talking to his friend about their friend Ram:
 Ham JNU-me gel-i-au hal pichhlaa saal. UhaaN, ham Ram-se mil-i-au.
 I JNU-in went-1.S-NH.AL be.PST last year there I Ram-INS met-1.S-NH.AL
 U khak-it ha-l-ai ki ham aglaa saal yahan-se nikal jaayem.
 He tell.PROG be.PFV-3.NH.S that I next year here-INS pass go.FUT.1.S
 ‘Last year, I went to JNU (a university in New Delhi). I met Ram there. He_i was saying that he/I_i will pass out from here (=JNU) next year.’

However, it seems also to be possible for ‘here’ to shift in Magahi without indexicals shifting. Alok (2020: 275 (39)) gives the example in (118) in the context of his discussion of shifted locative indexicals not necessarily being in direct quotations. ‘Here’ in the embedded clause refers to the location of Atul’s speaking event (Delhi), but the subject ‘he’ of that clause refers to Atul. In this way, the shifted locative indexical behaves differently from a shifted second person pronouns, which does prevent using a third person pronoun rather than a first person pronoun from referring to the matrix subject, as shown in (37c) above, repeated here as (119).

- (118) Jab hammni dillii-me ha-l-eN ta Atul kahk-ai hal ki [u ihaiN paidaa hol-ai hal]
 when we Delhi-in be-PFV-2.S.PRT Atul said-3.NH.S was that he here born happen-3.NH.S was
 ‘When we were in Delhi, Atul_i said that he_i was born here (=in Delhi).’
- (119) Santee-aa Bantee-aa-ke kah-l-ai ki u toraa dekh-l-ai..
 Santee-FM Bantee-FM-DAT tell-PFV-3.NH.S that he you.NH.ACC see-PFV-3.NH.S
 ‘Santee_i told Bantee_k that he_{*i,n} saw you_k.’ (If ‘you’=Bantee, not ‘he’=Santee.)

This implies that a locative indexical can shift without the clause being a domain of i-shift—in my terms, without Sp being controlled by *Atul*, which would force a pronoun referring to Atul to be first person, by Rule H plus the fact that Sp is first person. This is a seeming problem for Deal’s hierarchy.⁵⁶ Similarly, Alok (2020: 274-276) shows that ‘today’ can get shifted readings in complement clauses in Magahi, but it cannot shift without ‘I’ shifting, whereas ‘I’ can shift

⁵⁵ However, Deal does cite a reasonable number of languages in which locative indexicals shift together with first and second person ones, as well as a reasonable number of languages in which first and second person indexicals shift without locatives shifting. The crosslinguistic evidence for her asymmetry may thus be stronger than the language-internal evidence.

⁵⁶ It is also possible for ‘here’ to shift with or without ‘I’ shifting in Korean (Park 2016). For Deal (2020), this apparent exception to her hierarchy is due to the locative shifting operator being bundled with the temporal-shifting operator in Korean.

without ‘today’ shifting. This is also the opposite of Deal’s hierarchy for temporal indexicals, based primarily on Korean facts from Park (2016) (Nez Perce does not have temporal indexicals to investigate). Deal (2020: 78-79) also observes that there is more variation across languages in whether temporal adverbials count as genuine indexicals or not, whereas first and second person pronouns seem always to be true indexicals. As a result, the theoretical status of the relevant elements may be unclear in particular languages. Nor does it make much conceptual sense to me that temporal shifting operators should be the lowest in the clause structure whereas locative shifting operators are the highest; Deal does not try to motivate the functional hierarchy that she posits in this respect. Finally, I find it odd in her account that a locative-shifting operator can bundle into a single functional head along with a temporal-shifting operator, as in her analysis of Korean, even though these heads are not adjacent in the underlying functional hierarchy. Overall, then, I am left with many questions about this domain, both empirical and theoretical, and little certainty about what the robust patterns are. Clearly, a lot more work will be needed in this area going forward.

As we learn more about this area, there are (at least) three ways things could turn out. One is that it could turn out that DP pronoun indexicals and locative/temporal adverbial indexicals are not strictly the same kind of thing after all. Then there shouldn’t be a (fully) unified analysis of them. My analysis could apply to DP pronoun indexicals while something rather different applies to adverbial indexicals.

A second possible outcome is that we could learn that adverbial indexicals are the same kind of thing as DP-pronominal indexicals, such that they should have a unified analysis, and that my account can be generalized to locatives and/or temporal indexicals. It takes some effort to imagine this, but I do not know that it is impossible. It would involve contemplating a representation like (120) for a sentence like (118). The idea would be that there is a null XP “Loc” at the edge of a clause that denotes a location. In a root clause, Loc denotes the location of the speech act (Loc*). This is in line with my notion that the coordinates in a Kaplanian context can be syntactically represented in the periphery of the clause, extending this from Sp and Ad to Loc (and perhaps Time). Then an indexical like ‘here’ has to be bound by the closest Loc, just as ‘I’ must be bound by Sp and ‘you’ by Ad. So far, so good. Then the crucial step to get ‘here’-shift in languages that allow it is to say that Loc in an embedded complement clause can be controlled by an adverb like ‘in Delhi’ in the matrix clause, rather than simply being bound by the higher Loc, Loc*. This is sketched in (120).

(120) [Loc*_k C [in Dehli_i Atul said [Loc_i C [he was born here_i.]]]].

The control of a locative element in this way is (at least) one step more remote from familiar instances of the control of PRO than the control of Ad and Sp are, but that may not be a bad thing. It is also familiar that the infinitival complements of some control verbs (so-called exhaustive control) have to take place at the same time as the matrix verb. ‘Manage’ differs from ‘decide’ in this way, as in (121) (Landau 2001, Wurmbrand 2003), etc.

(121) a. Pat decided on Tuesday [PRO to go into NYC on Thursday].
 b. Pat managed on Tuesday [PRO to go into NYC (*on Thursday)].

Perhaps this means that a temporal element in the infinitival clause is obligatorily controlled by the time adverb in the matrix clause in (121b) but not in (121a). And indeed, this distinction

plausibly extends to location as well: the managing event needs to take place at the same location as the seeing a show event in (122b) whereas the deciding event does not have to take place at the same location as the seeing a show event in (122a).

- (122) a. Pat decided in New Brunswick [PRO to see a show in NYC].
b. Pat managed in New Brunswick [PRO to see a show (*in NYC)].

This generalization of my account to locative and temporal adverbs may or may not prove to be right, but I do not see that it is a non-starter.

The third possible outcome of further inquiry into locative and temporal indexical shift is that it is the same phenomenon as first and second person indexical shift, but that my account cannot be generalized to cover the locative and temporal cases. That will presumably mean that I have been wrong about the first and second person cases, having followed the wrong impressions about what should be given a unified analysis with what. That would be a shame (for me), but it happens. As my old bridge partner used to say “You pay your money, and you take your chances.” (And it would not imply that the other chapters of this work are wrong.)

4.6.3 Other types of crosslinguistic variation

The third primary type of crosslinguistic variation in indexical shift according to Deal (2020) concerns whether it is optional or obligatory, and if so, with which verbs and which indexicals. For example, i-shift and u-shift are obligatory with certain matrix verbs in Matses, Laz, Navajo, Uyghur, Kobon and Slave, whereas they are optional with certain matrix verbs in Zazaki, Nez Perce, Amharic, Korean, Japanese, and Magahi. I have already discussed this type of variation in section 4.5, as part of my discussion of the Shift Together 2 phenomenon. My idea is that optional nominalization and CP-extraposition plus optional reconstruction are two sources of apparent optionality in indexical shift. In languages where CPs do not extrapose and there is only one form of complementation, a non-nominalized kind, indexical shift may be obligatory. Various minimal comparisons confirm that these are relevant factors in whether indexical shift appears to be obligatory or not. (The account may not be complete, however, and there is room to discover other factors that may be relevant to this.)

The last parameter of variation that Deal emphasizes is whether shifted indexicals must be interpreted as referring to their antecedents *de se* or not. Empirically speaking, Alok (2020: 168-171) shows that shifted first person indexicals in Magahi do need to be interpreted *de se*, with ‘I’ in the complement clause referring to the matrix subject only if the referent of the matrix subject is aware that the state of affairs expressed by the embedded clause holds of him/her. However, shifted second person indexicals in Magahi do not need to be interpreted *de se* (*de te*). In this respect, Magahi falls within the range of variation charted by Deal; in particular, it replicates the pattern documented for Uyghur by Sudo (2012). This is, however, a more purely semantic topic, and a tricky one. I have nothing to contribute to the theory of *de se* interpretation here. I assume that this is more or less independent of the syntactic issues.

4.7 Conclusion

This chapter has argued that indexical shift is the result of the ghostly DP operators that trigger (speaker and) addressee agreement in some languages binding pronouns that match them in phi-

features within the clause that they c-command. This accounts for the close relationship between allocutive marking and indexical shift in the Magahi language, and it can easily generalize to indexical shift in languages that do not show speaker/addressee agreement. I showed that the same principles of thematic-role based obligatory control that are at work in upward C-agreement and allocutive marking are at work in this domain too. The parallels between upward C-agreement and first person indexical shift are particularly close, once the effects of the T/Agree condition on C-agreement are factored out. In contrast, the binding relationship between the ghostly DPs and first and second person pronouns is regulated by my Person Licensing Constraint. This requires that ordinary first and second person pronouns be bound by the closest Sp and Ad, and that uncontrolled Sp and Ad be bound by the next highest Sp and Ad, thereby capturing some of the Shift Together and No Intervening Binder/Local Determination effects discussed in previous literature. I went on to argue that a second kind of Shift Together is more universal than thought, and that it follows from the obligatoriness of obligatory control applying to both Sp and Ad in the same way. This led me into a discussion of what I take to be the main source of crosslinguistic variation in indexical shift: the question of whether it is obligatory, optional, or required in a particular language and construction type. I attributed this to the possibility of either nominalization or CP-extraposition bleeding obligatory control, depending on the language. Throughout the chapter, I compare my theory to the influential shifty operator theory of Anand and Deal, claiming that they are based on a similar intuition and derive many of the same results in parallel ways, but there are a handful of specific respects in which my analysis has advantages. This is in addition to my approach embedding an analysis of indexical shift within a broad picture of how complementizers relate to the NPs around them to form a range of rare constructions scattered around the world.

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