

Agree without Agreement: Switch-Reference and Reflexive Voice in Two Panoan Languages

Mark Baker and Livia Camargo Souza

Rutgers University
Department of Linguistics
18 Seminary Place
New Brunswick, NJ 08816

mabaker@linguistics.rutgers.edu
livia.camargo.rj@gmail.com

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Abstract: We show that the same Universal Grammar mechanism of Agree can have two quite different grammatical effects: normal agreement in person-number-gender features, or inducing a referential dependency between two designated DPs. As an instance of the latter, we study the switch-reference systems of two Panoan languages, Shipibo and Yawanawa. In addition to the fairly widespread distinction between same-subject (SS) and different-subject (DS) adjunct clauses, these languages also have clauses that are marked as having the object of the embedded clause coreferential with the matrix subject (OS). We show that the coexistence of SS and OS makes it extra-clear that Agree is at work to establish a relationship between the switch-reference head and the “pivot” DP, since the relationship has all the properties characteristic of Agree: *c*-command, intervention, phase-restrictedness, and sensitivity to oblique case. We claim that SS and OS are the result of *Agree-Link* applying to create a pointer from a functional head to an DP, but *Agree-Copy* not applying to copy phi-features from the pointed-to DP back to the head (“Agree without agreement”)—a distinction that is independently motivated by recent studies of phi-agreement. When *Agree-Copy* does not apply, the pointers created by *Agree-Link* survive to LF, where they are interpreted as referential dependency. In contrast, DS is a default construction, used wherever SS and OS are not available. We conclude by showing that this analysis of switch-reference extends naturally to account for the reflexive voice construction in Shipibo and other languages, showing the generality of the approach.

Key words: switch-reference, Panoan languages, Shipibo, Yawanawa, Agree, agreement, reflexive voice

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1. Introduction

Switch-reference (SR) can be characterized as a grammatical phenomenon in which one clause is marked to show whether or not one of its nominal arguments refers to the same entity or entities as a nominal argument of a structurally nearby clause (see Jacobson 1967, Austin 1981, Haiman and Munro 1983, Finer 1984, 1985, Stirling 1993, McKenzie 2012, 2015 and others; Baker and Camargo Souza in press gives a recent overview). Although entirely absent in many familiar languages, this can be a rich and complex system in languages that have it. Among these are Shipibo-Konibo (SK) and Yawanawa (YW), two languages of the Panoan family from the Amazonian area of Peru (Shipibo) and nearby areas of Brazil (Yawanawa)¹ (Both belong to the Nawa group in the Mainline branch of Panoan; Shipibo is in the Chama subgroup, and Yawanawa is one of the languages of the Yaminawa dialectal complex (Fleck 2013:11,12).) In the sequential (perfective) series, the SR paradigm looks like (1) and (2).¹

- (1) a. Jose= ra^2 [Rosa oin-**ax**] xobo-n ka-ke. (SK)
 José=EV Rosa see-SS.ABS house-LOC go-PFV
 ‘He_i seeing Rosa_j, José_i went home.’ (see also PV: 414-16; Baker 2014)
- b. [Jose-kan Rosa oin-**a**]=ra, xobo-n ka-ke.
 José-ERG Rosa see-OS=EV house-LOC go-PFV
 ‘When José_i saw Rosa_j, she_j went home.’ (see also PV: 424-425; Baker 2014)
- c. [Jose-kan Rosa oin-ke-**tian**]=ra, (ja) xobo-n ka-ke.
 José-ERG Rosa see-PFV-DS=EV 3.SG home-LOC go-PRV
 ‘When José_i saw Rosa_j, he_m/she_k (someone else) went home.’ (see also PV: 420-421)
- (2) a. [Tata u-**ashe**] saik-a. (YW)
 Tata.NOM come-SS.NOM sing-PFV
 ‘Tata came and sang.’
- b. [Tika=nē Shaya nuku-**a**], shetxi-a.
 Tika-ERG Shaya meet-OS smile-PFV
 ‘Tika met Shaya_i and she_j smiled.’
- c. [Veã Nawashahu ketxa inã-**kē**] venē muxa.
 Vea.ERG Nawashahu plate give-PFV.DS husband.ERG break.PFV
 ‘Vea gave Nawashahu a plate, and her husband broke it.’

The contrast between (1a)/(2a) and (1c)/(2c) is the standard one familiar to SR-ologists: there is a *same-subject* (SS) form (-*ax*/*ashe* or -*x-on*/*sh-ũ*) and a *different subject* (DS) form (-*tian*/*nũ*), depending on whether the subject of the embedded clause is coreferential with the subject of the matrix clause ((1a)/(2a)) or not ((1c)/(2c)). This part of the paradigm is strikingly similar to SR in languages from a rather wide range of families and regions, including

1 Unless otherwise indicated, Shipibo (SK) examples are from Baker’s fieldwork, and Yawanawa (YW) examples are from Camargo Souza’s fieldwork. Most examples not from these sources are from Pilar Valenzuela’s (2003) excellent grammar of Shipibo (PV). Even when our displayed examples are from Baker’s fieldwork, we often cite examples from PV too, for further illustration and corroboration.

2 =*ra* in Shipibo is an evidential clitic which appears in second position in the clause. We generally ignore it here, but it can give useful information about constituency. For example, its positioning shows that the first DP is the matrix subject in (1a) but the embedded subject in (1b)—something also evident from the ergative or absolutive case marking on the subject in these examples.

Western North America (McKenzie 2015), Central Australia (Austin 1981), New Guinea (Roberts 1997), and areas of South America (Floyd & Norcliffe 2016; van Gijn 2012, 2016). However, our two languages (and their kin) are very unusual within the SR literature in that they have a third member in the paradigm: a special form (-*a*) that shows that the object of the embedded clause is coreferential with the subject of the matrix clause (OS) ((1b)/(2b)) (Loos 1963, Valenzuela 2003, Baker 2014, etc., pace Camacho 2010:264-265). Descriptively speaking, these languages provide a fascinating mix of the familiar-exotic SS vs DS contrast, with a restricted crosslinguistic distribution but robustly present in the languages of the world, and the exotic-exotic OS, something that may be found only in one or two language families.

Despite being a very rare phenomenon, OS marking can be theoretically very significant, as a strong indication that SR should have a nonreductive syntactic account in this family. In the extensive debate about whether SR is primarily a syntactic or a semantic phenomenon, authors like Stirling (1993), Mithun (1993), and (in part) McKenzie (2012) argue for a semantic approach, in which SR tracks the continuity or discontinuity of eventualities or situations, rather than grammatical functions per se. On this view, SS indicates a continuity of events/situations across clauses, which tends to entail the sameness of the subjects/agents/topics of those events. In contrast, DS signals discontinuity of events/situations, which tends to entail that the events have different subjects/agents/topics. The existence of OS in Panoan presents a dilemma for this sort of approach: would examples like (1b) and (2b) be characterized as having continuity across the events, like SS, or discontinuity, like DS? If we see this as continuity on the basis of an important event participant being shared in the two events, how can we capture the difference between SS and OS? Alternatively, we might interpret (1b) and (2b) as having a discontinuity across the events, since there is a change in “protagonist” between clauses, but in that case, how would OS be distinguished from DS? Continuity versus discontinuity seems like a two-way distinction, and we observe a three-way contrast in these languages. Moreover, the crucial difference between subject and object at work here is intrinsically a syntactic one, not replaceable with thematic roles or pragmatic notions like topic or protagonist. More broadly, we accept McKenzie’s (2012) result that some so-called switch-reference is really a matter of tracking the sameness or difference of situations (especially in conjunction constructions and clause chaining) whereas other switch-reference (especially in adjunct clauses) genuinely tracks the reference of clausal arguments. The Panoan languages are clearly of the second type, and it is this type that we aspire to advance the understanding of here.

The presence of OS in Panoan also clearly points away from reductionist syntactic theories of SR. For example, Keine (2013) analyzes SS and DS constructions as coordinate structures of different sizes: SS is a form of VP conjunction, with a single subject position shared by both VPs, and DS is the conjunction of larger structures like vPs, which allows for two different subject positions. Generalizing this type of theory to Panoan SR is unviable, given the existence of the OS construction and what we know about the structure of conjunction. Similarly, the OS construction is problematic for Georgi’s (2012) proposal to reduce SS constructions to the movement theory of control. Generalizing that view to the OS construction would involve A-moving the object of the embedded clause past the subject of the embedded clause into the matrix clause, and that sort of movement is generally impossible.

More generally, the Shipibo and Yawanawa SR system presents interesting challenges for our basic notions of universal grammar (UG). A question that arises is whether SR is part of UG or not. Either answer is somewhat counter-intuitive. If we say that it is part of UG, then why does it seem to be absent in the majority of languages of the world? There are plenty of “uniformist” views in the generative literature, which say that something that is present overtly in some languages is present covertly in all languages: e.g., case-marking, determiners, a certain clausal spine. But this seems bizarre in this case: does English really have a system of SR that functions in the intricate ways that SR does in Panoan discourse, but is never seen? Alternatively, we could say that SR is not part of UG: perhaps it is part of the periphery rather than the core, in the terminology of Chomsky (1981). Then the challenge is how this can exist as a rich and complex system in the languages where it is found, with strikingly stable properties in unrelated languages from different areas of the world. For example, why is the DS/SS distinction in Panoan so like the one in the Yuman languages of California or some Pama-Nyungan languages of Australia? That seems unlikely if SR is not part of UG, but is constructed ad hoc out of resources contingently present in one particular language or family. So SR presents something of a paradox for our high-level notions of UG.

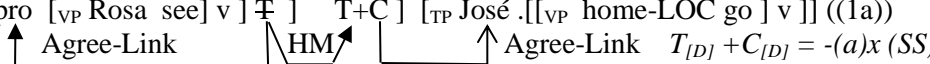
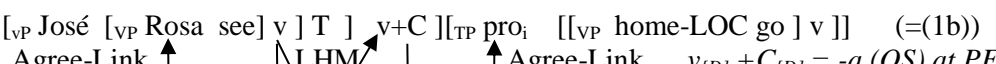
A conceptual way forward could be to say that UG does not specify SR per se, but it does provide substantive infrastructure which readily becomes an SR system in some languages, whereas that infrastructure is manifested in quite a different form in other languages. Here we imagine an analogy to the comparative anatomy of mammalian forelimbs. All mammals have forelimbs. Moreover, those limbs have very much the same “syntactic” structure, in terms of the number of bones and how they are connected. Nevertheless, there are striking differences in the relative sizes of these bones, and these result in even more striking differences in function: the same forelimb structure shows up as a leg in a horse, as an arm in a human, as a flipper in a dolphin, and as a wing in a bat. Wings

are a rare feature in mammals, but they are essentially forelimbs, part of the “universal grammar” of a mammal. It could be, then, that SR in Panoan is like wings in bats: a different surface function for a familiar formal device.

Finer’s (1984, 1985) classic account was along these lines: he made SR out to be a novel use of familiar Binding theory principles from Chomsky (1981) and Aoun (1985) by saying that the SS morpheme is a kind of anaphor and the DS morpheme is a kind of pronoun—although his account also had an important role for subject agreement (see also Watanabe 2000 for a minimalist update). Since then, however, the role of Binding principles in syntactic theory has declined, and the role of Agree has increased. In light of this, we develop a similar type of analysis in which the primary UG infrastructure underlying SR is Chomsky’s (2000, 2001) relation of Agree. Others have also taken this view in recent literature, but we argue that the fingerprint of Agree is made particularly clear by the presence of both SS and OS in Panoan. We claim that Agree is at work in SR to pick out which DP in the embedded clause (the *pivot*) is coreferential with the subject of the matrix clause (the *antipivot*). Nevertheless the functional head of the embedded clause that is realized as the SR marker does not visibly covary with the phi-features (person and number) of the pivot. For example, (3a) compared with (1a) shows that SS marking is the same with a first person pivot as with a third person one. (3b) shows that if the pivot and antipivot are third plural, the matrix verb may have plural marking *-kan*, but the SS marking on the embedded verb doesn’t change. SR thus presents a paradoxical case of Agree without agreement.

- (3) a. [Jawe onan-ma ik-ax] no-a jainka-ma nokó-yam-ai. (SK, PV: 427)
 what knowledgeable-NEG do-SS.ABS we-ABS there-NEG meet-NEG-IPFV
 ‘If we are not knowledgeable we will not meet our goals.’
- b. [[Jawen tapon bi-x-on] kobin-’a-x-on] naka-kati-kan-ai. (SK, PV: 415)
 it.POSS root get-SS-ERG boil-do-SS-ERG chew-PST-PL-IPFV
 ‘After getting its (i.e., the *yotokonti* plant’s) root and boiling it, they chewed it.’

We claim that this antinomy has a satisfying resolution if we follow recent work that breaks Agree into two distinct parts (Arregi and Nevins 2012, Bhatt and Walkow 2013, Marušič, Nevins, and Badecker 2015, Atlamaz and Baker 2018, Atlamaz 2019): *Agree-Link*, which creates a pointer from a functional head to a nearby DP, and *Agree-Copy*, which transfers phi-features from the goal to the probe and deletes the pointer. Previous work draws this distinction so as to order processes like the fixing of linear order and the fusing of functional heads between the two components of Agree. We propose to use the same distinction in quite a different way: SR is the result of applying Agree-Link but not Agree-Copy. As a result, the phi-features of the goal are not placed on the probe, and instead a pointer from the probe to the goal survives to LF. When there are pointers from a head position to two distinct DP goals, LF interprets the pointers created by Agree-Link as expressing a semantic binding relation between the DPs. A preliminary sketch of what this looks like is given in (4). (4a) represents our analysis of an SS example like (1a): embedded T is a D-probe that undergoes Agree-Link with the embedded subject, while embedded C is a D-probe that undergoes Agree-Link with the matrix subject. Then T moves to C and fuses with it, taking the tail of its pointer with it. The result is a pair of pointers from C that link the embedded subject to the matrix subject, interpreted as the two being bound by the same binder—a neo-Finarian analysis. Then at PF a head consisting of a T with a valued D feature and a C with a valued D feature is spelled out as *-(a)x*. (4b) is the parallel analysis of an OS clause like (1b): here it is *v* that is a D-probe which undergoes Agree-Link with the closest nominal, the object, and moves to C, creating pointers that link the embedded object to the matrix subject. A head consisting of *v* with valued D and C with valued D is spelled out as *-a* at PF. Otherwise embedded C is spelled out at *-tian* or *-n*. This is the so-called DS construction, which we claim has no special heads that undergo Agree or that fuse with C. These ordinary adjunct clauses are interpreted as not having coreference between the embedded subject or object and the matrix subject due to pragmatic blocking, induced by competition with the more specialized SS and OS constructions.

- (4) a. [[[_{VP} pro [_{VP} Rosa see] v] \bar{T}] T+C] [_{TP} José .[[_{VP} home-LOC go] v]] ((1a))

 Agree-Link $T_{[D]} + C_{[D]} = -(a)x$ (SS)
- b. [[[_{VP} José [_{VP} Rosa see] v] T] v+C] [_{TP} pro_i [[_{VP} home-LOC go] v]] (= (1b))

 Agree-Link $v_{[D]} + C_{[D]} = -a$ (OS) at PF

Then at the end of the paper, we extend our analysis to reflexive voice marking in Panoan, in which Voice undergoes Agree-link twice to create a referential dependency between the highest object and the thematic subject of the same clause, using the same principles in a somewhat different domain.

2. Background information

In general typological terms, Shipibo and Yawanawa are head-final, SOV languages with ergative case marking, as seen in (5) for Shipibo. Shipibo is a simple ergative language, with the ergative affix *-n/-nin/-kan* on transitive subjects only, and absolutive marking *-a* on pronouns and null elsewhere (see Baker 2014, 2015 for an analysis of this as a dependent case). Yawanawa is a tripartite language, marking accusative overtly on 1st and 2nd person pronouns, marking ergative overtly on lexical DPs and 3rd person singular pronouns, and overtly tripartite on 3rd person plural pronouns (Camargo-Souza 2016; compare Legate 2008 on Australian languages, among others).

- (5) a. Joni-bo=ra tee-kan-ai. (SK: see also PV:521)
 person-PL=EV work-PL-IPFV
 ‘The people are working.’
- b. Ochiti-nin=ra bake-bo natex-ke. (SK: see also PV:522)
 dog-ERG=EV child-PL bite-PFV
 ‘The dog bit the children.’

As for tense-aspect marking, the primary tense-aspect-mood category that is marked obligatorily in Shipibo and Yawanawa matrix clauses is imperfective versus perfective, as in the simple examples in (6) and (7).³

- (6) Maria-nin-ra chopa patsat-ai / patsa-ke. (SK, see also PV: 294)
 Maria-ERG=EV clothes wash-IPFV/ wash-PFV
 ‘Maria is washing/washed the clothes.’
- (7) Awĩhu itxu-i / itxu-a. (YW)
 woman run-IPFV / run-PFV
 ‘The woman is running / ran.’

Although semantically aspect, these morphemes are like T in English in that they are obligatory and they constitute the highest (outermost) inflectional layer in matrix clauses. We thus treat them as instances of the category T, for familiarity. The embedded clauses in (1) and (2) are perfective semantically, but only the DS examples have the morphology of perfective from matrix clauses (*-ke* in (1c)). For SS clauses, the aspect fuses with the SS marker: *-(a)x* is perfective SS, *-(k)i* is imperfective SS. Similarly, *-a* is perfective OS, and there is no imperfective OS marker in these languages. In addition, SS clauses (and only those) show case concord with the subject of the matrix clause, bearing ergative *-n* (nasalization) if it is ergative ((3b) is an example) and $-\emptyset$ if it is absolutive/nominative (as in (3a)). In contrast, the case of the embedded subject has no effect on the morphology of the embedded verb.

Other background information is given below as it becomes relevant.

3. Evidence of Agree at work in reference marked clauses

We now present the empirical heart of the paper: the evidence that Agree is at work in SR in these Panoan languages, even though SR morphemes do not vary for phi-features. Agree in Chomskian theory is a formal-syntactic operation, with certain well-established properties. These can be used to recognize an Agree relation, even when phi-agreement is not present (as has often been done in the literature). Agree can be characterized as follows (Chomsky 2000, 2001; see Baker 2013 for an exposition).

³ The languages do have optional (not especially common) tense suffixes, which co-occur with and appear inside of plural subject agreement *-kan* and the aspect markers. Valenzuela (2003: 284-289) lists seven of them for Shipibo, one with an immediate future meaning and the others expressing various degrees of pastness. In light of both their optionality and their position in the verbal complex, we tentatively assume that these are adverbial elements, not instances of the functional category T. Whether these count as tenseless languages is then a matter of terminology.

- (8) Functional head F specified as a (D-)probe can enter into Agree with a matching (NP/DP) X, a goal, if:⁴
- a. F c-commands X. (the c-command condition)
 - b. There is no NP/DP Y such that Y c-commands X and F c-commands Y (the intervention condition).
 - c. There is no spell out domain triggered by phase head H that contains X but not F (the phase condition).
 - d. X is active by having no oblique case feature (the activity condition).

Many revisions and alternatives to this schema have of course been offered in the rich literature on Agree over nearly 20 years. To mention only one example, Baker (2008) argues that both (8a) and (8d) are parameterized, and this plays a small role in our discussion below. But we assume that something very close to (8) is valid for core phi-feature agreement, and that other less obvious instances of Agree can be recognized when they have this same cluster of properties. We then show that there is good evidence that this Agree relationship holds in Panoan between the pivot (a goal) and an SR head (a probe), which we claim to be T for SS marking and v for OS marking.

3.1 *The C-command Condition*

The condition in (8a) holds essentially by hypothesis, given our proposal that the SR morphemes relevant to finding the pivot are T for SS marking and v for OS marking. T c-commands the (derived) subject in Spec SubjP, and v c-commands the object inside VP. We picked these as the probing heads in part to get this condition to work out.

One empirical fact that coheres with this is that the SS and OS markers look like they are functional heads high in the clausal structure, in that they show up as the outermost suffixes on the verb in examples like (1) and (2) (not counting the evidential second position clitic in Shipibo, which encliticizes to a phrase at PF). This is typical for SR markers in most languages that have it (Jacobsen 1967, Austin 1981, McKenzie 2015, van Gijn 2012). If the SR markers are in fact high functional heads, possibly even the highest ones (after moving to C), then they c-command everything in the clause, including the pivot.

Some have suggested that a head can probe upward too, to its specifier and perhaps beyond, instead of or in addition to probing downward through its c-command domain. We entertain this possibility below, especially as it concerns C's relationship to the antipivot in the matrix clause. That is not the concern of this section, however.

3.2 *The Intervention Condition*

The relevance of this condition to SR in our Panoan languages is seen best with SS marking, where the pivot is the highest DP in the clause—the (possibly derived) subject. An SS marker in T cannot bypass the transitive subject in order to select the object (or some other DP) as the pivot (although an OS marker in v can). There is an insight here that goes back at least to *Finer's* (1984, 1985) pioneering work on SR within generative grammar: there is a deep connection between the fact that syntactic subjects are by far the most common pivots for SR marking across languages and the fact that syntactic subjects are the most common DPs for finite verbs to agree with across languages. In current terms, this parallelism follows from the fact that the head most likely to be a probe is T (for reasons not fully understood), the subject is the DP located where T can Agree with it, and Agree is the relationship that makes possible both phi-feature transfer and the establishment of a head-induced referential dependency.

One can make a direct comparison between subject agreement and pivot selection in SS clauses in Shipibo and Yanawana, because these languages have a limited amount of conventional subject agreement as well. Specifically, they have a third person plural subject agreement marker *-kan* (optional and pragmatically conditioned in Shipibo, but common). Syntactically, this behaves very much as one would expect of agreement associated with T or some other high functional head (it could be high viewpoint aspect instead): it agrees with the highest DP in the clause, so with subjects, as in (9), but not with objects, as in (10).

- (9) a. Joni-bo=ra tee-kan-ai. (SK: see also PV:521)
 person-PL=EV work-PL-IPFV
 ‘The people are working.’

⁴ This formulation takes for granted that F probes for a D-feature, thus finding a DP as its goal. As languages without overt articles, it is possible that these languages have bare NP arguments as well as true DPs (e.g. pronouns, proper names, possessed nominals). If so, then we assume that these have some nominal feature that is shared by D and N and still matches the unvalued feature of the probe. (Probes can be specified for other features too, of course.)

- b. Wai rera-kan-i. (YW)
 plantation clear-PL-IPFV
 ‘They are clearing the plantation.’
- (10) a. Ochiti-nin=ra bake-bo natex-(*kan)-ke. (SK: see also PV:522)
 dog-ERG=EV child-PL bite-(*PL)-PFV
 ‘The dog bit the children.’
- b. Ē vakehu-hu pima-(*kan)-i. (YW)
 I.ERG child-PL feed-(*PL)-IPFV
 ‘I’m feeding the children.’

Moreover, ergative case does not make DP ineligible for subject agreement in these languages: the plural ergative subjects in (11) trigger *-kan/-hu* marking on the verb, just as the absolutive subjects in (9) do. In this respect, these languages are like Nepali or Burushaski, languages in which agreement is not sensitive to case (Bobaljik 2008, Baker 2008), rather than like Hindi or Tsez, where agreement is with nominative/absolutive arguments only.

- (11) a. Ochiti-baon=ra bake natex-kan-ke. (SK; see also PV: 521)
 dog-PL.ERG=EV child bite-PL-PFV
 ‘The dogs bit the child.’
- b. Awīhu=hāu yuma atxi-a-hu. (YW)
 woman=PL.ERG fish catch-PFV-PL
 ‘The women caught fish.’

So T—or better, a distinct Subj head just below T⁵—agrees with the closest DP to it (the highest DP in the clause, i.e. the subject) only, and not with a more remote DP.

SS clauses are parallel to subject agreement in this respect. Thus, both ergative and absolutive subjects can be the pivot for SS marking, but an object cannot be. For example, the absolutive subject in (12a) is coreferential with the matrix subject, as is the ergative subject in (12b), but the absolutive object cannot be coreferential with the matrix subject in this kind of clause—even when that is semantically plausible, as it is in (1a).

- (12) a. [Jose nonti-n nane-x-on]=ra, wina-ke (SK, see also PV: 415, 427, 526)
 José canoe-LOC get.in-SS-ERG=EV row-PFV
 ‘José got into the canoe and rowed [it].’
- b. [Jose-kan bimi noko-x-on]=ra koko-kas-ai.
 José-ERG fruit find-SS-ERG=EV eat-DESID-IPFV
 ‘When José found a fruit, he wanted to eat it.’
- (13) a. [Shukuvena maikiri ka-shū] yuma pi-a. (YW)
 Shukuvena.NOM down.river go-SS.ERG fish eat-PFV
 ‘After Shukuvena went down river, he ate fish.’

5 It seems likely that *-kan* is not precisely in T (or Aspect), because it comes inside of the aspect markers *-ke* and *-ai* in Shipibo, and inside *-i* in Yawanawá. It is also found with along with nonfinite Ts in infinitival clauses (PV:488 (117)) and participle clauses (PV:175 (24), 179 (36)) in Shipibo. Therefore, we tentatively adopt a more exploded Infl space for Panoan, analyzing *-kan* as a realization of a distinct head Subj in approximately the sense of Cardinalletti (2004) and Rizzi (2006). T is a higher head that selects SubjP as its complement. We assume that SubjP bears the EPP property in Panoan, so that Spec SubjP is the landing site of obligatory A-movement of subjects. These details of implementation are not crucial to our analysis, however. In Yawanawa, *-kan* is not compatible with perfective aspect, and the clitic =*hu* is used instead, the same morpheme that pluralizes DPs (as seen in (10b)).

- b. [Shukuvenā yuma pi-shū] ea ken-a.
 Shukuvena.ERG fish eat-SS.ERG me.ACC call-PFV
 'After Shukuvena ate fish, he called me.'

The parallelism between ordinary subject agreement and pivot selection in SS clauses with regard to intervention extends also to less canonical clause types. For example, Shipibo has a small number (fewer than 10) of dyadic psych verbs like 'want' and 'forget' where both arguments of the verb have absolutive case, as in (14).⁶

- (14) Jose=ra yapa keen-ai. (SK: see also PV: 339, 341-344)
 José=EV fish want-IPFV
 'José wants/likes fish.'

Baker (2014, 2015) analyzes these verbs as having two internal arguments and no external argument; therefore both are initially spelled out with VP, before ergative case is assigned at the spell out of TP. Although there is no case difference between the two arguments here, there is a c-command difference: the experiencer c-commands the theme. This is what we expect based on the general thematic hierarchy (e.g., see Belletti and Rizzi 1988). As a result, only the experiencer argument can trigger third plural agreement on the verb; the theme argument cannot, by the intervention condition on agreement.

- (15) a. Joni-bo=ra kenti keen-kan-ai. (SK, see also PV: 343 (58))
 person-PL=EV pot want-PL-IPFV
 'The people want the pot.'
 b. Jose=ra ochiti-bo keen-(*kan)-ai.
 José=EV dog-PL want-(*PL)-IPFV
 'José likes the dogs.'

In parallel fashion, the SS marking in (16) can show that the higher experiencer argument of these verbs is coreferential with the matrix subject, but not that the lower theme argument is coreferential with the matrix subject.

- (16) a. [Rosa kenti keen-ax]=a, maro-ke.
 Rosa pot want-SS.ABS=EV sell-PFV
 'Rosa_i liked the pot, but she_i sold it.' (* with: *keen-a=ra* OS)
 b. *[Rosa kenti keen-ax]=a, toet-a iki
 Rosa pot want-SS.ABS=EV break-PTCP AUX
 'Rosa liked the pot_i, but it_i broke. (OK with: *keen-a=ra* OS)

So pivot selection in SS clauses is sensitive to intervention, as expected if it is accomplished by Agree. This also shows that it does not work to say that Agree in SR clauses is restricted by case, as Arregi and Hanink (2018) propose for Washo: in Shipibo and Yawanawa, some absolutive DPs can be pivots for SS marking, but other absolutives cannot be, while at the same time some ergative DPs can be SS pivots.

Another interesting class of predicates, found in both Shipibo and Yawanawa, is applicatives of unaccusatives. These also have two internal arguments, the theme and an applied argument, and no external/agent argument. However in this case the thematically higher applied argument is somehow marked as unable to become the subject, so the lower theme argument becomes the subject, moving to Spec SubjP. As a result, the theme c-commands the applied argument in the derived structure, and therefore is marked ergative (Baker 2014, 2015).⁷

6 Yawanawa does not have verbs with this case frame; the theme of a psych verb is always oblique. Zariquiey (2017) discusses similar verbs in Kakataibo, where the "quasi-object" is not overtly oblique, as in Yawanawa, but is nevertheless inaccessible to OS marking, in contrast to the grammatical version of (16b) in Shipibo, suggesting that it bears covert oblique case. Evidently, the properties of these clauses vary across the Panoan languages.

7 This is systematic in Shipibo (for speakers who allow the construction at all), but varies some from speaker to speaker in Yawanawa. Thus the noun 'dog' would be absolutive in (17b) for some speakers (see (18)). We do not speculate about the nature of this idiolectal difference here.

- (17) a. Bimi-n=ra Rosa joshin-xon-ke. (SK, see also PV: 694)
 fruit-ERG=EV Rosa ripen-APPL-PFV
 ‘The fruit ripened for Rosa.’
- b. E-wē kāmā-nē ea na-shū-ā (YW)
 my-GEN dog-ERG me.ACC die-APPL-PFV
 ‘My dog died on me.’

Here ergative case clearly shows that the theme argument is the higher DP after EPP-driven DP movement. As a result plural agreement on the verb can be triggered by the theme argument in this construction, not the affectee.

- (18) Takara shuku-hu ea ewa-shūn-a-hu. (YW)
 chicken baby-PL me.ACC grow-APPL-PFV-PL
 ‘The baby chicks grew for me.’

This is an effect of the intervention condition. That same condition then applied to SR predicts that SS marking associated with T should find the theme argument in Spec SubjP as the pivot, but not the applied argument in Spec ApplP. That is true. (19a) shows SS marking with the theme argument as pivot (in Yawanawa); (19b) shows that when the applied argument is the pivot, OS marking is required instead of SS marking (in Shipibo).

- (19) a. [Takara ea ewa-shū-shū] vatxi itxapa pake-a. (YW)
 chicken me.ACC grow-APPL-SS.ERG egg many lay-PFV
 ‘The chicken grew for me and laid many eggs.’
- b. *[Bimi-n Rosa joshin-xon-x-on]=a, koko-ke. (SK)
 fruit-ERG Rosa ripen-APPL-SS-ERG=EV, eat.fruit-PFV
 (‘The fruit ripened for Rosa_i, and she_i ate it.’) (OK with *joshin-xon-a=ra*, OS)

From a theoretical perspective, one might expect intervention to apply to OS structures as well, implying that in ditransitive clauses only goal arguments can be pivots for OS marking, on the common assumption that they are closer to the probing *v* than theme arguments are. However, this prediction is thrown off by the independently established fact that Shipibo (PV: 527-532) and Yawanawa happen to be “symmetrical object” languages. So in fact either the theme or the goal argument can count as the pivot for OS marking, as shown in (20) and (21):

- (20) a. [Jose-kan Maria kirika boma-a]=ra, mano-ke. (SK, see also PV: 530, 710)
 José-ERG Maria letter send-OS=EV get.lost-PFV
 ‘When José sent Maria a letter_i, it_i got lost.’
- b. [Jose-kan Maria kirika boma-a]=ra, yoyo-a-ke.
 José-ERG Maria letter send-OS=EV read-do.TR-PFV
 ‘When José sent Maria_i a letter, she_i read it.’
- (21) a. [Veã Nawashahu ketxa inã-hi-a] muxi-a. (YW)
 Veã.ERG Nawashahu plate give-but-OS break.INTR-PFV
 ‘Vea gave Nawashahu a plate_i, but it_i broke.’
- b. [Veã Nawashahu ketxa inã-hi-a] mux-a.
 Veã.ERG Nawashahu plate give-but-OS break.TR-PFV
 ‘Vea gave Nawashahu_i a plate, but she_i broke it.’

These are basic ditransitive verbs, but the same is true with overt applicatives: either the applied object or the theme can be the OS pivot for Shipibo (see PV: 711); similar facts hold for Yawanawa).

Similar apparent violations of intervention are found in other languages. Thus, there are “symmetrical object languages” and “asymmetrical object languages” in the Bantu family (Kimenyi 1980, Baker 1988, Bresnan and Moshi 1990, Marantz 1993, etc.). This relates to agreement (“object markers”: either agreement or clitics

licensed by agreement) as well as DP movement in passives, among other phenomena. So if the two objects can both be accessible to Agree in Kinyarwanda, it is not surprising that both can be accessible to the OS morpheme in Shipibo and Yawanawa. Indeed, Valenzuela (2003:527-532) shows that the two objects have the same syntax in a cluster of ways, including case, word order, and extraction in relatives clauses, as well as OS marking; see also Torres Bustamante (2011) on reciprocal voice. To handle this, we tentatively adopt McGinnis's (2001) theory of this parameter, according to which symmetrical object behavior stems from the possibility of moving the theme argument higher up internally to the greater verb phrase. This is stated in (22).⁸

- (22) An Appl head can optionally have an EPP feature that causes the theme argument to move to a Spec ApplP position higher than that of the goal/applied argument.

(Like McGinnis and others, we must then assume that the small number of apparently simple ditransitive verbs like 'give' also have an Appl head, even though it is not realized overtly, so that they also show symmetrical behavior. In contrast, the two arguments of an experiencer predicate like *keenti* 'want' are generated inside VP, without an applicative head, so they have asymmetrical behavior, with only the intrinsically higher experiencer able to move to Spec SubjP and agree with T.) This independent property of Shipibo and Yawanawa makes it impossible to observe clear intervention effects for OS marking, since either the theme or the goal can be higher after movement.

A detail arises in the analysis of these constructions, concerning why an example like (16a), with the experiencer of the embedded clause coreferential with the matrix subject, has SS marking not OS marking. Like the goal argument of 'give' or 'send', the experiencer of 'want' is generated inside the complement of *v* (in ApplP or VP), with the result that it gets absolutive case, despite *c*-commanding the theme. *v* can be a probe for SR with 'want' because OS *-a* can access the theme argument of 'want' (see (16b)). *v* can also find the goal argument of 'send' ((20b)). So why can't *v* select the experiencer of 'want', with the result that *-a* marking is possible in addition to or instead of SS marking in a sentence like (16a)?

This question has a clear analog in the theory of canonical agreement: why doesn't an unaccusative argument trigger object agreement in addition to or instead of subject agreement in languages that have both? (The easy answer, that nonagentive *v* is not a phi-probe and/or not a case assigner, is not general enough.) One workable answer for Shipibo is that Subj has a strong EPP feature that forces the highest DP in its domain to move to Spec SubjP, and this bleeds *v* from agreeing with that DP, assuming that traces are not visible for agreement (e.g., Chomsky 2000: 131). This assumes that EPP-driven movement happens before Agree (even on a lower head)—and also that Agree per se is not essential to selecting the DP to move, contra Chomsky (2000) but in agreement with many others. Independent evidence that Subj has a strong EPP feature is that the theme argument in applicatives of unaccusatives *must* be ergative in Shipibo, hence *must* raise above the applied argument. Independent evidence that traces are invisible to Agree is that *v* can enter into Agree with the theme DP after the experiencer DP has moved out of the way, as seen in (16b): this movement not only bleeds *v* Agreeing with the experiencer but feeds it Agreeing with the theme. On these assumptions, it follows that (16a) has SS marking, not OS marking.

3.3 The Phase Condition

Next consider the phase condition on Agree, which says that F cannot agree with DP if DP is inside a spell out domain that does not contain F ((8c)). That this condition restricts pivot selection in SR is seen most clearly with OS marking, since it is largely if not entirely redundant with the intervention condition for SS. We assume that P, D and C are all phase heads in our Panoan languages, as is reasonably standard. Therefore OS marking should not be able to pick out a DP inside PP, DP, or CP to be the pivot, even when there is no direct object to create an intervention effect. (Recall that, by hypothesis, a subject is too high to intervene between the OS morpheme in *v* and a DP anywhere inside the greater verb phrase.)

Consider first PPs as phases. Since our Panoan languages do not have clear instances of object agreement, we offer Quechua for comparison purposes, especially the Cuzco dialect of Lefebvre and Muysken (L&M) (1988).⁹

⁸ Note that this movement may be covert, or disguised by other movements of the scrambling type. Thus, it is not the case that the theme argument has to appear linearly before the goal argument to act as the pivot for SS marking, as shown by (20a) and (21a). A full-scale study of goal-theme order in these languages remains to be done, however.

⁹ As in many languages, one can debate whether the object markers in Quechua are simple agreements or pronominal clitics. However, it doesn't matter much for our purposes, as long as Agree is involved in the syntax of

(23) shows that in Quechua *v* (a morpheme distinct from and inside of tense and subject agreement) can agree with objects, both direct and indirect, as expected.

- (23) a. (Nuqa-ta-qa) riku-wa-n. (Cuzco Quechua, L&M: 80 (23))
 me-ACC-TOP see-1.SG.OBJ-3.SBJ
 ‘He sees me.’
- b. Nuqa-man-qa qu-wa-n (L&M: 81 (24a), cf. Hermon 1985: 48 (12))
 me-DAT-TOP give-1.SG.OBJ-3.SBJ
 ‘He gives to me.’

However, Lefebvre and Muysken (1988) show that this object agreement is not possible with the object of a true postposition. In current terms, this is because *P* introduces a phase boundary.

- (24) *[Nuqa kama-qa] puri-wa-n (Cuzco Quechua, L&M:81 (25a))
 me until-TOP walk-1.SG.OBJ-3.SBJ
 (‘He walks up to me.’)

In parallel fashion, (25) from Yawanawa shows that the object of an overt *P* cannot be the pivot for OS marking; rather DS marking must be used when such a DP is coreferential with the matrix subject.

- (25) *[Shukuvena [shashu mera] iki-a], txiuku-a. (YW)
 Shukuvena canoe into enter-OS sink-PFV
 (‘When Shukuvena got into the canoe_i, it_i sank.’) (OK with DS: *iki-ai-nĩ*)

We neglected to elicit an example with an unambiguous PP in Shipibo, nor did we find an example in Valenzuela (2003). However, one can make a case that the *-n* marked expression in (26) is a PP, since it is a kind of locative, corresponding to a PP in languages like English, and it is semantically very similar to the Yawanawa PP in (25).

- (26) *[Jose nonti-n nane-a]=ra, jiki-ke. (SK)
 José boat-LOC board-OS=EV sink-PFV
 (‘José got into the boat_i and it_i sank.’) (OK with DS: *nane-ke-tian=ra*)

So DPs inside PPs are not visible to *v* for SR marking, as expected if it involves Agree limited by the PIC.

Consider next the fact that *D* is probably a phase head, spelling out its complement, so that syntactic objects properly contained inside the complement of *D* are invisible to the outside world. One such syntactic object is the possessor (we assume that possessed nominals in Panoan are DPs, with the possessor in Spec NP or PossP, the complement of *D*, although simple nominals may be bare NPs; see note 4). For conventional object agreement, this means that *v* can agree with the object as a whole, but not with the possessor or other nominal inside the object. For example, in (27) from Cuzco Quechua, the object has a first person possessor, but having a 1st person object marker registering this on the verb is ungrammatical.

- (27) *Huwan mama-y-ta riku-wa-rqa-n (Cuzco Quechua, Liliana Sanchez p.c.)
 Huwan.NOM mother-1.SG-ACC see-1.SG OBJ-PST-3.SBJ
 (‘Juan saw my mom.’)

Significantly, the possessor of the object cannot serve as pivot for OS marking in Shipibo either, as shown in (28).

- (28) [Jose-kan noko-n ochiti noko-a]=ra, (*e-a) bene-ke. (SK, see also PV: 727 (111))
 José-ERG my-GEN dog find-OS-EV (*I-ABS) be.happy-PFV
 ‘José found my dog_i and it_i/*I was happy.’

clitics too, either as a precondition for moving a *D* head (Kramer 2014, Preminger 2014: ch.4, etc.), or as creating a dependency between *D* adjoined to *v* and a DP inside the complement of *v* (Baker and Kramer 2018).

This is not ruled out for some simple pragmatic reason, since the reading that is impossible in (28) is possible in (29), which has an applicative object that has a possessor type reading. In this example, the understood possessor is structurally outside the object DP, as an applied object (either by raising or by base generation). As such, it is not separated from probing *v* by a D-induced phase boundary, the way the true possessor is in (28). In this case, the understood possessor can be the pivot for OS marking.

- (29) [Jose-kan e-a noko-n ochiti noko-xon-a]=ra, (e-a) bene-ke. (SK)
 José -ERG me-ABS my-GEN dog find-APPL-OS=EV I-ABS be.happy-PFV
 ‘José found my dog (for me), and I was happy.’

Similarly, OS cannot pick out the possessor of the sole argument of an unaccusative verb, even though this starts out in the *c*-command domain of *v*, as in (30). Such examples show that the OS construction is not just picking out a “secondary topic” distinct from the subject in some loose pragmatic-discourse sense.

- (30) a. *[Noko-n ochiti mawa-a]=ra, (e-a) onis-ke. (SK)
 my-GEN dog die-OS=EV I-ABS be.sad-PFV
 (‘My dog died and I was sad.’)
- b. [Shukuvenã moto teke-kẽ] ihãu wetsa hi-a. (YW)
 Shukuvena.GEN motor break-DS.PFV owner.ERG other get-PFV
 ‘Shukuvena_i’s motor broke, so (he_i) the owner_i got another one.’ (* with OS)

Again, an OS structure with essentially the same meaning is possible if ‘I’ is expressed as an applied object rather than as a possessor inside DP; see the grammatical alternative in (19b) above.

Next consider the effect of CP boundaries on OS marking, where *C* is universally accepted as a phase head. The most interesting comparison here is between verbs that take full CP complements, which are distinct spell-out domains, and auxiliary-like verbs that take VP complements, which are not. This distinction can make a difference for conventional object agreement. For example, Lefebvre and Muysken (1988) show that in Cuzco Quechua object agreement on the matrix verb is possible with the object of an embedded verb if the matrix verb is a restructuring (auxiliary-like) predicate like ‘want’ ((31a)), but not if it is a verb like ‘come’ ((31b)).

- (31) a. Maqa-y-ta muna-wa-n. (Cuzco Quechua, L&M: 82 (28))
 beat-INF-ACC want-1.SG.OBJ-3.SBJ
 ‘He wants to beat me.’
- b. *Maqa-q hamu-wa-rqa-n . (L&M: 246 (134c))
 beat-AG come-1.SG.OBJ-PST-3.SBJ
 (‘He came to beat me.’)

Not surprisingly, these two sorts of structures can look superficially very similar in Panoan too. However, ergative case marking provides a convenient distinguishing criterion. For example, with the matrix verb ‘think’ in Shipibo, case marking on the matrix subject is insensitive to whether the lower verb has a direct object or not: the matrix subject is always ergative since the CP complement of ‘think’ is nominal (Valenzuela 2003: ch. 10).

- (32) a. Jose-kan [Rosa kena-ti] shinan-ke. (*Jose) (SK)
 José-ERG Rosa call-INF think-PFV *José.ABS
 ‘José thought to call Rosa.’
- b. Maria-nin=ra [bewa-ti] shinan-ke. (*Maria=ra)
 Maria-ERG=EV sing-INF think-PFV Maria.ABS=EV
 ‘Maria thought to sing.’

In contrast, *atipanti* ‘be able to’ also takes a complement in infinitival form, but with this verb the case of the subject varies: it is ergative if the embedded verb takes an object and absolutive if it does not.

- (33) a. Jose-kan=ra Rosa kena-ti atipan-ke. (*Jose=ra) (SK)
 José -ERG=EV Rosa call-INF can-PFV José.ABS=EV
 ‘José can call Rosa.’
- b. Maria=ra bewa-ti atipan-ke. (*Maria-nin=ra)
 Maria.ABS=EV sing-INF can-PFV Maria-ERG=EV
 ‘Maria can sing.’

So it is evidently the embedded object that triggers ergative case on the matrix subject, not the infinitival phrase itself in this construction. This implies that there is no phase boundary between the matrix subject and embedded object with ‘can’, whereas there is with ‘think’. Neatly correlated with this is the fact that the object of an embedded verb cannot be the OS pivot with matrix verb ‘think’ ((34a)), but it can be with matrix verb ‘can’ ((34b)).

- (34) a. ??[Jose-kan [pro oin-ti] shinan-a]=ra, Rosa-n e-a kena-ke. (SK)
 José-ERG her see-INF think-OS=EV Rosa-ERG me-ABS call-PFV
 (‘When José thought to see her_i, Rosa_i called me.’) (OK with DS *shinan-ke-tian=ra*)
- b. [Maria-nin pro yoa a-ti atipan-a]=ra, nato yapa payo-ke. (SK)
 Maria-ERG it cook do.TR-INF can-OS=EV DEM fish spoil-PFV
 ‘Although Maria could cook it_i, the fish_i spoiled.’

Shipibo has a range of restructuring constructions, all of which are potentially relevant to this point. Another interesting one involves desiderative *-kas*, which is realized as a verbal suffix. If the base verb is intransitive, the subject must be absolutive; if the base verb is transitive, the subject is optionally ergative. This implies that *-kas* is an optional restructuring predicate (with some interspeaker variation): it can take a CP or VP complement (see Baker 2014: 371-76), as can many restructuring verbs in the Romance languages.

- (35) a. Rosa=ra/*Rosa-n=ra ka-kas-ai. (SK, see also PV: 367-368)
 Rosa=EV/*Rosa-ERG=EV go-DESID-IPFV
 ‘Rosa wants to go.’
- b. Jose=ra/Jose-kan=-ra atapa rete-kas-ai.
 José=EV/José-ERG=EV hen kill-DESID-IPFV
 ‘José wants to kill a hen.’

Strikingly, OS marking attached to the complex verb, outside of *-kas*, can pick the object of the base verb as the pivot if and only if the subject is ergative—if and only if the restructuring option is chosen.

- (36) [Jose-kan/*Jose ochiti rete-kas-a]=ra, (ja) ka-ke. (SK)
 José-ERG/ José.ABS dog kill-DESID-OS=EV (it) go-PFV
 ‘José wanted to kill the dog_i, so it_i left.’

Similarly, Shipibo’s ‘start’/‘finish’ construction involves restructuring by the ergative case test, and it also allows OS marking in an example like ‘When Maria started to bring the pots, they broke.’

We have less complete data for Yawanawa on this point, but (37) is a relevant case, where *-a* on the matrix restructuring verb ‘start’ (note the ergative subject *Tika=nē*) picks out the object of its VP complement ‘teach’ as the pivot. Similar examples are attested with ‘stop’ and ‘forget’.

- (37) [Tika=nē Maria tapima-kī taew-a], inim-a. (YW)
 Tika=ERG Maria teach-SS.IPFV.ERG start-OS be.happy-PFV
 ‘Tika started teaching Maria_i and she_i was happy.’

Overall, then, there is much evidence that the phase condition applies to the pivot selection aspect of SR constructions in Shipibo and Yawanawa in the same way that it applies to conventional uses of Agree, including overt object agreement in Quechua and other languages. This is one way in which the existence of an OS construction in these languages helps to provide much richer evidence that Agree is at work in SR.

3.4 The activity condition

The last core property of Agree outlined in (8) is the so-called activity condition: the fact that DPs that are marked with oblique case cannot be goals for Agree. The possible relevance of the activity condition on Agree can be seen with OS marking in Shipibo. Many psych verbs in Shipibo take DP complements in the so-called dative case *-ki*. These cannot be pivots for OS SR, as shown in (38).

- (38) a. *[Rosa Jose-ki sinat-a]=ra, xobo-n ka-ke.. (SK)
 Rosa José-DAT be.angry-OS=PRT house-LOC go-PFV
 ('Rosa was angry with José_i, so he_i went home.')
- b. *[Maria ochiti-ki raket-a]=ra, ja natex-ke.
 Maria dog-DAT fear-OS=EV her bite-PFV
 ('Because Maria feared the dog_i, it_i bit her.')

Some other psych verbs can take a complement in the instrumental case *-n*. Particularly interesting are the verbs 'want' and 'forget', whose complements can be in instrumental or absolutive case. This case difference interacts with SR: when the object is absolutive, OS marking is possible, but when it is instrumental, it is not.

- (39) a. [Jose yaba shinanbenot-a]=ra, payo-ke. (SK)
 José fish forget-OS=EV spoil-PFV.
 'José forgot fish and it spoiled.'
- b. ?*[Rosa ochiti-nin shinanbenot-a]=ra, bake natex-ke. (also PV: 692 (32); 726 (109), 357 (95))
 Rosa dog-INS forget-OS=EV child bite-PFV
 (Not: 'Rosa forgot about the dog, and it bit a child.')

Typologically oriented work on agreement/Agree has shown that the activity condition is parameterized: oblique case nominals can be the goals of phi-feature agreement in some languages but not others (Bobaljik 2008, Baker 2008: ch. 5, etc.). And indeed there may be internal variation among the Quechuan languages exactly here: object agreement with an oblique NP seems to be possible in Cuzco Quechua, but not in Imbabura Quechua.¹⁰

- (40) a. (?)Nuqa-manta-qa parla-wa-n. (Cuzco Quechua, L&M: 81 (24b))
 me-about-TOP talk-1.SG.OBJ-3.SBJ
 'He talks about me.'
- b. *Juan ñuka-wan parla-wa-n (Imbabura Quechua, Hermon 1985: 48 (13))
 John me-with talk-1.SG.OBJ-3.SBJ
 'Juan talks with me.'

It is in this domain that we also find one of the few significant differences between SR in Shipibo and Yawanawa: Yawanawa does allow OS marking where the pivot is the dative object of a psych verb or a verb like 'shoot', as in (41). Contrast (41a) in Yawanawa with (39b) in Shipibo.

- (41) a. [Tika yuma-ki xināvenu-a] txapu-a. (YW)
 Tika fish-DAT forget-OS rot-PFV
 'Tika forgot about the fish_i and it_i rotted.'
- b. [Shukuvenā unu-ki tuwe-a], naa.
 Shukuvena.ERG wild.pig-DAT shoot-OS die-PFV

¹⁰ However, both Quechuan languages allow agreement with dative objects, as seen in (23b). This is parallel to the fact that both Panoan languages allow ergative subjects to be pivots for SR (see (12), (13)). This may be evidence that dative in Quechuan, like ergative in Panoan, is a structural (dependent) case, rather than a true oblique case.

‘Shukuvena shot at the wild pig_i and it_i died.’

So there is some evidence that a version of the activity condition is relevant to SR, and indeed that it shows the same kind of parameterization that it does with phi-feature agreement.¹¹

The version of the activity condition on Agree that we assume in (8d) is not relevant to SS marking in Panoan. We draw a distinction between DPs with dependent case, such as ergative—a type of structural case—and truly oblique nominals with lexically determined or inherent case. DPs with dependent case are goals for Agree in both languages, for both number agreement and SS marking, as seen in (11)–(13) (cf. Bobaljik’s (2008) analysis of agreement in Nepali). It is only dative and instrumental objects whose activity is parameterized within the family. Moreover, these Panoan languages do not have subjects with genuinely quirky case, where this limited version of the activity condition could come into play.¹²

The question now arises whether dependent ergative case renders a DP inactive for SR probes in any language, the way it seems to for agreement in some. We return to this in section 5.1 below.

3.5 Conclusion

We have shown that the relationship between SR morphemes and their pivots has the properties characteristic of Agree, as those are known from the study of ordinary subject and object agreement. Some of these properties are more evident for SS marking (the intervention condition); others are more evident for OS marking (the phase condition, the activity condition). Therefore, we are fortunate that the Panoan languages have both, making the comparison between SR and canonical agreement more complete and compelling than it might otherwise be.

4. Agree-Link as a representation of referential dependency

Overall, then, we have extensive evidence that Agree is integrally involved in the syntax of SR. But recall that SR morphemes do not covary with phi-features the way that normal agreement does, as illustrated in (3). Therefore, we observe “Agree without agreement” in this domain. Rather, Agree in this domain has the effect of creating a referential dependency between the Agreed-with DP and the subject of the superordinate clause. Our leading theoretical idea is that this is a natural result of the fine structure of Agree, which consists of two distinct components, Agree-Link and Agree-Copy. In this section, we flesh out this idea.

4.1 Agree-Link and Agree-Copy

Although the notion of Agree without agreement may sound paradoxical, we claim that it emerges quite naturally out of a series of recent proposals about the nature of Agree, which take it to be intrinsically a two-step process. If that is true, then it is easy to imagine the first step (Agree-Link) applying even in situations where the second step (Agree-Copy) does not.

One of the first studies to explicitly propose a two-part Agree operation is Arregi and Nevins (2012). Their goal was to account for dialectal variation in Basque auxiliary agreement. While T in Basque typically agrees with the absolutive argument in double-object constructions, the phi features of dative arguments can also be expressed on T in some dialects. This led Arregi and Nevins to propose that T undergoes Multiple Agree with both the theme and the goal arguments in the narrow syntax, creating links to both of them, but it does not copy features until the derivation reaches the postsyntactic module. They formulate the two stages of Agree as follows:

- (42)
- a. Agree-Link: In the syntax, *P* has unvalued phi-features that trigger Agree with *G* (possibly more than one). The result is a link between *P* and *G*.
 - b. Agree-Copy: In the Exponence Conversion module [the first postsyntactic module], the values of the phi-features of *G* are copied onto *P* linked to it by Agree.

11 Another interpretation of the data in this section is that the dative complements of psych verbs are PPs in Shipibo but are case-marked NPs in Yawanawa. We think this is a slightly less elegant view, but a possible one.

12 In contrast, Imbabura Quechua does have subjects with quirky accusative case with predicates like ‘be cold’ and ‘hurt’. These cannot count as pivots for SS clauses, according to Hermon (1985: 115), whereas nominative subjects can. This is a possible instance of the activity condition influencing the syntax of SS constructions in a way analogous to its influence on OS clauses in Shipibo.

Bhatt and Walkow (2013) adopt a similar strategy of breaking Agree into a syntactic and a postsyntactic component in their account of closest-conjunct agreement patterns in Hindi-Urdu. While subject agreement in this language always targets the hierarchically closest DP in a coordinate construction, object agreement can target the linearly closest DP. They take this as evidence that Agree has a component that is crucially postsyntactic, after linearization has taken place, going a bit farther than Arregi and Nevins in this respect.

In a similar fashion, Marušič *et al.* (2015) also adopt a two-step Agree process to explain the coexistence of highest-conjunct agreement and closest-conjunct agreement in the grammars of Slovenian speakers. These authors add the idea that, while Agree-Link is a strictly syntactic process, Agree-Copy can take place either in narrow syntax or in the post-syntactic module, thus either before or after linearization has applied. When Agree-Copy applies in syntax, it only has access to hierarchical structure and can therefore only produce highest conjunct agreement patterns (or default/resolved agreement, in case the probe stops at the ConjP level). In contrast, the postsyntactic version of Agree-Copy has access to a linearized construction and can therefore copy features from the linearly closest conjunct, resulting in agreement with the closest conjunct. On the one hand, they explain why agreement is always with some aspect of the subject argument through the uniformity of how Agree-Link applies in the syntax. On the other hand, they explain the variability in surface agreement when the subject is a conjoined DP (vacillating between highest conjunct agreement and closest conjunct agreement) by attributing it to variability in the timing of Agree-Copy. See also Van Koppen (2007) and Benmamoun, Bhatia and Polinsky (2009) for similar approaches.

Atlamaz and Baker (2018) and Atlamaz (2019) broaden the support for a two-stage approach to Agree by considering a different phenomenon: the question of why finite verbs can agree with oblique subjects in number but not person in Kurmanji and Faroese, whereas such subjects cannot be agreed with at all in Hindi and many other languages. They argue that Agree-Link happens with the subject in the normal way in the syntax, but Agree-Copy happens at PF after Fusion has fused the Num head and the K (case) head in Kurmanji and Faroese (but not in Hindi) to create a single NUM+K head. This makes the plural feature (but not person features) available at the top level of the nominal phrase, so that Agree-Copy can transfer it to the probe. In this way, they use the two-step Agreement proposal to explain why seemingly syntactic agreement with the subject in number is possible only in synthetic languages in which number marking has fused with case marking morphologically. There is thus a variety of empirical evidence for a distinction between Agree-Link and Agree-Copy along the lines expressed in (42).

With this body of research in mind, a very clear sense of Agree without agreement is available: that is precisely the result of applying Agree-Link normally in the syntax, but not applying Agree-Copy at all. When that happens, a link/pointer is created from the probing head to the goal DP, but phi-features are never transferred back to the head. These pointers constitute a novel aspect of syntactic representation (violating Chomsky's 1995 Inclusiveness condition), not reducible to other syntactic elements. Such pointers are, however, very similar as formal objects to the links that are used to represent all kinds of referential dependencies relevant to Binding theory in works like Higginbotham (1983) and Safir (2004), as an alternative to the familiar formal device of indexing. It is a short step, then, to say that LF interprets pointers created by Agree-Link that do not undergo Agree-Copy as indicating referential dependency—essentially a kind of bound variable anaphora—in a way similar to how coindexing between DPs is standardly interpreted (see section 5.2 for details). It is this opportunity afforded by UG mechanisms that allows SR to emerge robustly in a subclass of languages, we claim. For concreteness, we use defined Agree-Link and Agree-Copy as in (43), adapting (42) slightly to our context.

- (43) a. Agree-Link: In the syntax, *P* has an unvalued D-feature that triggers Agree with *G* (a DP/NP, possibly more than one). The result is a pointer from *P* to *G*.¹³
 b. Agree-Copy: If there is a pointer from *P* to *G*, copy the values of the phi-features of *G* onto *P* and delete the pointer (applies if and only if *P* has unvalued phi-feature slots).

One change here is that we do not necessarily say that a probing head *P* has unvalued phi-features in (43a). That is unnatural for the SS and OS heads in our Panoan languages, which never receive phi-features and do not vary for person, number, and gender. Rather, we say that it can merely be unvalued for a more general D (category) feature,

13 An anonymous reviewer asks what happens when a Probe finds no goal, and therefore Agree fails, in the sense of Preminger (2014). Our interpretation is that if this happens, then no pointer is created by (43a), since there is no goal to point to. The structure does not necessarily crash, but it won't get a canonical SR interpretation either.

and this is sufficient to cause it to probe for a DP (or NP; see note 4).¹⁴ The question of whether a head also has unvalued phi-features is a further distinction that determines not whether Agree-Link happens, but whether Agree-Copy happens so as to fill in those missing phi-features. (43b) also allows explicitly for the possibility that Agree-Copy may not apply at all. Finally (43) makes it clear that whenever Agree-Copy applies, the pointer is automatically deleted, having done its work. Atlamaz (2019) calls this “dereferencing”, taking the term from the theory of pointers in computer science. This expresses the fact that normal Agree-that-results-in-agreement does not create referential dependencies at LF in the way that the Agree without agreement found with SR in Panoan does. For example, *v* may agree in phi-features with multiple objects in certain Bantu languages (see Riedel 2009), but this does not imply that one of those objects is referentially dependent on the other.

At this point a typological question arises that has important implications for the design of our theory: does the inverse relationship between referential-dependency-creating Agree and agreement-inducing Agree that we observe in our Panoan languages hold more generally, or not? For example, do SS heads ever show phi-agreement with the pivot DP, such that the same head is simultaneously an SS marker and a subject agreement marker?

While experts on other languages will ultimately have to weigh in on this question, our reading of the literature is that the inverse relationship between a head bearing phi-features and a head inducing referential dependency is at least highly typical, and may be genuinely universal. For example, the well-surveyed North American languages (cf. McKenzie 2015) never have SR markers that vary with phi-features, as far as we can tell. Nor do the Australian languages surveyed by Austin (1981). Nor do most South American languages, including the Quechuan languages (Cole 1983; Adelaar & Muysken 2004; Muysken 1977), the Barbacoan languages (Floyd & Norcliffe 2016), the Takanan languages (Guillaume 2011), the Tupian languages (Jensen 1998; van Gijn 2016), some Tukanoan languages such as Siona (Bruil 2014:202), the Jê languages (Wiessman 1986; Alves, 2004; Oliveira 2005, Nonato 2014), and the isolates Cofán, (Fischer & van Lier 2011: 236), and Nasa Yuwe (Páez) (Slocum 1986).

The main region of the world in which exceptions to this inverse relationship might occur is New Guinea, SR morphology being more heavily entwined with agreement morphology in that linguistic area than elsewhere (Haiman and Munro 1983: x; Stirling 1993: 133). But even in New Guinea most languages seem to support an inverse relationship. A common New Guinean pattern that Haiman (1983) discusses is one in which DS is expressed by subject agreement on the lower verb whereas SS is expressed by the absence of this agreement or by the presence of an invariant morpheme in its place. As in Panoan, the SS marker that induces a referential dependency is invariant for phi-features in these languages. Nor is it a surprise that a DS clause can show agreement with the lower subject: that is true in Panoan too (e.g., see (66a) below). The only novelty here is that there is no further marking of DS, analogous to the *-n/-tian* marker in Panoan. For this, we can simply say that an ordinary C—one which is not a D-probe—is null in this context (this is an option in Shipibo too, according to Valenzuela (2003:422-423)). (An anonymous reviewer points out that they may not even be true DS clauses at all, but ordinary clauses that get this interpretation by default—as is also the case in our Panoan languages; see below.) Languages like Hua with so-called “anticipatory agreement” (Haiman 1983, Finer 1984) can also be analyzed in this way, with the addition that they also have upward C-agreement with the matrix subject (or with an operator bound by the matrix subject, similar to what is found in Lubukusu (Diercks 2013)). The second, less common New Guinean pattern that Haiman discusses is one in which SS is marked by subject agreement on the verb and DS has the same subject agreement but also has an additional DS marker. These languages can be analyzed as having ordinary subject agreement on a different head in the clausal spine (like in Choctaw; see (55)) plus separate SR marking, where the SS morpheme happens to be null (as is also the case in the North American languages Washo and Seri). Most of the apparent complexities in New Guinean languages come, then, simply from the languages having overt subject agreement, taken together with the possibility that the morpheme expressing one side of the SS/DS opposition may be null—an unremarkable fact in itself. The one truly problematic-looking New Guinean language we have seen is Kobon, described by Davies (1981) and Comrie (1983) as having SS marking that does vary for phi-features, and even for this language we can imagine an alternative analysis.¹⁵ So while we cannot say definitively that it is totally

14 An alternative could be the view of Baker (2008), in which it is a primitive property of a given functional head whether it is an Agree probe or not, not reduced to having a particular unvalued feature.

15 The alternative analysis would be based on the fact that Kobon’s DS+subject agreement series differs from simple subject agreement and from the SS+subject agreement series by having forms that end in /*ö*/ (sometimes backed to /*o*/ by vowel harmony, in one case deleted after /*e*/; Davies 1981:182). Moreover, *ö* is a prominent segment in overt conjunctions in the language (*nöŋ(öm)*, *aŋö*, Davies 1981: 67, 186). Therefore, this could be a case of Haiman’s (1983) second pattern, with ordinary subject agreement, a null SS marker, and an overt DS marker that is historically a conjunction /*ö*/. What is special about Kobon is that the DS marker has fused morphologically with

impossible for a referential-dependency inducing head to also manifest phi-features, this seems to be strikingly rare, and perhaps impossible.

Suppose then that there is a real inverse relationship between a functional head inducing a referential dependency between two nearby DPs and a functional head varying for phi-features along with nearby DPs, such that any given functional head can do one or the other but not both. Our proposal is well-designed to account for this, given its natural assumption that a pointer created by Agree-Link is removed if and only if Agree-Copy applies to “dereference” the pointer. This distinguishes our view from some contemporaneous proposals like McKenzie (2012), Arregi and Hanink (2018) and Clem (2018b), which are very similar to ours in analyzing SR as the result of Agree, but which implement this in terms of Agree copying a referential index onto a functional head from a noun phrase, parallel to the way normal agreement copies phi features. General theoretical points to consider here is whether it makes sense to treat an index as the value of a feature type on a par with values like first person, plural number, and feminine gender, and whether directed links or numerical indices are better representations of referential dependency in general (see Higginbotham 1983, Safir 2004 on this). Our main concern here, though, is that we think that index-copying versions of an Agree-based theory render the inverse relationship between agreement and SR marking for a given head very mysterious. If nominals have referential indices at all, we would think that they would be closely bundled with the phi-features, which basically give presuppositional conditions on what an index can refer to. This is explicitly true in the very detailed feature structures used by HPSG, for example; see Pollard and Sag (1994: 24-25, 98) and Wechsler and Zlatić (2003: 18-19). These authors point out as evidence for this bundling view the fact that bound pronouns, which share an index with their binder, automatically and necessarily share the phi-features of their binder as well. But this is patently not what we see in SR, where coreference seems divorced from phi-feature matching, rather than dependent on it. If phi-features and referential indices are ontologically similar and are closely associated on the DP, and an Agreeing functional head can copy either one, we would think it would be natural, perhaps even inevitable for the functional head to copy both as a package deal in many cases.¹⁶ Then one should expect a positive relationship between a head expressing referential dependency and a head manifesting phi-features, contrary to fact. This is why we formulate our implementation in terms of Agree creating pointers to DPs, rather than in terms of Agree copying referential indices: we believe that it makes better sense of the “Agree without agreement” phenomenon, which seems robust.

This significant typological result is not cost free, however. In previous literature, the fundamental motivation for factoring Agree into Agree-Link and Agree-Copy has been so that other operations can be ordered between the two, such as linearization and head-fusion. Previous authors have sought to ground the distinction further by taking the additional step of saying that the two aspects of Agree differ not only in when they apply, but in which module they apply: Agree-Link applies in syntax, whereas Agree-Copy can apply either in syntax or at PF. But if the inverse relationship between phi-agreement and referential-dependency-inducing holds in full typological generality (or close to it), then we must revise this view in one of two ways, to ensure that LF, where referential dependencies are represented, always sees whether Agree-Copy happened to remove the pointers or not. One way of getting this result is to say that the early stages of PF (Arregi and Nevins’s “Exponence conversion module”) feed into LF—a nontrivial departure from the classic Y-model of generative theory. That could be a strong implication of our analysis that needs pondering, but we see no immediately compelling reason why it could not be so. The alternative would be to put the fixing of linear order and the fusing of functional heads (or at least the head movement that leads to fusion) into the narrow syntax, so that Agree-Copy always applies in syntax and feeds LF in the usual way. That is a viable option too, we think—also a bit radical, but in a different way. Indeed, the difference between the two alternatives might be primarily terminological, with the same operations applying in the same orders, but with different choices of where the syntax-PF border is drawn.¹⁷

agreement, so that subject agreement in SS clauses looks a bit different from subject agreement in DS clauses. If this is correct, one needn’t say that the SS head itself varies for phi-features, even in Kobon. There are also two South American languages for which this sort of reanalysis of potentially problematic patterns might be appropriate: the Jivaroan language Aguaruna (Overall 2007) and the Tukanoan language Kotiria (Longacre 1983, Stenzel 2014).

¹⁶ An index-copying theory can presumably stipulate that a given functional head can copy the index of a DP or the phi-features of a DP but not both (Karlos Arregi, p.c.). But if the complementarity is universal (or nearly so), we would like it to follow more organically from the architecture of the theory. See also section 6, where we extend our view to reflexive voice markers, which also do not vary with the phi-feature of the arguments they relate.

¹⁷ Yet another option would be to say that LF only posits referential dependency for pointers from heads that do not have phi-feature slots associated with them—a property of heads that is uniformly present at LF regardless of where Agree-Copy applies. On the one hand, this stays true to the Y-model where PF does not feed LF; on the other hand,

4.2 Referential dependency from multiple instances of Agree-Link

Even when a pointer from T or v to a DP created by Agree-Link survives until LF, this by itself is not readily interpreted as a referential dependency, since T and v are not referential. However, two pointers from the same head position to two different DPs can very plausibly be interpreted by LF as referential dependency holding between the pointed-to DPs. The second pointer comes, we claim, from there being a C head at the top of the adjunct clause which enters into Agree with the subject of the matrix clause. This Agreeing C head then unites with Agreeing T or Agreeing v to give a pair of pointers that does naturally express the referential dependency of one DP on another.

We assume here that the Agree relationship is direct: a C head of the embedded clause agrees with the subject of the matrix clause without any mediating DP.¹⁸ There are various ways of working out the details. The one we adopt is to say that SS and OS clauses are originally generated in the middlefield of the clause, above VP which contains the object, but below SubjP, whose Spec hosts the derived subject. For example, they might be adjuncts to vP, as befits their status as temporal and causal event modifiers. Evidence for this position comes from the fact that SS and OS clauses can be interpreted inside the scope of T-like heads in the matrix clause, including imperfective aspect understood as generic/habitual, negation, and even desiderative morphology, as shown in (44).

- (44) a. ...[Moa wetsa joni betan i-x-on] jato-n bene pota-[a]i. (SK, PV: 295)
 already other man with do.INTR-SS-ERG] their-GEN husband leave-IPFV
 ‘When they [certain women] have an affair with another man, they abandon their husbands.’
 In general [[when x has an affair with another man] x leaves x’s husband]
- b. [Tsua munu-shũ] pro mama aya-ma. (YW)
 who dance-SS.PFV.ERG pro.ERG yucca.drink drink.PFV-NEG
 ‘Nobody danced and drank caiçuma (yucca drink).’
 It is not the case that [[when somebody danced] they drank yucca drink]
- c. Veã a-wẽ pani tewe-ashe, raka-ashe, usha-pai. (YW)
 Veã.ERG his-POSS hammock tie-SS.NOM lay.down-SS.NOM sleep-DESID
 ‘Veã wants [to tie his hammock, lay down, and sleep].’

From CP’s position adjoined to vP, we assume that C can probe upward to Agree with the derived subject, but not downward to Agree with an object, which the C head inside CP does not c-command (as also in Arregi and Hanink’s 2018 Agree-based theory of SR in Washo). Baker (2008) argues that heads can in general probe upward as well as downward. In this case, upward probing might be de facto forced by the Phase Impenetrability Condition, if the SR head is high in the C-space (like Force, Rizzi 1997), and a lower C-like head is a phase head (compare Carstens (2016) on upward C-agreement in the Bantu language Lubukusu). Finally, the SS or OS clause may extrapose to the left or right edge of the matrix clause, and frequently does. This accounts for the fact that SR clauses are often peripheral to the larger sentence, e.g. before the subject in examples like (45b) (although it is also possible after the matrix subject, as in (1a)). This extraposition can also bleed Condition C, by creating a derived structure in which a

it seems a bit stipulative, since it is not so clear conceptually why the presence of feature slots on a head should influence interpretation of a pointer from that head in exactly this way. We leave this possibility open.

¹⁸ This differs from our view in Baker and Camargo Souza (in press), where we proposed that C of the embedded clause actually Agrees with an operator in Spec CP, which is then controlled by the subject of the matrix clause. Our primary reason for taking this line was to account for cases of SS (and OS) where the pivot overlaps in reference with the matrix subject but is not identical to it (see Valenzuela 2003: 430-434). If there is a control link in the analysis of these constructions, such examples can be treated as instances of partial control, in the sense of Landau (2001) and others. But this view requires some extra theoretical machinery, and it is not clear that it achieves its goal, given Landau’s (2013: 227) claims that partial control is not possible into adjunct clauses. (We thank Emily Clem and an anonymous reviewer for pressing us on this point.) Moreover, some languages tolerate overlap of reference in SS constructions and others do not (e.g. Choctaw; Broadwell 2006: 264-265), for reasons that remain mysterious. Therefore, we stick to the simpler line in this work, and leave referential overlap in SR clauses as an unsolved problem, as it is in most other accounts. (See Arregi and Hanink 2019 for a recent attempt, which however makes a nonstandard assumption about Agree copying only a subset of the features of an agreed-with nominal.)

DP inside the embedded clause is not c-commanded by the subject of the matrix clause. Therefore, a name in the SR clause can be coreferential with a pronoun in the matrix clause, and also vice versa, just like sentence-initial temporal clauses in English (this is true in many SR languages; see Finer 1985, Hale 1992, Clem 2018b).¹⁹

- (45) a. [Rosa Jose-ki sinat-ax]=a *pro* xobo-n ka-ke. (SK)
 Rosa José-DAT be.mad-SS.ABS-EV she house-LOC go-PFV
 ‘When Rosa_i got mad at José, she_i went home.’
- b. [*pro* Rosa oin-ax]=a, Jose xobo-n ka-ke.
 he Rosa see-SS.ABS=EV José home-LOC go-PFV
 ‘When he_i saw Rosa, José_i went home.’
- (46) a. [Jose-kan Rosa noko-a]=ra, *pro* sai i-ke. (SK)
 José-ERG Rosa find-OS=EV she yell do.INTR-PFV
 ‘When José found Rosa, she yelled.’
- b. [Jose-kan *pro* noko-a]=ra, Rosa sai i-ke.
 José ERG her find-OS=EV Rosa yell do-PFV
 ‘When José found her, Rosa yelled.’

The extraposition does not break the Agree-link relationship between C and the matrix subject that was already established. In this way, Agree can produce a pointer to the matrix subject in an SR construction, as well as one to the embedded subject.

5. The SR constructions: Assembling the pieces into a full analysis

We can now put together the pieces of our Agree-based theory into a full analysis of SR in Shipibo and Yawanawa, filling in a few auxiliary assumptions and adding some details. We begin with the classic SS construction, continue with the basically similar but much more marked OS construction, and conclude with the DS construction, which we claim is just an ordinary adjunct CP, the interpretation of which is influenced by the presence of specialized SS and OS constructions in these languages.

5.1 Same Subject Constructions

Consider first the structure and derivation of SS adjunct clauses. The full tree structure for a typical example like (47a) is given in (47b) (here CP is shown in its extraposed position, not in its original position below the matrix subject). The adjunct clause²⁰ has a full clausal spine, including at least V, v, Subj, T, and C (also probably Voice);

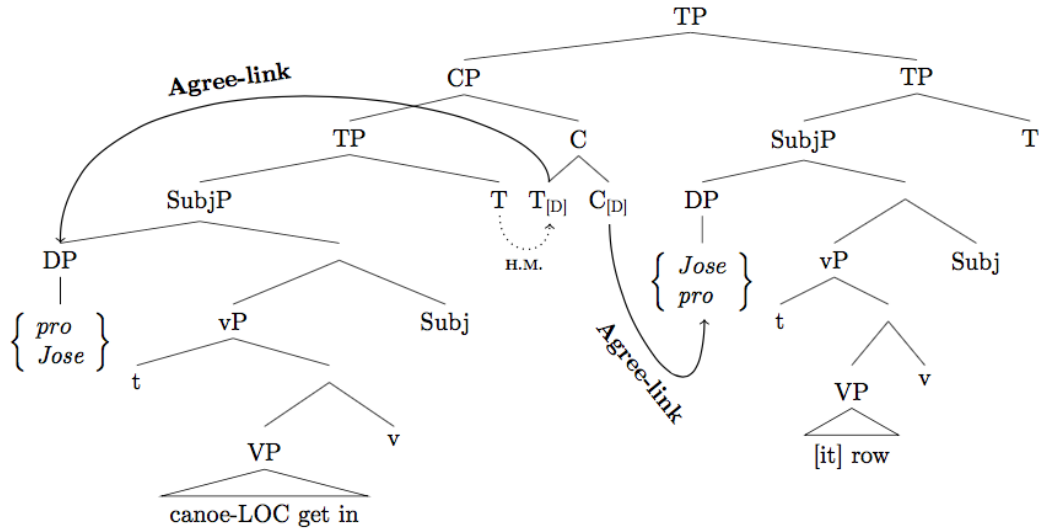
19 There is a reconstruction paradox here, in that SR clauses can be interpreted inside the clause for the purposes of scope with respect to T-like heads (see also McKenzie 2012: 235-237), but outside the clause for purposes of Condition C. Clem (2018b) tries to avoid the paradox by saying that a form of cyclic Agree (cf. Béjar and Rezac 2009) allows C to Agree with the matrix subject from an adjoined position above the subject. We don’t entirely rule out this possibility, but Clem does not address scope evidence like that in (44), which is half of the paradox. See also Arregi and Hanink 2019 for an argument against Clem’s theory applied to Washo. Instead, the lack of reconstruction for Condition C might be addressed by some version of David Lebeaux’s “late merger of adjuncts” view, in which the TP inside the adjunct clause is merged into CP after a shell of the CP has extraposed.

20 We only address in passing the question of why SR is only found on adjunct clauses, not on complement clauses in our Panoan languages. In fact, the more accurate generalization is that an SR clause cannot receive a thematic role from a matrix verb. Thus they cannot be sentential subjects (or objects of Ps) any more than they can be complements of theta-marking verbs. At the same time, they can be complements of various auxiliary verbs—e.g. of ‘start’ in (37), or of ‘go’ in a periphrastic future construction. Why then can’t they receive thematic roles? A plausible reason might be that their C-heads are adjectival in category, rather than nominal, and a phrase must have some nominal properties (e.g., a referential index) in order to receive a thematic role (Baker 2003: sec. 3.6). If so, “C_{SUB}” in the vocabulary insertion rules in (51) might better be called C_{ADJ}. This may also cohere with the fact that

see section 6). This particular C is lexically specified as a D-probe, but one that does not have slots for phi-feature values; therefore, it enters into Agree-Link with the matrix subject from its original position, as just discussed, but it does not trigger Agree-Copy and concomitant dereferencing. T in this construction is also lexically specified as a D-probe without phi-feature slots, so it enters into Agree-Link but not Agree-Copy with the nearest DP. That will be the (possibly derived) subject in Spec SubjP, immediately below T.

- (47) a [Jose nonti-n nane-x-on]=ra, pro wina-ke (=12a)
 José canoe-LOC get.in-SS-ERG=EV he row-PFV
 ‘Jose got into the canoe and rowed [it].’

b.



The other crucial ingredient in our account is that T moves to C (possibly successive cyclically through other C-like heads), fusing with it into a single head, taking the tail of its pointer with it.²¹ From a theoretical perspective, this does the job of connecting the tails of the two pointers to DPs, so that both originate from one head, the complex C consisting of T+C. It is also well motivated empirically, in that T and C are always expounded as a single morpheme in SS clauses in Shipibo and Yawanawa. Thus, we do not observe a perfective affix like *-ke* together with a distinct C affix like *-tian* in this environment; rather, there is a single morpheme *-(a)x* that expresses perfective aspect, subordinate clause status, and referential dependency all in one. This is the form that is seen in most of our SS examples so far. There is also an imperfective version, again not expressed agglutinatively using imperfective *-ai*, but as a portmanteau that expresses aspect, subordination, and reference tracking, namely the form *-(k)i* seen in (48) and (49) (like *-ax*, *-ki* can appear with the ergative concord morpheme *-n*, as in (48); see below):

- (48) [Ka-ki-n] no-n na-tsá' na-tsá-bain-a iki... (PV: 356) (SK)
 go-SS.IPFV-ERG we-ERG in-spear in-spear-go-PTCP AUX
 ‘While going (up the river), we kept on spearing (arrows) into the water.’

- (49) [Véi-nē vata itxapa pi-i] shua-i. (YW)
 Vei-ERG sugar much eat-SS.IPFV.NOM gain.weight-IPFV

SS clauses in Panoan show a form of case concord, which is a property of adjectival phrases in many languages. It is, however, possible for SR to be marked on complement clauses in some languages, like Choctaw (Broadwell 2006: 269), Washo (Arregi and Hanink 2019) and Hopi (Jeanne 1978), so this is not a deep property of SR.

²¹ An anonymous reviewer asks if an alternative version in which T agrees with the embedded subject, T moves to C, and from this new position T itself (not C) agrees with the matrix subject would be simpler. We suspect that the mechanics could be done this way too, but we have not worked out the details to see whether they are simpler or not.

‘Vei is eating a lot of sugar and gaining weight.’

Our Panoan languages also have a few other “minor” SR markers. For example, Shipibo also has *-nox*, which is used in purposive/irrealis subordinate SS clauses, for events that (may) happen after the matrix event. An example is in (50) (contrast the DS purposive marked by *-non* in (71)). These markers are of lower frequency in texts, and we have not collected targeted data on them; see Valenzuela (2003: Ch. 9) for a full description.

- (50) E-a=ra ka-ai, [oa joni-bo osan-*nox*].... (SK, PV: 417 (6))
 I-ABS=EV go-IPFV DEM person-PL laugh.at-SS.FUT.ABS
 ‘I will go in order to laugh at those people.’

To get these fusions of T and C to happen in syntax, we can say mechanically the D-probing Ts are lexically specified as being affixes to C, and conversely subordinate (adjectival) C is lexically specified as being an affix to T, as in (51a). These affixal features trigger head movement of T to C (cf. Lasnik (1981), Baker (1988), etc.). Here we understand “affix” in a rather abstract sense: a head G having the property of “Affix to F” means that G has an F-selecting feature plus the stipulation that that this feature is satisfied by head movement of F or G that creates a complex head (rather than by phrase movement of FP or by base-generation of FP as the complement of G). We then have the vocabulary insertion rules in (51b), which apply at PF to realize particular bundles of heads and features as specific morphological pieces (these are Shipibo forms; Yawanawa’s are mostly cognate).²²

- (51) a. $T_{[D]} : [_C]$ (applies to all values of $T_{[D]}$)
 $C_{[D]} : [_T]$
- b.
- | | |
|--|------------------|
| $T_{[D, \text{pfv}]} + C_{[D, \text{sub}]}$ | <i>-(a)x</i> |
| $T_{[D, \text{ipfv}]} + C_{[D, \text{sub}]}$ | <i>-(k)i</i> |
| $T_{[D, \text{irrealis}]} + C_{[D, \text{sub}]}$ | <i>-nox</i> |
| $T_{[\text{pfv}]}$ | <i>-ke</i> |
| $T_{[\text{ipfv}]}$ | <i>-ai</i> |
| C_{sub} | <i>-n, -tian</i> |

Note that these vocabulary items are not conditioned by the presence of pointers per se (much less the referential dependency that those pointers express at LF) but rather by the now-valued D feature that is the result of the Agree-Link process that was triggered by some of these heads having an unvalued D feature in the first place. This is a perfectly normal kind of exponence at PF. Meanwhile, at LF T has a pointer to the lower subject, C has a pointer to the matrix subject, and T has joined with C, there are pointers from the complex C to both the lower subject and the higher subject. This is interpreted as a referential dependency, a kind of binding (see section 5.2 for some details).

Moving on to less important details, we mentioned in passing above that SS clauses in these Panoan languages undergo case concord with the case of the matrix subject. This can be seen with the perfective pair in (52). When the matrix subject is absolutive, SS is *-ax*, whereas when the matrix subject is ergative, SS is *-x-on*.

- (52) a. [Rosa oin-ax]=a, Jose xobo-n ka-ke. (SK, see also PV: 415)
 Rosa see-SS.ABS-EV José.ABS house-LOC go-PFV
 ‘When he saw Rosa, José went home.’

22 Of course the exponents for combinations like these will be different in other languages with similar SR systems. As a special case of this, one morpheme in a set like (51) may be realized as \emptyset , a null realization. Thus there are languages in which the SS marker is null whereas DS is an overt morpheme, like Washo and Seri (Marlett 1981). Those could just be languages where $T_{[D]} + C_{[D, \text{sub}]} = \emptyset$ but $C_{[\text{sub}]}$ is not. Conversely, there are languages in which the SS marker has a fixed overt exponent, but DS (normal subordinate C) does not, although normal T-agreement may take place in the embedded clause. (Indeed Shipibo can be like this; see note 38; see also the brief discussion of some New Guinean languages in section 4.1.) This is a special case of the familiar fact that morphological markedness may or may not reflect syntactic markedness. These variations do not have any particular syntactic significance as far as we know. (Thanks to two anonymous reviewers for raising these issues.)

- b. [Nima oin-x-on]=ra, Jose-kan pro kena-ke.
 Nima see-SS-ERG=EV José-ERG him call-PFV
 ‘When he saw Nima, José called him.’

These morphemes are generally treated as unified wholes in the descriptive literature, but we consider them bimorphemic: ergative /xon/ has the same consonant as absolutive/nominative /ax/, plus the n/nasalization which is the usual exponent of ergative case. True, there is an extra /a/ in /ax/ and an extra /o/ in /xon/, but this can be seen as a modest amount of contextual allomorphy, helping to ensure easy syllabification. The situation is similar with the imperfective SS markers seen in (48) and (49): the form that shows concord with an absolutive subject is /i/, and the form that goes with an ergative subject is this plus ergative /n/, plus a little contextual allomorphy, resulting in /kin/.

Since the case concord is a distinguishable morpheme, \emptyset absolutive/nominative versus -n ergative, we take it to be a realization of a distinct morpheme F, higher than CP, and quasi-independent of the core syntax of SS. Like C, it enters into Agree with the matrix subject before the CP extraposes (if it does), but it probes for a case feature and triggers Agree-Copy for that feature. Support for treating this as more or less independent of SR is twofold. On the one hand, similar case concord appears on nonclausal adjuncts, which presumably have no subject argument to equate to the matrix subject. This includes certain PPs and adverbs like ‘quickly’ (this phenomenon is known as “participant agreement” in the Panoan literature). For example, the locative PPs in (53) from Yawanawa agree in case with the arguments they modify (see PV:828-830 for similar examples in Shipibo).

- (53) a. Shukuvena [Tarauacá anu-ashe], Tashka [Rio Branco anu] a-ve tsäik-i
 Shukuvena.NOM Tarauacá there-NOM T.ACC Rio Branco there.ACC 3.SG-with speak-IPVF
 Shukuvena, in Tarauacá, is speaking with Tashka in Rio Branco.’ (YW)
- b. Shukuvenã [Tarauacá anu-shũ] Tashka [TV anu] ãi-a.
 Shukuvena.ERG Tarauacá there-ERG Tashka.ACC TV there.ACC see-PFV
 ‘Shukuvena, in Tarauacá, saw Tashka on TV.’

On the other hand, many languages outside Panoan lack this sort of case concord, and the grammar of SR seems to work the same way in languages and constructions that do not have case concord as in those that do have it. For example, SS clauses in Pitjantjatjara show concord with case of the matrix subject (Austin 1981:321), while SS clauses in related Diyari do not (Austin 1981: 314-315), but there is no apparent difference in how SS works in these languages. Therefore, we take the case concord to be relatively incidental to SR; it is just an additional ‘ornament’ on top of the construction (contrast Camacho 2010, for whom case agreement is a driving force in SR, at least in Panoan). We suppress this category in our phrase structures, in order to keep them a little simpler.

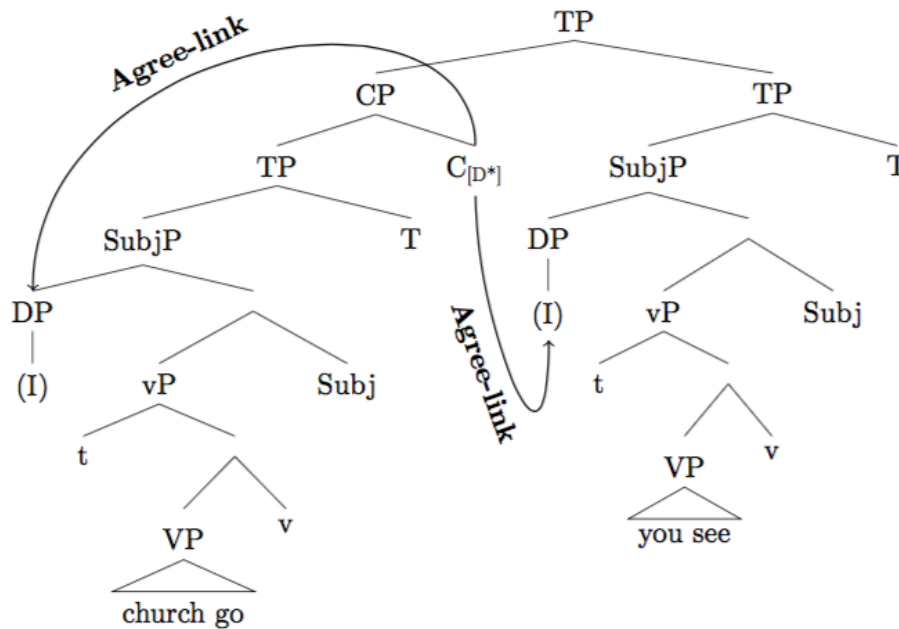
Next we consider a broader typological question. Recall from above that the D-probing T of SS clauses in our Panoan languages can find an ergative case DP as pivot just as well as it can an unmarked/absolutive/nominative case DP. The question arises whether this is a point of parametric variation, which can turn out differently in other otherwise comparable languages. Based on what has been said so far, it seems like it could be: there could be an ergative language with SR which has its activity parameter set differently from Shipibo and Yawanawa’s, such that nominals with dependent case are ineligible as goals for Agree—a possibility which Bobaljik (2008) allows for normal phi-agreement. If this were possible in the domain of SR, then D-probing T might look past the ergative subject and find the absolutive object as its goal. This would result in a pattern in which the lower absolutive argument is coreferential with the matrix subject, rather than a canonical SS pattern, analogous to the way one gets an absolutive pattern of phi-feature agreement in languages like Hindi and Tsez. However, this reference-tracking pattern seems not to be attested typologically. Another area that has ergative subjects and SR is Australia, but there too ergative subjects are pivots for SS marking, just as absolutive subjects are (Austin 1981). The same is true in Papua New Guinea: Kewa, Enga, and Hua are languages with ergative case marking in which subjects are pivots for SS regardless of their case (Roberts 1997: 171, 173; Foley and Van Valin 1984: 117, 345). Indeed, Foley and Van Valin (1984: 117-119, 345) observe this as a general pattern. They write: “The vast majority of languages with switch-reference systems operate on a S/A pivot....” (see also Stirling 1993: 7). We don’t know of any cases where “same subject” marking is channeled into ergative patterns, even when the morphological case system is ergative.²³

23 There are no ergative languages with canonical SR in North America, unless the Inuit languages count as having SR; see McKenzie 2015 and Baker and Camargo Souza (in press) for claims that they do not. Stirling (1993) writes of the Pomoan languages as being ergative, but they more properly have active case marking systems.

What does this mean? It suggests to us that ergative subjects are in fact always active goals, visible to Agree-Link. Indeed, recent work on agreement has shown that ergative and dative NPs are actually targets of Agree, but overt agreement with them is often not manifested because the DP becomes encased inside a KP, which hides its phi-features from being transferred by Agree-Copy, except under special conditions: see, e.g., Arregi and Nevins (2012) and Preminger (2014) on dative DPs, and Atlamaz and Baker (2018) on ergative DPs. So the special “inactive” status of ergative DPs for agreement in some languages is arguably due to conditions on Agree-Copy, not to conditions on Agree-Link. But Agree-Copy doesn’t apply in cases of SR anyway, only Agree-Link does. Dependent case (ergative) thus does not have an effect on SR parallel to the effect it can have on phi-agreement. This appears to be a principled point of difference between the two forms of Agree. It also implies that we have a relatively restricted typology of what kind of SR systems can exist.²⁴

We have claimed that in Panoan the pivot for SS marking is picked out by T entering into Agree with it and then moving to Agreeing C. An alternative way of accomplishing SS could be having C itself enter into Agree directly with the closest DP in its c-command domain, in addition to Agreeing upward with the matrix subject. This is how SS works in the Agree-based theories of Clem (2018b) and Arregi and Hanink (2018).²⁵ We want to include it as a UG possibility as well. This is consonant with the basic conditions on Agree, and indeed we know that C as well as T can agree with the syntactic subject in Flemish and other West Germanic varieties (Haegeman 1992, Zwart 2006, etc.). This variant of the SS construction would have a structure like in (54).

(54)



We use this alternative route to SS in languages like Choctaw, a Muskogean language of North America (Broadwell 2006). Choctaw SS constructions are illustrated in (55) (the SS morpheme is *-sh* after *-oo*, otherwise *-t*; DS is marked by nasalization of the final vowel).

24 We think there is a contrast here between our theory and the similar Agree-based theories of Clem (2018b) and Arregi and Hanink (2018), both of which could in principle allow SR to be sensitive to the case features of possible pivots in the embedded clause, leading to over-generation in this respect (and probably also in other respects). (See note for brief discussion of the subject=object marker in Amahuaca, which is important to Clem’s theory.)

25 Also this C would have to be the phase head itself, so it can see into TP, not a higher head in the C-space which can only see outward, as we tentatively suggested for Shipibo and Yawanawa (compare Carstens 2016).

- (55) a. [Aaittanáaha' ona-li-kma-t], chi-písa-l-aachi-h. Choctaw (Broadwell 2006: 293)
 church arrive-1.SG.SBJ-if-SS 2.SG.OBJ-see-1.SG.SBJ-IRR-TNS
 'I'll see you when I get to church.'
- b. [Palláska' ikbi-l-aachi-h-oo-sh] bóttá' chopa-li-tok. (Broadwell 2006: 288)
 bread make-1.SG.SBJ-IRR-TNS-PTCP-SS flour buy-1.SG.SBJ-PST
 'I bought flour to make bread.'

SS clauses in Choctaw are different from those in Shipibo and Yawanawa in that they have normal expressions of T (and also subject agreement), identical to those found in matrix clauses. For example, the SS clause in (55b) has the same first person subject agreement marker *-l(i)*, irrealis mood marker *-aachi*, and nonpast tense marker *-h* as the matrix clause has in (55a). SS morphology does not replace these T-like categories in Choctaw; rather it shows up as a suffix attached directly to C (e.g., *-kma* 'if' in (55a)). So T exists and agrees with the subject in SS clauses in Choctaw just as usual: both Agree-Link and Agree-Copy take place. Meanwhile, C is lexically specified as probing twice, but having no phi-feature slots to fill. It therefore undergoes Agree-Link twice, once downward with the embedded subject and once upward with the matrix subject, but doesn't undergo Agree-Copy at all. Thus C does not vary for phi-features in Choctaw (although T does), but C does create a referential dependency between the lower subject and the higher one, by virtue of bearing pointers to both, as sketched in (54).²⁶

Overall, then, the syntactic function and interpretation of SS in Choctaw is essentially the same as it is in Shipibo and Yawanawa—there is a similar pair of pointers—but the morphological details are a bit different because the precise heads involved in Agree are different. Other languages that are like Choctaw in having SS marking that is independent of tense and mood and very high in the clause are Kiowa (McKenzie 2015: 440-441), Seri (Marlett 1981) and probably Pima (Langdon and Munro 1979). Languages that are like Panoan in that SS marking replaces normal tense-mood marking as well as C include the Yuman languages, the Pomo languages, Hopi, Quechua, and Diyari. Indeed, this seems to be the more common structure: SR marking replaces tense-aspect-mood marking rather than being added on top of it in most North American languages, judging by McKenzie's (2015) survey.

5.2 A sketch of the semantic interpretation of SS (and OS) constructions

Although our focus is on the syntax of SR constructions, and especially on how Agree-Link functions to identify the pivot and the antipivot, it may be helpful to some to give a brief sketch of the kind of semantics that we have in mind for a structure like (47) or (54).²⁷

What we intend by saying that Agree pointers that survive to LF are interpreted as indications of referential dependency is that they are interpreted in much the same way that coindexed DPs are in standard treatments, like Heim and Kratzer (1999) and Buring (2005). We can flesh this out as follows, to give a sense of the kind of interpretation that we have in mind. First, we adopt Heim's (1998) view that any type of DP can in principle undergo Quantifier Raising (QR) to adjoin to a higher projection (see also Heim and Kratzer 1999: 210-211), and indeed QR of names and other sorts of referential DPs is a standard part of interpreting anaphoric relations. Heim's statement of QR is given in (56).

$$(56) \quad \text{QR: } [_{\text{TP}} \dots \alpha_i \dots] \rightarrow [_{\text{TP}} \alpha \lambda_i [_{\text{TP}} \dots t_i \dots]]$$

To this, we add our distinctive assumption in (57), which equates co-pointing to coindexing.

$$(57) \quad \text{A head H bearing pointers to two DPs, } \alpha \text{ and } \beta, \text{ is equivalent to } \alpha \text{ and } \beta \text{ bearing the same numerical index.}$$

Now Heim (1998) assumes that all indexes must be variables, and hence a DP other than a pronoun or trace that bears an index must get rid of it by undergoing (56), thereby transferring its index to the lambda operator. This

26 An anonymous reviewer reminds us that Choctaw also has an SS marker *-cha* that replaces C and is incompatible with T marking (see Broadwell 2006: 284-285). Although this marker is incompatible with past tense, it does co-occur with mood marking (*-aachi* IRR) and ordinary subject agreement, so it would require more study to see if it is different from the kind of SR discussed in the text in any important way.

27 We thank an anonymous reviewer for pressing us to do this, and to xxx for very helpful discussion.

assumption, together with our (57), implies that if one of the pointed-to DPs in an SS (or OS) construction, say α , is a full DP, it must undergo QR to a higher position. The lambda operator inserted by QR then binds the trace of α by (56). It then follows that the same lambda operator must also bind β , since α and β are coindexed by (57). The result is a strong sort of anaphoric relationship between α and β , which amounts to variable binding.²⁸

To see how this is intended to work for a typical SS structure, consider a sentence like (12b), analyzed in (58a). Here the embedded subject is a proper name and the matrix subject is a null pronoun. T+C bears a pointer to the embedded subject, so it undergoes QR as in (56) to adjoin to the matrix clause, resulting in the (more simplified) representation in (58b). Note that essentially the same representation would arise if it was the DP in the matrix subject position that had descriptive content and hence underwent QR. (57) now implies that the pronoun in the matrix clause is also a variable bound by the same lambda operator as binds the trace, shown in (58c). This LF is interpreted semantically in the obvious way, as lambda abstraction over the two subject positions, with the lambda function applied to the prefixed DP, in this case *José*.

- (58) a. [[[[VP Jose-ERG [VP fruit find] v] T] T+C] [TP pro... [VP it eat] v]]
↑ Agree-Link \ HM ↑ Agree-Link syntax
- b. [José λ_1 [[when t_1 found fruit] pro ate it]
| ↑ ↑ by (56)
- c. José λ_1 [[when t_1 found fruit] pro₁ ate it] by (57)

This derivation is somewhat nonstandard in two respects. First, QR takes a DP out of a tensed adjunct clause, which is usually assumed to be an island for QR (as it is for overt *wh*-movement), to adjoin it to the matrix TP rather than to the closest TP. Second, we have a case of syntactically mandated bound variable anaphora where neither variable c-commands the other, a violation of Reinhart’s (1983) famous condition on bound variable interpretations. However, both these deviations from baseline assumptions are well-justified by Barker’s (2012) study of bound variable anaphora in English (see also Safir 2004). Barker-inspired examples which are maximally comparable to our SS examples, like those in (59), do have an (arguably) quantificational element in the subject position of a *when* clause taking scope over and binding a variable in the subject position of the matrix clause.²⁹

- (59) a. When each soldier came into the room, he left his rifle at the door, following protocol.
 $\forall x$ [x soldier] [[when x came into the room] x left x’s rifle at the door...]]
- b. When a soldier came into the room, he left his rifle at the door.
 $\exists x$ [x soldier] [[when x came into the room] x left x’s rifle at the door.]]

²⁸ Here we have focus on typical cases in which one subject is a full DP and the other is a pronoun. Certainly also possible are SS examples in which both the matrix subject and the embedded subject are weak pronouns, lacking any descriptive content. Here we assume that one of the pronouns undergoes QR, but the choice of which one does so is basically arbitrary. (An alternative might be to forego QR in this case, and append a null topic at the top of the SR construction, along with a lambda operator the binds both pronouns.)

Less clear is the special case in which both pointed to DPs are full referential DPs (and neither is a naturally bindable expression, like an epithet), as in an example of the form ‘When.SS José found a fruit, José/the man ate it.’ Such examples are extremely rare in natural texts, if they are found at all. However, they are not necessarily impossible (see Clem 2018a for some Amahauca examples). Something may need to be added to our sketch to extend it to this special case, and we leave it open pending more careful empirical investigation.

²⁹ One might object (properly) that these examples are atypical of quantification in general, since both *each* phrases and indefinites are known to take exceptionally wide scope, and special techniques exist for handling this, especially in the case of indefinites. But in fact, we really only know about the semantic behavior of this class of DPs—plus proper names and definite descriptions—in the Panoan languages anyway. “Better behaved” quantifiers like ‘exactly two NPs’ remain to be studied in these constructions. It is very possible that such examples will motivate moving to a dynamic semantics in the tradition of Heim (1982), Kamp (1981), and Chierchia (1995), where a DP in the adjunct clause can dynamically bind a pronoun in the matrix clause (or vice versa) without undergoing QR. Such an upgrade goes beyond the goals of the current sketch, however.

These sentences (may) need the same core mechanisms to be properly interpreted as (58a) does. We conclude, then, that there should be no deep objection to our use of such mechanisms for SS constructions.

We have some evidence from Yawanawa that SS constructions are indeed interpreted as bound variable anaphora—not as “accidental” coreference. For example, in (60) the embedded subject is an indeterminate pronoun in the scope of a negative operator in the matrix clause. The sentence is fine, with the interpretation indicated, even though the DP *tsua* is clearly not referential in this case. The procedure sketched above works here too, with the addition that the QRed DP is (effectively) an existential quantifier, and it lands in the scope of matrix negation.³⁰

- (60) [Tsua munu-shū] *pro* mama aya-ma. (YW)
 INDET.NOM dance-SS.PFV.ERG *pro*.ERG yucca.drink drink.PFV-NEG
 ‘Nobody danced and drank caiçuma (yucca drink).’
 Not $\exists x$ [[When x danced] x drank the yucca drink]].

Another standard sign of a construction that involves (or at least permits) bound variable anaphora is getting a sloppy identity interpretation in elipsis contexts. (61) shows that SS constructions qualify. Here the person listening to the chief while Shaya falls asleep must be Shaya herself (a sloppy interpretation), not Shukuvena (a strict interpretation). This is what we expect given a derivation like (58).

- (61) Shukuvena usha [*pro* shaneihu nika-i]. Shaya rihi. (YW)
 Shukuvena.NOM sleep.PFV *pro* chief listen-SS.IPFV Shaya.NOM too
 ‘Shukuvena fell asleep while he was listening to the chief. So did Shaya.’
 = ... Shaya λx [x fell asleep [while x was listening to the chief]].
 Not: ... Shaya λx [x fell asleep [while y was listening to the chief]] (y =Shukuvena)

This then should give a sense of how we envision our structures with pointers from functional heads to DPs being interpreted. Our view can be contrasted with that of McKenzie (2012), the best worked out theory of the semantics of SR. There are important similarities: he too uses Agree to relate the SR morpheme to the pivot in the embedded clause, and the predication relation he assumes between CP and the matrix subject is not unlike the Agree relation we assume. But there are differences too. Whereas we assume that the pivot can undergo QR, he argues that it must be generated high, in a Spec SRP position, binding its argument position from some distance. OS constructions make it clear that this is not so for Panoan: if it were, the embedded object should tend to come before the embedded subject, but this is not the case (e.g. see (62), just below). Second, and more importantly, McKenzie does not take the matrix subject and the embedded subject to bear the same index. Rather, he has them as bearing two distinct indices, and it is up to the lexical meaning of a specialized SR morpheme (distinct from C) to equate them (SS) or distinguish them (DS). Indeed, he points out that the SR head could in principle express any number of set theoretic type relationships. We think this is too much descriptive power, and is likely to overgenerate what SR can in fact express. (See section 5.4 for evidence that DS in Panoan has no substantive lexical meaning, but is simply used where SS and OS constructions are not available.) Saying that SS morphemes have no intrinsic lexical meaning but only enforce a bound variable interpretation is a more constrained view, we claim.³¹

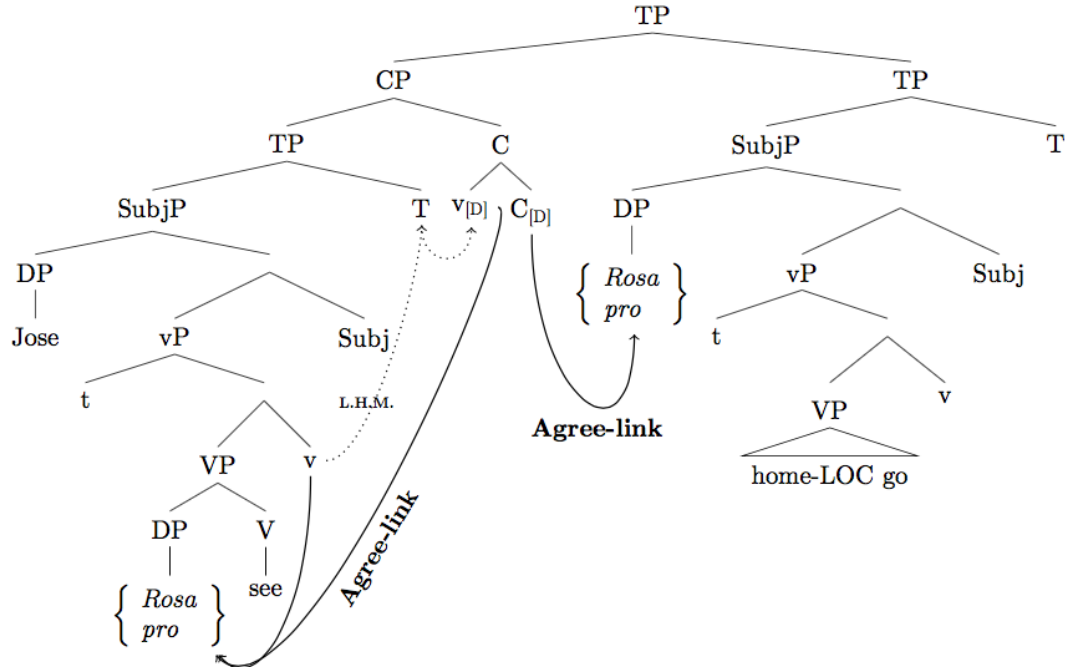
5.3 Object-equals-subject constructions

³⁰ Also to be considered in a full treatment is whether an example like (60) (perhaps with a different quantifier as the pivot) violates Weak Crossover. This depends of course on what version of Weak Crossover is accepted. Barker’s (2012) version, according to which (59a) is possible, says that the antecedent must precede the bound pronoun in “reconstructed linear order.” This is satisfied in (60) (and (58)) as it is in (59). For a hypothetical example like ‘When *pro* danced-SS, someone drank yucca’, we might have to appeal to the possibility of the adjunct clause reconstructing into a lower position (cf. Chierchia 1995). We want to allow this anyway, so that an adjunct clause can be interpreted under the scope of functional heads inside the main clause, as in (44). The relevant facts need closer study before we pursue this further, however.

³¹ However, McKenzie briefly floats the idea that his view creates some room for analyzing cases of referential overlap in SS constructions, and we do not have an account of these yet (see note 18). He does not develop the suggestion however.

Next we look in more detail at the structure and derivation of OS adjunct clauses, which is summarized in (62).

- (62) a. [José-kan Rosa oin-a]=ra, *pro* xobo-n ka-ke. (=1b))
 José-ERG Rosa see-OS=EV she house-LOC go-PRV
 ‘When José_i saw Rosa_i, she_i went home.’



This structure is overall quite similar to an SS construction, except that in OS constructions *v* is crucially involved as an Agreeing head rather than *T*. The result is that one of the pointers is to an object inside VP (or ApplP) rather than to the subject in Spec SubjP. The upper part of the adjunct clause, which establishes the relationship with the subject of the matrix clause is just the same. Here too, *C* undergoes Agree-Link but not Agree-Copy with the matrix subject from CP’s original position, adjoined to vP. In the lower part of the clause, *v* is a D-probe without phi-feature slots, so it undergoes Agree-Link but not Agree-Copy with a nearby DP in its domain, as long as the DP is active (not an oblique object in Shipibo) and in the same spell out domain.

Once again, we need to add the idea that the pointer from *v* to the downstairs object is connected to the pointer from *C* to the upstairs subject by head movement. Specifically, *v* must move to *C*. There is also reason to say that *v* moves through *T* too on its way to *C*, since adjunct clauses marked by *-a* are semantically perfective, a value normally marked by *T*, and the normal exponent of perfective *T* (e.g. *-ke*) is impossible in an OS clause.

However, there is evidence that this head movement does not happen in entirely the usual way, successive cyclically through all the intervening functional heads. In particular, *v* movement seems to skip at least Subj, whose Spec contains the subject.³² One sign of this is that the plural subject agreement morpheme *-kan/-hu* is possible in OS clauses, as shown in (63). Thus, the Subj head retains its separate morphosyntactic identity.

- (63) a. [Xate-kan-a-kaya]=ra e-n a-yora-ke [ja-skara shinan-ki-n]
 cut-PL-OS-CONTR=EV I-ERG do.TR-INTENS-PFV that-about think-SS.IPFV-ERG
 ‘After they cut me (after my operation), I think about that very much.’ (SK, PV: 291)
- b. [Nawa-hâu vakehu iwe-a-hu], yuma pi. (YW)
 foreigner-PL.ERG children bring-OS-PL fish eat.IPVF
 ‘The foreigners brought children_i and they_i are eating fish.’

³² *v* also skips over Voice on its way to *T* and *C*, if our analysis of (75) below is correct.

See also Valenzuela (2003:364 (114), 624 (35)) for further examples. Second, Spec SubjP is still available as a landing site for DP movement inside an OS clause. This is clear in OS clauses with applicatives of unaccusatives, like (64): here the theme can and must be ergative in Shipibo, showing that it has moved to Spec SubjP to become higher than the applied argument base-generated in Spec ApplP.³³

- (64) [Noko-n shino-n e-a mawa-xon-a]=ra, e-n ochiti bi-ke. (SK)
 my-GEN monkey-ERG me-ABS die-APPL-OS=EV I-ERG dog get-PFV
 ‘My monkey died on me, and I got a dog instead.’ (see also (19b) above)

This also confirms something that we have assumed all along, that *-a* is really a marker of object=subject coreference, not a combination of passive voice and SS marking, in which that the underlying object is first promoted to subject and then equated with the matrix subject in the more usual way. If that were so, then there shouldn’t be a distinct subject position in the clause, but (63) and (64) show there is.³⁴ The upshot is that the SubjP head and the structure it projects must be present and syntactically active in OS clauses, just as it is in matrix clauses, unaffected by the OS relationship, and *v* doesn’t pick up subject features on its way to C.

What we have here, then, is an instance of long head movement as *v* moves past Subj on its way to combine with T and C. This sort of long head movement over an intervening head position, in violation of the Head Movement Constraint, is a marked phenomenon, but not unheard of: Borsley, Riviero, and Stephens (1996) and Roberts (2010) build a strong case for V-to-C movement over T in Breton, for example (see Roberts 2010:193 for other references; see also Safir and Bassene 2017). And indeed we want there to be something quite marked in the analysis of OS, since this is a rare phenomenon—much rarer than SS.³⁵ We thus want UG to cover it, but only with a bit of a stretch. That is just what we have here in the form of an instance of long head movement, we claim.

We fill in the mechanics as follows. We can say that *v* with a [D] feature is an affix that selects for C, forcing it to move upwards to find a host. Furthermore, in Shipibo and Yawanawa OS marking happens only in the perfective aspect; there is no analog of /a/ in the imperfective aspect or future-purposive mood (PV: 524; Loriot et al. 1993: 55).³⁶ Therefore, we say that $v_{[D]}$ in these languages is also specified as affixing specifically to $T_{[PFV]}$, giving it two affix features, as in (65a). Meanwhile, C_{SUB} with a [D] feature is an affix that selects for T, as above. Thus, $v_{[D]}$ moves first to T, satisfying one of its affix features. Then $v+T$ moves to C, satisfying *v*’s second affix feature and C’s only affix feature. *v* with a [D] feature is not an affix to Subj (nor is Subj an affix), so it is possible in principle for $v_{[D]}$ to skip over Subj. (If some other property is need to facilitate long head movement, we leave that open.) We then add the vocabulary item in (65b) to the list given in (51) above.

- (65) a. $v_{[D]}: [_ T_{[PFV]}] [_ C]$
 b. $v_{[D]}+T_{[PFV]}+C_{[D,sub]}$ *-a*

One other detail to mention is that there is no case concord on OS clauses in Shipibo (see PV: 424 (24) and (25)) or Yawanawa, the way there is on SS clauses. Thus, we do not find something like /a+n/ when the matrix subject is ergative in an example like (20b) or (21b). Again, there is presumably nothing deep going on here, since Kashibo-Kakataibo does have case concord on OS clauses (Zariquiey 2011: 585-587). For Shipibo and Yawanawa, we say either that the extra F head is not generated over OS clauses, or that it is but ergative is not spelled out overtly after /a/. Similar variation is found with PP adjuncts, some of which show “participant agreement” (i.e. case concord) and some of which do not.

³³ Not all Yawanawa speakers have ergative case on the subject in examples like (64), but the theme still acts as the pivot for SS marking in examples like (19a), showing that it has moved to Spec SubjP.

³⁴ DP movement to Spec SubjP in an OS clause can also be inferred from experiencer clauses like those in (16b), where the experiencer moves out of the domain of the probing *v*, and therefore it cannot be the pivot of OS marking itself, and it does not block *v* from finding the lower theme argument as the pivot.

³⁵ One non-Panoan language that we know of that may have the same sort of OS construction is Aguaruna; see Overall (2007: 406). The examples Overall gives do look like OS in Shipibo and Yawanawa, but he supplies few details about what exactly can and cannot count as a pivot in the Aguaruna construction.

³⁶ There is presumably no deep incompatibility between OS and imperfective aspect, and indeed the related language Kakataibo does have an imperfective OS marker (Zariquiey 2011: 585-587). This is a semiarbitrary lexical property of Shipibo and Yawanawa, perhaps related to perfective being the more common and less marked aspect.

Finally, we assume that the OS construction is interpreted semantically in a way that is exactly parallel to SS constructions, with the result that a kind of bound variable anaphora holds between the two pointed to arguments. The same interpretive steps work in essentially the same way, given that QR can raise a DP from the object position of the adjunct clause just as it can raise one from the subject position (contrast Georgi’s (2012) hypothesis that A-movement is involved in SR, which does not naturally generalize from subject pivots to object pivots in this way).

5.4 Different Subject Constructions as ordinary CPs

Next, we need to say more about DS clauses, which we have somewhat neglected so far, treating them mostly as foils for the interesting SS and OS constructions. In fact, this exposition is faithful to our official view: DS clauses in Shipibo and Yawanawa are essentially just ordinary CPs, the heads of which do not enter into any special Agree relationships and do not fuse together in any distinctive way. The reason why they are used only when the embedded subject and object are not coreferential with the matrix subject (except as discussed below) is because of some form of pragmatic blocking: since SS and OS constructions exist with the specialized function of expressing subject=subject and object=subject scenarios, ordinary adjunct CPs are interpreted as not having these meanings.

This simple analysis of DS clauses has several advantages. First, it fits the morphological facts. DS clauses in Shipibo, in marked contrast with SS and OS clauses, have the normal aspect markers perfective *-ke* or imperfective *-ai* (realizations of T in our terminology), as shown in (66). They can also have the normal plural subject marker *-kan*, a realization of the Subj head, as in (66a). As usual across languages, perfective marking on the first/embedded clause gives a nonoverlapping sequential relationship between the events, and imperfective on the first/embedded clause gives an overlapping simultaneous relationship between the events.

- (66) a. Ja-tian ja-bo bo-**kan-ke-tian**, noko-n tita ik-a iki ... (SK, PV: 311 (136))
 that-TEMP 3-PL go-PL-PFV-DS, my-GEN mother do-PTCP AUX
 ‘When they got back, my mother did it (got the adornments).’
- b. Ochiti-nin natex-ke [bake raket-**ai-tian**]. (Also PV: 421)
 dog-ERG bit-PFV child fear-IPFV-DS
 ‘Since the child was afraid (of it), the dog bit him.’

In Yawanawa, perfective *-a* is also present in DS clauses ((67a)), but the imperfective morpheme in embedded clauses is *-ai* rather than *-i* ((68b)).

- (67) a. [Ē awa-ki tuwe-a-kē] Tika tanaik-a. (YW)
 I.ERG tapir-DAT shoot-PFV-DS Tika.NOM trail-PFV
 ‘I shot at the tapir and Tika tracked it down.’
- b. [Ē atsa pi-ai-nū] ea Livia-nē ken-a.
 I.ERG yucca eat-IPFV-DS me.ACC Livia-ERG call-PFV
 ‘While I was eating yucca, Livia called me.’

The so-called DS morpheme is then an affixal C that is in addition to and above (outside of) these T affixes. None of these morphemes create lasting pointers in matrix clauses, and there is no reason to say that they do in DS clauses either. Even the affixes *-n* and *-tian*, which we gloss as DS morphemes, are not necessarily that intrinsically. Valenzuela (2003:420) points out that *-n* is the ubiquitous oblique case marker, also found on PP-like adjuncts such as locatives and instrumentals. She also identifies *-tian* as a temporal marker, seen on nonclausal time adverbs like *jatibi-tian* (all-time) ‘always’ and *ja-tian* ‘when’ (PV: 171). So these may just be P-like heads, which have evolved into C heads, like nonfinite *for* in English and *a* and *de* in French.³⁷ All told, then, no specialized morphology is unique to DS clauses, consonant with the view that these are structurally just ordinary adjunct CPs.³⁸ Mechanically,

³⁷ More specifically, they are forms of C for subordinate clauses only (C_{SUB}), like *that* or *for* in English. Matrix clauses have a distinct \emptyset complementizer, as in many languages. (We thank an anonymous reviewer for this.)

³⁸ Another reason not to pin too much on *-tian* and *-n* as DS markers is that they are not entirely obligatory. Valenzuela (2003:422-423) says that “Different-subject marked clauses ... may lack the morphemes *-tian* or *-n* and

we have C, T and v that neither probe for D nor trigger head movement. No complex heads are formed, and only the simplest and most general realizations of T and C are inserted (and also \emptyset for v, and *-kan* for 3pl Subj).

Theoretical considerations also point in this direction. Consider what the alternative to a blocking account would be. This would presumably be that DS morphology actively marks that the subject of one clause is distinct from the subject of a nearby clause. This would be a modern version of Finer's (1984, 1985) theory of DS. Finer analyzed SR within classical GB Binding theory, saying that SS markers are anaphors subject to a syntactic condition that they need to be locally bound (condition A), and DS markers are pronouns subject to a complementary condition that they must not be locally bound (condition B). But this would be difficult to do in the contemporary context. First, current Binding theories usually do not have a distinct condition B: rather they capture the apparent complementarity between Conditions A and B by saying that special anaphors need to be locally bound, and ordinary pronouns cannot be used in the same position for the same interpretation, by some kind of blocking (Safir 2004, Büring 2005, Reuland 2011). If there is no true condition B for ordinary pronominal anaphora, then it would be odd to have a conceptually similar non-coreference condition specifically in the domain of SR. Our view that SS expresses coreference by grammatical means and this restricts how DS is interpreted is thus parallel to developments in Binding theory. This is even more necessary once we adopt our view that positive referential dependency is the result of pointers created by Agree not undergoing dereferencing, a novel use of familiar UG mechanisms. But where could the explicit syntactic representation of a negative referential dependency come from, then? Is there a kind of Anti-Agree, which says that a functional head like T cannot have the phi-features of some nearby nominal, which DS could be the analog of? Presumably not: no such relationship is known from the theory of agreement, and positing one would be conceptually suspect. There is thus theoretical pressure to analyze DS clauses as normal CPs whose interpretations are affected by the presence of SS and OS clauses.³⁹

There is also empirical evidence for the blocking view, in that the interpretation of DS clauses depends on the competitive environment they exist in. Generally speaking, so-called DS clauses can be used to express a fairly broad and somewhat disparate range of situations, as expected for a default form. They can of course be used when no argument of an embedded clause is referentially dependent on any argument of the matrix clause, as in (1c) and (2c). They can also be used when the subject of the embedded clause—or indeed any embedded clause item—is coreferential with the *object* of the matrix clause; (68) is a Shipibo example of this (see also (66b)).⁴⁰

(68) [Jose jo-ke-tian]=ra, e-n *pro* oin-ke. (SK)
 José come-PFV-DS=EV I-ERG him see-PFV
 'When José came, I saw him.'

In addition, DS marking can be used whenever anything in the embedded clause other than its subject or object (direct or indirect) is coreferential with the matrix subject, as seen in (26), (30b), (34), (38) and (39b). Overall, DS is used wherever there is no more specialized SR marker for the job.

In fact, DS marking is also used when the embedded object is coreferential with the matrix subject in the fairly frequent situation in which OS marking is not available. DS marking in perfective clauses (usually⁴¹) cannot

thus look just like finite clauses" citing three examples. From our perspective, this just means that the C head of these adjunct clauses can sometimes be null, like *that* in English. We have not studied this option ourselves, though.

³⁹ But see Arregi and Hanink (2019) for a more Finerian analysis of DS in Washo, built on the assumption that vocabulary insertion rules can detect whether two indices copied onto a head by agreement are the same or not. Clem's (2018b) analysis is similar in this, although she takes DS to be the default form, as we do. McKenzie (2012) analyzes DS morphemes as having a lexical meaning "i≠j" in contrast to SS morphemes meaning "i=j".

⁴⁰ Two other Panoan languages, Kashibo-Kakataibo (Zariquey 2011) and Amahuaca (Clem 2018b), do have specialized SR markers for this S=O situation as well, although this is extremely rare typologically and of limited distribution even in Panoan. The two languages are not even identical in this: in Amahuaca the relevant marker is used only for an S=O case, whereas in Kakataibo it is also used for O=O. These additional markers also block default DS marking, so that in Kakataibo "DS" marking is used only if no core argument of the embedded clause is coreferent with any DP argument in the matrix. See note 46 for a further remark on S=O SR in Amahuaca.

⁴¹ In fact, the blocking between OS and DS is not absolute in our experience. In Baker's Shipibo fieldwork, DS was rejected by native speakers with an object=subject interpretation 16 times, but it was accepted with this interpretation 5 times. Similarly, Valenzuela (2003) says that DS marking is bad in an O=S situation, but we found two apparent examples in her work. Similar remarks hold for Yawanawa. This variability is not necessarily bad for a

be used when the embedded object is the same as the matrix subject: DS in (69b) does not have the meaning that the OS example in (69a) has.

- (69) a. [Ochiti-nin natex-a]=ra, bake sai i-ke. (SK)
 dog-ERG bite-OS=EV child cry do.INTR-PFV
 ‘The dog bit him_i, so the child_i shouted.’
- b. [Ochiti-nin natex-ke-tian]=ra, bake sai i-ke.
 dog-ERG bite-PFV-DS=EV child cry do.INTR-PFV
 ‘When the dog bit him_k,^{*i}, the child_i shouted.’

But recall that Shipibo and Yawanawa do not have an OS marker for imperfective clauses, or for future-purposive clauses. In these environments, DS marking automatically takes over to cover the object=subject situation:

- (70) a. [Ja mawa maw-ai-tian]=ki, ja wisó-ino isá jo-a iki. (PV: 553 (2))
 3.ABS imitate imitate-IPFV-DS=EV that black-jaguar bird come-PTCP AUX
 ‘As she was imitating it, the black-jaguar bird came (to where the woman was).’
- b. [(E-a) xeyó-no-n]=ra e-a bewa-ke. (SK, PV: 426 (30))
 me-ABS message-FUT-DS=EV I-ABS sing-PFV
 ‘So that he would massage me, I sang.’

This point is further strengthened by data from another Panoan language. Kashibo-Kakataibo happens to have an imperfective OS marker as well as a perfective one (Zariquiey 2011: 585-587) (but no future-purposive OS marker), and in this language imperfective DS marking cannot be used when the embedded object is coreferential with the matrix subject (Zariquiey 2011: 588-590) (but future-purposive DS marking can be, Zariquiey 2011: 591). We also see this complementarity on a much grander scale, when we compare across language families. SR languages outside the Panoan family have SS marking and DS marking, but no OS marking. In those languages we see the same thing we do with imperfective clauses in Panoan: DS marking covers the situation in which the embedded object is coreferential with the matrix subject. If we did not make use of blocking, we would have to say that the syntax of perfective DS in Panoan is somehow different from the syntax of DS in (say) Quechua or Choctaw, such that the embedded object is intrinsically banned from referring to the matrix subject in Panoan only.⁴² But there is no evidence for a difference in intrinsic syntactic structure, and this would miss a generalization: DS cannot mean object=subject in our Panoan languages *because* OS is available and means that, one very much wants to say.

We can observe a distinctive blocking pattern even in the relationship between SS and DS, if we look in just the right place. The prediction is that if SS is not available in some specific context, what otherwise looks like a DS clause can automatically be used when the embedded subject is coreferential with the matrix subject. Now SS marking is available in all mood-aspects in Panoan; there are no major holes in its distribution, as there are for OS. But there are one or two minor holes in Shipibo. Valenzuela (2003: 423) says that *-no-n* is normally a different subject marker; as such, it contrasts with the future-purposive SS marker *-nox* seen in (50) above.

- (71) [Bake-shoko oxa-*no-n*] e-a bewa-ba-non. (SK, PV: 423 (21))
 child-DIM sleep-FUT-DS 1-ABS sing-FUT-FUT
 ‘So that the baby sleeps, I am going to sing.’

Here *-n* is presumably the same “DS” morpheme found in *-ke-n* and *-ai-n*, but used with a different aspect-mood marker *-no*. However, Valenzuela points out that ‘until’ clauses in Shipibo have the suffixes *-no-n* on the verb

pragmatic account. SS marking is much more common than OS marking in texts, and this might account for the fact that SS blocks DS more automatically and categorically than OS does.

⁴² Consider, for example, what might need to be done to get the distribution of DS in our Panoan languages in the theory of McKenzie (2012) or Arregi and Hanink (2019). They might have to say that the perfective DS morpheme (but not the imperfective one) collects indices from both the embedded subject and the embedded object (say *i* and *k*) by Multiple Agree, and that DS[pfv] means $i \neq n$ & $k \neq n$, where *n* is an index collected from the matrix subject. This expansion to Multiple Agree is otherwise unmotivated for them, and seems clumsy at best.

together with the postposition *kaman*. In this particular syntactic context, the SS marker *-nox* cannot be used, and in precisely this context the “DS” form *-no-n* can be used when the subjects are coreferential, as in (71).

- (72) Kikin-i paen-a ik-á iki ja xontako rabé,
 extremely-ABS get.drunk-PTCP do.INTR-PTCP AUX that unmarried.girl two.ABS
 [shinan-yama-*no-n kaman*]...
 think-NEG-FUT-DS until (SK, PV: 498)
 ‘The two young girls had gotten completely drunk, until they became unconscious...’

Here we might plausibly say that the extra PP structure headed by *kaman* makes the SS construction impossible because *kaman* is a phase head that prevents the embedded C from entering into Agree with the matrix subject, and this is a crucial ingredient of the SS construction. In this environment, the erstwhile DS clause reveals its nature as a normal CP, and there is no restriction on what its subject can refer to. See also Valenzuela (2003: 499-500) for a similar case of DS marking used in a same subject situation where SS marking is not possible in ‘since’ clauses marked by the particle *-bi*. In contrast, there is no known environment where a DS form is ruled out grammatically, and what is otherwise an SS clause picks up the slack. This asymmetry is what we expect if SS is the marked clause type, with a special syntax and interpretation, and DS is the unmarked clause type that simply goes with the flow.⁴³

Therefore, we have some converging evidence that DS clauses are unremarkable CP structures syntactically, which take on their DS character because of competition with the more specialized SS and OS clauses. Another benefit of Shipibo and Yawanawa having OS markers as well as SS markers is that this stands out more clearly, since DS clauses have additional competition in some cases but not others. Any additional issues that arise in fleshing out exactly how this blocking is calculated, like whether it is done exclusively in the pragmatics or is taken into the formal semantics, we leave to others.⁴⁴

5.5 Summary: where the three SR structures come from

At the highest level, we assume that the SS, OS, and DS constructions in our Panoan languages are created by the lexical properties of the functional heads involved, together with logical constraints on how they can usefully combine. Each head-type in the set {C, T, v} can be specified for one of three values: not a probe for D, probe for D but no phi slots, or probe for D with phi slots. The last specification gives conventional agreement, the middle one is a building block for SR, and the first one gives a simple functional head that is syntactically and morphologically inert. From a crosslinguistic perspective, then, one expects to find the range of functional heads outlined in (73).

(73)

Head/probing	Not a probe	D-Probe with no phi-slot	D-Probe with phi-slot
C	<i>-(tia)n</i> in DS in Panoan <i>that</i> in English, etc.	Component of SS and OS in Panoan and other SR languages	Agreeing C in Lubukusu, Flemish, etc.
T	Infinitival <i>-ti</i> in Panoan T in Chinese, Yoruba...	Component of SS in Panoan, other SR languages	Finite T in many languages.
v	Normal v in English, Panoan, etc.	Component of OS in Panoan	v of object agreement in Quechua, Bantu, etc.

One thing that may seem suspicious in our account is the fact that the versions of v, T, and C that probe for D but have no phi-slots are exactly the ones that are specified as being affixes to other functional heads, such that they must host or undergo head-movement. However, this becomes nonaccidental when one recalls that having just a single pointer from one functional head to a DP is meaningless to LF, because LF cannot interpret a single pointer

43 Note also that DS clauses in these languages, like OS clauses, do not show case concord with the matrix subject.

44 A reviewer suggests that this may be a form of Irene Heim’s “Maximize Presupposition”. We are open to this possibility, but do not commit ourselves to it, because it is not entirely clear what the presuppositions of an SS or OS construction are (or if they are always the same), or whether they are a superset of the presuppositions of a DS construction. Therefore, we leave our discussion of pragmatic blocking at an informal level. A closer analogy might be the notion that pronouns cannot have locally bound readings when they are in competition with anaphors which are specialized for those readings, as in Safir (2004) and Reuland (2011).

from F to one DP as referential dependence (or anything else). Thus, D-probes without phi-slots do not have any nontrivial effect on the structure unless they combine with another such probe (or they themselves undergo multiple Agree, as C does in Choctaw). This makes it unsurprising that the elements in the middle column typically come in sets: T combined with C via head movement gives SS; v combined with C via head movement gives OS. Languages that do not have heads with the properties in the middle column do not have SR constructions; languages that do have these heads in suitable combinations do have SR constructions. Formally, this has the result that heads with unvalued [D] features but no phi-slots systematically come with head-movement triggering features as well; if head movement is not triggered, then either the meaningless pointer from head H to a DP is uninterpretable at LF and leads to a crash, or it gets a trivial null interpretation. The result is that isolated heads from the middle column would not be noticeably different from the corresponding inert heads in the first column.

Conversely, we could wonder what happens when T to C or v to C movement happens with heads that are not D-probes. The answer is “nothing bad” that we can see. Suppose for example that $C_{[D,SUB]}$ happens to be generated in a particular structure without a corresponding $T_{[D]}$ or $v_{[D]}$. Its T-affix property could cause a normal T to move to C, say $T_{[PFV]}$. But there is no special vocabulary item for $T_{[PFV]}+C_{[D,sub]}$, only one for $T_{[D,pfv]}+C_{[D,sub]}$, namely $-(a)x$ (see (51)). So less-specified morphemes are inserted: *-ke* for $T_{[pfv]}$ and *-tian* for $C_{[sub]}$. Morphologically, that will look just like a DS clause, formed with plain $C_{[sub]}$ with no [D] or affix feature. Semantically, it will also be interpreted just like a DS clause, with no pair of pointers that triggers the special interpretive rules in (56) and (57). Therefore, it is harmless to allow this and other similar derivations, and we do not have any serious overgeneration problem.⁴⁵

We can now ask whether this conceptual space allows for any other constructions to emerge, which we have not considered yet.⁴⁶ The most obvious possibility would be for a probing head in the T-space, well-positioned to Agree with the subject, co-occurring with a probing v, positioned to Agree with the object. This together with v-to-T movement could express an SR-like referential dependency between the subject of the clause and the highest object of that same clause. In fact, constructions that meet this description (almost) exist in Shipibo and quite a few other languages, in the form of verbal reflexive markers. We close with a brief consideration of this.

6. Extending the theory to reflexive voice markers in Shipibo and beyond

⁴⁵ There is one possible case of overgeneration: suppose that one generated a structure with all three of $C_{[D,sub]}$, $T_{[D,pfv]}$ and $v_{[D]}$, with T and v moving to C. That could potentially generate a structure like [[Maria -- tickle-AFFIX] pro laugh], with three pointers: one to the lower object position, one to the embedded subject, and one to the matrix subject. The structure would then mean ‘When Maria_i tickled herself_i, she_i laughed.’ This is impossible in our languages. Why? As part of the answer, we can easily say that there is no vocabulary item to realize this combination of heads. However, this might not be enough, since a more general item that a subset of this combination of features (e.g. /ax/ or /a/) might still be insertable. Therefore, we tentatively block this unwanted derivation by a strict interpretation of how a morpheme’s affix features must be satisfied. Let us say that if head H has an unsatisfied affixation feature [$_X$], and head movement of either H or G forms H+G, the structure is bad if $X \neq G$. In other words, affixation properties must be satisfied as soon as possible. Then since $T_{[D,pfv]}$ is an affix to C (see (51a)), $v_{[D]}$ cannot move to it directly, since v is not C. In contrast, normal $T_{[pfv]}$ does not have an affix property, so it is possible for $v_{[D]}$ to move to this T (intuitively, this independent T can count as a base for “affixation” of $v_{[D]}$).

⁴⁶ One construction that does not emerge naturally from this typology that one might wish did is the subject=object construction which Clem (2018b) documents for the Panoan language Amahuaca, where the subject of the embedded clause is coreferential with the object of the matrix clause. As far as pivot selection is concerned, there is nothing special about these clauses: they could have $T_{[D]}$ in our sense. The challenging issue has to do with antipivot selection: how is it possible for $C_{[sub,D]}$ to agree with the matrix object rather than the matrix subject in this language/construction only? Perhaps the most likely answer is that some kind of object movement (possibly covert) raises the object to a position where C can agree with it. (A kind of object shift is an ingredient in Clem’s analysis too.) Alternatives might be that these S=O clauses are generated lower, inside VP, so C can agree upward with even an unmoved object, or that C can somehow probe *downward* into the matrix clause in this case (also an element in Clem’s analysis). But any of these suggestions raises the question of why this happens only in Amahuaca, and we do not know enough about that language to speculate. (We note that our OS construction, though very rare outside of Panoan, is reasonably robust and stable inside the family, found in all the languages that have been described fully enough to know. In contrast, Amahuaca’s SO construction is rare even inside Panoan, with no exact analog in any of the other known languages. Kakataibo has a similar but not identical S-or-O=O construction; see note 40.)

Shipibo does have reflexive verb forms which are interesting in this context. The surface exponence of reflexive voice is rather variable: the most common form is *-t*, but this can change the quality or length of the last vowel, and *-t* itself deletes before a consonant (like the aspect marker *-ke*), in which case the syllable gets compensatory stress. Other allomorphs are *-meet* when the stem ends in /n/, *-(k)oot*, *-(k)eeet*, *-(k)iiit*, and *-(k)aat* (Valenzuela 2003:776-777).⁴⁷ (74) compares an ordinary transitive clause with its reflexive voice analog. (75) shows the reflexive form of the ditransitive verb ‘send’, where the goal argument is referentially dependent on the subject argument and the theme argument is referentially distinct.⁴⁸

(74) a. Mi-n=ra shino chekeren-ke. (SK, PV: 781 (7))
 you-ERG=EV capuchin.monkey.ABS tickle-PFV
 ‘You tickled the capuchin monkey.’

b. Mi-a=ra chekere-mee[t]-ke.
 you-ABS=EV tickle-REFL-PFV
 ‘You tickled yourself.’

(75) Wesna=ra kirika boma-kaa[t]-ke. (SK, PV: 785 (25))
 Wesna.ABS=EV letter.ABS send-REFL-PFV
 ‘Wesna sent a letter to herself.’

This construction has several properties that are reminiscent of SR, suggesting that a similar analysis is called for. First and foremost, there is a referential dependency between two different arguments, which goes along with the use of a particular verbal affix. Furthermore, this verbal affix is not like normal agreement in that it does not vary with the phi-features of the coreferential DPs. The DPs involved in the referential dependency are 2nd person singular in (74b) and 3rd person singular in (75), but this difference does not affect the realization of the reflexive morpheme.⁴⁹ Nevertheless, the DPs involved are precisely those DPs that are the easiest for heads on the clausal spine to agree with: the subject and the highest object in VP. Here then is another plausible case of Agree without agreement resulting in a referential dependency.

On a closer look, though, it is apparent that it is not T that enters into Agree-Link with the subject in this case. If it were, we would expect the normal expression of T to be lost, replaced by a special morpheme that expresses the fusion of special D-probing T and special D-probing v. That is not what we see: (74b) and (75) have the normal perfective suffix *-ke*. Nor is Subj crucially involved, since plural marking *-kan* can also appear in reflexive clauses, just as it does in ordinary ones (e.g. PV: 800 (77)). Therefore, some other, lower head that can agree with the subject must be involved. We identify this as Voice, distinguishing it from v (which Agrees with objects, not the subject), as in Pytkänen (2008), Cuervo (2003), Harley (2013), among others; see also Safir (2018), who is led to the same conclusion for similar reasons.

47 As in many languages, the morphology used for reflexive forms is also used for anticausative and passive-like readings. Therefore, Valenzuela (2003) refers to it as middle morphology, not as reflexive. Presumably this homophony has something to do with there being a formal similarity between having a movement dependency between a thematic object position and a nonthematic subject position and having a reflexive dependency between a thematic object position and a thematic subject position. But we do not commit to any particular proposal here.

48 A peculiarity of Shipibo is that reflexive voice seems not to be very productive on ditransitive verbs, whereas there is no restriction on this in Bantu, Mohawk, etc. This is partially explained by a morphological restriction on reflexive voice in Shipibo: it needs to attach directly to roots (see PV: sec 8.1), perhaps because its morphological exponence can be fairly idiosyncratic. This accounts for why reflexive voice cannot attach to derived ditransitives formed by causative or applicative, but not why it cannot attach to some simple ditransitive verbs like ‘give’.

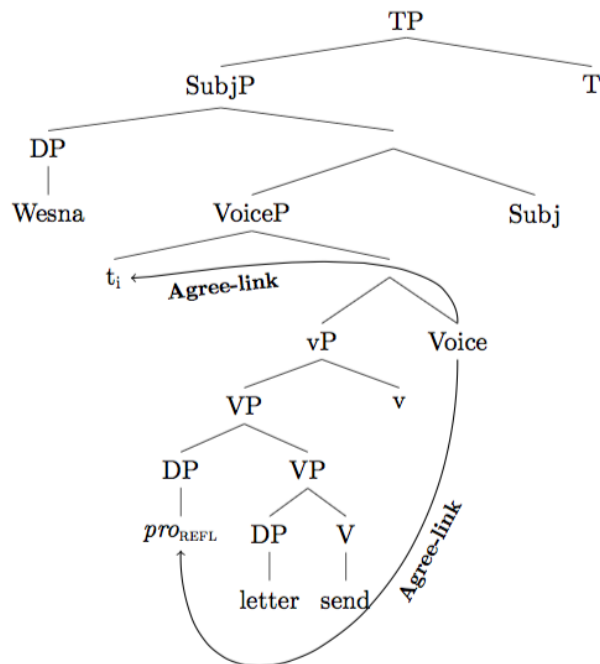
49 Note that reflexive voice is quite different in this respect from DP reflexives, which often do agree with their antecedent in phi-features (e.g. English: *We tickled ourselves*). Our Agree-without-agreement proposal is intended to cover only the former, not the latter (different from e.g. Reuland 2011). DP reflexive anaphora also has quite a different syntactic distribution from reflexive voice (although the distributions overlap). For example, *self*-anaphors in Germanic can be second objects, objects of Ps, possessors of DPs (e.g. in Scandinavian) and oblique objects, whereas these anaphoric relationships cannot be expressed using reflexive voice in Shipibo, as shown below.

From this starting point, two possible analyses of reflexive voice are open to us: either Voice Agrees twice, once upward with the agent in Spec VoiceP and once downward with the highest DP in its c-command domain (like C in Choctaw), or Voice Agrees once with the agent in Spec VoiceP, v Agrees once with the highest object inside vP, and v moves to fuse with Voice (like T fusing with C in Panoan). The choice between these two options is a subtle one, given that Voice and v rarely have distinct morphological exponents, even in non-reflexive clauses that we can use as a basis for comparison. But one relevant consideration is that a reflexive verb can be marked for OS SR, as in (76), and we have analyzed OS as involving v fusing with C.

- (76) [Rosa boma-kaat-a]=ra, kirika mano-ke. (SK)
 Rosa send-REFL-OS=EV letter get.lost-PFV
 When Rosa sent it to herself, the letter got lost.

Presumably the same head v cannot simultaneously fuse with Voice to create reflexive morphology and fuse with C to create the OS marker -a, Agreeing with the theme in one case and the goal in the other. This then guides us toward the implementation in which Voice enters into Agree twice. The structure for a reflexive clause is thus (77).

(77)



Since this is a case of one head probing twice, mechanical issues of how to trigger and regulate head movement do not arise. Here we can simply use the straightforward vocabulary insertion rule in (78).

- (78) Voice_[D1,D2] → /t/ (and other contextually determined allomorphs).

Then according to the Heim (1998) style semantic rules we sketched in (56) and (57), this structure will have an LF like (79) after QR applies to the subject DP, which is appropriate for this example.

- (79) [_{TP} Wesna λ₁ [_{TP} t₁ SUBJ [_{t₁} Voice [_{VP} send pro_{REFL1} letter]]]]

We can support this SR-like analysis of reflexive voice by showing that the reflexive voice construction shows grammatical restrictions that are characteristic of Agree, as we did for the SS and OS constructions in section 3. The key question is, given that the thematic subject is one member of the referential dependency, what restrictions are there on the second member of the dependency. Do they parallel the familiar restrictions on object agreement listed in (8), and the ones that we have seen govern OS switch reference?

The answer seems to be yes. First, the c-command condition is obeyed, by hypothesis, since the Voice head does c-command object NPs generated inside VP in a structure like (77).

As for the intervention condition, this is not necessarily expected to hold in Shipibo, because it is a symmetrical object language, with the possibility of the theme moving past the object inside ApplP (see (22)). But for other languages with reflexive voice, it does hold. For example, the phi-invariant reflexive prefix *atat-* in Mohawk induces a theme=subject object reading with simple transitive verbs, and a goal=subject reading with ditransitive verbs, but not a theme=subject reading with ditransitive verbs. This is seen in (80).

- (80) a. Sak r-atate-nuhwe'-s. (Mohawk, Baker 1996:199 (18))
 Sak 3.M.SG-REFL-like-IPFV
 'Sak likes himself.'
- b. Sak wa-h-atat-u' (Baker 1996:202 (26a))
 Sak PST-3.M.SG-REFL-give-PFV
 'Sak gave it to himself.' NOT: 'Sak gave himself to it/her.'

Next, the phase condition should imply that reflexive Voice cannot reach into a PP or DP (or CP) so as to express that the object of a PP or the possessor of a DP is bound by the subject. This seems to be true as well. For PP, Valenzuela (2003:786-787) observes that "There is no way to distinguish a non-reflexive from a reflexive third person pronoun in locative phrases." Thus one cannot put *-t* marking on the verb to show coreference between the object of 'behind' and the subject of 'put' in (81).

- (81) Wesna-n=ra chomo ja pekáo a-ke (SK, PV:787 (31))
 Wesna-ERG=EV jar her behind do.TR-PFV
 'Wesna_i put the jar behind her(self)_i.'

Nor can reflexive marking reach inside the object DP to find something to be coreferential with the subject in Shipibo. Thus in (82) there is no special voice marking on 'kill' to show that the possessor of the object is the same as the subject. (The middle/reflexive form of 'kill' is *reté-ke*, with *-t* deleted but affecting stress.) So the phase condition restricts what reflexive voice can do in much the same way that it restricts what OS can do.

- (82) Ja-n=ra jawen poi rete-ke. (SK, PV:787 (32))
 she-ERG=EV her.GEN opposite.sex.sibling kill-PFV
 'She_i killed her_{i,k} brother.'

Finally, the activity condition in Shipibo predicts that reflexive morphology cannot express that the subject of a psych verb is coreferential with its oblique case complement. This too seems to be born out: Valenzuela (2003) shows that a semantically reflexive version of (83a) does not use reflexive voice, but simply drops the oblique object, as in (83b) (the result is then ambiguous between a reflexive reading and an intransitive reading).

- (83) a. Wesna=ra Tsoma-ki siná-ke. (SK, PV:783 (16))
 Wesna=EV Tsoma-DAT get.angry-PFV
 'Wesna got angry at Tsoma.'
- b. Wesna=ra siná-ke. (SK, PV:783 (18))
 Wesna=EV get.angry-PFV
 'Wesna got angry at herself.' (Also 'Wesna got angry.')

Overall, then, there is good reason to say that reflexive clauses in Shipibo involve Agree without agreement, just as OS constructions do. Reflexive voice can express coreference between the thematic subject and a DP X if and only if X is in a position where Voice could Agree downward with it—even though there is no phi-covariance.⁵⁰

50 Reciprocal voice, marked by the suffix *-anan* in Shipibo, differs interestingly from reflexive voice in some of these respects. Valenzuela (2003: ch. 18) shows that reciprocal can relate an oblique object to the subject of a psych verb, and it can relate the possessor of the object to the subject. Thus an Agree-based analysis seems inappropriate

There is a difference between SS and OS in Shipibo and the reflexive construction when it comes to the distribution of full DPs, pronouns, and anaphors. For SS and OS, we saw that the distribution of DPs is essentially free: the pivot in the embedded clause can be either a full DP or a pronoun, and so can the matrix subject (see (45) and (46)). The reflexive construction is more limited in this respect: here the object can only be a silent nominal, not an overt pronoun or full DP, as shown in (84).

- (84) Tsoma=ra { \emptyset / *ja / *Tsoma} chachí-ke. (SK, PV: 780 (6b))
 Tsoma.ABS=EV \emptyset / *him / *Tsoma poke.REFL-PFV
 ‘Tsoma poked himself.’

Other languages with well-studied reflexive voices, like Lubukusu and Kannada, give a bit more information on what is going on here. In these languages, the object of a reflexive verb can be null or an overt anaphor—either of two types in Kannada—but not a pronoun or a full DP:

- (85) a. Yohana a-**e**-bon-a { \emptyset / o-mw-eene / *niye / *Yohan}. (Lubukusu)
 John 3.SG.SBJ-REFL-see-IND \emptyset / 3.SG-SG-own / *him / *John
 ‘John saw himself.’ (Safir and Sikuku 2011)
- b. Hari { \emptyset / tann-annu / tann-annu-taane / *awan-nu} hoDe-du-koND-a (Kannada)
 Hari \emptyset / self-ACC / self-ACC-self / *he-ACC hit-PST-REFL-3.M.SG
 ‘Hari hit himself.’ (Lidz 2001: 334 and 314 n. 5)

To account for this, we simply assume that Binding theory also applies to structures that have Agree-induced pointers, as an independent source of restrictions. The twice-Agreeing Voice head implies that the object is a variable bound by the subject of the same clause in these examples, and Binding theory implies that the form of the object must be one that is compatible with this constraint. In other words, it must be an anaphor of some sort, not a pronoun or an R-expression. If it is not, then there are conflicting interpretative demands on the structure: Agree-Link implies that the object is referentially dependent on the subject, and Condition B or Condition C (however understood) implies that it is not. This is clear in Lubukusu and Kannada, which have a wider range of pronouns and anaphors to look at. We claim that Shipibo is essentially the same, except that its lexicon lacks any overt anaphor comparable to Lubukusu’s *omweene* or Kannada’s *taan*; it has only a null anaphor, which the other languages also have.⁵¹ A theoretical consequence of this is that we do not want to try to reduce Binding theory to Agree (as Reuland 2011 does); rather, these two parts of UG seem to do complementary work in this domain.

We conclude, then, that reflexive voice in at least some languages, probably including Shipibo itself, also fits the profile of being a referential dependency induced by Agree without agreement. If so, then the UG technology we have used to account for SR is more general, as one would hope, and the full space of possibilities implied by the typology of functional heads laid out in (73) is attested.

7. Conclusion

In this paper, we have argued that switch-reference in Panoan is the result of Agree without agreement—more precisely, the result of Agree-Link applying, but not Agree-Copy, in the terminology of Arregi and Nevins (2012). As a result, pointers are created from functional heads to nearby DPs, which LF interprets as referential dependency

for reciprocal voice in Shipibo. This shows that the grammatical restrictions on reflexive voice should not be taken for granted, but call for a serious account in terms of Agree. However it also raises the question of what the analysis of reciprocal voice is. One possibility is that *-anan* is really a kind of incorporated adverb meaning ‘mutually’.

⁵¹ There is a reason to say that Shipibo has a null anaphor that is distinct from its null pronouns: the null anaphor does not trigger ergative case on the subject (see (74b)), whereas null pronouns do (e.g., see the embedded clause in (46b)). Within the theory of Baker (2015: ch. 5), this could be because the null anaphor has fewer grammatical features than the null pronoun does, perhaps lacking phi-features. (An alternative view would be that there is no syntactic object in reflexive sentences at all in Shipibo, and middle morphology is a valence-reducing operation applying in the lexicon—a possibility that we do not entirely rule out. If that alternative turns out to be right, then we’d switch to Lubukusu and Kannada as our paradigm cases of reflexive voice being Agree without agreement.)

(bound variable anaphora) between those DPs. The primary empirical evidence for this view is that the restrictions on pivot selection in SR constructions mirror the familiar restrictions on conventional agreement quite closely: the pivot in SS constructions is the subject in the same sense as T agrees with the subject (basically the highest DP in the clause); the pivot in OS constructions is the object in the same sense as v agrees with the object in Quechua or a Bantu language, a relationship governed by intervention, phase boundaries, and case marking restrictions. The more common types of head induced referential dependencies involve one head probing twice or two adjacent heads probing once each. This gives the SS construction, with T and C probing, and also the reflexive voice construction, with Voice and (perhaps) v probing. The much rarer but very revealing type of head-induced referential dependency that completes the paradigm involves two nonadjacent heads that probe once each but still fuse by long head movement: this is the source of the distinctive OS construction in the Panoan languages. This type of account addresses the paradox that SR poses for UG, in that it is present only in a subset of languages of the world but has complex and consistent properties in the languages that have it. SR is not mandated by UG per se, but it is one natural guise of Agree, which is mandated by UG, much as wings are not universal among mammals (alas), but forearms are and they can function as wings under the right circumstances.

Abbreviations:

Abbreviations that are used in glosses that are not standard ones included in the Leipzig glossing conventions are the following: AG, agentive; CONTR, contrastive; DESID, desiderative; DIM, diminutive; DS, different subject; EV, evidential particle; INDET, indeterminate pronoun; INTENS, intensive; OS, object=subject marker; SK, Shipibo-Konibo; SR, switch reference; SS, same subject; TEMP, temporal; TNS, tense; YW, Yawanawa. Abbreviations for sources are: PV, Valenzuela 2003; L&M, Lefebvre and Muysken 1988

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