SWITCH-REFERENCE AS ANAPHORA: A MODULAR ACCOUNT

By

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ABSTRACT OF THE DISSERTATION

Switch-reference as anaphora: a modular account

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For over 50 years, linguists have raised questions about the nature of switch-reference (SR): is it a syntactic or a semantic phenomenon? One of my main goals in this dissertation is to argue that SR is one of grammar's multiple ways to express anaphora, and that as such, it cannot be characterized as simply syntactic or semantic: it involves coordinated work from all modules of grammar. My main source of primary data is the Yawanawa language, which along with its Panoan relatives, has an especially rich paradigm of SR: not only does it have the same-subject (SS) and different-subject (DS) markers that are found in a number of SR languages around the world, but also it includes the rare object=subject (OS) marker, which has not been documented outside the Panoan family (Valenzuela 2003; Fleck 2003; Zariquiey-Biondi 2011; Baker and Camargo Souza 2019, 2020; Clem 2019; Neely 2019). I argue that the existence of the OS morpheme supports the view that SR has a strong syntactic component (Finer 1984 and much subsequent work): it needs to make reference to the grammatical functions of subject and object. However, syntax is not all there is to it. SR is not construction-specific and as such, it gives rise to different types of coconstrual. The nature of the coconstrual is up to semantics to define, according to the syntactic structure that is

shipped to interpretation, and the types of nominal expressions therein. The possible coconstruals we find are not SR-exclusive: they are the ones that are made available by Universal Grammar and therefore familiar to us.

I argue that the syntactic component of SR is Agree-based (Chomsky 2000, 2001), which at first may seem somewhat paradoxical because SR morphemes do not expone the phi-features of DPs it coconstrues. I solve this apparent paradox by proposing that when Agree-link obtains in a certain configuration but Agree-copy does not, this leads the semantic module to interpret the links as a coconstrual relation. As such, we get Agree without agreement. More specifically, the configuration is one in which a single syntactic terminal is linked to two DPs. When it comes to interpretation, I argue that whenever c-command obtains between the DPs being coconstrued, we get bound variable anaphora; when it does not, we get dynamic binding or coreference, depending on the types of nominal expressions involved. I find further support for my argument that SR expresses familiar types of referential dependencies by exploring patterns of anaphora to sets with quantified and plural referents (c.f. Thomas 2019). I show that what is special about SR languages is that they 'choose' to morpho-syntactically express certain types of cross-clausal anaphora, not that they express patterns of anaphora that are unique or unattested crosslinguistically.

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Dedication

To Bruna Franchetto. Musa. You never cease to inspire.

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List of Abbreviations

Glosses not in the Leipzig Glossing Rules:

I	–	agreement class I
II	–	agreement class II
III	–	agreement class III
A	–	cross-referenced argument, class A (active)
ADV	–	adverbializer
AGT	–	agent
ANM	–	animate
AUX	–	auxiliary
B	–	B: cross-referenced argument, class B (inactive)
C	–	complementizer
CLEX1	–	lexical causative 1
CLEX2	–	lexical causative 2
COM	–	comitative
COMP	–	complemetizer
CONC	–	concessive
CPROD	–	productive causative
DEM	–	demonstrative
DEP	–	dependent mood
DES	–	desiderative
DIM	–	diminutive
DIST	–	distal
DOM	–	differential object marking
DS	–	different subject
EV	–	evidential
FRST	–	frustrative
HAB	–	habitual
HUM	–	human
INAN	–	inanimate
INCEP	–	inceptive
INDEF	–	indefinite base
INDET	–	indeterminate
INT	–	interrogative
MED	–	medial
MID	–	middle
NAR	–	narrative

NON.PROX	–	non-proximal
N.PAST	–	non past
O	–	object
OS	–	object = subject
PART	–	participial
PREV	–	previous mention
PROSP	–	prospective aspect
PROX	–	proximate
PRT	–	particle
PST.NT	–	past night
REC.PST	–	recent past
REM	–	remote
S	–	subject
SR	–	switch-reference
SS	–	same subject
SUB	–	subordinate
TAM -	–	tense / aspect / mood
TNS	–	tense

Chapter 1

Introduction

The question of whether switch-reference is a syntactic or a semantic phenomenon has puzzled linguists for over 50 years. One of my main goals in this dissertation is to argue that switch-reference (SR) is one of grammar's multiple ways to express anaphora, and that as such, it cannot be characterized as simply syntactic or semantic: it involves coordinated work from all modules of grammar. Trying to understand the contributions of syntax, semantics, and morphology is what makes the study of SR simultaneously so interesting and so intricate: I take up this challenge here.

So what is it that makes SR such a complex phenomenon? A sentence like 1 at first sight does not look so different from its equivalent in the languages that are more familiar to theoretical linguists: it has an adverbial clause modifying a matrix clause with a covert (pro-dropped) pronoun.

(1) Yawanawa (Panoan)

[Shukuvena nuku-ashe] *pro* tsau-a.
Shukuvena.NOM arrive-SS.PFV sit-PFV
'As Shukuvena$_{i}$ arrived, he$_{i/*k}$ sat down.'

What distinguishes this sentence from its English counterpart is that it expresses subject coconstrual[1] by means of an overt 'same-subject' morpheme (SS): this constrains possible interpretations of *pro* such that the sentence is not ambiguous with respect to pronominal reference in the same way that its English analog is. At first, this property

[1]Here and throughout the dissertation, I use 'coconstrual' as a generic term to indicate that two nominal elements point to the same referent, independently of the nature of the anaphoric relation (Safir, 2004).

of same-subject markers motivated a number of researchers to interpret SR as a type of disambiguation device. This analysis is discarded however after Finer (1984) shows that across different languages, SS morphemes are observed in constructions where ambiguity could not possibly arise. This is illustrated in 2, from the Yuman language Mojave: even though subject agreement makes it unambiguous that first person singular is the subject of both clauses, SS-marking is as obligatory here as it is in 1. This is one of the observations that leads Finer and many subsequent researchers to characterize SR as a syntactic mechanism instead of a textual disambiguation device. 2-b gives the minimally different DS-version of the sentence, with different subjects in each clause.

(2) Mojave (Yuman, Langdon and Munro 1979, p. 322 via Finer 1985, p. 38)

a. ʔin^{y}eč pap ʔ-əkxi:e-k ʔ-sal^{y}i:-k.
I potato 1SG-peel-SS 1SG-fry-TNS
'After I peeled the potatoes, I fried them.'

b. ʔin^{y}eč pap ʔ-əkxi:e-m Judy-č ∅-čsal^{y}i:-k.
I potato 1SG-peel-DS judy-NOM 3SG-fry-TNS
'After I peeled the potatoes, Judy fried them.'

The distinction between SS and DS in 2 illustrates the basic paradigm encountered in the majority of SR languages: it distinguishes between same-subject (SS) and different-subject (DS) constructions. This paradigm has more recently has been expanded upon with work in the Generative tradition about the SR systems of Panoan languages (Baker and Camargo Souza, 2019b; Clem, 2018, 2019; Baker and Camargo Souza, 2020). These works offer a new view of SR systems which include reference tracking of objects. Although work on this wider SR paradigm has only been developed in the past few years, the existence of object reference tracking in Panoan languages has been known to exist since Jacobsen (1967)'s classic paper on SR. An example of a object=subject (OS) construction is given in 4, from Kashibo-Kakataibo (glosses are slightly modified to match the glossing standards adopted throughout this work).

(3) Kashibo-Kakataibo (Panoan; Zariquiey 2011, p. 586)

Juan-nën Pedro më-kë-**x** ka Lima=nu kwan-a-x-a
J=ERG P.ABS beat.up-PFV-OS NAR.3P L=LOC go-PFV-3P-NON.PROX
'After Juan$_i$ beat up Pedro$_k$, he$_k$ went to Lima.'

Because earlier theories of SR only focused on the two-way SS/DS distinction, it should be no surprise that the discovery of these relations involving objects has prompted new theories. It has also strengthened the syntactic view of the phenomenon: Panoan languages do away with any doubts that SR makes reference to the grammatical functions of *subject* and *object*. As such, my answer to whether SR is a syntactic phenomenon is certainly yes, but that is not the full story. Syntax plays a central role in the grammar of SR, but it is not the only module of grammar doing the heavy lifting. It works analogously to a design team engaged in the creation of a new product: it takes the first step in the project, designing a structure that is versatile and informative enough to be interpreted and executed by the two other modules of grammar. Once the structure is completed, it is simultaneously sent to semantics and morphology, which are in turn analogous to the software and the assembly teams. These modules will work on the same structure they receive from syntax, each focusing on the specific instructions that concern them. Much like in the production team metaphor, the success of the grammatical enterprise relies on each module having its own technical expertise and doing its part by following specific instructions to build a collaborative product.

Conceiving of SR as a collaborative anaphoric project of grammar allows for a better understanding of the broad range of expressions it finds cross-linguistically. SR is found in basically all continents in a variety of unrelated languages, and crucially, in a variety of clause types in these languages. Given that the structures that host SR are so diverse, it makes sense to expect that the range of possible types of coconstrual that SR expresses between arguments is going to be diverse as well. We can imagine that when it is time for a SR structure to be interpreted, the instructions semantics receives from syntax are basically along the lines of, 'these two nominal elements I am pointing to need to co-refer. Figure it out, otherwise the whole structure will crash'.

With this task at hand, semantics does what it does best: it takes a structure and assigns it meaning. Naturally, meaning will depend on the structure itself: when it comes to the possibilities of anaphora, conjunction will work differently from adjunction, which will work differently from complementation. The reason the structure crashes if no coconstrual is possible is because morphology is working on the same structure simultaneously, with instructions from syntax to expone morphemes indicating coconstrual. It is a collaborative, though modular enterprise. Since each module of grammar adds its own flavor to it, outcomes are unsurprisingly diverse from one language to the next, but that certainly does not mean that there is no common design and software underlying these multiple expressions. These underlying rules are the topic of this dissertation.

My main claim is that SR is one possible expression of anaphora. Saying this entails that the types of coconstrual that may obtain in a given structure are not unique to SR constructions: they are the same types of coconstrual that Universal Grammar would allow in a given syntactic configuration. What makes SR languages unique is that they 'choose' to morphosyntactically express certain inter-clausal anaphoric relations, not that they have patterns of anaphora that are unique or unattested elsewhere. In what follows, I will try to prove that this is true.

1.1 Fieldwork and data collection

The majority of the data in this dissertation comes from Yawanawa, a Panoan language from Brazil. It is spoken in the Rio Gregório Indigenous reservation in the state of Acre by the Yawanawa people, who refer to it simply as *nukẽ tsãi*, 'our language'. Yawanawa is part of the Yaminawa dialectal complex, which belongs to the Headwaters subgroup of the Panoan family (Mainline branch, Nawa group; Fleck 2013).

Before I started working with Yawanawa, the only available description of the language was Paula (2004)'s grammar sketch. Since then, I have written a Master's thesis and a more robust grammar sketch (Camargo Souza, 2013a,b) – both of which include

a good deal of language description – as well as other theoretical papers about the language (Camargo Souza, 2017; Camargo Souza and Nonato, 2018; Baker and Camargo Souza, 2019a, 2020, In press; Camargo Souza, In press).

Unless labeled otherwise, all the data presented throughout this dissertation was collected in both naturalistic and elicited settings in the context of two language projects: The Yawanawa Language Documentation project *Yawanawahãu Xinã* (ProDocLin: Museu do Índio-RJ and UNESCO, 2010-2013), and the Language revitalization project entitled 'Endangered Indigenous Languages: Linguistic Research and Theories for Revitalization (Línguas indígenas ameaçadas: pesquisa e teorias linguísticas para a revitalização; CnPq, 2015-2017). Additional elicited data was collected in August of 2019 in an independent trip to the Rio Gregório reservation.

1.2 Organization of the dissertation

1.2.1 SR in adjunct constructions

The most common locus of SR across languages is adverbial clauses. Finer (1984)'s seminal theory reflects this: it is based solely on this type of construction, then amended upon discovery that SR is also observed in a number of complement clauses crosslinguistically. In Yawanawa and Panoan languages in general, SR is overwhelmingly observed in adjunct constructions and as such, they are the starting point of my investigation, in chapter 2.

Like many other authors, I argue that the syntactic component of SR is Agree-based (c.f. Watanabe 2000; Arregi and Hanink 2017; Clem 2018; Arregi and Hanink 2019; Clem 2019; among others). As such, I show that *pivot* selection – that is, selection of the DPs being coconstrued – follows the well-known properties of the Agree operation (Chomsky, 2000, 2001a), namely the c-command, intervention, phase, and activity conditions. Differently from others however, I argue that certain instances of Agree may be interpreted as DP coconstrual in semantics. More specifically, I propose that if the operation Agree-link applies, but Agree-copy does not (in the sense of Arregi and Nevins 2012), links of Agree are passed on to the semantic module, where they are

interpreted as a coconstrual relation. This proposal is based on the robust crosslinguistic generalization that although SR morphemes exhibit the characteristic properties of Agree when it comes to pivot selection, they paradoxically never exhibit phi-feature agreement. An early version of this theory of 'Agree-without-agreement' is in Baker and Camargo Souza (2020). Something unique about this theory is that it relies on an orchestration of functional heads linking to nominal elements in order to derive the SS and OS coconstruals: it differs from previous accounts which rely on complementizers alone to do the job.

In my view, the nature of the SR coconstrual will vary depending on the structure and the nominal types that syntax ships for interpretation: the DPs may be interpreted as bound (syntactically or semantically), or coreferential. This differs from the view presented in Baker and Camargo Souza (2020), according to which all coconstrual in SR receives bound variable readings. I introduce this view in chapter 2 and fully develop it in chapter 5 once we get introduced to the full range of constructions that license SR.

My proposal for the syntax of SS and OS adverbial constructions is summarized in 4 and 5 respectively. The head T in a SS clause and Voice in an OS clause Agree-links with the closest DP, and the Fin+Force cluster Agree-links with the matrix (superordinate) subject (Agree-links are indicated by solid lines). Then the lower Agreeing head in the adverbial clause moves to Fin and fuses with it, bringing the tail of the Agree-link along (dotted lines indicate head movement). This results in a pair of links originating from the same syntactic terminal that connects one embedded argument to the matrix subject: this configuration is interpreted as a coconstrual relation by semantics.

(4) Schema for SS:

[[Subj [$_{VP}$ Obj V] <T>] T+Fin+Force] [$_{TP}$ Subj [$_{VP}$ Obj V] T]

T+Fin+Force = SS

(5) Schema for OS:

[[[$_{vP}$ Subj [$_{VP}$ Obj V] <Voice>] T] Voice+Fin+ Force] [$_{TP}$ Subj [[$_{VP}$ Obj V] Voice] T]

Voice+Fin+Force = OS

DS clauses, in contrast, have no special heads that undergo Agree or fuse together: they are ordinary adjunct clauses that I argue are interpreted as not indicating coconstrual by pragmatic blocking. Since there are specialized constructions to express coconstrual, if a speaker opts for the non-agreeing complementizer, then they must mean that no coconstrual obtains.

1.2.2 Suppletion and the locality of Agree

Chapter 3 investigates verb suppletion in Yawanawa and as such, may look a bit disconnected from the whole of the dissertation at first. I show that the topic does link to the larger picture of switch-reference in different ways however. Not only does it provide a better understanding of argument structure and the roles performed by the different heads in the Yawanawa extended verb phrase, but also it sheds light on the structural size of clausal complements, serving as a valuable building block for chapter 4. The locality required for suppletion to obtain provides independent evidence that subjects are merged complement-internally, which is crucial for the analysis of switch-reference in complementation constructions.

The investigation of suppletion also stands on its own and makes important contributions of both typological and theoretical nature. The pattern observed in Yawanawa and other Panoan languages is understudied and crosslinguistically unusual. From a theoretical perspective, it contributes to the discussion about locality domains in Distributed Morphology, since the domain of contextual allomorphy is a topic of debate. By hypothesis, vocabulary insertion can only be conditioned by an element within the same domain of the item being inserted, but authors disagree about the size of this domain. The pattern also contributes to another discussion in the context of DM having

to do with the adjacency requirement that may further constrain vocabulary insertion. There is a consensus that the trigger of allomorphy needs to be close to its target, but the definition of closeness is also a topic of debate. I argue that verb suppletion in Yawanawa and some of its relatives requires the domain of contextual allomorphy to be the phase: external arguments as well as applied and causer arguments are computed into the suppletion calculation.

The reason Yawanawa suppletion is so unusual is because plural suppletive forms are triggered not only by one of the verbal arguments being plural, as shown in 7, but also by the sum of participants involved in the verbal event being plural. That is, if the verb has multiple singular arguments, as in 8, plural suppletive forms are still triggered.

(6) Single SG argument

a. Kape **u**-i. (*ve-i)
caiman come.SG-IPFV come.PL-IPFV
'The caiman is coming.'

b. Kape **ka**-i. (*hu-i)
caiman go.SG-IPFV go.PL-IPFV
'The caiman is going.'

(7) Single PL argument

a. Yume-hu **ve**-kan-i. (*u-kan-i)
teenager-PL come.PL-PL-IPFV come.SG-PL-IPFV
'The teenagers are coming.'

b. Yume-hu **hu**-kan-i. (*ka-kan-i)
teenager-PL go.PL-PL-IPFV go.SG-PL-IPFV
'The teenagers are going.'

(8) Two SG arguments

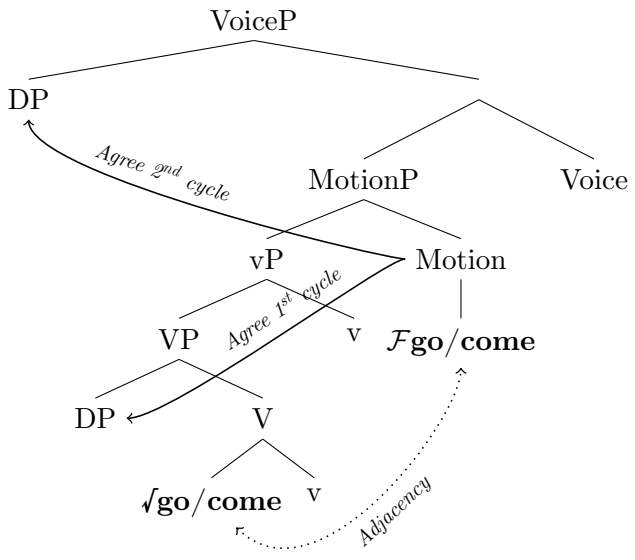
a. Tika=nẽ a-wẽ pani **ve**-a. (*u-a)
Tika=ERG 3S-GEN hammock come.PL-PFV come.SG-PFV
'Tika brought his hammock.'

b. Tika=nẽ a-wẽ pani **hu**-a. (*ka-a)
Tika=ERG 3S-GEN hammock go.PL-PFV go.SG-PFV
'Tika took his hammock.'

As such, I propose an indirect mechanism to explain the suppletive patterns. Rather than having an adjacent nominal argument trigger vocabulary insertion of the suppletive verb directly, I propose that a probe collects the features of the arguments within the phrase – which is the domain of contextual allomorphy – and that adjacency is required between the suppletive verb and the probing head. I argue that linear adjacency is the necessary concept for suppletion: intervention effects are observed when elements occurring between the target and the trigger of suppletion in clausal hierarchy are morphologically overt, but not if they are null.

More specifically I argue that motion verbs supplete in Yawanawa, conditioned by features on the functional head *Motion*, acquired by a cyclic probe. These features also feed a second pair of suppleting predicates within the extended verb phrase, which mimics the behavior of the verb root. Added to the locality conditions for contextual allomorphy, these factors can derive the observed suppletion patterns, as illustrated in 9.

(9)



As such, my proposal has a syntactic and a morphological component, resulting from a combination of Agree – limited by the PIC – and contextually-conditioned allomorphy – limited by node adjacency.

1.2.3 SR in complementation

Besides their occurrence in the adjunct clauses discussed in chapter 2, Yawanawa same-subject markers are also found in the complements of attitude verbs like 'know', 'think', 'dream', and 'forget', as well as aspectual verbs like 'begin', 'finish', and 'stop' . This is the topic of chapter 4, which investigates, among other questions, why SS is licensed in the complement of these specific verbs in Yawanawa, but not others. Since these are verbs that select infinitives cross-linguistically, and infinitives are structures often smaller than CP, the distribution challenges most theories of SR, which rely on complementizers alone to achieve argument coconstrual. I show that the Agree-without-agreement view of SR in which SS obtains by an orchestration of functional heads instead fares well with the SR paradigm in complementation.

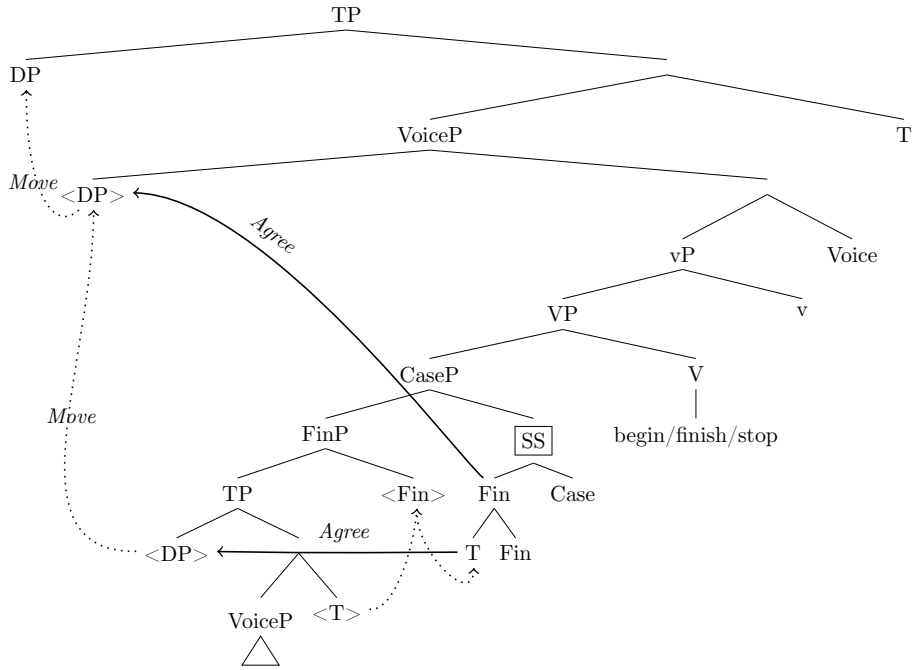
My main focus continues to be Yawanawa and its Panoan relatives, but I also expand my theory beyond the Panoan family. SS occurs in structurally reduced clauses elsewhere as well, including Yuman languages, which have SS morphemes between main verbs and auxiliaries (McKenzie, 2015). So I extend my proposal to these languages, showing that it can account for the distribution of SS and counter McKenzie (2015)'s argument that there is "no second subject" in the complementation constructions in question.

I compare SS complements to other embedded clauses and ask what it is that allows one embedded clause type to have SS marking but not others. I show that SS complements are distinct from adjunct SS and finite nominalized clauses, on one hand, and from restructuring configurations on the other. To prove that SS complementation structures are biclausal, I discuss their internal structure and provide evidence for an internal subject position. The discussion of structure allows me to build the case that SS in complementation is licensed in raising and control constructions, linking the discussion in chapter 4 to my overall view that SR is an expression of cross-clausal anaphora.

The syntactic component is realized by the Agree-without-agreement mechanism and the semantic one interprets surviving Agree-links as an instruction to coconstrue the linked DPs.

The proposal can be summarized as follows: SS marking in complementation constructions obtains when a structurally reduced clause is selected by a matrix verb, giving rise to a raising or control configuration. The tree in 3 illustrates a raising construction, which obtains with aspectual predicates. The reduced, non-phasal structure of the complement clause – which I argue is a FinP – allows for a probe within it to Agree with the matrix subject in a way that parallels the derivation of adjunct SS discussed in chapter 2. Here, the 'two subjects' coconstrued by SS are actually two instances of the same raised DP, which stand in a c-command relation and therefore receive a bound variable interpretation.

(10)



I conclude the chapter looking at the crosslinguistic picture and proposing that languages whose SR markers are exponents of Fin (or perhaps lower heads in the clausal spine, like T) will only allow for SR in complement clauses if they are structurally

reduced (not nominalized); while languages whose SR morphemes expone a Force head will have SR in a wider range of complement clauses. I also address the question of why SR is more common in adverbial constructions crosslinguistically than it is in complementation.

1.2.4 Diverse structures lead to diverse coconstruals

Chapter 5 delves into the interpretation of different types of SR constructions, developing my claim that the nature of SR coconstruals varies according to the type of structure syntax ships to semantics. I compare structures in which c-command does and does not obtain between the pivots, giving special emphasis to the latter, which I argue characterize coconstruals other than bound variable anaphora.

In addition, I explore the behavior of quantificational and plural pivots to show that the nature of SR coconstruals also varies according to the nominal types involved in the computation. On the one hand, patterns of anaphora to sets reveal that SS is used in cases of reference set and maximal set anaphora, but never in cases of complement set anaphora. On the other, I propose that patterns of 'partial co-reference' emerge because plural DPs introduce multiple entities in discourse, which in turn become possible antecedents for pronouns, thus licensing SS and OS.

My main proposal is that in addition to the lack of c-command between pivots in adjunction structures, the patterns of anaphora to sets and partial coreference show that syntactic bound variable anaphora is not always available in SR. Instead, I propose that the type of coconstrual that obtains in each SR construction is up to semantics to decide: it may be syntactic bound variable anaphora, but it may also be dynamic semantic binding, or simply coreference.

I argue that the meaning of the adverbial complementizer in SS and OS constructions is that of a dynamic conjunction, such that it passes to its right conjunct the context outputted – and potentially changed – by its left conjunct. This makes dynamic binding possible. Having this simple dynamic semantics for adverbial complementizers also explains why they underspecify the semantic relation that exists between matrix and

adverbial clause. By hypothesis, it is by fusing with Tense and Aspect heads with different values that these complementizers acquire the additional adverbial-like meanings observed crosslinguistically.

In summary, by focusing on interpretation this chapter wraps up my modular account of SR: syntax encodes which nominals are to be coconstrued in a given structure, and semantics makes sure coconstrual obtains, making use of the mechanisms independently made available by UG. Relevantly, this chapter also raises a number of issues that it leaves unanswered for future research. Among them is the question of whether Safir (2004)'s descriptive term 'coconstrual' can be considered a theoretically relevant category in natural language anaphora, since across languages SR expones different types of referential dependencies with the same morphosyntactic means.

Chapter 2

The syntax of switch-reference as Agree without agreement

2.1 Introduction

This chapter has two main goals: the first is to provide an overview of the SR phenomenon and review the relevant background works that have brought us to the current state of the literature in the Generative tradition. SR is found in a wide variety of unrelated languages and as such, needs to be accounted for with mechanisms made available by Universal Grammar. In addition, SR occurs in a wide variety of clause types across languages, and therefore an encompassing account cannot be constrained to one type of structure or the other. As such, an important part of the present work consists of investigating the structures in which SR is impossible, as a way to unveil the syntactic conditions underlying its distribution. The second goal of this chapter is to take the first step in that direction.

More specifically, in this chapter I propose a theory of SR in adverbial clauses, which is the most typologically common locus of the phenomenon: an early version of this theory appears in Baker and Camargo Souza (2020). My proposal for SS and OS adverbial constructions is summarized in 1 and 2 respectively. The head T in a SS clause and Voice in an OS clause Agree-links to the closest DP, and the Fin head Agree-links to the matrix (superordinate) subject after head-moving to Force (Agree-links are indicated by solid lines). Then the lower Agreeing head in the adverbial clause moves to Fin+Force and fuses with it, bringing the tail of the Agree-link along (dotted lines indicate head movement). This results in a pair of links originating from the same syntactic terminal that connects one embedded argument to the matrix subject: this configuration is interpreted as a coconstrual relation by semantics.

(1) Schema for SS:

[[Subj [$_{VP}$ Obj V] <T>] T+Fin+Force] [$_{TP}$ Subj [$_{VP}$ Obj V] T]

T+Fin+Force = SS

(2) Schema for OS:

[[[$_{vP}$ Subj [$_{VP}$ Obj V] <Voice>] T] Voice+Fin+ Force] [$_{TP}$ Subj [[$_{VP}$ Obj V] Voice] T]

Voice+Fin+Force = OS

DS clauses, in contrast, have no special heads that undergo Agree or fuse together: they are ordinary adjunct clauses that I argue are interpreted as not having coconstrual between their arguments and the matrix subject by pragmatic blocking. Since there are specialized constructions to express coconstrual, if a speaker opts for the non-agreeing complementizer, then they must mean that no coconstrual obtains.

The chapter is organized in the following way: section 2.2 provides a brief historical panorama of switch-reference literature, with 2.2.1 focusing specifically on Finer (1984)'s formal theory, and 2.2.2 focusing on the variety of clause types that can host SR crosslinguistically. Section 2.3 presents my theory of SR in adverbial clauses, with an overview of the proposal given in 2.3.1, and background on the Yawanawa language given in 2.3.2. Then section 2.3.3 provides evidence that SR has the fingerprints of the Agree operation, and section 2.3.4 discusses the Agree operation itself and how it has received different interpretations in the Generative tradition. Section 2.3.5 precedes the full derivation in 2.3.6, proposing that the configuration in which two DPs are linked to the same syntactic terminal is the crucial building block of the SR coconstrual. I wrap up the chapter with a typology of Agree in 2.3.7. Section 2.4 concludes.

2.2 Background: switch-reference then and now

A significant amount of literature has been produced on the topic of SR since Jacobsen (1967)'s seminal work on it, over 50 years ago. The goal of this section is to offer an overview that does not aspire to be comprehensive, but manages to capture the main points of consensus and discussion about the topic.

SR is a grammatical device that tracks the reference of arguments across clauses. It is found in basically all continents in a variety of unrelated languages, and in a variety of clause types in these languages, though adverbial constructions – like the Washo examples in 3 from Jacobsen (1967)'s classic paper – are its most common locus. (The glosses here are a bit difficult to parse, despite my efforts to adapt them to a more current format: the relevant contrast to focus on is that between ∅ (SS) in 3-a, and ∫ (DS) in 3-b).

(3) Washo (Hokan/isolate; Jacobsen 1967, pp. 244, 246)

a. gebeyé:c'ɨksáʔ-i-∅-da tukdá:∫uweti ʔaʔ
3PL.opened.the.door-IPFV-SS-ADV looked.inside
'They opened the door and looked inside.'

b. gúk'ugat'umuweʔ-i-∫-da yá:gɨla gedumbéc'edi
3SG.stooping.over.going.in-IPFV-DS-ADV in.his.testicles 3SG.poked.him
'He$_i$ was stooping over going in, and he$_k$ poked him in the testicles.'

This example illustrates the basic paradigm encountered in the majority of SR languages: SR morphemes distinguish between same-subject (SS) and different-subject (DS) constructions. The majority of the literature of SR focuses on this distinction, which more recently has been expanded upon with work in the Generative tradition about the SR systems of Panoan languages (Clem, 2018, 2019; Baker and Camargo Souza, 2019a,b, 2020). These works offer a new view of SR systems which include reference tracking of objects, as illustrated in 4 with an example from Kashibo-Kakataibo (glosses are slightly modified to match the glossing standards adopted throughout this work).

(4) Kashibo-Kakataibo (Panoan; Zariquiey 2011, p. 586)

Juan-nën Pedro më-kë-**x** ka Lima=nu kwan-a-x-a
J=ERG P.ABS beat.up-PFV-OS NAR.3P L=LOC go-PFV-3P-NON.PROX
'After Juan$_i$ beat up Pedro$_k$, he$_k$ went to Lima.'

It should be no surprise that the focus on these relations involving objects have prompted new theories of SR: the classic Generative approach of Finer (1984) and some of its more recent updates simply cannot account for it[1]. However, my current account can certainly be considered neo-finerian in nature and as such, calls for a discussion of the original theory: I dedicate the next subsection to that.

2.2.1 Finer's theory of switch-reference

Finer (1984) develops a theory of SR in the Generative tradition building on the Binding Theory of Chomsky (1981) and Aoun (1981). Based on data from a variety of languages, he makes a couple of important points that become the basis for the view of SR as a syntactic mechanism (contra Givón 1983, for instance, who argues it is a discourse-level mechanism to track topic continuity). The first is that SR is not simply some kind of disambiguation mechanism, because it is obligatory even in constructions where ambiguity does not arise: this was discussed around example 2 in chapter 1.

An additional argument Finer makes for the syntactic view of SR is that SR marks sameness or difference of subjects based on their structural proximity, not their linear proximity. Unless syntactic structure is considered in examples like 5, for instance, the pattern of SR marking is seemingly random: it appears to optionally be able to 'skip' a clause. The syntactic explanation is that when three clauses are present in a given construction, they may combine in different ways: clause 1 may combine with clause 2 first and then with clause 3 – [[[C1] C2] C3], as in 5-a – or clauses 2 and 3 may combine first – [C1 [[C2] C3]], as in 5-b.

[1]Finer discusses Yup'ik 4th person as a case of subordinate object to superordinate subject coreference, but categorizes it as falling "outside the domain of SR".

(5) Maricopa (Yuman, Gordon 1983)

a. [$_{C3}$[$_{C2}$[$_{C1}$ 'ayuu ny-rav-m $_{C1}$] ny-wik-m $_{C2}$] '-wik-pat-k $_{C3}$].
s.t. when.1S-hurt-DS 3S/1O-help-DS 1S-help-again-ASP
'I helped him [because he helped me [when I was sick]].'

b. [$_{C3}$[$_{C1}$ 'ayuu ny-rav-k] [$_{C3}$[$_{C2}$ ny-wik-m $_{C2}$] '-wik-pat-k $_{C3}$]$_{C1}$]
s.t. when.1S-hurt-SS 3S/1O-help-DS 1S-help-again-ASP
'When I was sick, [I helped him [because he helped me]].'

This argument can be further strengthened by examples from the Panoan language Kashibo-Kakataibo, whose SR markers expone case agreement with the superordinate subject (as in Yawanawa and Shipibo). In 6-a, the verb *pi*, 'eat', is marked with the SS morpheme *-tankëxun*, indicating that its subject is coconstrued with an ergative subject. That means it must necessarily be the (null) subject of *xëa*, 'drink', since *abat*, 'run' is intransitive and wouldn't have an ergative subject. In 6-b, on the other hand, we have the same linear order, the same verbs, but this time, the verb *pi*, 'eat' receives the SS marker *-tankëx*, indicating its subject is coconstrued with a non-ergative subject. That is, it must be the subject of *abat*, 'run', which is not adjacent to *pi*, 'eat' in the linear order of the sentence.

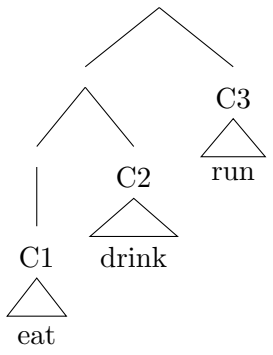
(6) Kashibo-Kakataibo (Panoan, Zariquiey 2011, p. 564)

a. ë=x kana pi-**tankëxun** **xëa**-i abat-a-n
1SG=NOM NAR.1SG eat-SS.PFV.ERG drink-SS.IPFV.NOM run-PFV-1/2
'Drinking after eating, I ran.'

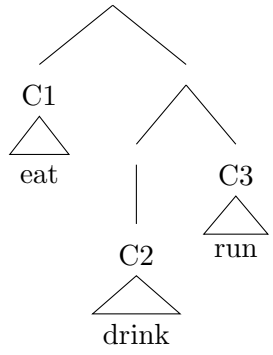
b. ë=x kana pi-**tankëx** xëa-i **abat**-a-n
1SG=NOM NAR.1SG eat-SS.PFV.NOM drink-SS.IPFV.NOM run-PFV-1/2
'I ran drinking, after eating.'

The trees below illustrate the structural ambiguity of the sentences in 6: 6-a has the structure in 7, with the 'eat' clause adjoining to the 'drink' clause first; and 6-b has the structure in 8, with the 'eat' clause adjoining directly to the matrix 'run' clause.

(7)



(8)



In addition to this evidence from case-agreement, there is further support for these structures coming from A' movement. The particle *kana* in Kashibo-Kakataibo is a second-position clitic: I assume that this means it is a high head in the left-periphery of the clause, which requires its specifier to be filled (by hypothesis by having an EPP feature). In 6 we see the matrix subject in that position, but it is also possible to front other constituents, including adverbial SS clauses.

An important prediction I make by positing the structural ambiguity above and is that the 'eat' clause (C1) will only be able to front when it is adjoined directly to the matrix clause, as in 8. This prediction bears out, as shown in 9: attempting to front an adverbial clause that is itself adjoined to another adverbial clause is ungrammatical, as shown in 9-a. That is, trying to front the most deeply embedded clause in 7 leads to ungrammaticality, since adverbial clauses are islands for extraction (Huang, 1982). On the other hand, 9-b shows that it is possible to front an adverbial clause that adjoins directly to a matrix clause, as in the structure in 8.

(9) Kashibo-Kakataibo (Zariquiey 2011, p. 565)

a. *pi-**tankëxun** <u>kana</u> **xëa-i** abat-a-n
eat-SS.PFV.ERG NAR.1SG drink-SS.IPFV.NOMS run-PFV-1/2
'Drinking after eating, I ran.'

b. pi-**tankëx** <u>kana</u> xëa-i **abat-a-n**
eat-SS.PFV.NOM NAR.1SG drink-SS.IPFV.NOM run-PFV-1/2
'After eating, I ran drinking.'

Additionally, 10 shows that it is possible to front the two adverbial clauses in 7 as a single constituent.

(10) Kashibo-Kakataibo (Zariquiey 2011, pp. 566, 567)

[[pi-**tankëxun**] **xëa-i**] kana abat-a-n
eat-SS.PFV.ERG drink-SS.IPFV.NOM NAR.1SG run-PFV-1/2
'Drinking after eating, I ran.'

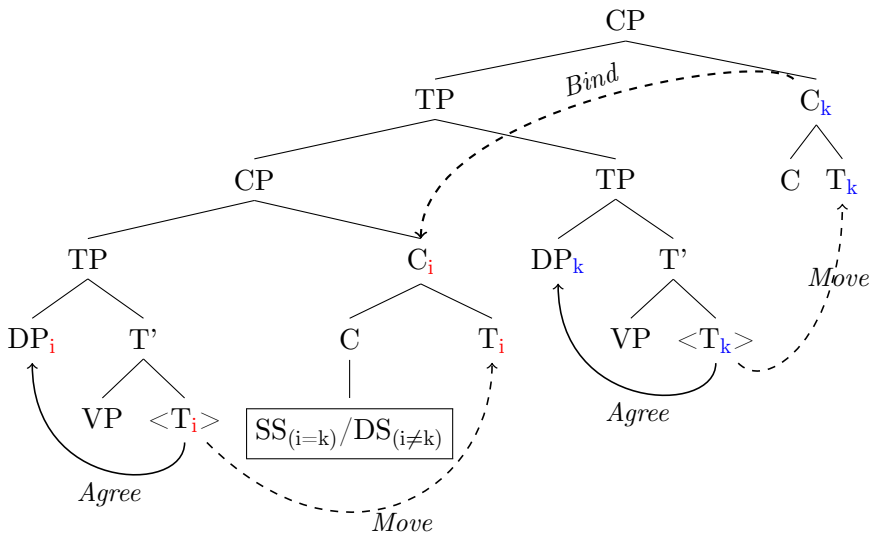
As such, Kashibo-Kakataibo provides strong evidence to support Finer's claim that SR is a syntactic mechanism. Further, it supports the claim that Panoan SR clauses are indeed adverbial structures, despite their meaning often resembling that of coordinate constructions. Not only would the Coordinate Structure Constraint (Ross, 1967) ban movement of individual conjuncts (like 9-b, for instance), but also we would expect that changing the order of conjuncts in a coordinate construction could affect the basic meaning of the sentence; e.g. 'I left the house and called you' vs. 'I called you and left the house'.[2] It is a crucial part of Finer's proposal that SR clauses are adverbial: in fact, he finds himself having to write an additional final chapter for his dissertation upon the discovery that SR is also licensed in complementation constructions in a number of languages (I address SR in complementation in chapter 4).

His proposal encompasses SR marking in structures such as the one in 11: an adverbial clause adjoins to a matrix clause in a configuration in which the subjects do not stand in a c-command relation to one another[3]. Because of the absence of c-command between matrix and embedded subjects, there cannot be binding in the sense of Chomsky (1981).

[2]Even though this difference in meaning derives from a pragmatic implicature and can therefore be cancelled, I would expect a similar effect to obtain in Panoan SR constructions if they were coordinate constructions, contrary to fact.

[3]The structure is slightly modified from Finer's original one, in order to reflect current theoretical views about clause structure, c.f. Watanabe 2000.

(11) Finer (1984)'s account of SR



More specifically, Finer proposes that binding obtains between the complementizers, which can be pronominal or anaphoric. In each clause, the T head (Agr for Finer) establishes a relation with the local subject, as well as with that clause's complementizer. This allows the complementizer to be coindexed with the clause's subject on the one hand, and establish a relation with nearby complementizers, on the other. If the two complementizers in 11 are coindexed, the lower one will have the form of an anaphor – Finer's analysis of SS – according to Principle A of the Binding Theory. If they are not coindexed, the lower one will assume pronominal form – Finer's analysis of DS – according to Principle B.

With the necessary refinements and updates to current views of clause structure and head-phrase relations, the gist of my account of SR certainly builds on Finer's (see also Baker and Camargo Souza 2019b, 2020). The choice is mostly due to the way that the object=subject relation (henceforth OS) must inform the theory: it provides strong support for a *Finerian* syntactic account of SR, in my view. The Panoan paradigm of SR is illustrated in 12, with examples from Shipibo.

(12) Shipibo (Panoan, Valenzuela 2003, p. 424, Baker and Camargo Souza 2019b)

a. José-ra Rosa oin-**ax** xobo-n ka-ke.
José-PRT Rosa see-SS.ABS house-LOC go-PFV
'José$_i$, he$_i$ seeing Rosa$_j$, went home.'

b. José-kan Rosa oin-**a**-ra, xobo-n ka-ke.
José-ERG Rosa see-OS-PRT house-LOC go-PFV
'When José$_i$ saw Rosa$_j$, she$_j$ went home.'

c. José-kan Rosa oin-ke-**tian**-ra, (ja) xobo-n ka-ke.
José-ERG rosa see-PFV-DS-PRT s/he home-LOC go-PFV
'When José$_i$ saw Rosa$_j$, he$_m$/she$_k$ (someone else) went home.'

Here, we have a 3-way distinction in the SR paradigm: SS, DS, and OS. If SR was a kind of textual device keeping track of the continuity (SS) or discontinuity (DS) of a topic or situation/eventuality, – as has been proposed in works such as Givón (1983), Stirling (1993), and in part McKenzie (2012) – what would we make of OS marking? More specifically, if SS in 12-a expresses topic or eventuality/situation continuity and DS in 12-c expresses discontinuity, then do we categorize OS in 12-b with SS or DS? Perhaps it expresses continuity of the situation/eventuality because the object introduced in the first clause is the subject of the second clause, but then how do we distinguish it from SS? Similarly, we could say that OS actually expresses discontinuity in 12-b because the two clauses have different 'protagonists' (in the sense of Stirling 1993), but then how do we distinguish it from DS? In sum, the Panoan 3-way paradigm strengthens the view of SR markers as actually establishing relations and tracking the reference of verbal arguments, based on their grammatical functions of subject and object.

As such, a refined neofinerian approach can capture the syntactic essence of SR constructions, I argue: the different functional heads that are known to establish syntactic relations with subjects (T/Infl) and objects (v/Voice) interact with complementizers to give rise to DP coconstrual or obviation. I will describe that theory in full in section 2.3: it lays the baseline for this dissertation, but it crucially only addresses SR in adjunct constructions. I expand this domain of investigation to complementation constructions in chapter 4, so let us briefly discuss the manifestation of SR in different clause types

crosslinguistically, and the consequences of this distribution for interpretation.

2.2.2 Clause types and consequences for interpretation

As I mentioned, Finer (1984)'s theory accounts for SR in adjunct constructions, with a brief sketch of how the system would operate in complementation. Thanks to surveys like those of Nonato (2014), McKenzie (2015), Roberts (2017), and Baker and Camargo Souza (2019b), among others, we have a much more encompassing view of SR nowadays as a phenomenon observed in a wide variety of clause types: adjunction, complementation, coordination, and relative clauses; a typology which contradicts Keine (2013)'s reductionist view of SR as coordination. This section discusses this distribution and its theoretical implications.

Something to note is that the current discussion abstracts away from instances that have come to be known as 'non-canonical switch-reference' in the literature (c.f. Stirling 1993; McKenzie 2012; among others). This is a type of mechanism which indeed tracks continuity and discontinuity of discourse situations in languages like Kiowa: crucially, McKenzie (2012) shows that this type of SR is found in coordinate constructions *only*; adjunct SR in Kiowa follows the canonical system of subject reference tracking. I refer to this system as 'switch-situation' (see Baker and Camargo Souza 2019b), rather than switch-reference proper, and set it aside for the purposes of the current investigation (the reader is referred to McKenzie (2012) for the full account). It is important to note that despite 'switch-situation' being found only in coordinate constructions, the relation does not work in the opposite direction, that is, not all coordinate constructions crosslinguistically will encode 'switch-situation' rather than SR proper: Nonato (2014, 2018) for instance, shows the canonical SR system operating across the board in the coordinate constructions of the Jean language Kĩsêdjê. Also Roberts (2017) in his survey of SR shows that languages like Harway (Piawi; Comrie 1989) and Lakhota (Siouan; Trask 1993) have canonical SR systems in coordinate constructions. What this means is that any satisfying theory of SR must encompass a wide variety of constructions, much beyond the adjunct structures that Finer initially envisioned (and that the proposal in this chapter focuses on).

Another interesting aspect of McKenzie (2015)'s survey is that it reveals a type of implicational hierarchy (for North American languages, at least): if a language has SR marking in complement clauses, it will have it in adverbial clauses; adjunct SR is more common than complement SR. As such, a satisfying theory of SR should also account for this fact.

In Panoan languages, for instance, SR is found overwhelmingly in adverbial clauses, but also in a small class of complement clauses that resemble infinitives; the analogues of English 'that' complements are nominalized and do not license SR: this is the topic of chapter 4. A similar distribution is attested in Imbabura Quechua (Cole, 1982; Hermon, 1985). Other languages only have SR in adverbial clauses, among which are Kiowa, Seri, Quechuan varieties other than Imbabura, and Pomoan languages. And then there are languages like Hopi, Washo, and Choctaw, which stand out from the others for having SR marking in full-sized complements – as illustrated with Choctaw data in 13[4].

(13) Choctaw (Muskogean, Broadwell 2006, p. 269)

a. John-at anokfilli-h [pisachokma-ka-t].
John-NOM think-TNS good.looking-COMP-SS
'John$_i$ thinks he$_i$ is good looking.'

b. John-at anokfilli-h [pisachokma-ka-N].
John-NOM think-TNS good.looking-COMP-DS
'John$_i$ thinks he$_k$ is good looking.'

The investigation I conduct throughout the dissertation will lead me to conclude that when it comes to SR marking in certain clause types but not others, size matters (see also Baker and Camargo Souza In press). In general, when it comes to complementation, SR is licensed in structurally reduced complement clauses (analogous to infinitives), but not in nominalized complements because they create syntactic barriers for Agree, the mechanism underlying the syntactic computation of SR. I will discuss this in detail

[4] I choose to indicate nasalization with a capital *N* in the Choctaw examples, as opposed to underlining of the vowel in the original.

in chapter 4, where I focus on complementation constructions, but contemplating the idea here helps us draw our crosslinguistic picture of SR nonetheless. In this sense, languages like Choctaw and Washo are different in that their SR markers lie at the edge of the embedded clause in complementation constructions such as 13. Note that the SR morphemes in 13 are outside the complementizer *-ka*: this allows the SR marker to be local to the superordinate clause in a way that is not always available crosslinguistically.

Relative clauses, which are not marked for SR in most languages, also receive SR marking in languages like Choctaw, as shown in 14, posing a potential challenge to the generalization that 'size matters' .

(14) Choctaw (Muskogean, Broadwell 2006, p. 29)

[Ofi' ipiita-li-k-aash-ma-N] balii-t kaniiya-h.
dog feed-1SG.I-TNS-PREV-DEM-DS run-PART go:away-TNS
'That dog I fed ran away.'

As it turns out, however, Choctaw relative clauses are exceptional when compared to other languages: Broadwell (2006) shows that these clauses are internally headed and allow for extraction, for instance, as shown in 15, which suggests they are not islands as we would expect (c.f. Ross 1967). He suggests these clauses are actually CPs that somehow get interpreted as entities by the semantics.

(15) Choctaw (Muskogean, Broadwell 2006, p. 300)

Kátomma-h John-at [ofi' aa-píNsa-tok-at] choNpa-tok?
where-TNS john-NOM dog LOC-see-PST-SS buy-PST
'What is the place such that John bought the dog that he saw at that place?'

As such, it does not seem that Choctaw poses a threat to the idea that full-size complement clauses prevent SR marking from being licensed. The locality between embedded and superordinate arguments that Agree requires *does* obtain in Choctaw relative clauses after all. Similarly Arregi and Hanink (2019) claim that Washo relative clauses are internally headed and don't involve movement (see chapter 4 section 4.6.2

for detailed discussion).

Another potential point of contention for the 'size matters' argument comes from nominalized clauses. By 'nominalized' I mean clauses that have some type of nominal head at the top of a structure which otherwise looks like a normal clause: a verb projects its full argument structure and extended projection, including a Asp/T head, adverbials, and perhaps even a complementizer. The generalization is that crosslinguistically, these clauses do not license SR (Baker and Camargo Souza, 2019b). Example 16 illustrates this with sentences from Imbabura Quechua: the same verb 'want' can optionally take a nominalized complement, as in 16-a, or a SR-marked complement, as in 16-b. Two properties characterize nominalized complements like the one in 16-a: the fact that the clause itself is marked for accusative case, and the fact that accusative case is optional on the clause-internal object. SS complements like 16-b lack these properties.

(16) Imbabura Quechua (Quechuan)

a. Aycha-(ta) miku-na-ta muna-ni.
meat-(ACC) eat-NMLZ-ACC want-1SG
'I want to eat meat.' (Hermon, 1985, p. 25)

b. Muna-y-man ñuka mama-ta riku-ngapaj.
want-1SG-COND my mother-ACC see-SBJV.SS
'I want to see my mother.' (Cole, 1982, p. 37)

The facts are analogous in Panoan languages: the Shipibo nominalized complement clause in 17-a is not SR-marked and triggers ergative case on the subject; the SS-marked clause, in turn, is not nominal in the same way: it does not trigger ergative case on the subject (assuming Dependent Case theory, c.f. Marantz 1991; Baker 2014, 2015; see the discussion in chapter 4).

(17) Shipibo (Panoan, Baker fieldnotes)

a. E-n=ra [Rosa jo-ti] onona-ke.
1S-ERG=PRT Rosa come-INF know-PFV
'I know that Rosa will come.'

b. No-a=ra [– bewa onan-i] ka-i.
1P-ABS=PRT song learn-SS go-IPFV
'We are going (to school) to learn the song.'

There are two languages that pose challenges to this generalization, however. The first one is Washo. As I mentioned above, this language has SR markers in full-size clausal complements of factive verbs like 'see' (Bochnak and Hanink, 2017; Arregi and Hanink, 2019): this is illustrated in 18 . What seems problematic is that these clauses have an additional D head at the top (*ge* in 18), that is, they are nominalized so we would expect SR not to be licensed in them, contrary to fact. Recall from the discussion above, however, that Washo (along with Choctaw) is part of a group of languages whose SR markers lie at the edge of the complement clause: this is clear in Choctaw, whose SR morpheme occurs outside the complementizer (shown in 13). For Washo, Arregi and Hanink (2019) propose that D is actually not a phase head, so it would not insulate the probe on C. They also discuss an alternative view according to which C and D are 'collapsed' into a single phase barrier in nominalized clauses, based on work by Bošković (2015). Either analysis puts the SR probe at the edge of the phase, allowing it to reach into the superordinate clause. Assuming this is true, then we can cross Washo off the list of potential challenging languages to the generalization about nominalized complements not licensing SR (see chapter 4 for more detailed discussion of complement SR in Washo and other languages).

(18) Washo (Hokan/isolate; Bochnak and Hanink 2017, p. 1)

di-tug-íb-eweʔ-i-š-da [hábiʔ-i-š-**ge**] l-ígi-yi
1-around-look-hence-IND-SR-there rain-SR-NMLZ 1-see-IND
'I looked around outside and I saw that it rained.'

Another potential challenge comes from Hopi (Uto-Aztecan), which has what looks like a SS/DS distinction in clauses marked by the nominalizer *-qa*, as in 19 (read PROX as SS and OBV as DS).

(19) 'Obviation' in nominalized clauses in Hopi (Uto-Aztecan; Hale 1992, p. 58)

a. Nu' [taavo-t (nu') (pu-t) niina-qa-**y**] siskwa.
I rabbit-ACC (I) (it-ACC) kill-NMLZ-ACC:PROX skin
'I skinned the rabbit I killed.'

b. Nu' [taavo-t 'i-pava (pu-t) niina-qa-**t**] siskwa.
I rabbit-ACC my-brother (it-ACC) kill-NMLZ-ACC:OBV skin
'I skinned the rabbit my brother killed.'

Note that the SR markers in Hopi lie at the edge of the clause: the SS and DS morphemes in these nominalized clauses lie outside the nominalizer *-qa*. As such, I assume that there is no locality issue here, and the SR probe can reach into the superordinate clause. As such, what is unique about Hopi and Washo that allows them to have SR in nominalized clauses is that these languages have SR heads at the edge of the subordinate clause. The generalization that SR does not occur in nominalized clauses still stands for most languages, whose nominalizing head would block Agree probes on a lower head to reach DPs outside the clause.

In summary, the brief overview here has shown that SR is observed overwhelmingly in adverbial clauses crosslinguistically. Some languages, including those of the Panoan family, also have SR in complement clauses, as long as they are structurally reduced (not nominalized). By hypothesis full-sized clausal complements do not provide the necessary licensing conditions for SR to obtain, namely locality between the SR pivots. We find exceptions in languages like Washo and Choctaw, in which SR markers occur at the edge of the complement clause, such that the necessary locality does obtain. This typology shows that we need a theory of SR that is on the one hand, comprehensive enough to capture the broad crosslinguistic distribution of the phenomenon, and on the other, restrictive enough to explain why it does not occur in certain constructions. The discussion here will serve as a guide to my Agree-based view of SR syntax, which I lay out in the next section.

2.3 The syntax of adjunct switch-reference

This section presents my baseline theory of SR, an earlier version of which appears in Baker and Camargo Souza (2020). Here, I deal with SR in adjunct constructions only, but I argue that the theory is general enough to encompass complement clauses, relative clauses, and coordinate constructions as well, as is necessary of a theory that intends to hold up crosslinguistically. As put forth in chapter 1, SR as an expression of cross-clausal anaphora cannot be characterized as a purely syntactic phenomenon: the semantic module of grammar plays a crucial role in determining possible anaphoric interpretations. Although this idea will be introduced in this chapter, its main focus is on the syntax of SR; discussion of how coconstrual is interpreted is developed in depth in chapter 5.

2.3.1 Overview and proposal

One of the main contributions my account makes for the study of SR is shedding light on the expanded Panoan SR paradigm that includes the Object=Subject relation. The examples below illustrate it with Shipibo in 20 and Yawanawa in 21.

(20) Shipibo (Panoan; Valenzuela 2003; Baker 2014)

a. Jose=ra [Rosa oin-**ax**] xobo-n ka-ke.
José=EV Rosa.ABS see-SS.PFV.ABS house-LOC go-PFV
'He$_i$ seeing Rosa$_j$, José$_i$ went home.'

b. [Jose-kan Rosa oin-**a**]=ra, xobo-n ka-ke.
José-ERG Rosa.ABS see-OS=EV house-LOC go-PFV
'When José$_i$ saw Rosa$_j$, she$_j$ went home.'

c. [Jose-kan Rosa oin-ke-**tian**]=ra, (ja) xobo-n ka-ke.
José-ERG Rosa.ABS see-PFV-DS=EV 3.SG home-LOC go-PFV
'When José$_i$ saw Rosa$_j$, he$_m$/she$_k$ (someone else) went home.'

(21) Yawanawa (Panoan)

a. [Tika=nẽ Shaya nuku-**ashe**], shetxi-a.
Tika=ERG Shaya.ACC meet-SS.PFV.NOM smile-PFV
'When Tika$_i$ met Shaya$_k$, he$_i$ smiled.'

b. [Tika=nẽ Shaya nuku-**a**], shetxi-a.
Tika=ERG Shaya.ACC meet-OS smile-PFV
'When Tika$_i$ met Shaya$_k$, she$_k$ smiled.'

c. [Ẽ yumãi-ki tuwe-a-**kẽ**] Veã tanaik-a.
1S.ERG jaguar-AT shoot-PFV-DS Vea.ERG track-PFV
'I shot at the jaguar and Vea tracked it down.'

While sentences (a) and (c) in both languages are very similar to the more familiar paradigms of SR found crosslinguistically, the (b) sentences illustrate the much rarer OS relation, which has only been fully described in the Panoan family. Despite being rare, the existence of OS points us in a very clear theoretical direction: a satisfactory account of SR must have a strong syntactic component, which distinguishes arguments based on grammatical function. More specifically, I argue that the Panoan expanded paradigm provides enough evidence that the syntax of SR has the characteristic properties of Chomsky (2000, 2001b)'s Agree operation: Agree is responsible for establishing the syntactic links between the SR *pivots*, that is, the arguments that are coconstrued. As such, SR behaves much like familiar subject and object agreement mechanisms in syntax: a head probes and Agrees with a nominal expression in its domain, according to the essential conditions of locality, intervention, activity, and phase impenetrability. However, SR also behaves very much *unlike* agreement in that, in language after language, it does not expone the phi features of the Agreed-with nominal expression. This seemingly paradoxical behavior of SR is at the core of my "Agree-without-agreement" account.

I claim that Arregi and Nevins (2012)'s decomposition of Agree into two operations provides the necessary tools to construct a proposal: *Agree-link* creates a pointer from a functional head to a local nominal expression; *Agree-copy* transfers features from the goal to the probe (also Bhatt and Walkow 2013; Marušič, Nevins, and Badecker 2015;

Atlamaz and Baker 2018; Atlamaz 2019; among others). As such, I propose that the SR coconstrual between DPs obtains by Agree-link applying, but not Agree-copy. The consequences of this, I argue, are that the phi-features of the goal do not get copied onto the probe, and that the link created by Agree is not deleted in the course of the derivation. This surviving link between a syntactic head and two DPs is interpretable in the semantic component as coconstrual between the DPs.

I propose that the nature of this coconstrual varies according to the syntactic structure that is shipped to interpretation, as well as the nominal types within it: binding obtains if the structural conditions are right, but that will not always be the case (contra B&CS). The coconstrual may be syntactic or (dynamic) semantic binding, or it may be coreference, depending on what syntax ships to the semantic interface. The job of syntax is simply to indicate which DPs are to be coconstrued in a given construction; the work of establishing the coconstrual relation per se is done by semantics. This means that the separation of powers is as real in SR as in any other grammatical phenomenon. We know that semantics establishes different anaphoric relations between coindexed nominals depending on the type of structural relation they hold to each other: they may be in the same or different clauses, they may or may not be standing in a c-command relation, etc. Since SR is an expression of anaphora in my view, then this must be equally true in SR: I will show that the kinds of coconstrual established in SR constructions are the same kinds made available by Universal Grammar and widely studied in the literature. There is nothing exotic about SR in this sense: the only characteristic that sets SR languages apart from others is that they 'choose' to morphologically expone certain types of cross-clausal anaphoric relations. And since we find SR in such a variety of syntactic constructions (see the discussion in 2.2.2 above), it is not surprising that there will be a variety of possible types of coconstrual as well. I dedicate chapter 5 to the topic of interpretation in SR constructions. The following sections of this chapter will be dedicated to syntax.

2.3.2 Background on Panoan syntax

Before developing the arguments for an Agree-based account of SR syntax, allow me to make observations about two relevant grammatical properties of Yawanawa, namely its case system and inflectional morphology (I will focus on Yawanawa here and throughout this dissertation, bringing in examples from other Panoan languages when they are relevant to highlight parametric variation, for instance. For more on Shipibo SR, see Baker and Camargo Souza (2020)).

Yawanawa is a head-final SOV language with a tripartite case system (Camargo Souza, 2013a; Camargo Souza and Nonato, 2018): 1st and 2nd person pronouns follow a nominative-accusative alignment, as in 22, with accusative being morphologically overt; 3rd person singular pronouns and lexical DPs follow an ergative-absolutive alignment with ergative overtly marked; and 3rd person plural pronouns are overtly tripartite, as in 23 (c.f. Goddard 1982; Comrie 1983; Legate 2008; among others). The pattern is summarized in table 2.1.

(22) 1st/2nd person pronouns (Camargo Souza and Nonato, 2018)

a. **Ẽ/Mĩ/Nũ/Mã** yawa rete-a.
1S/2S/1P/2P.ERG wild.boar kill-PFV
'I/You/We/Y'all killed a wild boar.'

b. **Ẽ/Mĩ/Nũ/Mã** pake-a.
1S/2S/1P/2P.NOM fall-PFV
'I/You/We/Y'all fell.'

c. Yawã **ea/mia/nuke/matu** naka.
wild.boar.ERG 1S/2S/1P/2P.ACC bite.PFV
'The wild boar bit me/you/us/y'all.'

(23) 3rd person pronouns (Camargo Souza and Nonato, 2018)

a. **Atũ/Ahãu** yawa rete-a.
3S/3P.ERG wild.boar kill-PFV
'(S)he/They killed a wild boar.'

b. **A/Ahu** pake-a.
3S/3P.NOM fall-PFV
'(S)he/They fell.'

c. Yawã **a/atu** naka.
wild.boar.ERG 3S/3P.ACC bite.PFV
'The wild boar bit him(her)/them.'

	TRANS. SUBJ	INTRS. SUBJ	OBJECT
1sg	ẽ	ẽ	**ea**
2sg	mĩ	mĩ	**mia**
1pl	nũ	nũ	**nuke**
2pl	mã	mã	**matu**
3sg	**atũ**	a	a
nouns	**-nẽ, -tũ, -n**	∅	∅
3pl	ahãu	ahu	atu

Table 2.1: Yawanawa's case morphology (Camargo Souza, 2013a, pp. 113–7)

The case paradigms of other Panoan languages are similarly split along a person hierarchy, with varying morphological realizations (c.f. Silverstein 1976): Kashibo Kakataibo has the most consistently tripartite paradigm, with three-way case morphology across the board for pronouns (Zariquiey, 2011). A notable exception is Shipibo, which is ERG-ABS across the board (Valenzuela, 2003). Case will be relevant for the analysis of SR because it is one of the features exponed on SS morphemes, as will be discussed in sections 2.3.6.1 and 2.3.6.2.

Another relevant grammatical property of Yawanawa for the analysis of SR is its expression of inflectional categories: the only obligatory distinction marked in most matrix clauses is that between perfective -*a* and imperfective -*i*, as in 24. Note that perfective morphology is homophonous with the OS marker, but their distribution is complementary: OS -*a* is only found in adverbial clauses, which never have perfective -*a*.

(24) Awīhu itxu-i / itxu-a.
woman.NOM run-IPFV / run-PFV
'The woman is running / ran.'

While this kind of example may suggest that there is a single inflectional head being exponed in the Yawanawa clausal spine, sentences like 25 show that certain Asp-T combinations have exponents of both heads: here, imperfective aspect is *-pau* and remote past is *-ni*.

(25) Shenipahu-hu munu-**pau-ni**-hu.
ancestor-PL dance-IPFV-REM.PST-3PL
'Our ancestors used to dance/party.'

In light on this, I will assume that the clausal spine has separate T and Asp projections, but not separate Agr: agreement results from T coming into the derivation with ϕ-feature slots and valuing them by means of Agree, as is standardly assumed. At vocabulary insertion, an additional Agr head is added to the clausal spine when T has acquired plural features in the course of the derivation –this is known as 'dissociated morpheme insertion', 'fission', or 'node-sprouting' in the Distributed Morphology literature (c.f. Halle and Marantz 1993; Embick 2010a; Choi and Harley 2019; among others). Supporting evidence for the hypothesis that the Agr head is added postsyntactically comes from the fact that the 3rd plural agreement morpheme is exponed in different positions with respect to T+Asp, depending on their featural specifications: *-hu* follows Asp+T in 25, as in all tense-aspect combinations other than present imperfective; *-kan* precedes Asp+T it in 26, as in all present imperfective clauses. I assume that Asp always moves to T and that the two heads may fuse, such that some combinations of tense and aspect features are exponed as a single morpheme, like present and imperfective in 26, while others are exponed as separate morphemes, like imperfective and remote past in 25 (I opt to gloss present imperfective *-i* as just IPFV and past perfective *-a* as PFV to keep the glosses short).

(26) Awĩhu-hãu pitxã-**kan-i**.
woman-PL.ERG cook-3PL-IPFV
'The women are cooking.'

The relevance of this for the present investigation is that while the Asp head remains unchanged in SS clauses, the T head in those clauses is phi-less and thus unable to Agree-copy features from its goal. For instance the embedded SR clauses in 20 and 21 are perfective, but only the DS clauses have the same perfective morpheme from matrix clauses (*-ke* in Shipibo, *-a* in Yawanawa). In SS and OS clauses, aspect fuses with the SS/OS morpheme: SS *ashe*/*-ax* is perfective (from 20-a and 21-a), and there is another set of SS markers that expone imperfective – *i*/*kĩ*. Similarly, OS *-a* is perfective, and there is no imperfective version of OS in Yawanawa and Shipibo (see section 2.3.6.3 for discussion). The SR paradigm does not end there: SS morphemes (and no others) show case concord with the superordinate subject. The embedded subject in contrast has no effect on SS morphology. The full paradigm is given in table 2.2[5]:

	Perfective	Imperfective
	NOM ERG	NOM ERG
SS	-ashe -shũ	-i -kĩ
OS	-a	–
DS	-kẽ	nũ

Table 2.2: Yawanawa SR paradigm

With this, I move on to describe the motivations to propose that Agree is the mechanism at work in SR constructions despite the lack of phi-agreement.

[5]The Shipibo paradigm includes additional morphemes for purpose clauses and clauses in the future tense (Valenzuela, 2003; Baker and Camargo Souza, 2020), but Yawanawa uses the same morphemes illustrated here in those cases as well.

2.3.3 Evidence of Agree

The goal of this section is to go through the formal properties of the Agree operation systematically and show its clear fingerprints in SS and OS constructions. Agree (Chomsky, 2000, 2001a) is characterized according to 27, following the presentation in Baker (2014):

(27) A Functional head F (probe) can enter into Agree with a matching DP X (goal), if:

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 not having an oblique case feature (the activity condition).

Among the many revisions and alternatives that have been proposed to these basic properties throughout the years, Baker (2008) claims that 27-a and 27-d are parametrized, which is something that will play a role in the present proposal. In my view the probes involved in the SR relations are T for SS and Voice for OS.

2.3.3.1 The C-command condition

Given the assumption that the probes for SS and OS are T and Voice respectively, the c-command condition holds by hypothesis: T c-commands the subject in Spec VoiceP, and Voice c-commands the object inside VP. Since these are the heads standardly assumed to be responsible for subject and object agreement, it makes sense that they would be the ones probing subject and object in SR as well.

The fact that a SR head is generally the outermost morpheme in a clause – see examples 20 and 21 but also the crosslinguistic SR paradigms, c.f. Jacobsen 1967; Austin 1981; McKenzie 2015; van Gijn 2016; among many others – is consistent with it being a high functional head which c-commands everything that is hierarchically lower,

including the SR pivot.

The idea that a head can probe upwards will also play a role (c.f. Baker 2008; Béjar and Řezáč 2009; Zeijlstra 2012; among others): this is how I argue that Fin Agrees with the superordinate subject.

2.3.3.2 The Intervention condition

This property of Agree is best seen with SS, since the pivot is always the highest DP in the clause: a probe on T cannot bypass the subject and Agree with a lower DP like a direct object or applied argument. The analogy between SS and subject agreement goes back to Finer (1984): Agree is by hypothesis the relation that makes phi-agreement as well as DP coconstrual possible.

This analogy holds in Yawanawa: the pivot of SS is the same argument that triggers subject agreement with the verb. The examples in 28 show that the 3rd person plural subject agreement morpheme in Yawanawa behaves like standard agreement associated with the T head: it agrees with subjects as in 28-a and 28-b, but not objects as in 28-c. In addition, 28-b shows that the plural ergative subject triggers plural agreement on the verb just like the nominative subject does: ergative case does not make a DP ineligible for agreement.

(28) a. *pro* wai rera-kan-i.
plantation.ACC clear-PL-PRS.IPFV
'They are clearing the plantation.'

b. Awĩhu=hãu yuma atxi-a-hu.
woman=PL.ERG fish.ACC catch-PFV-PL
'The women caught fish.'

c. Ẽ vakehu-hu pima-(*kan)-i.
1.SG.ERG child-PL.ACC feed-(*PL)-PRS.IPFV
'I'm feeding the children.'

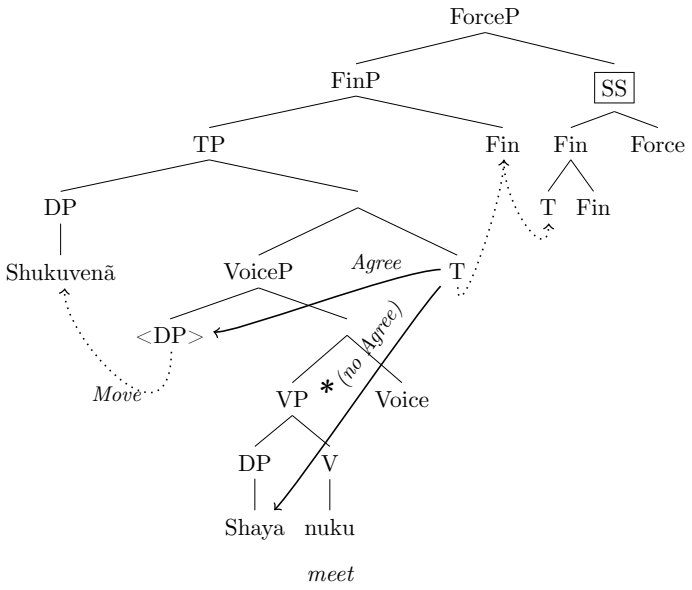
I take this to mean that T agrees with the closest DP only, i.e. the subject, not with a structurally farther one. SS is analogous to subject agreement in the ways just

described: both ergative and nominative subjects can be pivots of SS, as shown in 29, but never an object. This is illustrated in the structure in 30.

(29) a. [Shukuvena maikiri ka-shũ] yuma pi-a.
Shukuvena.NOM down.river go-SS.PFV.ERG fish.ACC eat-PFV
'After Shukuvena went down river, he ate fish.'

b. [Shukuvenã$_i$ Shaya$_k$ nuku-shũ] pro$_{i/*k}$ e-a ken-a.
Shukuvena.ERG Shaya.ACC meet-SS.PFV.ERG 1.SG-ACC call-PFV
'After Shukuvena met Shaya, he$_i$/*she$_k$ called me.'

(30)



The intervention condition on Agree also manifests itself in less canonical clause types. One of these cases is applicative of unaccusative constructions, which contain an affected argument introduced by the applicative *-shũ*. The relevance of this kind of construction is that it has two *internal* arguments – an object and an applied argument – and no external argument. What is especially interesting is that the applied argument is for some reason ineligible to become the subject of the clause, – Baker (2014) argues it is because the applied argument is inside a PP and is therefore unable to satisfy T's EPP feature – so the lower theme argument moves to SpecTP to become the subject.

The theme is assigned ergative case[6] as a result – shown in 31-a – and behaves like a normal subject for the purposes of agreement, as shown in 31-b.

(31) a. E-wẽ kãmã-**nẽ** e-a na-shũ-ã
1.SG-GEN dog-ERG 1SG-ACC die-APPL-PFV
'My dog died on me.'

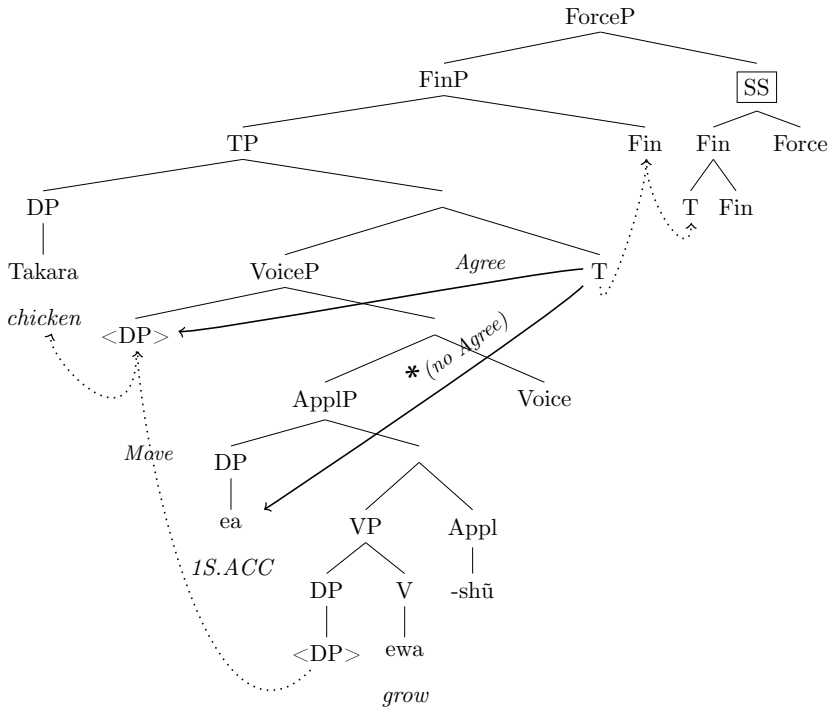
b. Takara shuku-**hu** e-a ewa-shũn-a-**hu**.
chicken baby-PL.NOM 1.SG-ACC grow-APPL-PFV-PL
'The baby chicks grew for me.'

The intervention condition prevents T from agreeing with the structurally lower applied argument in these constructions (assuming the theme moves through Spec VoiceP). As such, if SS is indeed the result of the probing action of T, then the prediction is that it will pick the theme as its pivot, rather than the applied argument. 32 shows that this prediction is borne out, according to the structure in 33.

(32) [Takara e-a ewa-shũ-shũ] *pro* vatxi itxapa pake-a.
chicken.ABS 1.SG-ACC grow-APPL-SS.PFV.ERG egg.ACC many lay-PFV
'The chicken grew for me and laid many eggs.'

[6]Ergative marking on the theme is less consistent in Yawanawa than it is in Shipibo: it is observed in 31-a, but not in 31-b, for instance. I assume it is always present underlyingly.

(33)



Observing the intervention condition at play with SS, it is logical to expect it to be at play with OS as well. As such, we would expect only the higher goal argument in a ditransitive construction to be able to be the pivot of OS, since it is structurally higher – and therefore closer to the probing head Voice – than the theme. This prediction is skewed by an independent property of Yawanawa (and Shipibo, c.f. Valenzuela 2003), however: it is a "symmetrical object" language. As such, either the theme or the goal can be pivots of OS, as shown in 34.

(34) a. [Veã Nawashahu ketxa$_i$ inã-hi[a]-a] *pro$_i$* muxi-a.
Vea.ERG Nawashahu.ACC plate.ACC give-CONC-OS break.INTR-PFV
'Vea gave Nawashahu a plate$_i$, but it$_i$ broke.'

b. [Veã Nawashahu$_k$ ketxa inã-hi[a]-a] *pro$_k$* mux[a]-a.
Vea.ERG nawashahu.ACC plate.ACC give-CONC-OS break.TR-PFV
'Vea gave Nawashahu$_k$ a plate, but she$_k$ broke it.'

The same holds for applicative constructions: either the applied argument, as in 35-a,

or the theme, as in 35-b, can be the goal of OS. This is consistent with Voice being the head responsible for probing in OS constructions (c.f. Pylkkänen 2002; Harley 2013; among many others).

(35) a. Tika-nẽ Livia$_i$ yuma atxi-shũn-**a**, *pro*$_i$ inim[a]-a.
Tika-ERG Livia fish catch-APPL-OS be.happy-PFV
'When Tika caught Livia$_i$ a fish, she$_i$ was happy.'

b. Tika-nẽ Livia yuma$_k$ atxi-shũn-**a**, *pro*$_k$ txapu-a.
Tika-ERG Livia fish catch-APPL-OS rot.PFV
'When Tika caught Livia a fish$_k$, it$_k$ rotted.'

Having "symmetrical" objects is a parametric option made available by UG that has been especially well studied in Bantu languages: it concerns object markers (either agreement or clitics licensed by agreement), as well as other phenomena such as passivization (Kimenyi, 1980; Baker, 1988; Bresnan and Moshi, 1990; Marantz, 1993). In this light, Valenzuela (2003, pp. 527–532) shows that Shipibo objects behave symmetrically for a number of phenomena: case, word order, extraction in relative clauses, and OS. I adopt McGinnis (2001)'s theory of the symmetrical object parameter, as stated in 36, and assume with her that simple ditransitive verbs like the ones in 34 also have a covert Appl head.

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

This parameter makes the intervention condition not observable in OS constructions in Shipibo and Yawanawa, though it further supports the analogy between OS pivots and Agree goals. It also raises an important and potentially challenging question: if Voice is able to find both the theme and the applied argument as goals of OS, then how come applicative of unaccusative constructions like 32 – which have the theme argument as pivot – trigger SS rather than OS marking?

This question is analogous to the question of why unaccusative subjects trigger subject rather than object agreement crosslinguistically. I assume that the theme moves out of its original merge position before the OS probe begins its search, so it is not available as a goal (assuming that traces are not possible goals of Agree; c.f. Chomsky 2000, p. 131). More specifically, I assume that Voice has an EPP feature that attracts the theme to its specifier once it is merged (the optional EPP feature on Appl may force the theme to intermediately land in Spec ApplP on its way). From there it moves to Spec TP, also for EPP purposes. As such, we get SS but not OS marking in these cases (as well as further support for the SR/agreement analogy). This movement of the theme to Spec VoiceP distinguishes applicative of unaccusative constructions from applicative of transitive constructions: the latter have their Spec VoiceP position filled, so the theme argument is not attracted to that position before Voice probes its domain. That is what makes the symmetrical objects phenomenon obtain only in applicative of transitive constructions (in addition to ditransitives), not in applicative of unaccusatives.

2.3.3.3 The Phase condition

The Phase condition on Agree states that a functional head H cannot agree with a DP if this DP is in a spellout domain that does not contain H. The Phase Condition is more clearly illustrated with OS in Yawanawa, since it is basically redundant with the intervention condition for SS. Assuming that P, D, and Force are phase heads, phrases headed by them are the relevant domains to investigate here. 37 for instance, shows that when it comes to PPs, the object of the postposition *mera* cannot be a pivot for OS when it is coreferent with the matrix subject in Yawanawa. This finds a parallel in languages with object agreement, like Cuzco Quechua (Lefebvre and Muysken, 1988), in which object agreement can expone features from either a direct or indirect object, but not from an object of a preposition.

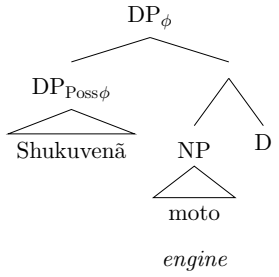
(37) *[Shukuvena [shashu$_i$ mera] iki-**a**], *pro$_i$* txiuku-a.
Shukuvena.NOM canoe into enter-OS sink-PFV
Intended: 'When Shukuvena got into the canoe$_i$, it$_i$ sank.' (✓ DS: iki-ai-nũ)

When it comes to DP, the possessor of an object is also not available to an OS probe in a construction like 38: only DS is possible[7].

(38) Ẽ [[Shukuvenã moto] teke-**kẽ**] ihãu wetsa hi-a.
1SG.ERG Shukuvena.GEN motor break-DS.PFV owner.ERG other get-PFV
'I broke Shukuvena$_i$'s motor, so the owner$_i$ got another one.' (*OS: teke-a)

The ungrammaticality of having OS marking in this construction could be due to two different properties of Agree: the first is the Phase condition itself, since there is a D head separating the possessor from the Voice probe, assuming a DP structure along the lines of 39. In addition, the problem could also be due to the Intervention condition: the possessor is contained inside another DP, so the OS probe would have to bypass the full DP 'Shukuvena's motor' in order to find the possessor within it.

(39)



Finally, we come to ForceP phases. Employing verbs that can select for clauses of different structural sizes, it is possible to show that DPs inside structurally reduced complements (analogous to infinitives and restructuring constructions) can be goals of OS, but DPs inside full clausal complements cannot. This will be discussed in detail in

[7]Though Marlett (1981) and Bárány and Nikolaeva (2019) show that certain types of inalienable possessive constructions in some languages (specifically those expressing part-whole relations) may license SS with the possessor DP as pivot.

chapter 3, but let us introduce the idea here to support the present argument.

Attitude verbs like *tapĩ*, 'know', in Yawanawa may select a full clause as its complement, as in 40-a, or a structurally reduced (SS-marked) clause, as in 40-b.

(40) a. Shayã tapĩ-a, [Shukuvenã yuma itxapa atxi-a].
Shaya.ERG know-PFV Shukuvena.ERG fish many catch-PFV
'Shaya knows that Shukuvena caught a lot of fish.'

b. Shaya [saik/tupĩk/raya-i] tapĩ-a.
Shaya.NOM sing/swim/work-SS.IPFV.NOM know-PFV
'Shaya knows how to sing/swim/work.'

Crucially for the present argument, DPs inside full complement clauses as in 41-a are not available to an OS probe, whereas DPs inside structurally reduced SS complements are, as in 41-b.

(41) a. *[[Shukuvenã yuma$_k$ itxapa atxi-a] Shayã tapĩ-**a**], *pro$_k$* txapu-a.
S.ERG fish many catch-PFV S.ERG know-OS rot-PFV
'Shaya knows that Shukuvena caught a lot of fish, and the fish rotted.'

b. [Tika=nẽ Maria$_i$ tapima-kĩ tae-w(a)-**a**], *pro$_i$* inim-a.
Tika=ERG Maria teach-SS.IPFV.ERG begin-CLEX1-OS be.happy-PFV
'Tika began teaching Maria$_i$ and she$_i$ was happy.'

The argument here is that when the complement is a full clause, a OS probe on matrix Voice would have to cross the phase head Force in order to Agree with the object in the complement clause. If the complement is a FinP instead (not phasal), then the probe on Voice would be able to Agree with the embedded object.[8]

Something about Yawanawa that makes it tricky to show that the phase head responsible for the ungrammaticality of examples like 41-a is Force is the fact that such

[8] I follow Baker (2014) in assuming that VoicePs are soft phases, such that their complements are still available to syntactic operations even after phase closure. ForcePs (CPs), on the other hand, are always hard phases.

sentences have nominalized complements. Case marking on the matrix subject provides the first piece of evidence that the complement behaves like a nominal (it triggers ergative on the matrix subject). The same is true of 40-a: compare it with 40-b, in which the matrix subject is not ergative. In addition, an overt nominalizer (-*tũ*) is present whenever the aspect of the embedded clause is imperfective (when the aspect is perfective, I assume the nominalizing head is spelled out as ∅). So it seems that the distinction is not that 41-b has a FinP complement and 41-a has a ForceP, but rather that 41-b has a FinP complement and 41-a has a ForceP with a nominalizer on top. So it is most likely the case that the relevant phase head in 41-a is actually D rather than Force. In spite of this, the data here clearly shows the distinction between full-sized (nominalized) and reduced complement clauses when it comes to probe penetrability.

As such, I argue that the facts discussed here support the argument that the Phase condition is at play in SS and OS constructions, corroborating my claim that pivot selection in SR constructions is Agree-based. The claim is further supported by the fact that OS behaves analogously to the way object agreement works in languages like Quechua.

2.3.3.4 The Activity condition

The last property of Agree to investigate is the Activity condition: for the purposes of Panoan SR, the relevant question is whether or not DPs marked with dative and oblique case are eligible pivots for SS and OS. The answer is that this is parametrized, very much like agreement crosslinguistically. Dative DPs as in 42-a and oblique DPs as in 42-c cannot be goals of OS in Shipibo, like absolutive ones as in 42-b can (the verb 'forget' may take an absolutive or an oblique complement). In contrast, dative DPs in Yawanawa can be OS pivots just like accusative ones can (though objects of postpositions cannot, as discussed in 2.3.3.3): this is shown in 43.

(42) Shipibo (Panoan, (Valenzuela, 2003, pp. 692, 726, 357))

a. *[Rosa Jose-**ki** sinat-a]=ra, xobo-n ka-ke.
Rosa.ABS José-DAT be.angry-OS=EV house-LOC go-PFV
Intended: 'Rosa was angry with José$_i$, so he$_i$ went home.') (✓ DS: sina-ke-tian=ra)

b. [Jose yapa shinanbenot-a]=ra, payo-ke.
José.ABS fish.ABS forget-OS=EV spoil-PFV.
José forgot the fish and it spoiled.'

c. ?*[Rosa ochiti-**nin** shinanbenot-a]=ra, bake natex-ke.
Rosa.ABS dog-OBL forget-OS=EV child bite-PFV
Intended: 'Rosa forgot about the dog, and it bit a child.' (✓ DS: shinanbeno-ke-tian=ra)

(43) [Tika yuma-**ki** xinãvenu-a] txapu-a.
Tika.NOM fish-DAT forget-os rot-PFV
'When/since Tika forgot about the fish$_i$, it$_i$ rotted.'

This parametric variation is analogous to the parametric variation observed between different varieties of Quechua regarding object agreement: object agreement with an oblique argument is possible in Cuzco Quechua, but not in Imbabura Quechua.[9]

(44) a. Cuzco Quechua; Lefebvre and Muysken (1988, p. 81)

(?)Nuqa-manta-qa parla-**wa**-n.
me-about-TOP talk-1.SG.O-3.S
'He talks about me.'

b. Imbabura Quechua, Hermon (1985, p. 48)

*Juan ñuka-wan parla-**wa**-n
John me-WITH talk-1.SG.O-3.S
Intended: 'Juan talks with me.'

[9]Both Quechuan languages allow agreement with dative objects, which B&CS conjecture might be due to dative case being structural rather than actually oblique in Quechua.

Therefore there is reason to think that the Activity condition is at work in Panoan SR, though it is true that the distinction between Shipibo and Yawanawa may be that *-ki* in the former is a postposition and in the latter, an actual case marker.

The work of the Activity condition is not detectable with SS in Yawanawa and Shipibo because the languages do not have any quirky subject cases. The only potential candidate would be ergative, but it is a structural case in these languages: I have shown how ergative DPs are equally available to SS probes as nominative ones, analogously to the away they are both available to agreement probes.

The interim conclusion is that the relationship between the probes and goals involved in SS and OS relations have the fingerprints of the Agree operation: some properties, like the phase and the activity conditions, are more visible in OS, and others like the intervention condition are more visible in SS. Putting OS and SS together in the rich Panoan SR paradigm then, allows us to draw the parallel between SR and Agree in a much more clear way than was previously possible.

2.3.4 Agree-link and referential dependency

Having shown that Agree is at work in the syntax of SS and OS, I turn to the question of the absence of phi-agreement in the SR paradigm: the effect of Agree is instead to create a referential dependency between nominal expressions. I argue that this can naturally be built into the fine structure of the Agree operation, which can be decomposed into Agree-link and Agree-copy. More specifically, I propose that if Agree-link applies but Agree-copy does not, then the idea of 'Agree without agreement' is not paradoxical after all; it falls out from the system.

The idea to break Agree into two operations comes from Arregi and Nevins (2012), in their explanation of dialectal variation in the agreement paradigm of Basque. In double-object constructions, T in Basque expones the phi features of the absolutive argument in certain dialects, and in others, it expones the phi features of the dative argument as well. This leads them to propose that T enters multiple Agree with both the theme and the goal arguments in narrow syntax, creating links to both DPs, and that feature copying is delayed until the postsyntactic module. With this, they can

propose that the syntax of agreement works the same way across all the dialects, with the locus of variation being morphology. The two parts of the Agree operation are described as follows:

(45) 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.

Since then, other authors have adopted the two-step Agree operation to explain a number of phenomena crosslinguistically: Bhatt and Walkow (2013) use it to explain closest-conjunct effects in the object agreement paradigm of Hindi-Urdu, proposing that the postsyntactic Agree-copy operation takes place after linearization; similarly, Marušič, Nevins, and Badecker (2015) adopt it to explain the existence of highest- and closest-conjunct agreement in Slovenian, proposing the former derives from Agree-copy applying in syntax, and the latter, from it applying post-linearization; Atlamaz and Baker (2018) and Atlamaz (2019) use it to explain why Kurmanji and Faroese can agree with oblique subjects in number but not in person, proposing that Agree-copy applies post-syntactically after the Case and Number heads have fused at the top of the nominal phrase, excluding the Person head – something that only happens in some synthetic languages. These are only some instances of phenomena that have been accounted for with the two-step Agree operation in the literature: I take it as evidence that the move to separate the powers of Agree is empirically motivated.

With this, I propose that if Agree-link applies and Agree-copy does not, then the links created in syntax survive to the semantic module, where they are interpretable. The morphological effect of this is that no phi-features are copied from the goal to the probe, and the semantic effect is that the two DPs that are pointed-to by a given head are interpreted as being coconstrued. Drawing an analogy between these links of Agree and the pointers that Higginbotham (1983) and Safir (2004) propose are involved in

referential dependencies in anaphora (as an alternative to indexing), I propose that in the semantic module, links of Agree are interpreted as a bound variable dependency.

I argue that the nature of the coconstrual varies according to the syntactic structure that is fed to semantics and the nominal types involved in the computation – this is an important point of divergence between the present proposal and that of B&CS's, according to which all referential dependencies in SS and OS come down to bound variable anaphora (see chapter 5 for detailed discussion). One important syntactic property of adjunct SR clauses that motivates my view is the fact that they are islands for extraction: 19 shows that this is the case for imperfective SS clauses and 47, for perfective. B&CS's account requires one of the DPs standing in the SS or OS relation to QR and bind the other – more specifically, the DP that is more contentful: either a proper name, a quantifier, or an strong pronoun, as opposed to a weak pronoun. If this DP that needs to QR is in the matrix clause QRing is not a problem, but if it is in the SR clause, QR should be banned, in the same way that overt extraction is. The examples here involve the the second-position interrogative clitic =*mẽ*, which I assume is a head in the left-periphery of matrix clauses that attracts a constituent (here, the wh word *awea*) to its specifier.

(46) <u>Baseline:</u>

a. Shayã mai keti hi-a [manĩa shuku pitxã-pai-kĩ]
Shaya.ERG earth pot buy-PFV plantain green cook-DES-SS.IPFV.ERG
'Shaya bought a clay pot, willing to cook green plantains.'

<u>Extraction from SS adjunct clause: bad</u>

b. *Awea$_{m}$=mẽ Shayã mai keti hi-a [t_m pitxã-pai-kĩ]?
what=INT Shaya.ERG earth pot buy-PFV cook-DES-SS.IPFV.ERG

<u>Corrected to: dislocation of full SS clause</u>

c. [Awea pitxã-pai-kĩ]=mẽ Shayã mai keti hia?
what cook-DES-SS.IPFV.ERG=INT Shaya.ERG earth pot buy-PFV
lit: 'Willing to cook what, did Shaya buy a clay pot?'

(47) Baseline:

a. [Shukuvenã ixixiwã pi-ashe] *pro* maikiri ka.
Shukuvena.ERG catfish eat-SS.PFV.NOM down.river go.PFV
'After Shukuvena ate catfish, he went downriver.'

Extraction from SS adjunct clause: bad

b. *Awea$_l$=mẽ [Shukuvenã t_l pi-ashe] *pro* maikiri ka?
what=INT Shukuvena.ERG eat-SS.PFV.NOM down.river go.PFV

Extraction from matrix clause: good

c. Awea$_j$=mẽ [Shukuvena maikiri ka-shũ] t_j pi-a?
what=INT Shukuvena.NOM down.river go-SS.PVF.ERG eat-PVF
'What did Shukuvena eat after going downriver?'

Another point of divergence between the proposal here and that in B&CS concerns the way I conceive of probing: we proposed that our SS and OS probes have an unvalued D feature that is responsible for initiating their search for a nominal expression, i.e. a syntactic element that contains a 'D' feature. Here, however, I take a different stance. I argue that positing this D feature is unnecessary if we take into account a fine-grained view of Agree in which search, copying, and valuation may operate under somewhat distinct conditions (c.f. Béjar 2003; Řezáč 2003; Béjar and Řezáč 2003, 2009; Preminger 2011; Nevins 2011; Deal 2015). My basic idea is that probes on T and Voice may search for ϕ-features but not copy them.

More specifically, I propose that as components of SS and OS, these heads enter the syntactic derivation with unvalued ϕ-features [uϕ] which trigger probing, that is, the *search* component of the Agree operation. Once the probe encounters a matching goal – a nominal element with ϕ features – an Agree-link relation is established: this triggers the *valuation* component of Agree, meaning that the [uϕ] feature on the probe is valued and the search halts. I assume that these two operations take place in all instances of Agree, independently of the nature of the heads involved: whether the T and Voice heads are components of SS and OS or simply heads that expone agreement features, search and valuation will take place in syntax. What will distinguish a SS/OS

head from an agreement-exponing head is copying. Crucially, components of SS and OS enter the derivation with no phi-feature slots, and as such Agree-copy does not take place: we get Agree without agreement. I propose the following working definition for Agree-link, Agree-copy, and valuation:

(48) a. Agree-Link: In the syntax, a probe P has unvalued phi-features (P_{ϕ}) that trigger Agree with G (a DP, possibly more than one). The result is a link from P to G.

b. Valuation: Once a link is created between P and G, the [uϕ] feature on the probe is valued and the search halts.

c. Agree-Copy: If there is a link from P to G, copy the values of the phi-features of G onto P and delete the link (applies if and only if P has phi-feature slots; e.g. $P_{\phi:_}$).

This definition provides the explicit possibility that Agree-Copy may not apply at all. Whenever it does apply, the link created in syntax is automatically deleted, an operation Atlamaz (2019) calls "dereferencing". This is a crucial part of the theory which ensures that normal agreement does not coconstrue DPs in the way that Agree-without-agreement does. For example, multiple Agree with objects in certain Bantu languages (c.f. Riedel 2009) and Basque (c.f. Arregi and Nevins 2012) does not imply that those objects are coconstrued.

This proposal makes a strong prediction, namely that whenever DPs are coconstrued by means of SS or OS crosslinguistically, the heads responsible for creating the referential dependency will not vary with respect to the phi-features of the DPs involved. This seems to bear out across the board in North and South America, as well as Australia (McKenzie, 2015; Austin, 1981; Cole, 1983; Adelaar and Muysken, 2004; Muysken, 1977; Floyd and Norcliffe, 2016; Guillaume, 2011; Jensen, 1998; van Gijn, 2016; Bruening, 2014; Wiesemann, 1986; Alves, 2004; Oliveira, 2005; Nonato, 2014; Fischer and van Lier, 2011; Slocum, 1986). The main region where SR seems more intertwined with agreement morphology is Papua New Guinea (PNG), but under close inspection, the

prediction bears out even in those languages (c.f. Haiman and Munro 1983; Stirling 1993; Roberts 2017). For instance, one pattern that Haiman (1983) discusses has DS expressed by subject agreement on the dependent verb and SS by the absence of agreement or by the presence of an invariant morpheme in its place. This means that the SS marker is invariant for phi-features, as we predict. It is not a problem for our account that a DS clause would express agreement: this is also true in Yawanawa and Shipibo; the only assumption I must make is that DS morphology is ∅ in these cases, or that DS clauses are simply ordinary clauses that get a DS interpretation by default (this is actually my analysis of DS in Yawanawa, see section 2.3.6.3). Another less common PNG pattern that Haiman discusses has SS marked by subject agreement on the dependent verb and DS marked with the same subject agreement and an additional DS marker. We propose that these languages have ordinary subject agreement on a head separate from the one responsible for SR marking, and that the SS morpheme is ∅ (as in Washo and Seri). So, the patterns that look potentially problematic at first come down to a simple analysis of either SS or DS being null. The only PNG language with a pattern that looks truly challenging for the prediction here is Kobon (Comrie, 1983; Roberts, 2017), but it is possible to construct an alternative analysis for this language as well[10]. As such, the 'Agree-without agreement' theory taps into a generalization that looks surprisingly consistent across the board once we inspect language data carefully, and makes a clear falsifiable prediction for future research.

[10]The alternative analysis is that the DS marker has fused morphologically with agreement in Kobon, so that subject agreement in SS clauses looks a bit different from subject agreement in DS clauses. The motivation comes from the fact that Kobon's DS+subject agreement morpheme series differs from simple subject agreement and from the SS+subject agreement. What is different is that DS+Agr morphemes end in /ö/ (c.f. Davies 1981, p. 182), which is is a prominent segment in Kobon conjunctions (nöŋ(öm), aŋö, Davies 1981, pp. 67, 186). Therefore, this could be a case of the second pattern discussed above, with ordinary subject agreement, a null SS marker, and an overt DS marker that is actually the conjunction /ö/. With this, the generalization that the SS head does not vary for phi-features would hold, even in Kobon. This proposal could also explain the patterns of two South American languages that look initially problematic for the generalization: the Jivaroan language Aguaruna (Overall, 2007) and the Tukanoan language Kotiria (Longacre, 1983; Stenzel, 2016)

The theory accounts for this generalization that SS and OS heads crosslinguistically do not vary with respect to the phi-features of the DPs they coconstrue. In this sense, it differs significantly from other current theories of SR which similarly rely on Agree to do some heavy lifting in syntax (McKenzie, 2012; Arregi and Hanink, 2019; Clem, 2019). Something these theories have in common is the idea that Agree copies a referential index from a DP to a probe analogously to how normal agreement copies phi-features. I have both a conceptual and an empirical counterargument to this kind of theory: the first is the question of whether it makes sense to treat an index as the value of a feature in the same way as gender, number, and person. If DPs have referential indices that are visible in narrow syntax at all, then these should be closely bundled with their phi-features, which basically state the presuppositions on what the index can refer to. Pollard and Sag (1994) and Wechsler and Zlatic' (2003) for instance, defend the view in which phi-features and indices are bundled together, offering as evidence the fact that bound pronouns – which share an index with their binder – necessarily share their phi-features as well. But this is not what we see in SR: DP coconstrual is separated from phi-feature matching, not dependent on it. If phi-features and referential indices (or ID features) are closely associated on the DP, and an Agreeing functional head can copy either one, I would expect the functional head to copy them as a package in many cases. So we should expect a positive correlation between a head expressing referential dependency and a head expressing phi-features, contrary to fact. As such, proposing that Agree creates links to DPs which are interpreted as a referential dependency better translates the generalization that SR heads do not expone phi-features. That is, this proposal intends to reflect the "Agree-without-agreement" aspect of SR in a way that an account based on copying ID features cannot.

The empirical argument comes down to the discussion just developed about SS and OS morphemes not exponing phi agreement: if phi-features and indices are ontologically similar and tightly packaged on the DP, we would expect a probe to often (or always) copy the whole package, contrary to fact. This is the main reason why I choose to design my theory around the notion of Agree-without-agreement rather than index-agreement.

This move does not come without a cost however. As previous authors, I need to

assume that certain operations must happen between Agree-link and Agree-copy, and decide, based on them, on the locus of each Agree step. It is a consensus that Agree-link applies in narrow syntax, but Agree-copy has been proposed to apply postsyntactically only, or to have the option between syntax and the morphological component – so that linearization can either precede or follow it. Crucially for my view, the semantic module needs to 'see' whether or not Agree-copy has applied so that it can compute coconstrual between the DPs whenever the links of Agree have not been dereferenced. I propose two possible ways to accomplish this and remain agnostic with respect to what implementation is the best: the first is to assume that the early stages of the morphological module (PF) – Arregi and Nevins (2012)'s "exponence conversion module", where postsyntactic Agree-copy takes place – feed into the semantic module (LF). The second is to assume that the fixing of linear order and the fusing of functional heads (or the head movement that leads to fusion) take place in narrow syntax, so that Agree-Copy always applies in syntax before structures are shipped to the semantic module. I leave this as an open question for now.

2.3.5 One head, two goals

The proposal is that two links of Agree coming from the same head to two different DPs are interpreted as a referential dependency between the DPs. I discussed in the previous section that one of these links is established between the T or Voice head in the embedded clause and the closest DP. The second link, I argue, comes from there being a complementizer head near the top of the adjunct clause which establishes Agree-link with the superordinate (matrix) subject. I assume an exploded view of the complementizer layer in the sense of Rizzi (1997), and propose that the probing head is Fin. Importantly, I assume Fin moves to Force, and as such is able to probe upwards from the edge of the clause. The lower probing head – either Voice for OS or T for SS – moves to unite with Fin+Force, bringing the link of Agree along with it and creating the necessary configuration for the establishment of a referential dependency.

The theory works the following way for adjunct SR: SS and OS adverbial clauses adjoin originally to a position above the object and below the subject in a matrix clause,

more specifically to matrix AspP. A reason to propose this specific locus of adjunction (as opposed to VoiceP, for example) is because a SR clause cannot be interpreted as scoping below the productive Causative – as shown by the ungrammaticality of 49-a – so it should be above this head in syntax. The example shows that for the embedded clause to have a causative meaning, it needs to have an overt causative morpheme; it does not suffice that the causative is present in the matrix clause. This means that the matrix causative does not scope over the SR clause. Further, SS and OS clauses can be interpreted in the scope of matrix T, as shown in 49-b, which is consistent with this proposed site of adjunction. In the matrix clause, we have the adverbial morpheme *-xin* – which has tense-related meaning, and therefore I assume is adjoined to TP – scoping over the adverbial clause (*-xin* is only optionally present in the adverbial clause, with no difference in meaning; see chapter 3 for a detailed discussion of the Yawanawa clausal spine).

(49) a. [Awĩhãu$_k$ verẽ tsau-*(ma)-shũ] *pro*$_k$ pi-ma.
woman.ERG son sit-CPROD-SS.PFV.ERG eat-CPROD.PFV
'The woman made her son sit and (made him) eat.'

b. [Awa-ki ẽ tuwe-(**xin**)-ashe] (ẽ) itxu-xin-a.
tapir-at 1S.ERG shoot-PST.NT-SS.PFV.NOM 1S.NOM run-PST.NT-PFV
'Last night I shot a tapir and ran (in fear).'

From this position where the SR clause is adjoined, embedded Fin can probe upward (after moving to Force) (Baker, 2008) and enter Agree-link with the matrix subject, but is unable to do the same with the matrix object, which is too low in clause structure to be reached. After the links of Agree are established, it is common that the SR clause extraposes – to the right – or topicalizes – to the left of the matrix clause: SR clauses are often but not necessarily peripheral to the larger sentence.

2.3.6 The full proposal

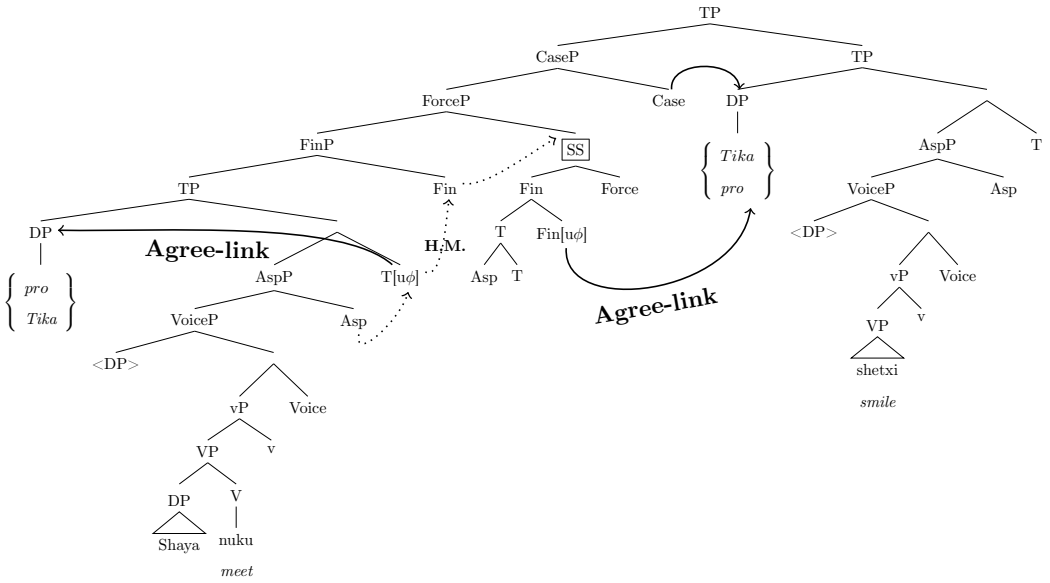
With all the pieces of the puzzle in place, this section presents the full proposal for adjunct SR constructions. Same-subject constructions are discussed first, then Object=subject constructions, which rely on the same basic mechanisms, and finally Different-subject constructions, which I argue involve just an ordinary adverbial clause that gets the DS interpretation by default.

2.3.6.1 Same-subject constructions

Let us start with SS adjunct clauses. The structure for a typical example like 21-a from Yawanawa (copied as 50 below) is given in 51, with the adverbial clause shown in its topicalized position for ease of exposition (to the left of the matrix clause). T and Fin in the SS clause are specified as phi-probes, but they lack slots to copy phi-feature values from their goals, so they do not trigger Agree-copy and dereferencing. Both heads enter Agree-link relations with the closest DPs, T probing downward into its c-command domain and Fin probing upward.

(50) [Tika=nẽ Shaya nuku-**ashe**], shetxi-a.
Tika=ERG Shaya.ACC meet-SS.PFV.NOM smile-PFV
'When Tika$_i$ met Shaya$_k$, he$_i$ smiled.'

(51)



A crucial part of the account is that T moves to Fin and fuses with it into a single head, leading to a configuration in which two links of Agree originate from the same syntactic terminal. I should add that this fusion should include two other heads as well. The first is Force: I propose Fin moves to Force and as such is able to probe upwards from the edge of the phase. The second is the Asp head, as discussed in section 2.3.2. This move is empirically motivated, since Asp+T+Fin is always exponed as single SS morpheme: we never see a separate T/Asp morpheme preceding the SS marker, only a morpheme like *-ashe* that expresses perfective aspect, subordinate clause status, and DP coconstrual all in one. The same is true for SS markers of the imperfective series: the morphemes *-i* in 52-a, and *-kĩ* in 52-b express aspect, subordination, and DP coconstrual.

(52) a. [Véi=nẽ vata itxapa pi-**i**] shua-i.
Vei=ERG sugar.ACC a.lot eat-SS.IPFV.NOM gain.weight-IPFV
'Vei is eating a lot of sugar and gaining weight.'

b. [Mixki-**kĩ**] Shukuvenã ixixiwã atxi-a.
fish-SS.IPFV.ERG Shukuvena.ERG catfish catch-PFV
'While fishing, Shukuvena caught a catfish.'

In order to ensure that Asp-to-T-to-Fin-to-Force movement and fusion take place in syntax mechanically, I assume that Asp is lexically specified as being an affix to T (in general) and that the T head without ϕ-slots is lexically specified as being an affix to Fin. Subordinate (adverbial) Fin in turn is lexically specified as being an affix to Asp and to Force, and Force is specified as being an affix to Fin. This is illustrated in 53[11]. These affixal features trigger head movement of Asp to T to Fin to Force in the sense of Lasnik (1981) and Baker (1988). "Affix" here is to be understood in an abstract sense: if a head H is specified as "Affix to F", this means that H has an F-selecting feature, satisfied by head movement of F or H, which creates a complex head. I present the vocabulary insertion rules that expone the SR bundles of heads and features in section 2.3.6.3.

(53) Asp: [_T]
$T_{[\phi]}$: [_Fin]
$Fin_{[\phi]}$: [Asp_]
$Fin_{[\phi]}$: [_Force]
Force: [Fin_]

In the semantic module, T has a link to the lower subject, and Fin has a link to the matrix subject, such that the Asp+T+Fin+Force complex head has links to both the embedded and the superordinate subjects. This is interpreted as DP coconstrual, the nature of which will vary according to the nominal types involved and the structure of the clause. I will discuss this in detail in chapter 5.

The last element of the SS paradigm that needs to be discussed is case concord. Recall that SS morphemes expone the case of the superordinate subject: this is shown in 52 with the imperfective SS markers and in 54 below with the perfective ones.

[11] I assume it is enough to say that Fin is specified as an affix to Asp because Asp to T movement will ensure that T is part of the bundle. This move is motivated by the desire to have a single lexical entry for adverbial Fin in SS and OS: in OS constructions T crucially does not move to Fin; see section 2.3.6.2

(54) a. [Nuku-**ashe**] Shukuvena tsau-a.
Shukuvena.NOM arrive-SS.PFV.NOM sit-PFV
'When he arrived, Shukuvena sat down.'

b. [Tsau-**shũ**] Shukuvenã yuma pi-a.
sit-SS.PFV.ERG Shukuvena.ERG fish eat-PFV
'After he sat down, Shukuvena ate fish.'

I interpret the case feature as a separate morpheme from SS per se – -*n* for ergative (from -*shu*+-*n*; -*ki*+-*n*) and ∅ for nominative (from -*ashe*+∅; -*i*+∅) – and propose it is the result of a distinct head probing, basically independently from the syntax of SS. I assume that a Case head at the top of the subordinate clause bears a case probe: it copies the case feature from the superordinate subject via (upward) Agree.

There are two sources of evidence for treating case concord as a separate phenomenon from SS itself: the first is that we find similar case concord on nonclausal adjuncts, including certain PPs. This is illustrated with Yawanawa locatives in 55 and is also true of Shipibo. In addition, Shipibo adverbs like 'quickly' also display this type of case concord (not attested in Yawanawa). This phenomenon is known as "participant agreement" in the Panoan literature (see for instance Valenzuela (2003, pp. 828–830)).

(55) a. Shukuvena [Tarauacá anu-ashe], Tashka [Rio Branco anu] a-ve
S.NOM Tarauacá there-NOM T.ACC Rio Branco there.ACC 3.SG-with
tsãik-i.
speak-IPVF
'Shukuvena, in Tarauacá, is speaking with Tashka in Rio Branco.'

b. Shukuvenã [Tarauacá anu-shũ] Tashka [TV anu] ũi-a.
Shukuvena.ERG Tarauacá there-ERG Tashka.ACC TV there.ACC see-PFV
'Shukuvena, in Tarauacá, saw Tashka on TV.'

The second fact I interpret as support for the view that SS and case concord are separate phenomena is that many SR languages crosslinguistically lack this sort of case concord, but SR seems to work the same way in them. For example, Pitjantjatjara SS clauses agree in case with the matrix subject (Austin, 1981, p. 321), but SS clauses in related Diyari do not (Austin, 1981, pp. 314–315), even though SS works the same way in these

languages. Therefore, we take the case concord to be relatively separate from SR (in contrast to Camacho (2010), for whom case agreement is a driving force in Panoan SR). I leave case agreement out of the tree structures, in order to keep them a bit simpler.

Wrapping up the discussion about SS, there should be an alternative mechanism for accomplishing it crosslinguistically, one in which the complementizer itself Agree-links directly with both subjects (the closest DP probing down, and the closest DP probing up). This is how SS works in the Agree-based theories of Clem (2018, 2019) and Arregi and Hanink (2019).[12] These should be possibilities sanctioned by UG as well, which is a move that gives our theory a much broad crosslinguistic scope.

The alternative route to SS in 57 is attractive for languages like Choctaw in which SS clauses have matrix-like expressions of T and subject agreement: SS does not replace these categories as it does in Panoan languages. This is illustrated in 56: in 56-a the subject agreement morpheme *-li* cooccurs with both the complementizer *kma*, 'if' – which I assume is in Fin – and the SS morpheme *-t* – which I assume is in Force; in 56-b, we have a number of inflectional morphemes preceding SS (which is realized as *-sh* after *-oo*). I propose that T agrees with the subject in all Choctaw clauses: both Agree-Link and Agree-Copy take place. The complementizer (Force in this case) also probes twice, but unlike T, it has no phi-feature slots: it undergoes Agree-Link twice – once downward with the embedded subject and once upward with the matrix subject – but no Agree-Copy. Thus Force does not vary for phi-features in Choctaw (although T does), but rather it coconstrues the lower and the higher subjects, by virtue of bearing Agree-links to both.

(56) Choctaw (Muskogean, Broadwell 2006, pp. 293, 288)

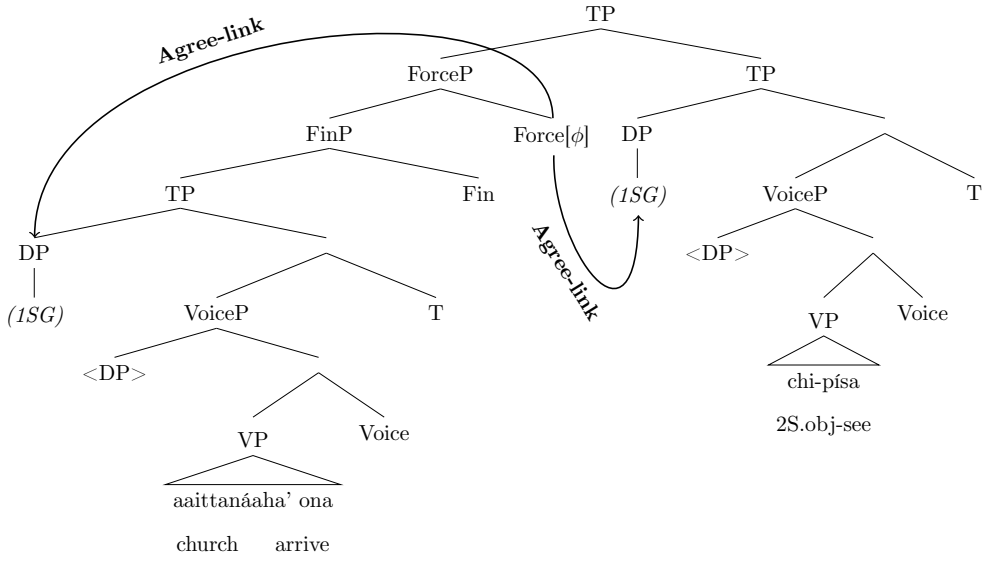
a. [Aaittanáaha' ona-li-kma-t], chi-písa-l-aachi-h.
church arrive-1.SG.S-IF-SS 2.SG.O-SEE-1.SG.SBJ-IRR-TNS
'I'll see you when I get to church.'

[12]This is also how Nonato (2014) proposes SR works in Kĩsêdjê (Jean), the only difference being that in his account, the head responsible for Agree is a & conjunct in a coordinate construction, rather than a complementizer.

b. [Palláska' ikbi-l-aachi-h-oo-sh] bótta' chopa-li-tok.
bread make-1.SG.S-IRR-TNS-PART-SS flour buy-1.SG.S-PST
'I bought flour to make bread.'

As such, the syntactic function and semantic interpretation of SS in Choctaw is essentially the same as it is in Panoan languages, with different morphological details because of the specific heads involved in Agree. Other languages that pattern like Choctaw are Kiowa (McKenzie, 2015, pp. 440–441), Seri (Marlett, 1981), and Pima (Langdon and Munro, 1979); others that pattern like Panoan include the Yuman and Pomo languages, Hopi, Quechua, and Diyari. The latter pattern seems to be more common: SR marking replaces tense-aspect-mood marking rather than being added on top of it (Austin, 1981; McKenzie, 2015; Roberts, 2017).

(57)



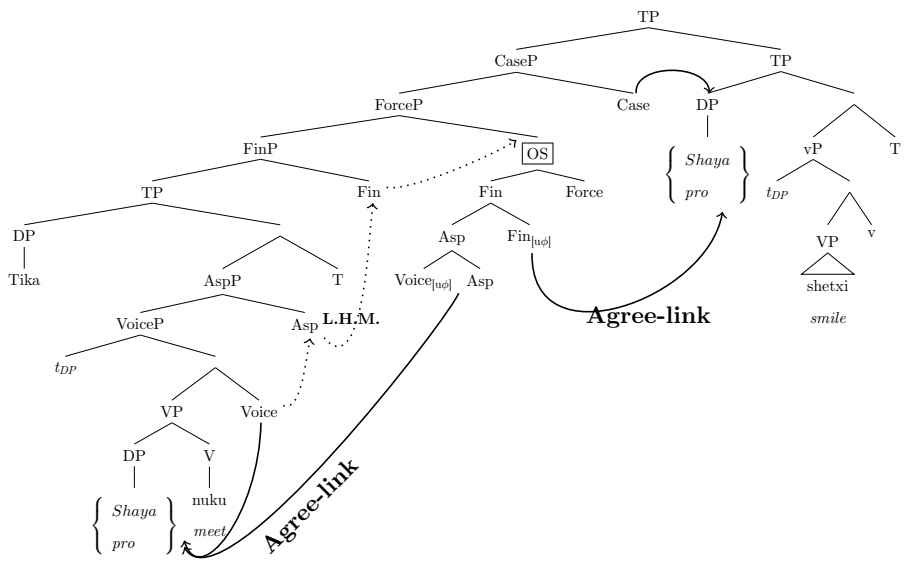
2.3.6.2 Object=subject constructions

Next, the derivation for OS adjunct clauses like 58 (previously 21-b), is given in 59. This structure parallels that of SS constructions, with the difference that here, Voice rather than T is involved as an Agreeing head. Voice is a ϕ-probe without slots to copy values, so it undergoes Agree-link but not Agree-copy with a local DP in its domain (either

an object inside VP or an applied argument in Spec ApplP). Fin in this construction behaves identically to SS constructions: it moves to Force and undergoes Agree-link with the superordinate subject.

(58) [Tika=nẽ Shaya nuku-**a**], shetxi-a.
Tika=ERG Shaya.ACC meet-OS smile-PFV
'When Tika$_i$ met Shaya$_k$, she$_k$ smiled.'

(59)



Once again, in order to get the configuration that leads to coconstrual, i.e. two links of Agree originating from one syntactic terminal, I argue that head movement and subsequent fusion obtains. This time, it is Voice that moves to Fin+Force, and there is empirical reason to say this movement goes through Asp, since the OS morpheme *-a* is semantically perfective, and the usual exponent of perfectivity is not possible in OS clauses.

However, there is evidence that this head movement is somewhat unusual: it does not happen successive cyclically as we would expect. More specifically, Voice seems to skip T, whose specifier position contains the subject. The main motivation to propose this is that the plural subject agreement morpheme *-kan/-hu* is possible in OS clauses, as shown in 60. This means that the T head in OS constructions probes independently

for normal subject agreement in OS clauses – i.e. it is a probe *with* phi-feature slots – and triggers the insertion of agreement morphology.

(60) [Nawa-hãu vakehu iwe-a-**hu**], *pro* yuma p[i]-i.
foreigner-PL.ERG child.ACC bring-OS-PL fish eat.IPFV
'The foreigners brought a child$_i$ and (s)he$_i$ is eating fish.'

The type of long head movement proposed here, in violation of the Head Movement Constraint, is certainly a marked phenomenon, but not completely unattested: Borsley and Stephens (1996) and Roberts (2010) for instance convincingly argue for V-to-C movement over T in Breton, for example (see Roberts 2010, p. 193 for more references; also Safir and Bassene 2017). In fact, the unusual nature of long head movement is actually a desirable feature of an analysis of OS, since it is such a rare phenomenon crosslinguistically —much rarer than SS and DS. As far as I am aware, OS might only be present in one non-Panoan language, namely Aguaruna; see the brief description in Overall (2007, p. 406). So, UG needs to cover this construction, but not make it readily available: a way to capture this is by proposing long head movement.

Again, I propose that affix features on the heads involved ensure the movement takes place. Furthermore, since in Yawanawa (and Shipibo) OS marking happens only in the perfective aspect (see table 2.2), I assume that Voice$_{[u\phi]}$ in these languages is also specified as affixing specifically to Asp$_{[\text{pfv}]}$, so it has two affix features, as in 61. Meanwhile, Fin$_{\text{SUB}}$ with a [uϕ] feature is an affix that selects for Asp, as above. Thus, Voice$_{[u\phi]}$ moves first to Asp, satisfying one of its affix features, then Voice+Asp moves to Fin+Force, satisfying Voice's second affix feature and one of Fin's affix feature. Voice skips over any intervening heads not specified in its affix features.

(61) Voice$_{[u\phi]}$: [_Asp$_{[\text{PFV}]}$] [_Fin]

One last detail is that the OS morpheme does not vary for case like SS morphemes do: there is no ergative version of it. I claim there is nothing deep to be explained about this gap in the paradigm, however, since the related language Kashibo-Kakataibo does

have case agreement on OS clauses, as shown in 62.

(62) Kashibo-Kakataibo (Panoan; Zariquiey 2011, pp. 585–587)

a. Juan-nën Pedro më-kë-**x** ka Lima=nu kwan-a-x-a
J=ERG P.ABS beat.up-PFV-OS.ABS NAR.3P L=LOC go-PFV-3P-NON.PROX
'After Juan beat up Pedro$_k$, he$_k$ went to Lima.'

b. Juan-nën Pedro më-kë-**xun** ka policia kwën-a-x-a.
J=ERG P.ABS beat.up-PFV-OS.ERG NAR.3P police.abs call-PFV-3P-NON.PROX
'After Juan beat up Pedro$_k$, he$_k$ called the police.'

For Shipibo and Yawanawa, I assume that the Case head still probes for a case feature, but that ergative is simply spelled out as ∅ after OS, such that the NOM-ERG distinction is neutralized in surface morphology. We propose that the semantic interpretation of OS clauses relies on the same mechanism as SS clauses do: the semantic module makes sure the linked DPs are coconstrued, either as bound variable anaphora, (dynamic) semantic binding, or coreference, depending both on the structure it receives from syntax and the nature of DPs involved (see chapter 5 for the full discussion).

2.3.6.3 Different-subject constructions are ordinary clauses

I have been mostly neglecting DS clauses in the course of the discussion, focusing on SS and OS. This treatment in fact does DS clauses justice, I claim, since there is nothing special about them: DS is simply a default form. DS meanings come about by means of competition between syntactic derivations: DS clauses are ordinary clauses, lacking special complementizers that Agree or fuse with other heads. I argue that by means of pragmatic blocking, these ordinary adjunct clauses are interpreted as not having the specialized meanings that SS and OS constructions do.

This simple analysis of DS has a number of advantages: first, it is justified by morphology. DS clauses have normal inflectional morphology (realizations of Asp/T), as shown in 63 (imperfective aspect is *-ai* in Yawanawa embedded clauses, vs. *i*, which expones present imperfective and only occurs in matrix clauses). As usual across languages, perfective morphology on the first clause gives the interpretation of a sequential

relationship between the events, and imperfective gives an overlapping relationship between the events (much like in SS and OS constructions).

(63) a. [Ẽ awa-ki tuwe-**a**-kẽ] Tika=nẽ tanaik-a.
1S.ERG tapir-DAT shoot-PFV-DS Tika-ERG trail-PFV
'I shot at the tapir and Tika tracked it down.'

b. [Ẽ atsa pi-**ai**-nũ] e-a Livia=nẽ ken-a.
1S.ERG yucca eat-IPFV-DS 1S-ACC Livia=ERG call-PFV
'While I was eating yucca, Livia called me.'

As such, I propose that DS is an affixal complementizer that is structurally higher than these T/Asp morphemes and that it does not probe or create any Agree-links in DS clauses, just like normal complementizers also do not in matrix clauses. Therefore, the morphemes I have been glossing as DS do not have a 'different-subject' meaning at all: their meaning is simply that of a subordinate complementizer that spells out differently according to contextual allomorphy in the presence of perfective or imperfective features on T/Asp.

Theoretical considerations also support my view of DS as an ordinary complementizer: as we are faced with the expanded Panoan paradigm containing SS, DS, and OS, encoding the meaning of 'different subject' into a given morpheme becomes extremely tricky. First, recall how in Finer (1984)'s Binding-based account of SR, DS is the result of Condition B applying: it is a pronominal element that cannot be bound in its local domain. Current views on the Binding Theory however, tend to throw out Condition B and implement instead a blocking account of the complementarity between anaphors and pronouns: anaphors need to be locally bound, and ordinary pronouns cannot be used in the same positions for the same interpretation (Safir, 2004; Büring, 2005; Reuland, 2011). As such, if we lose Condition B for ordinary anaphora, it would not make sense to keep it alive for SR, which I argue is a subtype of anaphora. The view that SS expresses coconstrual by grammatical means and this restricts the interpretation of DS is thus parallel to recent developments in Binding theory.

In addition, since I propose that DP coconstrual in SR is the result of links created

by Agree not undergoing dereferencing, how could we possibly represent a negative referential dependency, a non-coconstrual? There is no Anti-Agree, which says that a functional head *cannot* link to some nearby nominal, so DS finds no analog in syntactic theory. I interpret this as theoretical pressure to analyze DS clauses as ordinary adverbial clauses whose interpretations are affected by the existence of SS and OS clauses[13].

Additional evidence for the view of DS as a default form comes from cases in which we would expect SS or OS to surface, but the language has no specific morpheme to insert: 64 is one of these cases. The embedded object is coconstrued with the matrix subject in this sentence, but OS marking is not available because in Yawanawa and Shipibo, OS -*a* expresses perfective aspect. There is no OS morpheme expressing imperfective, so since 64 has imperfective aspect in the embedded clause, DS obtains.

(64) Txini *pro*$_i$ sai-shũn-ai-**nũ** yume$_i$ usha-[a].
Tixini.NOM sing-APPL-IPFV-DS sibling sleep-PFV
'Txini was singing to her little sister$_i$ and she$_i$ fell asleep.'

I propose that the only possible derivation for this type of sentence is the one with the non-agreeing Voice and Fin heads. The reason for this is the following: if we had agreeing Voice here, it would not be able to move up and fuse with Fin, since the Voice head that has a ϕ probe but no ϕ slots in Yawanawa (and Shipibo) is specified as an affix to the Asp head with *perfective* value (see the discussion in section 2.3.6.2). Because movement would not take place, then we would end up with two different syntactic terminals – Voice and Fin – having Agree-links to two different DPs. This is not the right configuration for OS: coconstrual obtains when links of Agree to two different DPs originate in the *same* syntactic terminal. I propose the derivation we get in constructions like this one (if agreeing Voice and Fin are merged) leads to a crash:

[13]But see Arregi and Hanink (2019) for an analysis of DS in Washo that is much closer to Finer (1984), built on the assumption that vocabulary insertion rules can detect whether two indices copied onto a head by Agree are the same or not. Clem (2018, 2019)'s analysis is similar in this respect, 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". Ikawa (forthcoming) has a similar view.

Agree-links resulting from ϕ probes without ϕ slots are uninterpretable unless they are paired (see the full discussion in the next section).

Further evidence for this view comes from Kashibo-Kakataibo, which as previously mentioned, does have an imperfective OS marker as well as a perfective one (Zariquiey, 2011, pp. 585–587): as we would expect, imperfective DS marking cannot be used when the embedded object is coconstrued with the matrix subject in this language (Zariquiey, 2011, pp. 588–590). And of course, if we compare the Panoan paradigm to the other less rich SR paradigms of other languages, we see even more supporting evidence for my view of DS, because DS marking covers the situation in which the embedded object is coreferential with the matrix subject. If I did not make use of blocking, I would have to say that the syntax of DS in Panoan languages is different from the syntax of DS in other languages, such that the embedded object is banned from referring to the matrix subject in Panoan DS clauses only. But there is no evidence for a difference in the syntax of DS, so this kind of analysis would miss a generalization: DS cannot mean object=subject in Panoan languages because OS is available and competes for that meaning. (See B&CS for additional examples in which DS can stand in for subject=subject clauses as a default, in the context of a certain postposition that blocks SS morphology).

Further empirical evidence for the blocking view of DS comes from the fact that in general, DS clauses can be used to express a wide and somewhat disjunctive range of situations, as expected of a default form. Besides expressing that no embedded argument is coconstrued with any matrix argument, as in 63-b, DS clauses can also be used when the subject of the embedded clause—or any embedded DP—is coconstrued with the object of the matrix clause, as in 63-a. In addition, if any DP other than the subject and the theme or goal object is coconstrued with the matrix subject, as in 38 for instance, DS is licensed; in other words DS is used whenever there is no morpheme that is more specialized to express the type of anaphoric relation present in a given construction.

With this, I close the discussion on the syntax of SR, having provided some converging evidence that DS clauses are syntactically unremarkable and take on their DS interpretation because of competition with the more specialized SS and OS clauses.

This stands out in the rich Panoan paradigm of SR because DS clauses have additional competition in some environments but not others. In 65, I provide the vocabulary insertion rules for the morphemes involved in the Yawanawa SR paradigm.

(65) VI rules for Yawanawa SR paradigm:

<u>SS, OS</u>

$\text{Asp}_{[\text{PFV}]}+\text{T}_{[\phi]}+\text{Fin}_{[\phi,\ \text{SUB}]}+\text{Force}_{[\text{SUB}]} \leftrightarrow$ *-ashe*/ _$\text{Case}_{[\text{NOM}]}$

$\text{Asp}_{[\text{PFV}]}+\text{T}_{[\phi]}+\text{Fin}_{[\phi,\ \text{SUB}]}+\text{Force}_{[\text{SUB}]} \leftrightarrow$ *-shu*/ _$\text{Case}_{[\text{ERG}]}$

$\text{Asp}_{[\text{IPFV}]}+\text{T}_{[\phi]}+\text{Fin}_{[\phi,\ \text{SUB}]}+\text{Force}_{[\text{SUB}]} \leftrightarrow$ *-i*/ _$\text{Case}_{[\text{NOM}]}$

$\text{Asp}_{[\text{IPFV}]}+\text{T}_{[\phi]}+\text{Fin}_{[\phi,\ \text{SUB}]}+\text{Force}_{[\text{SUB}]} \leftrightarrow$ *-ki*/ _$\text{Case}_{[\text{ERG}]}$

$\text{Voice}_{[\phi]}+\text{Asp}_{[\text{PFV}]}+\text{Fin}_{[\phi,\ \text{SUB}]}+\text{Force}_{[\text{SUB}]} \leftrightarrow$ *-a*

<u>Case</u>

$\text{Case}_{[\text{NOM}]} \leftrightarrow \emptyset$

$\text{Case}_{[\text{ERG}]} \leftrightarrow$ *-n*

$\text{Case}_{[\text{ERG}]} \leftrightarrow \emptyset$/ Voice+Asp+Fin+Force_

<u>DS</u>

$\text{Fin}_{[\text{SUB}]}+\text{Force}_{[\text{SUB}]} \leftrightarrow$ *-ke*/ $\text{Asp}_{[\text{PFV}]}$ _

$\text{Fin}_{[\text{SUB}]}+\text{Force}_{[\text{SUB}]} \leftrightarrow$ *-nũ*/ $\text{Asp}_{[\text{IPFV}]}$_

$\text{Asp}_{[\text{PFV}]} \leftrightarrow$ *-a*

$\text{Asp}_{[\text{IPVF}]} \leftrightarrow$ *-ai*/ _$\text{Fin}_{[\text{SUB}]}$

These vocabulary items are not conditioned by the presence of Agree-links per se, but rather by the valued $u\phi$ feature that is the result of Agree-Link, triggered by these heads having an unvalued $u\phi$ feature but no ϕ slots.

2.3.7 Typology of Agree

To summarize and wrap up the theory of adjunct SR, I provide a typology of Agree in this final subsection.

I assume that the SS, OS, and DS relations in Yawanawa (and Shipibo) are constructed by the lexical properties of the functional heads involved, together with logical constraints on how they can combine. Each head-type in the set {Fin, T, Voice} can be specified for one of three values: not a probe, probe for ϕ but no ϕ slots, or probe for ϕ with ϕ 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. The typology of functional heads found crosslinguistically is given in table 2.3 below:

Head	Not a probe	Probe with no ϕ slots	Probe with ϕ slots
Fin/ Force	*-kẽ/-nũ* in Yawanawa *that* in English, etc.	Component of SS and OS in Panoan and others	Agreeing C in Lubukusu, Flemish, etc.
T	T in Yw NMLZ clauses, T in Chinese, Yoruba, etc.	Component of SS in Panoan and others	Finite T in many languages
Voice/ v	Normal v/Voice in English, Panoan, etc.	Component of OS in Panoan	v/Voice of obj agreement in Quechua, Bantu, etc.

Table 2.3: Typology of Agree and functional heads

One thing to highlight as a potential point of contention is the fact that the versions of Voice, T, and Fin/Force that probe but have no phi-slots are exactly the ones that are specified as being affixes to other functional heads in my account, such that they must host or undergo head-movement. It is important to recall however, that having just a single Agree-link from one functional head to a DP is meaningless to interpretation, because by hypothesis, the semantic module cannot interpret it as coconstrual relation (or anything else).

Thus, I assume that ϕ-probes without ϕ-slots (the elements in the middle column) must come in pairs into a structure – that is, a probe without ϕ-slots must combine with another such probe – otherwise the derivation will crash. One of the reasons to

propose this is the following: imagine that a T head with a ϕ-probe but no ϕ-slots is merged into a derivation by itself, that is, it does not combine with a Fin head of the same type. What we predict in this case is that T would probe for the closest DP and not copy its phi-features, such that we end up with a structure that does not express DP coconstrual – because it lacks probing Fin – and is missing subject agreement – because T has no ϕ-slots. Because this is not attested, I conclude that this type of derivation must lead to a crash.

In addition I argue that heads with unvalued ϕ-features but no ϕ-slots systematically come with head-movement triggering features as well: if head movement does not obtain, then the meaningless single link between a head H and a DP is uninterpretable at the semantic module and leads to a crash. If a language lacks the heads in the middle column, it does not have SR constructions.

Finally, a natural question that arises in light of this typology is whether it is possible for a derivation to have both a T and a Voice head with ϕ-probes and no ϕ-slots. Baker and Camargo Souza (2020) argue that it is, proposing it is a configuration that leads to reflexive interpretations in languages like Shipibo (I do not pursue this topic here, but see chapter 3 for my analysis of Yawanawa reflexive constructions). With this, I close this chapter with some final remarks and takeaway lessons for the theory of SR as anaphora.

2.4 Conclusion

I have proposed a theory of SR in Yawanawa adverbial clauses which intends to be crosslinguistically encompassing. Given the focus on adjunct constructions, however, it becomes clear that the present theory is only the first piece of a larger enterprise, since SR is observed in a wide range of clause types across languages. I broaden the scope of the investigation in the coming chapters, and propose that my theory can indeed account for crosslinguistic data and different structural configurations.

The Agree-without-agreement theory makes strong arguments for the syntactic component of SR: Agree is in charge of searching and linking heads to nearby DPs, in the

sense of Arregi and Nevins (2012). This is evidenced by the trademark properties of Agree restricting pivot selection: c-command, intervention, case marking, and the PIC. As such, the 'subject' pivot of SS is the same DP that T would agree with in normal agreement relations; so is the 'object' pivot in OS. The relevant configuration for SS and OS to obtain is one in which a single syntactic terminal is linked to two DPs in syntax: this can be the result of separate heads Agree-linking to separate DPs and then fusing together – which I argue is what happens in Panoan languages – or a single head Agree-linking to the two DPs – which I argue is what happens in languages like Choctaw. Given that the PIC delimits the probing domain of heads involved in SR, we can make clear predictions regarding how the structural size of clauses affects the licensing of SR. This argument will be further pursued in chapter 4, where I focus on SR complementation.

Although syntax links the DPs to be coconstrued, it is the job of semantics to build the indicated coconstrual, based on the structure it receives and the nominal types involved. It is based on the broad distribution of SR crosslinguistically – and also Panoan-internally, to a certain extent – that I argue that the type of coconstrual that obtains in SR must vary. In well studied anaphoric processes, structure restricts the type of anaphoric links that will be possible: syntactic or semantic binding, coreference, etc. So if SR is an expression of anaphora, this must hold in SR as well. I develop this discussion in chapter 5.

Chapter 3

Locality domains for number-based suppletion

3.1 Introduction

This chapter investigates verb suppletion in Yawanawa, a topic which at first may strike the reader as extraneous to the whole of the dissertation. The discussion connects to the larger picture of switch-reference in different ways, however. First, it gives a better understanding of argument structure and the roles performed by the different heads in the extended verb phrase. In addition, suppletion patterns shed light on the structural size of clausal complements, serving as a valuable building block for chapter 4, which focuses on the mechanism of switch-reference in complementation. The locality required for suppletion to obtain provides independent evidence that subjects are merged complement-internally, which will be important for the analysis of switch-reference in complementation constructions.

The investigation of suppletion is also interesting in its own right. The pattern observed in Yawanawa and other Panoan languages is unusual and understudied from a typological perspective. From a theoretical perspective, it contributes to the discussion about locality domains in Distributed Morphology (henceforth DM): it is a consensus that the insertion of vocabulary items may be conditioned by elements in the surrounding context – a phenomenon known as contextual allomorphy – but the domain of this context is a topic of debate. By hypothesis, vocabulary insertion can only be conditioned by an element within the same domain of the item being inserted, but authors disagree about the size of this domain. Bobaljik (2012), Bobaljik and Harley (2017), and Choi and Harley (2019) for instance, argue for a very small domain limited by a maximal projection. Others like Embick (2010b) propose that the domain for contextual allomorphy is the phase.

The Yawanawa suppletion pattern also contributes to another discussion in the context of DM having to do with the adjacency requirement that may further constrain vocabulary insertion. There is a consensus that the trigger of allomorphy needs to be close to its target, but the definition of closeness is also a topic of debate. Bobaljik and Harley (2017) argue that vocabulary insertion can only be conditioned by a node's sister, but others argue that a sisterhood requirement is too strong: the trigger of suppletion may lie outside the phrase, as long as it is 'close enough' to the target. And 'close enough' means different things to different authors: for Embick (2010b), Arregi and Nevins (2012), and Kastner (2019), among others, contextual allomorphy is conditioned by linear adjacency, for Merchant (2015), nodes that are not immediately adjacent to the target can also be triggers, as long as they are part of an adjacent span of nodes, for Toosarvandani (2016), suppletion is always conditioned by the closest element with a certain featural composition, independently of its proximity to the target.

Yawanawa suppletion patterns contribute to the discussion about both these locality conditions: domain size and adjacency. I argue that verb suppletion in this language and some of its relatives requires the domain of contextual allomorphy to be the phase, rather than the phrase. This is more in line with Embick (2010b) than with Bobaljik (2012) and Bobaljik and Harley (2017). External arguments as well as applied and causer arguments are computed into the suppletion calculation, which has previously been shown to be possible by Toosarvandani (2016).

The reason Yawanawa suppletion is so unusual is because plural suppletive forms are triggered not only by one of the verbal arguments being plural, but also by the sum of participants involved in the verbal event. That is, if the verb has multiple singular arguments, plural suppletive forms are still triggered. As such, I propose an indirect mechanism to explain the suppletive patterns. Rather than having an adjacent nominal argument trigger vocabulary insertion of the suppletive verb directly, I propose that a probe collects the features of the arguments within the phrase – which is the domain of contextual allomorphy – and that adjacency is required between the suppletive verb and the probing head. I will argue that linear adjacency is the necessary concept for suppletion: intervention effects are observed when elements occurring between the

target and the trigger of suppletion in clausal hierarchy are morphologically overt, but not if they are null (c.f. Embick 2010b; Arregi and Nevins 2012; Kastner 2019). By hypothesis this is the case because syntactic terminals with no overt vocabulary items are "pruned" out of the structure in PF (Embick, 2010b).

More specifically, I argue that root suppletion in Yawanawa is conditioned by features on the functional head *Motion*, acquired by a cyclic probe. These features also feed a second pair of suppleting predicates within the extended verb phrase, which mimics the behavior of the verb root. Added to the locality conditions for contextual allomorphy, these factors can derive the observed suppletion patterns. As such, my proposal has a syntactic and a morphological component, resulting from a combination of Agree – limited by the PIC – and contextually-conditioned allomorphy – limited by node adjacency.

The discussion is organized in the following way: 3.2 introduces the basic paradigm and presents the puzzle with an overview of the proposed solution. 3.3 shows that Yawanawa number-based suppletion is different from both normal subject agreement – discussed in 3.3.1 – and the well-known absolutive pattern of number-based suppletion observed crosslinguistically – discussed in 3.3.2. Section 3.4 presents the components of the suppletion analysis, with 3.4.1 focusing on the functional Motion predicates, and 3.4.2 on roots. Section 3.5 presents the full analysis in detail, focusing on the Agree and exponence mechanism proposed, as well as the means to compute plurality from multiple singular features. Section 3.5.1 provides a brief discussion about the cooccurrence of Object=Subject switch-reference and suppletive predicates in order to motivate the claim that Voice should not be the head responsible for probing in motion constructions. Section 3.5.2 investigates how suppletive predicates behave in reflexive constructions and checks the predictions of my proposed system in that context. The final section 3.6 concludes, discussing some local and broad implications of Yawanawa suppletion: how it builds the ground for the discussion of switch-reference in infinitival clauses and how it contributes to the discussion of locality domains in Morphology.

3.2 Yawanawa number-based suppletion

Yawanawa roots expressing motion towards the speaker ('come') and motion away from the speaker ('go') undergo an unusual type of number-based suppletion. In contrast with the absolutive pattern commonly attested crosslinguistically (Veselinova, 2006), Yawanawa suppletion is conditioned by the total number of participants involved in the verbal event. One form of the suppletive predicate is chosen if the verb has a single singular argument, as in 1. The other form is chosen if the event has multiple participants, i.e. if the single argument is plural, as in 2, *or* if the verb has more than one argument, as in 3. The transitive versions of 'come' and 'go' mean 'bring' and 'take', respectively.

(1) Single SG argument

a. Kape **u**-i. (*ve-i)
caiman come.SG-IPFV come.PL-IPFV
'The caiman is coming.'

b. Kape **ka**-i. (*hu-i)
caiman go.SG-IPFV go.PL-IPFV
'The caiman is going.'

(2) Single PL argument

a. Yume-hu **ve**-kan-i. (*u-kan-i)
teenager-PL come.PL-PL-IPFV come.SG-PL-IPFV
'The teenagers are coming.'

b. Yume-hu **hu**-kan-i. (*ka-kan-i)
teenager-PL go.PL-PL-IPFV go.SG-PL-IPFV
'The teenagers are going.'

(3) Two SG arguments

a. Tika=nẽ a-wẽ pani **ve**-a. (*u-a)
Tika=ERG 3S-GEN hammock come.PL-PFV come.SG-PFV
'Tika brought his hammock.'

b. Tika=nẽ a-wẽ pani **hu**-a. (*ka-a)
Tika=ERG 3S-GEN hammock go.PL-PFV go.SG-PFV
'Tika took his hammock.'

Given this paradigm, it is natural to wonder whether the transitive verbs just happen to be homophonous with the plural forms of the intransitive verbs. However, there are a couple of reasons to believe this is not the full story. The first is that this same pattern is attested in other Panoan languages like Shipibo (Valenzuela, 2003, pp. 150, 273–279), and Yaminawa (Neely, 2019), which have different degrees of separation from Yawanawa within the language family. Yaminawa is in the same dialectal complex as Yawanawa (part of the Headwaters subgroup), but Shipibo is a much more distant relative, part of a different subgroup of the family, known as Chama (Fleck, 2013). For the sake of comparison, if we look at phenomena that actually involve morphological syncretism across the Panoan language family – i.e. the realization of Case, (c.f. Camargo Souza and Nonato 2018) – we don't find paradigms that coincidentally look the same, independently of how close two languages are. As such, it is unlikely that the verbs 'bring' and 'take' would consistently have the same morphological form as the plural suppletive forms of 'come' and 'go' in different languages[1].

The second reason to believe this suppletion pattern is not simply morphological syncretism is that it repeats itself with a second pair of motion predicates: the functional forms of 'come' and 'go', which translate as 'come/go while V-ing'. Valenzuela (2003) calls these 'venitives' and 'andatives', respectively. I will use the label 'Motion' to refer to them. The paradigm is given in 4 through 6: *-keran*, 'COME.SG' and *-kãin*, 'GO.SG' are used if the verb root selected by the Motion predicate has a single singular argument, as in 4. Otherwise, if the root selected has multiple arguments or its single argument is plural, then *-veran*, 'COME.PL' and *-hãin*, 'GO.PL' are used, as in 5 and 6.

[1]Because the suppletive forms are cognate across these languages, we could imagine them originating in the proto-language by means of morphological syncretism and being inherited by the modern languages. See additional arguments for suppletion, however.

(4) Single SG argument

a. Vea sai-**keran**-i. (*-veran-i)
Vea sing-COME.SG-IPFV COME.PL-IPFV
Vea is singing as he is coming this way.

b. Na vakehu meshu-**kãin**-i. (*-hãin-i)
DEM.PROX child crawl-GO.SG-IPFV GO.PL-IPFV
'This child is crawling (away).'

(5) Single PL argument

a. Yura westima sai-**veran**-kan-i. (*-keran-kan-i)
person many sing-COME.PL-3PL-IPFV COME.SG-3PL-IPFV
'Many people are singing as they are coming this way.'

b. Yura westima yamãyamã-**hãi**-kan-i. (*-kãi-kan-i)
person many sing.traditional.song-GO.PL-3PL-IPFV GO.SG-3PL-IPFV
'Many people are singing (a type of traditional song) as they are going.'

(6) Two SG arguments

a. Ẽ mi-a xinã-**veran**-i. (*-keran-i)
1SG.ERG 2SG-ACC think-COME.PL-IPFV COME.SG-IPFV
'I was coming this way thinking about you.'

b. Ẽ mi-a xinã-**hãin**-i. (*-kãin-i)
1SG.ERG 2SG-ACC think-GO.PL-IPFV GO.SG-IPFV
'I am going (away) thinking about you.'

The fact that two pairs of predicates of different syntactic categories follow the same suppletion pattern strongly suggests that there are underlying grammatical mechanisms underlying the pattern, not merely morphological syncretism. An important question to raise at the outset of this investigation is whether root and functional suppletion are governed by the same mechanism, or if there could be a different independent mechanism responsible for each, and they just happen to follow a similar pattern. In other words, are root and functional motion predicates each doing their separate probing and exponing, or is there a single mechanism underlying both?

An answer to that comes from the fact that root and functional suppletive motion predicates cannot cooccur, unless they are separated by overt morphological material. Even though there is no obvious reason why a sentence like 7-a would be ill-formed from a syntactic as well as a semantic point of view, it is ungrammatical. My consultant corrects it to 7-b, in which only the suppletive root is present.

(7) a. *Awĩhu-hãu rauti **ve-veran**-kan-i.
woman-PL.ERG adornments come.PL-COME.PL-3PL-IPFV
Intended: 'The women are coming this way bringing adornments.'

b. Awĩhu-hãu rauti **ve**-kan-i.
woman-PL.ERG adornments come.PL-3PL-IPFV
'The women are (coming this way) bringing adornments.'

In contrast, 8 has the applicative head intervening between the two suppletive predicates. In this case, *ve* and *-veran* can cooccur. This suggests that the ungrammaticality of 7-a is due to haplology, or morphological OCP, which is a post-syntactic constraint against relativized adjacent identity of nodes within a particular domain (Nevins 2012 and references therein). This strongly suggests that these two predicates are viewed by grammar as (at least partially) identical with respect to their featural content and as such, can only cooccur if they are not immediately adjacent in the morphological word.

(8) Shukuvenã e-a nawe ve-**shũ**-veran-i.
Shukuvena.ERG 1S-ACC tobacco come.PL-APPL-COME.PL-IPFV
'Shukuvena is coming this way bringing me tobacco.'

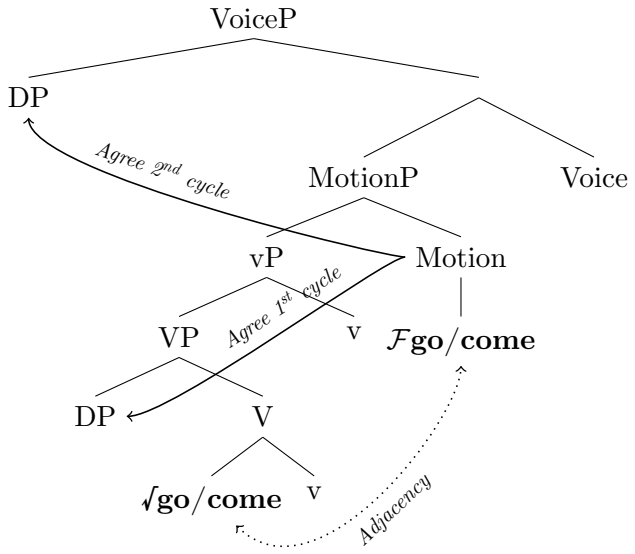
These sentences provide a couple of pointers to guide the investigation. First, they show that these predicates are independent: the occurrence of one does not depend on the occurrence of the other in any way. In addition, the haplology effect suggests that they have at least partially identical featural specifications, which are by hypothesis derived from them operating under the same or very similar mechanisms.

The tree in 9 illustrates my proposal. Because of its merge position and syntactic behavior, I assume Motion is a vP-selecting non-thematic functional restructuring

predicate (c.f. Wurmbrand 2001; Cinque 2001). Motion is optionally present in the extended verb phrase: when present, it contributes the meaning of movement and direction of motion. It can combine with any verb root: with stative roots, it contributes the meaning of entering or exiting a state. Crucially for my proposal, Motion is always present in constructions with motion verb roots.

I propose that Motion has a cyclic probe that is satisfied by a plural feature, but interacts with phi features on all DPs in the phase (c.f. Béjar and Řezáč 2009; Preminger 2011; Deal 2015). The structure also illustrates my proposal for the locality of contextual allomorphy: linear adjacency is required between the probing Motion head (the trigger) and the suppleting predicate (the target). In order to explain how plurality is computed from multiple singular arguments, in section 3.5 I propose a morphological rule that converts a bundle of [SG] features into a [PL] feature.

(9)



I propose that functional 'come' and 'go' are the spellout of the Motion head itself, with the features it has collected. The plural form expresses that the Motion probe has been successful in its search for a plural feature (or multiple singular features that are converted into plural in Morphology), and the singular form indicates that the search failed. Suppletive roots also depend on the features on Motion: if Motion is

immediately adjacent to the root at the moment of vocabulary insertion, its plural features can trigger plural suppletion on the root. Otherwise, if there is intervening morphological material between the root and Motion, plural suppletion is blocked. As such, singular suppletive forms are always the exponence of some type of failure: either the probe's failure to find plural, or the failure of linear adjacency to obtain between the trigger and target of suppletion.

3.3 What Panoan suppletion is not

In order to develop the proposal that accounts for Yawanawa suppletion, it is important to get some alternatives out of the picture first. This is what this section is dedicated to. I start by showing in 3.3.1 how suppletion differs from normal subject and object agreement. Then in 3.3.2, I argue that theories of number-based suppletion like those of Bobaljik (2012) and Bobaljik and Harley (2017) are not enough to account for the Yawanawa pattern.

3.3.1 Suppletion vs. normal agreement

Something that needs to be ruled out is that Yawanawa suppletive forms are simply expressing a form of conventional agreement on functional heads. There are a number of reasons to say that is not the case. First, the plural suppletive forms can't be an expression of object agreement on v/Voice, because singular objects cooccur with them, as in 6. Nor do they express subject agreement, because that is the role of the morpheme *-kan*. Note that in intransitive constructions involving a single plural argument, such as 5, there are two expressions of plurality in the verbal word: the suppletive form of 'come/go' itself, and the morpheme *-kan*. In contrast, the transitive constructions with singular subjects in 6 only express plurality on the suppletive form of 'come/go'. As expected, the plural subject agreement morpheme *-kan* is not licensed in these cases. This shows that suppletion is not an expression of normal agreement as *-kan* is: *-kan* is licensed when the subject is plural, suppletive plural forms are licensed when the total sum of participants in the event is plural.

To be more precise, the plural agreement morphemes *-kan* and *-hu* in Yawanawa are actually exponents of 3rd person plural, as shown in 10 (*-kan* occurs in present imperfective constructions and *-hu*, elsewhere). This fact will provide an additional piece of evidence that suppletion is not just normal agreement.

(10) a. Yume-hu munu-*(**kan**)-i / munu-a-*(**hu**)
teenager-PL dance-3PL-IPFV dance-PFV-PL
'The teenagers are dancing.'

b. Nũ/Mã munu-(*__kan__)-i/ munu-a-(*__hu__).
1PL/2PL dance-PL-IPFV dance-PFV-PL
'We/Y'all are dancing.'

Relevantly, when 1st and 2nd person plural arguments interact with suppletive predicates, they trigger plural suppletion but not subject-verb agreement, as shown in 11. That is, while subject agreement morphology is licensed by number and person features, suppletion is not affected by person. Paired with the previous examples, this is strong evidence that the calculation of suppletion is distinct from that of normal subject agreement.

(11) Nũ/Mã ve/hu-(*kan)-i.
1PL/2PL come.PL/go.PL-3PL-IPFV
'We/Y'all are coming/going.'

There is one more piece of evidence for this claim, coming from same-subject switch-reference clauses. SS clauses don't expone plural subject agreement on the verbal word, by hypothesis because T is involved in the switch-reference mechanism (see chapter 2). 12 shows that in spite of this, SS clauses can still have the plural suppletive forms of 'come' and 'go', suggesting once again that a different mechanism must be responsible for suppletion.

(12) [[Yume-hu cidade **hu**-(*kan/hu)-shũ] tsãivem[a]-a-hu], Txini inĩma. (*ka-shũ)
teen-PL city go.PL-3PL-SS.PFV.ERG call-OS-PL Txini happy.PFV
'When the teenagers went to the city and called her, Txini was happy.'

With normal agreement out of the picture, I revisit the standard theory of number-based suppletion next and show that it is not enough to account for the Yawanawa suppletion paradigm.

3.3.2 Yawanawa suppletion vs. the absolutive pattern

Veselinova (2006) presents a typology of number-based root suppletion drawing from a number of unrelated languages. She shows that in general, number-based suppletion is conditioned by internal arguments crosslinguistically. External arguments play no role in whether or not a root suppletes for number. Based on this generalization, Harley (2014) and Bobaljik and Harley (2017) propose that number-based suppletion is conditioned by the number features on a verb's internal argument: at spellout, the verbal root will be morphologically realized as its singular or plural suppletive form according to the number feature on its sister node. The logic behind this argument is that suppletion must be a strictly local morphological phenomenon, conditioned by node sisterhood alone. This idea is in line with Bobaljik (2012)'s work on crosslinguistic patterns of suppleting comparative and superlatives: according to him, suppletion cannot be conditioned across a phrasal boundary.

There are a couple of reasons why this approach does not fully account for Yawanawa suppletion (as well as that of other Panoan languages like Yaminawa and Shipibo). The first was introduced with the Yawanawa paradigm itself: external arguments very much play a role in determining whether the singular or plural forms of the suppletive predicates obtain. In sentences like the ones in 6, for instance, where the internal arguments are singular, we would not expect the plural form of the suppleting predicate to be grammatical unless the external arguments were also contributing features to the calculation.

The second reason why Harley (2014)'s and Bobaljik and Harley (2017)'s proposals could not account for Yawanawa suppletion is because they make a very clear prediction that all suppleting predicates must be unaccusative. That is, if the type of locality required for root suppletion is one of sisterhood, then only constructions in which the verb root selects its single argument directly would allow for root suppletion to obtain.

An unergative predicate, whose single argument is introduced VP-externally, could not be a suppletive root in their account. Using the language-internal diagnostic of applicative selection, Harley (2014) argues that all suppleting roots are unaccusative in Hiaki (Uto-Aztecan), despite some of them having unexpected semantics.

Toosarvandani (2016) however, shows that the sisterhood requirement for suppletion is too strong. Single arguments of unergative predicates, as well as applied arguments can be triggers for number-based suppletion in Northern Paiute, a language of the same Uto-Aztecan family as Hiaki. That is, he argues against Bobaljik (2012)'s proposal that vocabulary insertion can only be conditioned by an element within the same maximal projection. Yawanawa data corroborates this view. In what follows, I will argue that Yawanawa suppletive motion predicates are unergative, exploring language-internal diagnostics, and mapping the extended projection of the verb phrase.

The only known unaccusativity diagnostic available for Yawanawa is causative selection: unlike Uto-Aztecan languages, Yawanawa lacks a passive, and the applicative morpheme doesn't discriminate between unaccusatives and unergatives. The language has two different morphemes with causative semantics: the first one is *wa*, which only selects unaccusative predicates whose internal argument has a patient thematic role, as in13 (I gloss it as CLEX1, short for lexical causative 1, a choice which will be made clear in the discussion that follows). The second one is *-ma*, which is the causative of choice whenever the verb phrase selected is transitive or when a verb's single argument has a thematic role associated with a higher projection, such as experiencer or agent (I gloss it as CPROD, short for productive causative). Some of these causativized predicates are given in 14. This diagnostic does not point in the direction of suppletive 'come' and 'go' being unaccusative, since they are selected by causative *-ma* rather than *wa*, as shown in 15.

(13) Causatives of unaccusatives

a. Ẽ peshe ewa-**wa**.
1S.ERG house grow-CLEX1
'I expanded the house.' (lit: I made the house grow)

b. Shukuvenã peshe ku-**wa**.
Shukuvena.ERG house burn-CLEX1
'Shukuvena burned the house.'

c. Tika-nẽ a-wẽ peshe yuxtu-**wa**.
Tika-ERG 3S-GEN house get.crooked-CLEX1
'Tika is making his house get crooked.'

(14) Causatives of transitive and unergatives

a. Awĩhãu vakehu pi-**ma**-i.
woman.ERG child eat-CPROD-IPFV
'The woman is feeding the child.' (lit: The woman is making the child eat)

b. Txini-mã Sana shetxi-**ma**.
Txini-ERG Sana laugh-CPROD.PFV
'Txini made Sana laugh.'

c. Ẽ Tika tsau-**ma**.
1S.ERG Tika sit-CPROD.PFV
'I made Tika sit down.'

(15) Suppleting predicates pattern with transitives and unergatives

Shukuvenã nawa ka/u-**ma**-xina.
Shukuvena.ERG foreigner go/come-CPROD-PST.NT
'Shukuvena made the foreigner leave/come last night.'

It is important to point out that certain predicates we would expect to be unaccusative because of their general meaning are selected by *-ma* in Yawanawa, among which are 'sink' and 'die'. Arguably the verb 'die' could assign an experiencer, rather than a patient thematic role, but it is hard to say the same for 'sink', since it may select inanimate DPs. So, while it is true that *-wa* only selects unaccusative predicates, it is not the case that *-ma* only selects unergatives and transitives: it could be a default form. Therefore, if a predicate is selected by *-wa*, it is certainly unaccusative, but not all unaccusatives are necessarily selected by *-wa*.

In fact, Yawanawa has a number of strategies to transitivize unaccusative predicates,

with causativization by *-wa* being just one of them. Some unaccusative predicates express transitive-inchoative alternations by a final vowel change, as in 16, others undergo a stress shift, as in 17 and 18, and still others have no morphological differences whatsoever between their transitive and unaccusative versions.

(16) a. Ketxa muxi-a.
plate break.INTR-PFV
'The plate broke.'

b. Veã ketxa mux[a]-a.
Vea.ERG plate break.TR-PFV
'Vea broke the plate.'

(17) a. Tika-nẽ peshe pake-á.
Tika-ERG house fall-PFV
'Tika fell the house (tore it down).'

b. Tika-nẽ peshe paké-a.
Tika-GEN house fall-PFV
'Tika's house fell down.'

(18) a. *pro* awĩhu nuku-á.
woman meet-PFV
'(Someone) met the woman.'

b. Awĩhu nukú-a.
woman arrive-PFV
'The woman has arrived.'

As such, I would not rely on causative selection as the single (or central) argument upon which to base an analysis. Because it provides valuable evidence for the fine structure of the extended verb-phrase however, I will explore it a bit further in what follows. The reason causative selection is a good diagnostic for verb phrase structure in Yawanawa is because the two causative morphemes *-ma* and *-wa* can be exponents of different heads, with different selectional properties. A simple way to observe that is in the interaction of these two morphemes with the applicative head *-shũ*. The applicative

may select any type of predicate, and when present, it introduces an internal argument to the extended projection of the verb. Crosslinguistically, applicatives that introduce arguments with a benefactive interpretation are high applicatives, known to select vP (c.f. Pylkkänen 2002; Harley 2013; among others). As such, the fact that causative *-wa* is always structurally lower than the applicative in clausal hierarchy suggests it is an exponent of a v head. This is shown in 19.

(19) Shukuvenã shaneihu peshe ku-**wa**-shũn-a. (*ku-shũ-wa)
Shukuvena.ERG chief house burn-CLEX1-APPL-PFV
'Shukuvena burned the house for the chief.'

Harley (2017)'s typology of causatives provides the groundwork to map the projections that are at play in Yawanawa. She draws a couple of important distinctions based on crosslinguistic evidence. On the one hand, she distinguishes between lexical and productive causatives, and on the other, between the subject-licensing v head and the lexical causative. In Yawanawa the morpheme *-wa* is responsible for licensing an external argument in a number of unaccusative-to-transitive derivations. In other words, *-wa* adds an argument with causer/agent thematic role to a structure which would be otherwise unaccusative. As such, I propose that *-wa* is a (possible) morphological exponent of the lexical causative (in the sense of Harley 2017). Crucially it is a morphological realization of Caus_{lex} in the context of a $\text{v}_{[\text{-EXT}]}$, that is, a v head with unaccusative flavor, which does not introduce an external argument. I assume that transitive and unergative constructions involve a subject-licensing $\text{v}_{[\text{+EXT}]}$ instead.

Although Caus_{lex} licenses an external argument, it does not introduce it. External argument introduction is the role of Voice in languages like Yawanawa, in which the v and Voice heads are not bundled (c.f. Pylkkänen 2002 and much subsequent work). Note how in 19 the order of the verbal morphemes does not quite match the order of arguments they license: even though *-wa* licenses the external argument and appears hierarchically lower than the applicative, the external argument is higher in the clause than the applied argument. Observing this exact pattern in Hiaki, Harley (2013) proposes that while v is responsible for licensing the external argument, introduction is

done higher up, by Voice. She also proposes that the lexical causative head is an iteration of v, so their similar properties should be no surprise. As such, the applicative projection is sandwiched between vP and VoiceP, in line with Pylkkänen (2002)'s non-Voice-bundling languages. The hierarchy of projections in the Yawanawa extended verb phrase is the following:

(20) vP>CausP$_{\text{lexical}}$>ApplP>VoiceP

The causative *-ma* behaves quite differently from *-wa* with respect to its selectional properties. *-ma* is compatible with constructions that have external arguments, suggesting it may select v$_{[+\text{EXT}]}$. Interestingly, it can be either lower or higher than the applicative in clausal structure, a positional flexibility that is not observed for *-wa*.

(21) a. Ẽ Shaya matu sai-**ma**-shũ-a.
1SG.ERG Shaya.NOM 2PL.ACC sing-CLEX2-APPL-PFV
'I made Shaya sing to y'all.'

b. Ẽ Shaya matu sai-shũ-**ma**.
1SG.ERG Shaya.NOM 2PL.ACC sing-APPL-CPROD.PFV
'I made Shaya sing to y'all.'

Note how the apparent mismatch in the order of arguments observed in 19 also obtains in 21-a: the causative *-ma* is introduced lower than the applicative *-shũ*, but the applied argument *Shaya* is lower than the causer. Again, this shows that a lexical causative patterns with v in being able to license but not introduce an external argument. This mismatch is not observed in 21-b, however: *-ma* is above the applicative head and introduces its own argument in this construction. I take this to mean that *-ma* can function either as a lexical or a productive causative (this is expressed by the glosses CLEX2 and CPROD). While the lexical causative licenses an external argument without introducing it, the productive causative selects VoiceP and introduces its own argument, above the causee.

The contrast between the morpheme orders in 21-a and 21-b informs us that Yawanawa

has very transparent structural means to encode a scope variation: 21-a is an applicative of causative construction and 21-b is a causative of applicative. This variation is analogous to what Harley (2013) observes in Hiaki, but unavailable in a number of languages which have a strict templatic morpheme order, like Chichewa (Hyman, 2002). I follow Harley (2013) in proposing that the availability of both orders and the scope change it reflects follows from different hierarchical structures (c.f. Baker 1985). If the lexical causative selects the verb and is further applicativized, as in 21-a, the meaning of the construction is that there is an argument – *matu*, 'y'all' in 21-a – affected by my causing Shaya to sing. In other words, I'm causing Shaya to sing and I'm doing so to y'all's benefit. Instead, if the applicative selects the verb, it conveys the meaning that Shaya's singing is to y'all's benefit, not my causing her to sing. The meaning change is subtle, but still structurally available: the applicative can either be defined over the singing event or to the causing-to-sing event.

In summary, I have shown that *-wa* is a lexical causative that always embeds unaccusatives: it selects a vP headed by $v_{[\text{-EXT}]}$. *-ma*, in contrast may select structures containing external arguments. As a lexical causative, it may select a vP headed by $v_{[\text{+EXT}]}$, and as a productive causative, it selects VoiceP.

Based on Jung (2014), Harley (2017) argues that Hiaki lexical causatives may only select unaccusatives, but that is not the case in Yawanawa. For instance, we see it selecting unergative *sai* 'sing' in 21-a. In addition, 22-a shows that two morphemes *-ma* may stack, suggesting a productive causative may select a structure containing a lexical causative. The sentence is analogous to 22-b: in both constructions the productive causative selects a structure containing a lexical causative; they only differ with respect to the transitivity of the verb. With transitive *pi* 'eat' in 22-a, the lexical causative spells out as *-ma*, and with unaccusative *ku*, 'burn' in 22-b, it spells out as *-wa*.

(22) a. E-wẽ ewã e-a yume pi-**ma-ma**.
1S-POS mother.ERG 1SG-ACC young.sibling eat-CLEX2-CPROD
'My mother made me feed my younger sibling.' (lit. 'cause sibling to eat')

b. Shaneihãu Shukuvena wai ku-**wa-ma**.
chief.ERG Shukuvena plantation burn-CLEX1-CPROD
'The chief made Shukuvena burn the plantation.' (lit. 'made S. cause the plantation to burn')

There is still the question of whether 22-a could actually involve two productive causatives, rather than a productive and a lexical causative. However, the contrast between the constructions in 23 shows that productive causatives may not stack, in consonance with Svenonius (2005)'s crosslinguistic survey which reveals a general prohibition against the cooccurrence of multiple productive causatives. This is additional evidence that the lower *-ma* is the spellout of the lexical causative when it selects a transitive or unergative structure.

(23) a. *Shaneihãu e-a Shaya matu sai-shũ-**ma-ma**.
chief.ERG 1SG-ACC Shaya 2PL.ACC sing-APPL-CPROD-CPROD

b. Shaneihãu e-a Shaya matu sai-**ma**-shũ-**ma**.
chief.ERG 1SG-ACC Shaya 2PL.ACC sing-CLEX2-APPL-CPROD
'The chief made me make Shaya sing to y'all.'

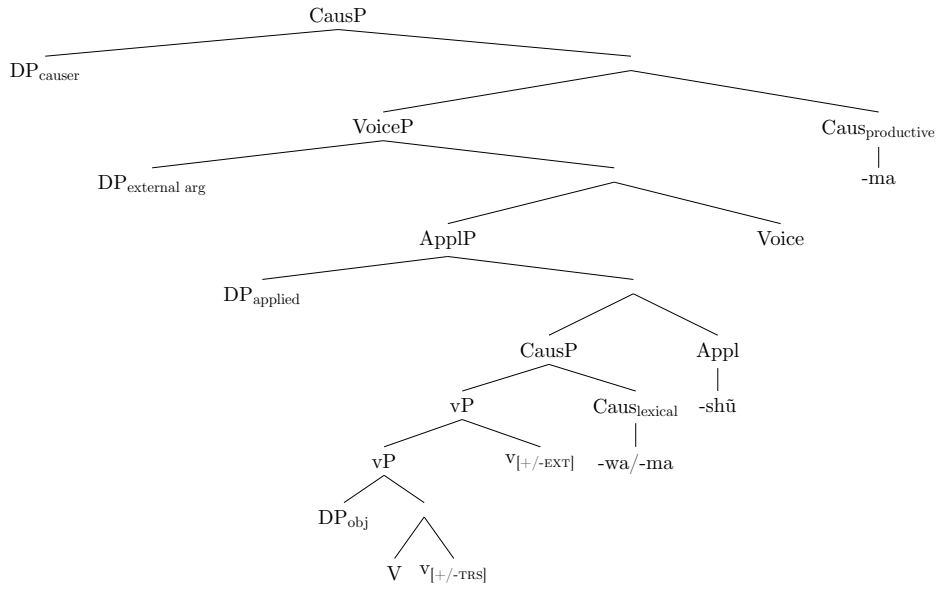
Putting all this together, we have clear evidence that lexical causatives in Yawanawa may select unergatives and transitives, in addition to unaccusatives. This suggests that Jung (2014)'s and Harley (2017)'s generalization that lexical causatives may only select unaccusatives is not universal, but a fact about Hiaki. It is important to flag that more permissive languages like Yawanawa raise a relevant issue to the extended structure of the verb phrase. It is the following: both the subject-introducing v and the lexical causative behave similarly in that they license an external argument, but they do not introduce it, leaving that job to Voice. This means that whenever both these heads are present in the extended verb phrase – which must be the case when the lexical causative selects an unergative or transitive structure – then there will be two arguments that need to be introduced by Voice. Here, I will simply assume that Voice is able to introduce more than one external argument, since this is not the main topic of the chapter. It is interesting to note, however, that this issue should arise for

any theory that follows Harley (2017) in separating the subject-licensing v from the lexical causative, when dealing with languages in which the lexical causative is free to select structures other than unaccusative. This issue is not Yawanawa-internal or connected to suppletion in any way. As such, the updated hierarchy of projections in the Yawanawa extended verb phrase is the following:

(24) $\text{vP} > \text{CausP}_{\text{lexical}} > \text{ApplP} > \text{VoiceP} > \text{CausP}_{\text{productive}}$

With this, let us return to the discussion of causative selection as an unaccusativity diagnostic. Recall that this is important for the analysis of suppletion because existing theories predict that all suppletive roots must be unaccusative. I have shown above, however, that the causative head that selects suppletive 'come' and 'go' in Yawanawa is *-ma*, not *-wa*. While *-wa* only selects unaccusatives, *-ma* may select a wider range of predicate types (since this morpheme expones both the lexical and the productive causative), leaving us with no clear evidence that suppletive predicates are unaccusative. The structure below illustrates the Yawanawa extended verbal projection:

(25)



As I have been discussing throughout this section, there are two causative heads in Yawanawa: the productive causative above VoiceP, the lexical causative below ApplP. I

follow Harley (2017) in proposing that the subject-licensing v and the lexical causative are separate projections. This allows for a straightforward vocabulary rule for the insertion of -*wa*: it is the spellout of Caus_{lex} in the context of $\text{v}_{[\text{-EXT}]}$. In the context of $\text{v}_{[\text{+EXT}]}$, the lexical causative spells out as -*ma*, which is the same morphological realization of the productive causative.

There is one more element in this structure that needs to be discussed: I propose that a verbalizing v head selects the verb and carries a [TRS] feature, which may have a + or - value, according to the verb's transitivity. I propose that transitivity is the syntactic correspondent of a verb's semantic type: verbs of type <e,t> come from the lexicon with a single thematic role to assign and the feature [-TRS]; verbs of type <e,<e,t>> come with two thematic roles and the feature [+TRS]. Encoding transitivity is necessary because while unergatives pattern with transitives in projecting an external argument, they pattern with unaccusatives in being monoargumental predicates. This means that the [+/- EXT] feature is not enough to distinguish the three predicate types.

There is a simple way to show this is the case. Baker (2014) introduces a transitivity diagnostic for Shipibo that happens to work just as well for Yawanawa. These two Panoan languages have verbs that behave very much like English 'do' in that they can substitute a main verb in a short answer or in cases where the meaning of the verb is clear from context. Unlike 'do', however, they have two forms: *ik*, if the predicate it substitutes for is intransitive and *ak*, if it is transitive. 26 shows that both with unaccusatives and unergatives, the only acceptable short answer version of 'do' is *ik*, whereas transitives require *ak*[2].

(26) a. –Vea saik-i-mẽ? –**Ik**-i! (*ak-i)
Vea.NOM sing-IPFV-INT do.INTR-IPFV do.TR-IPFV
'–Is Vea singing? –He is!'

b. –Wai ku-i-mẽ? –**Ik**-i! (*ak-i)
plantation.NOM burn-IPFV-INT do.INTR-IPFV do.TR-IPFV

[2]Yawanawa does not allow stops in coda position and deletes 'k' whenever the following morpheme starts with a consonant.

'–Is the plantation burning? –It is!

c. Ẽ uni **a**-pai. (*i-pai)
1S.ERG ayahuasca do.TR-DES do.INTR-DES
'I want to drink/take ayahuasca.'

I will assume that these two versions of 'do' are the spellout of different verbalizing v heads, in the absence of an overt verb root. $v_{[+TRS]}$ spells out as *ak*, $v_{[-TRS]}$ spells out as *ik*. As such, a three-way argument structure distinction is possible: transitives have [+TRS] and [+EXT], unergatives have [-TRS] and [+EXT], and unaccusatives have [-TRS] and [-EXT].

I close this section with the takeaway lesson that Yawanawa suppletion does not follow the well known absolutive pattern observed crosslinguistically. External arguments play a role in the suppletion calculation, and the suppletive roots cannot be shown to be unaccusative, as existing theories would require. As such, Yawanawa suppletion requires the locality of contextual allomorphy to extend beyond the phrase/maximal projection. I develop my proposed account in what follows.

3.4 Components of suppletion

I propose that the unusual suppletive pattern of Yawanawa has two main components: Agree and linear adjacency. Motion has a probe that is satisfied by a plural feature and interacts with the ϕ features on the arguments within the phase cyclically, until either it is satisfied or it has exhausted all the available DPs.

Rather than having an adjacent nominal argument trigger vocabulary insertion of the suppletive verb directly, I propose that adjacency is required between the suppletive terminal node and the probing head. I will argue that linear adjacency conditions vocabulary insertion, because intervention effects are observed only when elements occurring between the target and the trigger of suppletion in clausal hierarchy are morphologically overt, not when they are null (c.f. Embick 2010b; Arregi and Nevins 2012; Kastner 2019, among others). By hypothesis this is the case because syntactic terminals with no overt vocabulary items are pruned out of the structure at PF (Embick, 2010b).

In what follows, I discuss the components of the proposal, focusing on the functional Motion predicates in section 3.4.1, and on verb roots in section 3.4.2. Section 3.5 will present the full analysis in detail.

3.4.1 Suppletion of Motion

Vocabulary insertion of the functional versions of 'come' and 'go' I have been referring to as 'Motion' is conditioned by the number of participants involved in the verbal event. I propose that Motion is a non-thematic functional head in the extended projection of the verb phrase that comes into the derivation with a probe that is satisfied by a plural feature. Despite being satisfied only by [PL], the probe interacts cyclically with the ϕ features of the other DPs within the VoiceP phase (c.f. Béjar and Řezáč 2009; Preminger 2011; Deal 2015). This means that the probe will search for ϕ and copy the feature bundle from its goals regardless of their value, until it finds the [PL] feature that satisfies it and the search halts. If there are no plural features within the phase, the search halts once it has exhausted all the available DPs and the probe has copied their feature bundles.

The paradigm introduced in section 3.2 is copied below. The plural forms of Motion surface when the verb roots they select license both an object and a subject, or when the single argument they license is plural.

(27) Single SG argument

a. Vea sai-**keran**-i. (*sai-veran-i)
Vea sing-COME.SG-IPFV
Vea is singing as he is coming this way.

b. Na vakehu meshu-**kãin**-i. (*meshu-hãin-i)
DEM.PROX child crawl-GO.SG-IPFV
'This child is crawling (away).'

(28) Single PL argument

a. Yura westima sai-**veran**-kan-i. (*sai-keran-kan-i)
person many sing-COME.PL-3PL-IPFV
'Many people are singing as they are coming this way.'

b. Yura westima yamãyamã-**hãi**-kan-i. (*kãi-kan-i)
person many sing.trad.song-GO.PL-3PL-IPFV
'Many people are singing (a type of traditional song) as they are going.'

(29) Two SG arguments

a. Ẽ mi-a xinã-**veran**-i. (*xinã-keran-i)
1SG.ERG 2SG-ACC think-COME.PL-IPFV
'I was coming this way thinking about you.'

b. Ẽ mi-a xinã-**hãin**-i. (*xinã-kãin-i)
1SG.ERG 2SG-ACC think-GO.PL-IPFV
'I am going (away) thinking about you.'

My proposal makes a number of testable predictions. The first one is that applied arguments should contribute to the suppletion calculation of Motion. The order of morphemes in 30-b shows that Motion is higher than the Applicative head in clausal hierarchy. As such, if Motion probes cyclically in order to satisfy its search for plural features, then it should be able to acquire features from the applied argument introduced by Appl, which is in its c-command domain.

30-b shows that this prediction is borne out. It makes a minimal pair with 4, which I copy below as 30-a for convenience. Both sentences involve the verb root *saik*[3], 'sing', and the Motion head meaning 'come'. The only difference between them is that 30-b has Appl introducing an applied argument in the structure. While 30-a has the singular form of functional 'come', *keran*, 30-b has the plural form *veran*.

[3]Once again we see a final consonant deleting before a consonant, given Yawanawa's prohibition against stops in coda position.

(30) a. Single SG argument:

Vea sai-**keran**-i.
Vea sing-COME.SG-IPFV
Vea is singing as he is coming this way.

b. Two SG arguments:

Veã e-a sai-shũ-**veran**-i.
Vea.ERG 1S-ACC sing-APPL-COME.PL-IPFV
'Vea is coming this way singing to me.'

Now, imagine an alternative analysis in which suppletion is actually conditioned by the transitivity of the construction. In other words, how can we tell for sure that the role the applicative is playing is actually that of introducing an argument to serve as a goal for the suppletion probe, rather than just changing the transitivity of the construction and consequently licensing the 'plural' (or 'transitive') suppletive form?

The straightforward answer to this question is that the applicative does not alter the transitivity of a construction, so plural suppletion must be triggered by the total number of participants in 30-b. Once again, the transitivity diagnostics introduced in section 3.3.2 will be useful. Recall that Yawanawa 'do' has two possible forms: *ik* if the predicate it substitutes is intransitive and *ak*, if it is transitive. Crucially, 98 shows that applicativizing an intransitive construction does not make it transitive: the only acceptable version of 'do' in the short answer is *ik*.

(31) –Veã e-a sai-shũ-veran-i-mẽ? –**Ik**-i! (*ak-i)
Vea.ERG 1S-ACC sing-APPL-COME.PL-IPFV-INT do.INTR-IPFV do.TR-IPFV
'–Is Vea coming this way singing to me? –He is!'

As previously discussed in section 3.3.2, I assume that these two versions of 'do' are the spellout of the verbalizing v head in the absence of an overt root, depending on whether it carries a + or - [TRS] feature. As such, this diagnostic shows that the Applicative head does not affect the transitivity of a construction and therefore the plural suppletive form in 30-b needs to be triggered by the plurality of participants achieved by the additional

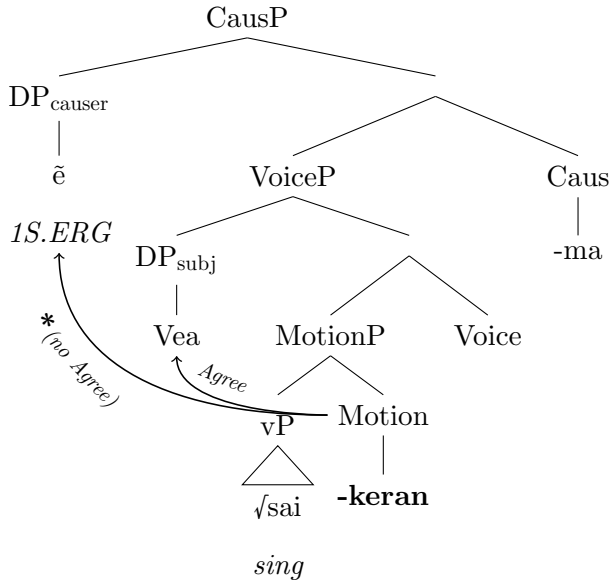
applied DP.

A second testable prediction of my proposal is that the argument introduced by a productive causative should not contribute to the suppletion calculation. Given that the probe on Motion is phase-bounded, any arguments introduced above VoiceP should not be in its search range. Constructions like 32 show that the prediction bears out. First, note that the Causative head is higher than Motion in clausal hierarchy, given their linear order in the sentence. This suggests that we have the VoiceP-embedding productive Causative here, assuming the structure in 25. Crucially, only the singular form of Motion 'come', *keran*, is licensed.

(32) Ẽ Vea sai-**keran**-ma. (*sai-veran-ma)
1S.ERG Vea.NOM sing-COME.SG-CPROD.PFV
'I made Vea come this way, singing.'

This suggests that the causer argument is introduced outside the domain of the probing Motion head. If a head higher than Voice were responsible for probing, we would expect the causer argument introduced by the productive Causative to be computed in the plurality calculation, contrary to fact. The structure for 32 is illustrated in 33.

(33)

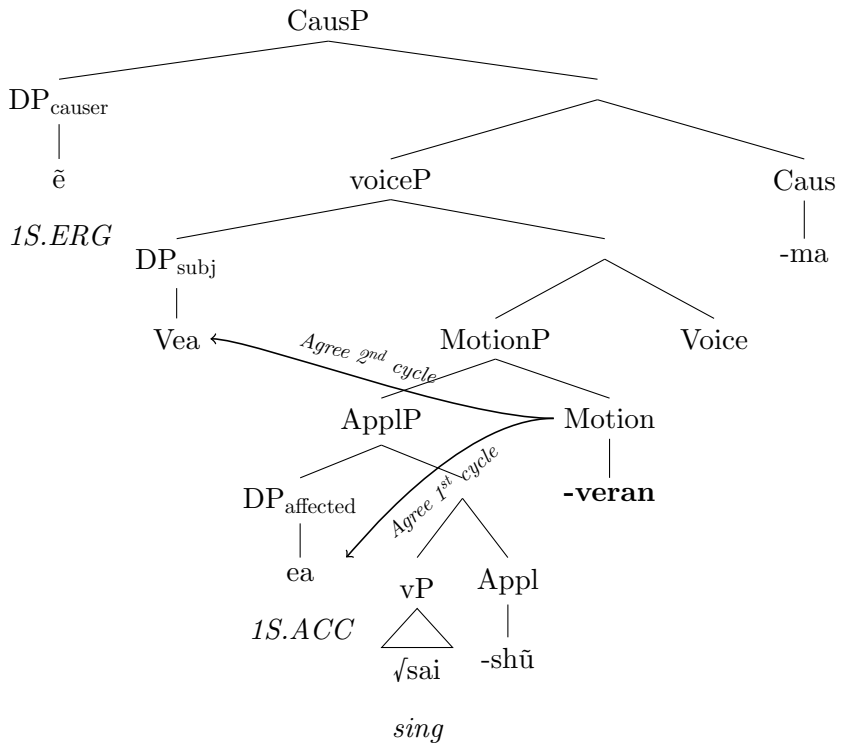


To prove that there's nothing special about the causative construction that would make the plural forms of Motion unavailable, 34 shows that when the productive Causative and the Applicative cooccur, the plural form of Motion is licensed. The mechanism is illustrated in 35, with Motion probing for both the external argument and the applied argument in its c-command domain.

(34) Ẽ Vea e-a sai-shũ-**veran**-ma. (*sai-shũ-keran-ma)
1SG.ERG Vea.NOM 1SG-ACC sing-APPL-COME.PL-CPROD.PFV

'I made Vea come singing to me.'

(35)



This shows that causative and applicative can cooccur and that when they do, the plural form of Motion is licensed. Plurality here is not due to the presence of the causer argument (since it does not trigger plurality in 32), but to the applied argument instead, which is in the probing domain of Motion and shown to trigger plurality in 30-b.

Crosslinguistic evidence shows that Causatives may merge in different structural

positions in a clause, giving rise to constructions with different scope interpretations (Harley, 2017). Recall from the discussion in section 3.3.2 that in Yawanawa, such changes in scope interpretations achieved by the interaction of a Causative and other heads are very transparently encoded in syntactic structure. As such, we predict that Caus heads merged in different structural positions should interact differently with the Motion predicates. The construction just analyzed in 34 involves the productive Causative, evidenced by the structural position of the Caus head above both the Applicative and Motion. In sentences involving the lexical Causative, the prediction is different. In these, the causer argument should be included in the plurality computation for Motion, given that the lexical Causative head is lower than Motion in clause structure and therefore phase-internal.

Note that in both 34 and 32, the individual who is coming this way singing is Vea, the subject licensed by v and introduced by Voice. The causer argument is introduced higher, in the specifier of CausP. A slight variant of these constructions is 36, in which the individual who is coming this way is the causer argument. In other words, in 32, the person singing is the same as the person coming this way, distinct from the causer, whereas in 36, the person coming this way is the causer, distinct from the person singing.

(36) Ẽ Shaya sai-<u>ma</u>-**veran**-a (*keran-a)
1S.ERG Shaya.NOM sing-CLEX2-COME.PL-PFV
'I came this way making Shaya sing.'

This sentence confirms my prediction. The order of heads here shows that *-ma* is exponing the lexical Causative, merged below Motion and Voice, according to the discussion in 3.3.2 and the structure in 25. In this case, the causer argument must be computed in the calculation of plurality: only the plural version of the suppletive motion predicate is grammatical. This data supports the argument that the domain of contextual allomorphy must be the phase, since elements merged outside VoiceP are not counted in the suppletion computation.

With that, I propose the following vocabulary insertion rules for Motion:

(37) VI rules for Motion:

hãin ↔ $\mathcal{F}$go/ _ [PL]

kãin ↔ $\mathcal{F}$go/ elsewhere

veran ↔ $\mathcal{F}$come/ _ [PL]

keran ↔ $\mathcal{F}$come/ elsewhere

Because the probe on Motion is satisfied by a plural feature, I propose that failure to find such a feature results in the insertion of the singular elsewhere forms. Because functional 'come' and 'go' are, by hypothesis, exponents of the Motion head itself, no intervention issues arise here. Those will be considered in the next section, that deals with root suppletion. There is still one important aspect of the computation of plurality that needs to be addressed: plural suppletive forms surface even when the Motion probe finds multiple singular features, not only when it finds plural features. The means to compute plurality from multiple singular DPs will be discussed in section 3.5.

3.4.2 Root suppletion

Recall from the paradigm introduced in section 3.2 (copied below) that plural forms of suppletive verb roots surface when the construction has multiple participants: either it is transitive as in 40, or it has a single plural argument, as in 39.

(38) Single SG argument

a. Kape **u**-i. (*ve-i)
caiman come.SG-IPFV come.PL-IPFV
'The caiman is coming.'

b. Kape **ka**-i. (*hu-i)
caiman go.SG-IPFV go.PL-IPFV
'The caiman is going.'

(39) Single PL argument

a. Yume-hu **ve**-kan-i. (*u-kan-i)
teenager-PL come.PL-3PL-IPFV come.SG-3PL-IPFV
'The teenagers are coming/going.'

b. Yume-hu **hu**-kan-i. (*ka-kan-i)
teenager-PL go.PL-3PL-IPFV go.SG-3PL-IPFV
'The teenagers are going.'

(40) Two SG arguments

a. Tika=nẽ a-wẽ pani **ve**-a. (*u-a)
Tika=ERG 3SG-GEN hammock come.PL-PFV come.SG-PFV
'Tika brought his hammock.'

b. Tika=nẽ a-wẽ pani **hu**-a. (*ka-a)
Tika=ERG 3SG-GEN hammock go.PL-PFV go.SG-PFV
'Tika took his hammock.'

I am proposing that the head Motion is necessarily present in the extended projection of motion verbs and that the number features it collects are the trigger of root suppletion. Here, the relevance of linear adjacency to the proposal will become clear. The prediction is that if any overt morphological material intervenes between the trigger and the target of suppletion, then vocabulary insertion should be disrupted and the default forms should surface.

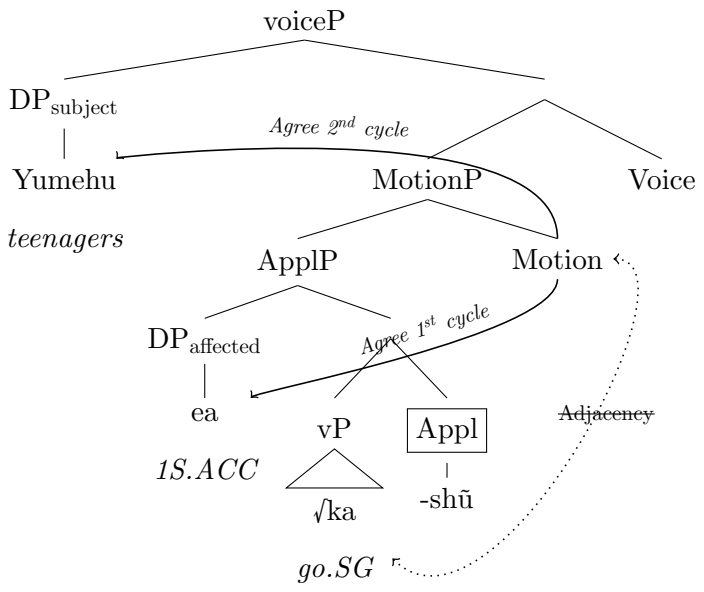
This is the exact situation in applicative constructions with motion predicates: Appl occurs between the verb root and Motion, which by hypothesis is the trigger of suppletion. Compare 41 to 39 above. While in 39, the plural form of the suppletive root is the only grammatical choice, it is not accepted in the applicativized construction in 41: singular *ka* is obligatory here.

(41) Yume-hu e-a **ka**-<u>shũ</u>-itamea-hu.
teenager-PL.NOM 1SG-ACC go.SG-APPL-REC.PST-3PL
'The teenagers went on my behalf.'

The singular form is unexpected in 41 because the sentence has a plural subject – which alone is enough to trigger plural suppletive forms elsewhere – as well as an applied argument. Note how plural subject agreement is unaffected on the verb, suggesting there is no reason why probing would be blocked or unavailable in this construction. Therefore I argue that the decisive issue here is whether or not linear adjacency obtains between the root and the probing head. As such, 41 is a crucial piece of evidence to motivate this component of my proposal: there must be no overt morphological material intervening between the probing head and the root for plurality to be expressed. This makes it crucial that the probe is on a head higher than Appl, so it rules out alternative accounts in which root suppletion would rely on a head lower in the structure to do the probing.

Recall my assumption, following Pylkkänen (2002) and much subsequent work, that applicative heads that introduce arguments with benefactive semantics are vP-selecting high applicatives. In addition, I assume the structure of the Yawanawa extended verb phrase in 25 (and the discussion in section 3.3.2), which leads me to conclude that the head responsible for probing in the suppletion calculation should indeed be Motion. Because the applicative head comes between it and the verb root in clausal hierarchy, Appl acts as an intervener and plurality is not expressed on the root. In other words, even though Motion still probes the structure for nominal arguments, the Applicative head breaks the immediate adjacency that is required for plural suppletion to obtain. Unless this linear adjacency requirement is at play, the unavailability of the plural form in sentence 41 would be extremely mysterious. Consider the possibility that the probing head is v, rather than Voice. Assuming upward Agree is a theoretical possibility, this head could probe for all the arguments within the phase. Being below the applicative, however, it would still be predicted to trigger the plural form, leaving intervention unexplained. The actual proposed mechanism is illustrated in 42:

(42)



Relevantly, there is a wrinkle in the behavior of suppletive roots that distinguishes them from the Motion forms. Examples like 43 show that the version of 41 with the plural form of the suppletive root is not actually ungrammatical, it just has a different meaning.

(43) Yume-hãu e-a (manĩa) **hu**-shũ-itamea-hu.
teenager-PL.ERG 1SG-ACC banana go.PL-APPL-REC.PST-3PL
'The teenagers took (bananas) on my behalf.'

We have the same structure here as we do in 41, but the intervention effect that I propose is caused by the applicative head in 41 is not observed here. This means that while the probe is above the applicative, there must be a second element conditioning root suppletion below the applicative as well. Crucially this component is *sufficient* but *not necessary* to trigger the plural suppletive forms of the roots. So what could this element be?

Because it needs to be lower than Appl in the syntactic structure, I propose that this secondary element that can trigger root suppletion is transitivity, encoded by the

feature [+/-TRS] on the verbalizing v head, according to the discussion in section 3.3.2. This means that the 'plural' forms of the verb roots 'come' and 'go' are actually expressing *either* plurality or transitivity. In other words, both plurality and transitivity are sufficient, though not necessary conditions for the vocabulary insertion of the 'plural' forms. The only way to express this is with two separate rules of vocabulary insertion, as in 44. Note that an alternative analysis, in which plural is the elsewhere form, fails to capture the intervention effect in 41. This is the critical case that shows what happens when none of the conditions for insertion of the plural forms are met: there are no plural features linearly adjacent to the suppletion target, *and* the verb is intransitive.

(44) VI rules for suppletive roots:

hu ↔ √go/ _ [PL]

hu ↔ √go/ [TRS] _

ka ↔ √go/ elsewhere

ve ↔ √come/ _ [PL]

ve ↔ √come/ [TRS] _

u ↔ √come/ elsewhere

Now these facts and analysis show that root and Motion suppletion don't behave exactly alike. While Motion suppletion depends on number features alone, roots are also conditioned by transitivity. There are a few reasons to believe that the current proposal still holds. Imagine an alternative analysis in which transitivity alone is responsible for Motion suppletion: the 'plural' forms would actually be conditioned by the transitivity of the root that Motion selects. Recall however how applied arguments contribute to the plurality computation, but not to verbal transitivity: an applicativized intransitive verb remains intransitive. Also recall the distinction between phase internal DPs – which contribute to the plurality computation – and phase external ones, which do not. This cannot be captured by an analysis of suppletion based on transitivity alone.

Another alternative analysis to contemplate is one in which suppletion on the root is a syntactically independent mechanism from the Motion head. In other words, Motion

probes for Motion suppletion and some other head probes for root suppletion. I have already argued in this section that this is unlikely given the intervention effect observed in 41. If a lower head closer to the root, like v, were responsible for probing in cases of root suppletion, we would not expect intervention effects to be caused by Appl, contrary to fact. So the probing head needs to be above Appl, which is exactly where I propose Motion to be.

There is still one more alternative analysis to consider, in which root suppletion is actually conditioned by a plural DP in the vicinity of the root (the canonical analysis of suppletion). So the intervention effect in 41 is actually caused by the applied DP – which is singular – intervening between the root and the subject, rather than Appl intervening between the root and Motion. This analysis makes the following prediction: if we have a version of 41 with a singular subject and a plural applied argument, as in 45, the root should take its plural form. But 45 shows that it does not happen, suggesting the analysis presented above is the correct one.

(45) Shukuvena <u>yume-hu</u> **ka**-shũ-itamea.
Shukuvena.NOM teenager-PL go.SG-APPL-REC.PST
'Shukuvena went on behalf of the teenagers.'

As such, the proposal here involves some degree of syncretism after all: plural forms of the intransitive roots are syncretic with the transitive forms, given that the disjunctive suppletion pattern can only be expressed by two separate vocabulary insertion rules. Since each of these vocabulary insertion rules for suppletive items is observed in natural languages independently, it is natural to imagine that if a language happens to lack one of the elements that are at play in this system, it might have a suppletion paradigm that looks slightly different. And this is what we find in Kashibo-Kakataibo, a Panoan language from the Mainline branch of the family (Fleck, 2013). In this language, the suppletive alternation between 'go-take' and 'come-bring' involves the same cognate items as Yawanawa, but it is conditioned by transitivity alone (Zariquiey, 2011). This suggests that this language lacks the probing element I propose is necessary to account

for the Yawanawa (+ Shipibo and Yaminawa) paradigm, giving rise to a transitivity-based suppletive pattern. Similarly, if a language lacks the transitivity component of the mechanism, the prediction is that it will have a number-based suppletion pattern – that by hypothesis will depend only on the probe's specifications.

The next section will propose a full account, addressing the last piece of the suppletion puzzle: how is it that plurality can be computed from multiple singular elements?

3.5 Agree and Exponence

This section presents the suppletion mechanism in full detail. I have proposed that the Motion head in the extended projection of the verb in Yawanawa probes the VoiceP phase cyclically and collects number features from the nominals therein. Although the probe on Motion is *satisfied* by a plural feature, it still *interacts* with all the ϕ sets it encounters. I employ these terms in the sense of (Deal, 2015), who follows a number of authors in arguing that the three steps of the Agree operation – search, copying, and valuation – may operate under somewhat distinct conditions (c.f. Béjar 2003; Řezáč 2003; Béjar and Řezáč 2003, 2009; Preminger 2011; Nevins 2011). Here, it means that the probe will search and copy all the ϕ features from its goals, regardless of their value, until either it encounters a plural feature that satisfies it and causes the search to halt, or it exhausts all the DPs within its search domain.

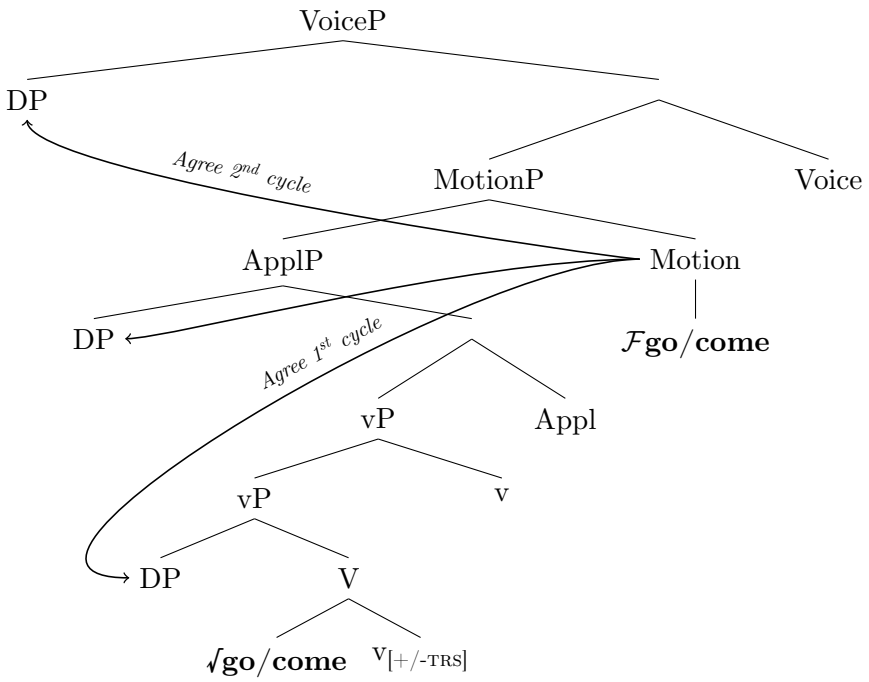
More specifically, the Motion probe is specified as [uPL]. This means it starts out by searching its c-command domain for nominals containing [iPL] features. If it immediately encounters a plural goal, it matches with that goal and values its [uPL] feature. This satisfies the probe and the search halts. In other words, a plural argument in the c-command domain of Motion is enough to satisfy the plural-seeking probe.

If the probe encounters a singular goal in its c-command domain, it copies[4] its [iSG] feature (possibly its whole ϕ set, but only number features will be relevant here).

[4] I am glossing over the Agree-link vs. Agree-copy distinction here because it does not play a central role in the analysis, but it is just as possible to conceive of 'interaction' as the probe Agree-linking to each goal in syntax, with Agree-copy taking place as a separate step.

Unsatisfied, the probe continues to search its c-command domain. If a second singular goal is found, a second [iSG] feature is copied onto the probe, and the search continues. If there are no more DPs in the c-command domain of Motion, the first cycle ends and the probe now proceeds to search upwards. In the second cycle, the probe continues to copy the ϕ features from its goals until it finds [iPL] or it exhausts all DPs in its domain. I assume the probe cannot reach any further than the specifier of VoiceP, at the edge of the phase. The second cycle may end with the probe unsatisfied, but it does not cause the derivation to crash (c.f. Preminger 2011). The mechanism is illustrated in 46:

(46)



An important aspect of Yawanawa suppletion that still has not been addressed in the analysis is that plural suppletive forms are licensed even when each of the probe's goals are singular. As such, it is important to discuss how it is that plurality can be computed from multiple singular goals. My proposal is that a morphological rule like 47-a converts a bundle of [SG] features into a [PL] feature, as in 47-b:

(47) a. [SG] $> 1 \rightarrow$ [PL]

b. $\mathcal{F}$(Motion)= <{SG, SG, SG, ϕ, ...}> $\rightarrow$ $\mathcal{F}$(Motion)= <{PL, ϕ, ...}>

Arguably, a morphological operation such as 47-a is necessary for independent reasons. Among them are instances of resolved agreement, in which a coordinated nominal phrase triggers plural agreement on a verb as in 48. Plurality here needs to be calculated from a sum of multiple singular features.

(48) Elena$_{\text{SG}}$ and Jessica$_{\text{SG}}$ **are**$_{\text{PL}}$ editing a book.

The way suppletive predicates behave in the presence of coordinate DPs provides support for this view. 49 shows that conjoined singular individuals are computed as plural both by subject-verb agreement and the suppleting predicate.

(49) Shukuvena$_{[\text{SG}]}$ yahi Shaya$_{[\text{SG}]}$ **ve**/**hu**-a-<u>hu</u>. (*u/k[a]-a)
S.NOM and S.NOM come.PL/go.PL-PFV-3PL come/go.SG-PFV
'Shukuvena and Shaya have come/gone.'

Crucially for 47-a to apply, all the features collected by the Motion probe need to be bundled into a single set. This operation needs to be restricted such that it does not overgenerate and create 'pluralities' from any multiple Agree operation. In order to achieve that, I assume that when a probe interacts with feature sets on multiple goals, it copies them in a structured form. As such, the features from each goal are kept separate from the others and 47-b does not apply. For 47-b to apply, the feature set must go through an additional operation that Deal (2015) calls 'smashing'. She proposes this operation to account for two different types of behavior observed in Nez Perce agreeing complementizers. For agreement with 1st person plural inclusive, vocabulary insertion varies according to whether C gets the features [SPKR], [ADDR], and [PL] from a single goal or from multiple goals. In the former case, complementizer agreement is exponed by a single morpheme, as in 50-a, and in the latter, by three different morphemes, as in 50-b.

(50) Nez Perce (Deal 2015, p. 11)

a. ke-**nm** kaa pro_{subj} kíye 'e-pe-xté-nu' pro_{obj}
C-1INCL then PRO.1PL.INCL 1PL.INCL.CL 3O-S.PL-VISIT-TAM PRO.3SG
1pl.incl/3sg: when we(inclusive) visit him

b. ke-**pe-m-ex** kaa pro_{subj} cewcew-tée'nix pro_{obj}
C-PL-2-1 then PRO.1PL telephone-TAM PRO.2SG
1pl/2sg: when we call you(sg)

Deal (2015) argues that the distinction in 50 is evidence for the probe on C keeping track of where its features come from, that is, keeping the features structured and separated according to the goal they were copied from. In contrast, the plural morpheme *pe* in Nez Perce is present when C contains both [PL] and [ADDR], whether or not they come from the same argument. That is, vocabulary insertion of this morpheme requires the features collected by the probe to not be structured as in the previous examples.

This creates an apparent conundrum: while the vocabulary insertion rules for certain morphemes are sensitive to whether features come from the same or different goals, others are insensitive to this distinction. To solve this, Deal (2015) proposes that the structured and unstructured representations for the probe are two steps in the Insertion algorithm. As the probe searches and copies features, it keeps them structured and separated from features coming from other goals. The first pass of vocabulary insertion realizes as much as possible, given the structured sets. After this first-pass, Deal (2015) proposes a "smashing" operation, which collapses the structured sets into a "bag of features". This new unstructured set feeds the second-pass of vocabulary insertion, which she calls "scavenging". According to this system, a morpheme's sensitivity to the origin of its features is determined by whether this morpheme is inserted before or after the operation *smashing* takes place.

Based on this, I propose that in Yawanawa, *smashing* must take place for 47-a to apply. As such, suppletive forms are inserted in the scavenging step of vocabulary insertion, while normal subject agreement morphemes are inserted before the smashing operation, that is, in the first-pass of vocabulary insertion.

Probing is not the only component of this analysis, however. For (intransitive) suppletive plural forms to be exponed on the root, it must be the case that the probing Motion head is adjacent to the root at the time of vocabulary insertion. It is important to note that this is an indirect take on the notion of adjacency: rather than having an adjacent nominal argument trigger vocabulary insertion of the suppletive verb directly, I propose that the required adjacency is between the suppletive terminal node and the probing head.

I assume linear adjacency to be the relevant notion here, based on a model of the morphological component in which linearization precedes vocabulary insertion (Arregi and Nevins, 2012). According to Embick (2010b)'s concept of 'pruning', non-overt heads are removed from the structure in morphology and thus cannot act as interveners for contextual conditioned allomorphy. This adjacency condition is needed to explain the intervention effect discussed in section 3.4.2, in which an overt Applicative head blocks the exponence of plural suppletion on the root. Such intervention effects are observed only when elements occurring between the target and the trigger of suppletion in clausal hierarchy are morphologically overt, not when they are null.

An important implication of the present proposal is that root and Motion suppletion do not behave exactly alike. While Motion suppletion depends on number features alone, as expressed by the vocabulary insertion rules in 52, roots are also conditioned by transitivity. For roots, both plurality and transitivity are sufficient, though not necessary conditions for the vocabulary insertion of the 'plural' forms. This was discussed in section 3.4.2 and is illustrated in 52.

(51) VI rules for Motion:

hãin $\leftrightarrow$ $\mathcal{F}$go/ _ [PL]

kãin $\leftrightarrow$ $\mathcal{F}$go/ elsewhere

veran $\leftrightarrow$ $\mathcal{F}$come/ _[PL]

keran $\leftrightarrow$ $\mathcal{F}$come/ elsewhere

(52) VI rules for suppletive roots:

hu ↔ √go/ _ [PL]

hu ↔ √go/ [TRS] _

ka ↔ √go/ elsewhere

ve ↔ √come/ _ [PL]

ve ↔ √come/ [TRS] _

u ↔ √come/ elsewhere

Having presented the full proposal for Yawanawa suppletion, I dedicate the next sections to explore two questions that naturally emerge from the analysis. The first, addressed in section 3.5.1 concerns the locus of the probe in suppletive motion constructions: there is good reason coming from Object=Subject SR constructions to say the probe is actually on the head Motion, rather than on Voice. The second question, addressed in section 3.5.2, is how my predictions fare when suppletive predicates occur in reflexive constructions.

3.5.1 The interaction of number-based suppletion and OS

I show here that suppletive predicates and Object=Subject switch-reference markers may cooccur. The relevance of this fact to the current analysis of suppletion is that it provides supporting evidence that Motion should be the probing head, rather than Voice, which initially looks like a viable candidate given its structural position.

First, lets us recall the argument from chapter 2 that Voice must be the head responsible for probing the object in OS constructions. The main reason for saying so comes from the fact that applied arguments – introduced in an Appl projection sandwiched between vP and VoiceP – can be pivots of OS marking, as shown in 53. The v heads would be too low in the structure to be able to probe for it.

(53) a. Tika-nẽ Livia$_i$ yuma atxi-shũn-**a**, *pro*$_i$ inima.
Tike-ERG Livia fish catch-APPL-OS be.happy.PFV
'Tika caught Livia$_i$ a fish and she$_i$ was happy.'

b. Kãmã-nẽ e-a naa-shũ-**a**, ẽ raruma-i.
dog-ERG 1SG-ACC die-APPL-OS 1SG.NOM miss-IPFV
'The dog died on me and I miss it.'

As such, if OS probes are on the Voice head, this means that by hypothesis, Voice moves to Fin after probing, bringing the Agree-link it creates to the edge of the clause. A prediction this makes is that if the Voice head has any type of morphological exponent, it will be expressed at its landing site at the edge of the clause, not in situ. As such, Voice cannot be the head responsible for probing and/or exponing the suppletive motion predicate, which is crucially exponed in situ.

54-a has the plural (transitive) version of the root 'come' and 54-b has the plural version of functional 'come' selecting a transitive predicate. In both sentences, OS marking expresses that the object of the first clause is coconstrued with the subject of the second.

(54) a. Shukuvenã ketxa$_i$ ve-**a** *pro*$_i$ muxi-a.
Shukuvena.ERG plate come.PL-OS break-PFV
'When Shukuvena brought the plate, it broke.'

b. Ẽ vimi$_k$ hi-veran-**a** *pro*$_k$ txapu-a.
1S.ERG fruit get-come.PL-OS rot-PFV
'I came this way collecting fruits and they rotted.'

These examples show that OS can cooccur with suppletive predicates and provide empirical motivation for the choice of placing the probe responsible for suppletion on Motion, rather than on Voice, since in OS constructions, the Voice head is absorbed into the SR marker.

3.5.2 Number-based suppletion in reflexive constructions

An interesting question that arises in light of the present proposal is, how do suppletive forms behave in reflexive constructions? Since by hypothesis the number of arguments involved in the suppletion calculation conditions exponence, does the proposal make the right predictions for constructions in which subject and object co-refer?

The main goal of this section is to discuss the occurrence of suppletive predicates in reflexive constructions, which will be informative for the study of both suppletion and reflexivity in Yawanawa. I will show that reflexive interpretations in the language are achieved by a detransitivizing/antipassive v head and that my proposal for suppletion makes the right predictions in these constructions. My analysis is that objects are not projected at all in Yawanawa constructions with reflexive meaning (contra Baker and Camargo Souza 2020).

The sentences in 55 present an interesting puzzle for my proposal of suppletion. While the baseline sentence 55-a has the plural form of Motion, *veran*, which is expected given the multiple arguments present in the transitive construction, the singular form *keran* is the only grammatical option in the minimally different 55-b, which has reflexive meaning.

(55) a. Shukuvenã yuina ũi-**veran**-i. (*ũi-keran-i)
Shukuvena.ERG bird see-COME.PL-IPFV see-COME.SG-IPFV
'Shukuvena is coming this way looking at/seeing birds.

b. Shukuvena a-vi ũi-**keran**-i. (*ũi-veran-i)
Shukuvena.NOM 3-SELF see-COME.SG-IPFV see-COME.PL-IPFV
'Shukuvena is coming this way looking at himself (in the mirror).

At first sight, this looks like a problem for my analysis of suppletion. 55-b has two arguments, the subject *Shukuvena* and the anaphor *avi*, each of which should contribute a [SG] feature to the suppletion calculation. So the ungrammaticality of the plural form seems unexpected.

There are a number of indications, however, that constructions with reflexive meanings in Yawanawa are actually intransitive, and that the anaphor *avi* is in fact not a core verbal argument, but an adjunct. As such, the occurrence of the singular *keran* in these constructions actually corroborates my proposal of suppletion.

The first indication that constructions like 55-b are actually intransitive comes from case-marking: while the subject has ergative case in the baseline transitive sentence

55-a, it has unmarked nominative case in 55-b. If the anaphor *avi* was indeed a verbal argument, this difference in case marking between the two constructions would be mysterious.

Further evidence for this argument comes from reflexive constructions with slightly different syntax. Note that the realization of Motion in the sentences in 56 follows the same pattern observed in 55. 56-a has the singular form *keran* and a subject in unmarked nominative case, whereas the baseline transitive sentence in 56-b has the plural form *veran* and an ergative subject.

(56) a. Shukuvena (a-vi) huweshe-me-**keran**-i. (*veran-i)
Shukuvena.NOM 3-SELF brush-DETR-COME.SG-IPFV COME.PL-IPFV
'Shukuvena is coming this way combing (his hair).'

b. Shukuvenã aĩvake huwesh-**veran**-i. (*keran-i)
Shukuvena.ERG daughter brush.COME.PL-IPFV COME.SG-IPFV
'Shukuvena is coming this way combing his daughter('s hair).'

What is different in the syntax of 56-a, as compared to 55-b, is the occurrence of morpheme *-me* between the verb root and Motion. In addition, the anaphor is optionally present here: it need not be overt. As in 55, the fact that the singular form of Motion is obligatory in 56-a seems puzzling, given the transitive argument structure of the verb observed in 56-b. Unlike before however, the structure of 56-a starts to hint at a solution to the puzzle.

Before moving on to that discussion, let me briefly show evidence that there is nothing about the syntax of the reflexive constructions that blocks the realization of the plural form of suppletive Motion. This is given in 57: with plural subjects, *veran* is licensed in sentences analogous to 55-b and 56-a.

(57) a. Awĩhu-hu a-vi ũi-**veran**-kan-i. (*keran-kan-i)
woman-PL.NOM 3-SELF see-COME.PL-3PL-IPFV COME.SG-3PL-IPFV
'The women are coming this way looking at themselves (in the mirror).

b. Awĩhu-hu huweshe-me-**veran**-kan-i. (*keran-kan-i)
woman-PL.NOM brush-DETR-COME.PL-3PL-IPFV COME.SG-3PL-IPFV
'The women are coming this way combing (their hair).'

As such, there are two possible hypothesis for the analysis of these constructions: either reflexive constructions are transitive and involve a (possibly covert) anaphor in object position, or reflexive constructions are intransitive and involve a (possibly covert) detransitivizer. Case-marking points away from the first hypothesis: covert objects in other constructions such as 58 do trigger ergative case on the subject, unlike what we observe here.

(58) Mã **Shukuvenã** *pro* pi-a. (*Shukuvena)
already Shukuvena.ERG eat-PFV Shukuvena.NOM
'Shukuvena has already eaten (lunch, food, fish).'

The gloss DETRS I choose to represent the morpheme *-me* foreshadows the argument I am making, namely that reflexive interpretations in Yawanawa are achieved by a detransitivizing verbalizing head. Under this analysis, the morpheme *-me* is a possible exponent of this verbalizer, and reflexive construction do not involve internal objects at all: anaphors, when present, are adjuncts.

One indication that this is true is that the anaphor alone is not enough to saturate the argument structure of a transitive predicate. In the absence of *-me*, constructions with verbs like 'comb' and 'scratch' are ungrammatical with the anaphor. This is shown in 59.

(59) *Shukuvena a-vi huwesha/wesha.
Shukuvena.NOM 3SG-SELF comb.PFV/scratch.PFV
'Shukuvena combed/scratched himself.'

I propose that *avi* is a bound adjunct licensed in constructions where reflexive interpretations are achieved by some form of verbal detransitivization: the detransitivizer

head is exponed as *-me* in 56-a and 57-b, and as ∅ in 55-b. There are other possible exponents as well, as illustrated in 60: the verb *kuxa*, 'hit', is part of a small group of verbs that undergo prosodic modifications linked to changes in their argument structure. Unlike the verbs discussed in section 3.3.2, that undergo similar prosodic modifications to express transitive-inchoative alternations, the verbs here have their *internal* argument suppressed by detransitivization (c.f. Reinhart and Siloni 2005).

The transitive form in 60-a has stress on the final syllable – which is the typical iambic pattern of Yawanawa disyllabic words – whereas the intransitive form in 60-b has an unusual stress on the first syllable. I assume, following Valenzuela (2003)'s analysis of Shipibo, that one possible realization of detransitivization is vowel lengthening (and a consequent stress-shift). Having the detransitivizing head be the verbalizing v is concomitant with stress being attracted to the verb root.

(60) a. Tika-nẽ kãmã kux[a]-á.
Tika-ERG dog hit-PFV
'Tika hit the dog.'

b. Tika a-vi kú:x[a]-a.
Tika-NOM 3SG-SELF hit.DETR-PFV
'Tika hit himself.'

Once again, note that the subject of the detransitivized predicate is in unmarked nominative case, whereas the transitive subject is ergative. It is interesting to note that this pattern of detransitivization parallels that observed with the suppletive roots 'come' and 'go'. We can imagine transitive 'bring' and 'take' deriving unergative 'come' and 'go' by means of a null detransitivizing verbalizer, just like the 'reflexive' forms are derived here. Under such an analysis 'come' and 'go' would mean 'bring' and 'take' oneself, respectively.

Additional evidence pointing in the direction of reflexive constructions being the result of detransitivization comes from their interaction with transitivity-harmonizing aspectual predicates like 'begin' (see chapter 4 for in-depth discussion). 61-a shows that a reflexive construction with the anaphor *avi* and ∅-detransitivization occurs along with

the intransitive form of 'begin'. The transitive form is licensed in non-reflexive 61-b, which has the same embedded verb. Similarly, 62-a shows that a reflexive construction with *-me*-detransitivization equally licenses the intransitive form of 'begin', as opposed to the transitive construction 62-b, which has the same main verb.

(61) a. Shukuvena (a-vi) txuk[i]-i tae-a. (*txuki-kĩ tae-wa)
Shuk.NOM 3SG-SELF wash-SS.IPFV.NOM begin-PFV
'Shukuvena began to wash himself.'

b. Shukuvenã vakehu txuki-kĩ tae-wa. (*txuk[i]-i tae-a)
Shuk.ERG child wash-SS.IPFV.ERG begin-CLEX1.PFV
'Shukuvena began to wash the child.'

(62) a. Shukuvena huweshe-me-i tae-a. (*huweshe-me-kĩ tae-wa)
Shuk.NOM brush-DETR-SS.IPFV.NOM begin-PFV
'Shukuvena began to comb himself.'

b. Shukuvenã ãivake huwesh-kĩ tae-wa. (*huwesh-i tae-a)
Shuk.ERG daughter brush-SS.IPFV.ERG begin-CL1.PFV
'Shukuvena began to comb his daughter.'

Something to note here is that once again, the anaphor is optional in 61-a. This is not surprising given the verb's semantics: washing and grooming predicates crosslinguistically tend to receive reflexive interpretations in the absence of overt objects (i.e. 'Eileen washed/shaved/brushed'). And not only is the anaphor optional in certain constructions, but also, it can be licensed as an additional emphatic element in constructions like the ones in 63. In each sentence, the verbal argument structure is saturated: 63-a has its two arguments and 63-b is unaccusative (as discussed in section 3.3.2), meaning *Shukuvena* has to be its single argument. 63-c and 63-d are equivalent to 63-b, but they show additionally that the anaphor *X-vi* matches its antecedent in phi-features: 1st person singular in 63-c and 2nd person singular in 63-d.

(63) a. Shukuvenã **a-vi** aĩvake huwesha.
Shukuvena.ERG 3SG-SELF daughter comb.PFV
'Shukuvena combed his daughter *himself* .'

b. Shukuvena **a-vi** ku-a.
Shukuvena.NOM 3SG-SELF burn-PFV
'Shukuvena burned himself.'

c. Ẽ **e-vi** ku-a.
1S.NOM 1SG-SELF burn-PFV
'I burned myself.'

d. Mĩ **mi-vi** ku-a.
2SG.NOM 2SG-SELF burn-PFV
'You burned yourself.'

All this indicates that the anaphor *avi* can be an adjunct, not a core verbal argument. A final piece of evidence pointing in this direction comes from the predicate *nutsi*, 'be/get angry', which may take an additional argument in the form of a postpositional phrase, as shown in 64-a. Note that this type of argument does not trigger dependent ergative case on the subject. In 64-b we have the same intransitive verb with a nominative subject, but this time the additional argument is the anaphor *avi*. Relevantly, the postposition *-ki* does not attach to *avi*, suggesting that *avi* itself already has adjunct status.

(64) a. Tika (Txini-ki) nutsi-a. (*Tika-nẽ)
Tika.NOM Txini-at be.angry.IPFV Tika-ERG
'Tika got angry (at Txini).'

b. Tika a-vi-(*ki) nutsi. (*Tika-nẽ)
Tika.NOM 3SG-SELF-AT be.angry.IPFV Tika-ERG
'Tika is angry (at himself).'

For now, I conclude that all reflexive constructions involve a detransitivizing head, with different possible morphological exponents. More specifically, this detransitivizer is a verbalizing v head, with the feature [-TRS]. It can be thought of as a type of antipassive, which suppresses the verb's argument structure and demotes the object (when it is present) to a status of non-core argument, an adjunct.

An alternative analysis of the antipassive which has been proposed in the literature is

one in which the antipassive morpheme actually *introduces* an argument in the structure (c.f. Baker 1988; Bittner and Hale 1996a, 1996b; Basilico 2004, 2019). It saturates the verb's internal argument position and prevents the object from receiving a thematic role. As such, that which would be the object optionally appears as an adjunct rather than a core verbal argument.

The reason I do not think this type of analysis is tenable for Yawanawa is because of the many indications that constructions with reflexive readings do not have objects at all. If the antipassive were to introduce an argument, why would it not trigger dependent ergative case assignment on the subject, for instance? In addition, why would the construction behave as intransitive when embedded under transitivity-harmonizing and suppletive predicates? It seems much more straightforward to pursue an analysis where the antipassive is actually a suppressor of the internal argument.

I close the discussion by introducing a different class of predicates, which form reflexive constructions by means of object incorporation. It is a common typological feature of Panoan languages that nominals referring to body-parts can be incorporated as verbal prefixes. It will be useful to compare these to the constructions analyzed so far, to get a better understanding of the role detransitivizers play in the structure of the extended verb phrase. 65-b is the target sentence here, with the baseline transitive sentence given in 65-a for comparison.

(65) a. Shukuvenã nami shate-a.
Shukuvena.ERG meat cut-PFV
'Shukuvena cut meat.'

b. Shukuvena **me/u/ba/pu-**shte-a.
Shukuvena.NOM hand/foot/head/arm-cut-PFV
'Shukuvena cut himself on the hand/foot/head/arm.'

Like in the previous reflexive constructions, a consequence of this object-incorporation process is that the verb is 'detransitivized': the subject of 65-b surfaces with unmarked nominative case, whereas 65-a has an ergative subject. Transitivity agreement with 'begin' provides additional evidence for detransitivization. When a construction with

an incorporated object is embbeded under 'begin', it triggers the intransitive version of the predicate to surface, as in 66.

(66) Shukuvena me-shte-i tae-a. (*tae-wa)
Shuk.NOM hand-cut-SS.IPFV.NOM begin-PFV begin-CLEX1.PFV
'Shukuvena started to cut his hand/fingers.' (e.g. after he sharpened his knife)

Relevantly, these predicates with body-part prefixes don't cooccur with *-me*, as expected if this morpheme is an exponent of the detransitivizer/antipassive: it is not the case that this type of reflexive construction has no object, it's just that the object is incorporated by the verb. Once incorporation happens, the object DP becomes syntactically unavailable to trigger dependent ergative case on the subject.

Finally, 67 shows that these body-part reflexives can only trigger the singular form of suppletive *Motion*, independently of the presence of the optional anaphor *avi*. Because we know that the presence of an object would trigger the plural suppletive form in these constructions, this is additional evidence that predicates with object incorporation undergo detransitivization.

(67) Shukuvena (a-vi) me-shte-keran-a. (*veran-a)
Shukuvena.NOM 3SG-SELF hand-cut-COME.SG-PFV COME.PL-PFV
'Shukuvena cut himself on the hand coming this way.'

With this, I close the discussion about the interaction of suppletion and reflexives. Constructions with reflexive meaning in Yawanawa are actually 'detransitivized' by means of a verbalizing v head with the feature [-TRS]. Semantically, this head operates as a type-shifter, which takes a predicate of type <e,<e,t>> and returns a predicate of type <e,t>. Because the anaphor *avi* is an adjunct, not an argument of the verb, it is not available as a goal for the probe on Voice responsible for triggering suppletion on Motion. As such, the subject is the only available goal and suppletion will therefore be conditioned by its features: singular subjects will trigger singular suppletive forms and plural subjects will trigger plural forms.

3.6 Conclusion

Yawanawa suppletion makes important contributions to the theories of contextual conditioned allomorphy in Distributed Morphology. I showed that the notion of locality necessary for root suppletion cannot be one of sisterhood with the internal argument, contra Harley (2014), Bobaljik and Harley (2017), and Choi and Harley (2019). If this were the case, we wouldn't expect unergative predicates to be able to supplete at all, contrary to fact (Toosarvandani, 2016).

My proposal corroborates Embick (2010b)'s notion of locality for contextually conditioned allomorphy, in which it coincides with the domain of spellout: it is the phase. The additional linear adjacency condition evidenced by intervention corroborates proposals such as that of Arregi and Nevins (2012), Merchant (2015), and Kastner (2019), among others, as well as that of Embick (2010b) himself.

Perhaps the view proposed here is broad enough to account for suppletion crosslinguistically, if we consider a parametric variation where the probing head can search for the subject at the edge of the phase in certain languages (like those of the Panoan family) but not in others. Therefore, if it only probes its c-command domain, we get the common absolutive pattern found crosslinguistically (with language-internal specifications regarding the contributions of non-core verbal arguments); if it probes its specifier as well, we get the Yawanawa (+Yaminawa and Shipibo) pattern. In this view, number-based suppletion is therefore is a combination of Agree – limited by the PIC – and contextually-conditioned allomorphy – limited by node adjacency.

The suppletion analysis presented here also helps build an important foundation for the analysis of switch-reference in complement clauses in the the next chapter. The basic idea is that because suppletion can occur within complement clauses, it provides independent evidence that subjects must be merged complement-internally. This will be especially important in structurally reduced complements of attitude and aspectual verbs because the analysis of SS morphemes as *actual* SS morphemes relies on there being an internal subject in these constructions.

Chapter 4

Switch-reference in complementation constructions

4.1 Introduction

Besides their occurrence in the adjunct clauses discussed in chapter 2, Yawanawa same-subject markers are also found in the clausal complements of certain verbs, as illustrated in 1. Among these are attitude verbs like *tapĩ*, 'know', as in 1-a, *xinãvenu* 'forget', as in 1-b, *nama* 'dream', as in 1-c, and *xinã* 'think', as in 1-d. They all follow the pattern shown below: if the embedded verb is transitive, we get ergative case marking both on the SS morpheme and on the matrix subject; if it is intransitive, both the SS morpheme and the matrix subject surface in nominative case.

(1) a. Shaya saik-**i** tapĩ-a.
Shaya.NOM sing-SS.IPFV.NOM know-PFV
'Shaya knows how to sing.'

b. Shayã kãmã nesha-**kĩ** xinãvenu-a.
Shaya.ERG dog tie-SS.IPFV.ERG forget-PFV
'Shaya forgot to tie the dog.'

c. Tika nii-ki ina-**i** nam[a]-a.
Tika.NOM tree-ON climb-SS.IPFV.NOM dream-PFV
'Tika dreamed of/about climbing on the tree.'

d. Tika-nẽ yuma atxi-pai-**kĩ** xinã-i.
Tika-ERG fish catch-DES-SS.IPFV.ERG think-IPFV
'Tika is thinking of/about catching fish.'

SS-marking follows an analogous pattern in the complements of aspectual verbs like

tae, 'begin', *ene*, 'stop', and *keyu*, 'finish', illustrated with 'begin' in 2. In 2-a the embedded transitive verb must cooccur with the ergative SS marker and an ergative matrix subject, and in 2-b the intransitive embedded verb must cooccur with the nominative forms. Something that is especially interesting about sentences with clause-embedding aspectual verbs is that the aspectual verb itself must match in transitivity with the embedded predicate. The two forms of the predicate 'begin' in 2 reflect this: 2-b has the unaccusative *tae*, while 2-a has the causativized version *taewa*.

(2) a. Shukuvenã wixi ane-**kĩ** tae-wa.
Shukuvena.ERG book read-SS.IPVF.ERG begin-CLEX1.PVF
'Shukuvena began reading a book.'

b. Shukuvena raya-**i** tae-a.
Shukuvena.NOM work-SS.IPVF.NOM begin-PFV
'Shukuvena began working.'

The occurrence of SS markers in complement clauses raises a number of important questions for any theory of SR. First of all, why is SS licensed in the complement of these specific verbs in Yawanawa, but not others? Something that makes this question especially interesting is that these are verbs that select infinitives cross-linguistically. Since infinitives are structures often smaller than CP, then these constructions raise issues for most theories of SR, since they rely on complementizers alone to perform the SR computation (Finer, 1984; McKenzie, 2012; Arregi and Hanink, 2017; Clem, 2019). I will show in this chapter that the Agree-without-agreement view of SR in which SS obtains by an orchestration of functional heads instead (see chapter 2 and Baker and Camargo Souza 2020), fares well with the paradigm just described.

I continue to focus on Yawanawa and its Panoan relatives here, but the occurrence of SS in clauses structurally smaller than CP is certainly not limited to Panoan languages. In McKenzie (2015)'s survey of switch-reference in North America, he mentions that many languages, especially those of the Yuman family, have SS morphemes between main verbs and auxiliaries. So I extended my proposal to these languages as well: while

McKenzie (2015) finds it unlikely that what he observes can be analyzed as switch-reference in the synchronic grammar of these languages, the analysis developed here could account for the distribution, despite there being no obvious second subject in the complementation constructions.

The chapter begins with an overview of Yawanawa clause types in section 4.2 that lays out their main properties and serves as a guide to the discussions that follow. The main focus of the chapter is on SS complement clauses, but this initial overview compares them to other embedded clauses and asks what it is that allows one embedded clause type to have SS marking but not others: it compares the types of complement clauses that verbs of different classes may take in 4.2.1, then it discusses complementation and restructuring in 4.2.2, and finally it compares complement and adjunct SS clauses in 4.2.3.

After laying out the typology of complementation in Yawanawa, I dive into the internal structure of SS complements. Section 4.3 draws the line between two forces pulling in opposite directions: on the one hand, SS complements are structurally reduced when compared to nominalized complements which are full clauses; on the other, they need to be large enough to have an internal subject so that there is motivation for SS marking to be licensed: if there is no subject to coconstrue, there can be no SS proper. Section 4.3.1 discusses how patterns of case marking are informative of the internal structure of different clausal complements, then section 4.3.2 investigates evidence from different sources to show that complement SS clauses have internal subjects: 4.3.2.1 finds support for the subject-internal hypothesis in the suppletion patterns of chapter 3, and section 4.3.2.2 explores embedded causative and applicative constructions to point in the same direction. Finally, in 4.3.3, I discuss the distinguishing properties of raising and control, which I argue explain the occurrence of SS marking in the complements of aspectual and attitude verbs, respectively. This sheds light on the view of SS as a familiar type of cross-clausal anaphora made available by UG.

Section 4.4 puts all the pieces of the discussion together and gives the derivation of the SS coconstrual in complementation constructions, also comparing them to adjunct SR in 4.4.1. Then in 4.4.2 I discuss why the SR paradigm in complementation is much

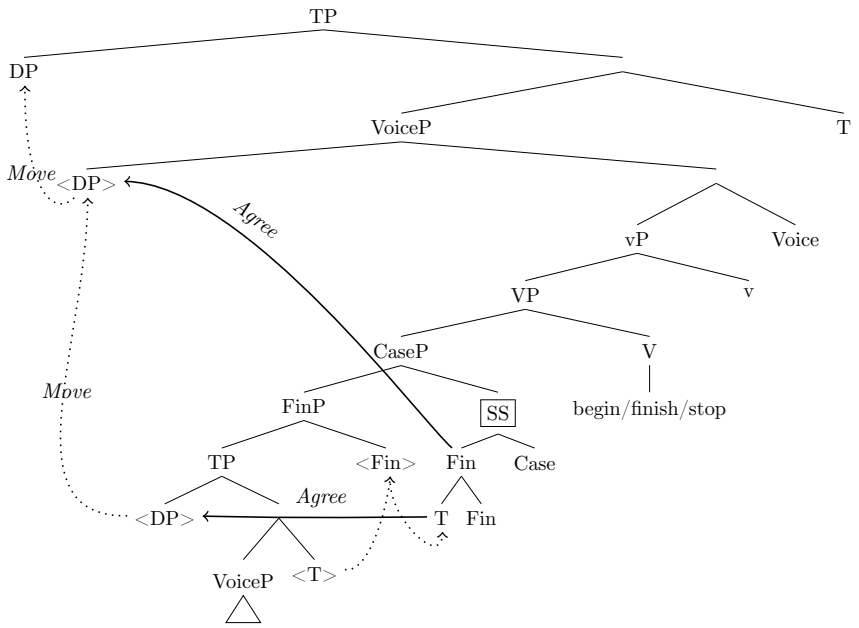
more limited than in adjunction.

Section 4.5 addresses two residual issues that are interesting puzzles in themselves: the pattern of case marking on SS complements in 4.5.1, and the phenomenon of transitivity agreement in 4.5.2. In 4.5.3 I argue that both phenomena find a common explanation in the Dependent Case theory of Baker (2014, 2015), and show how the patterns are parametrized in different Panoan languages.

Finally, section 4.6 takes the discussion beyond Yawanawa and the Panoan family: 4.6.1 addresses SS marking in Hualapai in light of the analysis proposed in section 4.4, and 4.6.2 discusses the crosslinguistic implications of my proposal, including the question of why SR is more common in adjunction than in complementation. Section 4.7 concludes.

The proposal presented in section 4.4 can be summarized as follows: SS marking in complementation constructions obtains when a structurally reduced clause is selected by a matrix verb, giving rise to a raising or control configuration. The tree in 3 illustrates a raising construction, which obtains with aspectual predicates like 'begin', 'finish', and 'stop'. The reduced, non-phasal structure of the complement clause – which I argue is a FinP – allows for a probe within it to Agree with the matrix subject in a way that parallels the derivation of adjunct SS discussed in chapter 2. Here, the 'two subjects' coconstrued by SS are actually two copies of the same raised DP, which stand in a c-command relation and therefore receive a bound variable interpretation. Control constructions are analogous, with PRO as the subject of the embedded clause being coconstrued with its binder in the matrix clause.

(3) Proposal: SS derivation in complementation construction



4.2 Overview: how complement SS compares to other clause types

In order to discuss how SS operates in complementation structures, it is crucial to understand its distribution. As such, the focus of this section is to provide an overview of Yawanawa clausal typology, highlighting their crucial properties that will be picked up in later discussion. The first part of the overview, in 4.2.1, will be about the possible clausal complements that verbs of different classes may select: while attitude predicates have the option to take nominalized clauses or SS-marked clauses, aspectual predicates can only select the latter. I will discuss the main properties of each of these constructions and highlight the issues that they raise for a theory of SR: why is SR never licensed in nominal complements? How can structural differences between the clause types explain their different behavior and interpretation?

The second part of the discussion, in 4.2.2, will compare sentences with SS-marked complements – which I argue are biclausal – to monoclausal restructuring constructions. I will show that only the former are large enough structures to have two subjects, which is a necessary condition to license SS. The reasoning is simple: restructuring constructions project a single extended verbal projection and license a single subject,

so they do not have two DPs to be coconstrued by SS.

The third and final part of the discussion compares complement SS clauses with adjunct SS clauses. Their different structural sizes and relations to the matrix clause will determine the behavior of SR in them: complement clauses are structurally reduced and non-phasal, adjunct clauses are adverbial islands; the matrix subject in complementation constructions always c-commands the embedded subject, but that does not hold in adjunction constructions. All these factors will play a role in the locality required for Agree to link subjects and determine possible interpretations.

4.2.1 Different complements for different classes of predicates

Let us begin with the possible clausal complements that verbs of different classes may select. Yawanawa attitude predicates such as *tapĩ*, 'know', can take clausal complements of two different types. The first possible type is a nominalized clause, like the ones in 4: this clause type clause has aspect marking and a nominalizing head at the top. Imperfectivity is indicated by the morpheme -*ai*, as in 4-b (which differs from matrix present imperfective morphology -*i*) and the perfective morpheme is -*a*, as in 4-a (which is the same as in matrix clauses). Whenever these complement clauses have imperfective morphology, they also have the overt nominalizer -*tũ*, shown in 4-b; I assume that in perfective clauses, the nominalizer is null (∅). Valenzuela (2003) calls analogous constructions in Shipibo 'participials' and describes them as being 'nominal'. (The clause can be extraposed – to the right – as in 4-a or topicalized – to the left – as in 4-b, without significant changes in meaning: this type of dislocation is common (though not obligatory, see **??**) with heavy object constituents in Yawanawa, which is canonically a SOV language).

(4) a. Shayã t_i tapĩ-a, [Shukuvenã yuma itxapa atxi-a]$_i$.
Shaya.ERG know-PFV Shukuvena.ERG fish many catch-PFV
'Shaya knows that Shukuvena caught a lot of fish.'

b. [Shukuvenã yuma itxapa atxi-ai-tũ]$_i$, Shayã t_i tapĩ-a.
Shukuvena.ERG fish many catch-IPFV-NMLZ Shaya.ERG know-PFV

'Shaya knows that Shukuvena is/was catching a lot of fish.'

Besides the presence of the nominalizing head in imperfective clauses, there is another reason to call these complement clauses 'nominalized': they function much like a DP complement in triggering dependent ergative case on the matrix subject, as shown with *Shayã* in 4 (see section 4.3.1 for an in-depth discussion of case).

The examples in 5 show that perception verbs like *nika*, 'hear' (also *ũi*, 'see') take the same type of complements. Because these embedded clauses are themselves domains of ergative case assignment (i.e. *Shukuvenã* in 4 and *Tashkãmẽ* in 5-c are ergative), I will argue they are ForcePs, in line with Baker (2014)'s proposal that ergative is only assigned in full clauses (CPs, in his account; see section 4.3.1). And because in all these examples the matrix subjects have ergative case regardless of the transitivity of the embedded verb, I assume these embedded ForcePs have an additional DP layer on top (analogous to Arregi and Hanink (2019)'s proposal for the structure of Washo's nominalized clauses). As such, they trigger dependent ergative case marking on the matrix subject, just like a simple DP object would.

(5) a. Ẽ nuku-kĩ *pro* nika [Sana saik-a].
1S.NOM arrive-SS.IPFV.ERG pro.ERG hear.PFV Sana.NOM sing-PFV
'When I arrived I heard Sana sing.'

b. [Kapũ kew(a)-ai-tũ] ẽ nika.
frog croak-IPFV.SUB-NMLZ 1S.ERG hear.PFV
'I heard the frog croaking.'

c. Marti-mẽ [Tashkã-mẽ yui-ai-tũ] nika.
Marti-ERG Tashka-ERG tell-IPFV.SUB-NMLZ hear.PFV
'Marti heard what Tashkã was saying.'

I will argue that the phasal nature of this complement type is the main reason why SR is not licensed in it: since the complement clause is the sister of matrix V, a SS probe searching upward would have to cross the phase head D in order to Agree-link to the matrix subject in such constructions. In contrast, SS-complement clauses are

structurally reduced, and therefore the necessary locality of Agree obtains.

These SS-complement clauses can be selected by attitude verbs like *tapĩ*, 'know' (and others like *xinã*, 'think', and *nama*, 'dream', but not perception verbs), as illustrated in 6. This type of clause involves a verb with a same-subject marker from the imperfective series, which makes them look like non-finite gerunds. Unlike before, the subjects here are only ergative if there is an object in the embedded clause.

(6) a. Shukuvenã [PRO yuma pitxã-kĩ] tapĩ-a.
Shukuvena.ERG fish cook-SS.IPFV.ERG know-PFV
'Shukuvena knows how to cook fish.'

b. Shaya [PRO saik/tupĩk/raya-i] tapĩ-a.
Shaya.NOM sing/swim/work-SS.IPFV.NOM know-PFV
'Shaya knows how to sing.'

There is a meaning difference between these constructions and the ones with nominal complements: while the complement clauses in 4 are analogous to an English 'that' complement, the ones here are analogous to English 'how' complements (if the selecting verb is 'think' or 'dream', the complement gets a meaning analogous to that of a prepositional complement in English). Besides the meaning difference, this type of construction also contrasts with previous ones in that the complement clause does not count as a nominal for the purposes of case assignment, that is, it does not trigger ergative case on the matrix subject: in 6-b, the matrix subject *Shaya* is not ergative. In contrast, the subject *Shukuvenã* is ergative in 6-a, which suggests it is the presence of the embedded object which triggers dependent case assignment (Baker, 2014, 2015). This is consistent with my argument that the complement clause is structurally reduced and therefore not a syntactic phase (ForceP or DP). This will be discussed in detail in section 4.3.1.

Now, are these morphemes at the edge of SS-complements actual SS markers? Or do they just happen to be syncretic with them? The example in 7 addresses this question: attempting to merge different subjects in the matrix and embedded clause in these constructions yields ungrammaticality (compare with 4). This supports the

interpretation of these morphemes as actual SS.

(7) *Shayã [Shukuvenã yuma pitxã-kĩ] tapĩ-a.
Shaya.ERG Shukuvena.ERG fish cook-SS.IPFV.ERG know-PFV
Intended: 'Shaya knows how Shukuvena is cooking fish.'

This impossibility to have an internal subject that differs from that of the matrix clause is an important property of SS complements. Since they are in many ways analogous to infinitives, I take this property to indicate that SS-complements of attitude verbs are control constructions, as indicated by the PRO subject in the examples above. This hypothesis is corroborated by the fact that the class of attitude verbs that selects SS complements must all have non-expletive, agentive, volitional subjects, which are precisely the properties that control constructions require of the antecedent of PRO. This will be discussed in section 4.3.3.

The same impossibility to have a subject that differs from that of the matrix clause holds for SS-complements selected by aspectual predicates like *tae*, 'begin', *keyu*, 'finish' and *ene*, 'stop'. Inserting an overt subject in any of the SS-clauses in 8 renders the constructions ungrammatical. Unlike the verbs in the *tapĩ* class, aspectual predicates in Yawanawa cannot optionally take nominalized complements, as shown in 8-d (see table 4.1).

(8) a. Shukuvenã [*t* wixi ane-kĩ] tae-wa.
Shukuvena.ERG book read-SS.IPFV.ERG begin-CLEX1.PFV
'Shukuvena began reading a book.'

b. Mã ẽ [*t* raya-i] ene-a.
already 1S.NOM work-SS.IPFV.NOM stop-PFV
'I have already stopped working.'

c. Shukuvenã [*t* shenipahu yui-kĩ] keyu-a.
Shukuvena.ERG narrative tell-SS.IPFV.ERG finish-PFV
'Shukuvena has finished telling the story.'

d. *Shukuvenã [wixi ane-ai-tũ] tae/ene/keyu-a.
Shukuvena.ERG book read-IPFV-NMLZ begin/stop/finish-PFV

Intended: 'Shukuvena began/stopped/finished reading a book.

These constructions differ from the ones involving attitude verbs in that they do not impose restrictions on their subjects. This is expected, since aspectual predicates are unaccusative verbs, which only select a single internal argument. Unlike verbs like *tapĩ*, 'know', and *xinã*, 'think' – shown in 10 – aspectual verbs may embed clauses containing weather predicates and unaccusatives, as shown in 9. I will argue in section 4.3.3 that all these properties together indicate that these are raising constructions, as represented by the t(race) in the embedded SS clause.

(9) a. *pro*$_{\text{EXPL}}$ [*t* uik-i] ene-a.
rain-SS.IPFV.NOM stop-PFV
'It has stopped raining.'

b. Yuma [*t* txapu-i] tae-a.
fish rot-SS.IPFV.NOM begin-PFV
'The fish has begun to rot.'

(10) a. **pro*$_{\text{EXPL}}$ [PRO uik-i] tapĩ-a.
rain-SS.IPFV.NOM know-PFV
Intended: 'It knows to rain.'

b. *Ui [PRO pake-i] tapĩ-a.
rain fall-SS.IPFV.NOM know-PFV
Intended: 'The rain knows how to fall.'

c. *Yuma [PRO txapu-i] xinã-i.
fish rot-SS.IPFV.NOM think-IPFV
Intended: 'The fish is thinking of rotting.'

In summary, SS-marked complement clauses may either be selected by an attitude (control) predicate, which imposes restrictions of agentivity and volitionality on its external argument, or by an aspectual (raising) predicate, which being unaccusative, assigns no external thematic role and may have arguments of any type become the subject of its clause. One of the main goals of this chapter will be to show how the Agree-without-agreement theory of Baker and Camargo Souza (2020) (c.f. chapter 2)

can account for this distribution.

A property that is unique to aspectual predicates is that they agree in transitivity with the embedded verb. Compare 9-b with 8-a: when the verb in the complement of 'begin' is transitive, the lexical causative *-wa* must be added to the construction, but it is not present when the embedded verb is intransitive, matching in transitivity with unaccusative *tae*. Transitivity agreement is a common crosslinguistic phenomenon, and I will argue, one of the many ways that Panoan languages make use of case to express cross clausal relations. I pick up this discussion in section 4.5.

The properties of the clause types described in this section are summarized in table 4.1:

Nominalized complements	SS complements
Verb is inflected for aspect: PFV *-a*, IPFV *-ai*	Verb is uninflected except for SS marker from imperfective series
NMLZ -tũ is present if clause is IPFV	NMLZ -tũ is never present
Triggers ERG case on matrix subject	Triggers ERG on matrix subject only if an object is present
Is a domain of ERG case assignment	Is not a domain of ERG case assignment
Is phasal (ForceP with a DP layer on top)	Is structurally reduced and not phasal (FinP)
Selected by V's of perception, attitude	Selected by V's of attitude, aspectual
Equivalent to 'that' complement	Equivalent to 'how' compl. (with 'know') or prepositional compl. (with 'dream', 'think')
Subject can differ from matrix subject	Subject is the same as matrix subject
Matrix and embedded Vs never agree in transitivity	Matrix aspectual V agrees in transitivity with embedded V

Table 4.1: Properties of nominalized and SS-complement clauses

4.2.2 SS-complement vs. restructuring constructions

Sentences with SS-complement clauses are not restructuring constructions (in the sense of Wurmbrand 2001). While the latter are monoclausal, projecting a single extended verbal projection, the former are biclausal and large enough to have two subjects, which I argue is a necessary condition to license SS.

Let us begin with something these two constructions have in common: matrix subjects that are only ergative in the presence of an object. This is illustrated by restructuring constructions with the desiderative *pai* in 11, and the frustrative *kean* in 12. I assume these are predicates that behave like functional heads in the extended verb phrase, in line with what Wurmbrand (2001) characterizes as functional restructuring predicates. Compare them to constructions with SS complements like 6 and 8.

(11) a. **Tika** yamẽ ka-pai
Tika.nom tonight go-DES
'Tika wants to leave tonight.'

b. **Tika-nẽ** uni a-pai.
Tika-ERG ayahuasca do.TR-DES
'Tika wants to take/do ayahuasca.'[1]

(12) a. **Matxuru-nẽ** peshe kua-kean-a.
Matxuru-ERG house burn-FRST-IPFV
'Matxuru almost burned the house.'

b. **Matxuru** pake-kean-a.
Matxuru.NOM fall-FRST-IPFV
'Matxuru almost fell.'

An additional similarity between constructions involving SS complements and restructuring is that OS can link an object in them to an adjacent subject. To illustrate

[1]The desiderative in Shipibo has optional restructuring at least for some speakers (Valenzuela, 2003; Baker, 2014), but the same is not attested in the examples provided by any of my Yawanawa consultants: ergative is obligatory on the subject in the presence of an object.

this similarity, I employ two version of the predicate 'begin': the restructuring version *-tia*, which I gloss as INCEP(tive), and the non-restructuring version, *tae*. (It is common cross-linguistically that the verb 'begin' has both a lexical and a functional (restructuring) version; c.f. Perlmutter 1970).

Let us look at *tae* first, the lexical version of 'begin' that selects a SS complement clause. In each of the examples in 13, the 'begin' clause with a SS-complement is adjoined to a matrix clause, such that adjunct OS marking is licensed. Although OS marking appears in the extended projection of the matrix verb, the object that it coconstrues with the adjacent subject is in the complement SS clause: it is the goal argument in 13-a and the theme argument in 13-b.

(13) a. [Tika=nẽ Maria$_i$ tapima-kĩ tae-w(a)-**a**], *pro$_i$* inim-a.
Tika=ERG Maria teach-SS.IPFV.ERG begin-CLEX1-OS be.happy-PFV
'Tika began teaching Maria$_i$ and she$_i$ was happy.'

b. [Shukuvenã wixi$_k$ ane-kĩ tae-wa-hi-**a**] awẽ wixi$_k$ venu-a.
Shukuvena.ERG book read-SS.IPFV.ERG begin-CLEX1-CONC-OS his book disappear.INTR-PFV
'Shukuvena started reading the book$_k$, but it$_k$ disappeared/got lost.'

In the restructuring constructions in 14 – which involve the desiderative predicate *pai* and the functional version of 'begin' *tia* – we see a similar pattern: the object of the lower predicate is coconstrued by means of OS with the subject of an adjoined clause. We see the same pattern here: OS marking appears outside the higher predicate, but it links the object of the lower predicate to an adjacent subject.

(14) a. [Ẽ wixi$_k$ ane-tia-hi(a)-**a**] *pro$_k$* venú-a.
1SG.ERG book read-INCEP-CONC-OS lose.INTR-PFV
I started reading the book, but it disappeared/got lost.

b. [Tika-nẽ takara$_j$ rete-pai-hi(a)-**a**] *pro$_j$* itxu-a.
Tika-ERG chicken kill-DES-CONC-OS run-IPFV
'Tika wanted to kill the chicken, but it ran away.'

Both these properties that restructuring constructions share with SS-complement constructions are informative of their structure: they indicate there is no phase boundary between the two predicates involved. On the one hand, this is consistent with the view of (functional) restructuring predicates as functional heads (Wurmbrand, 2001), and on the other, it provides supporting evidence for my claim that SS-complement clauses are structurally reduced.

But not all is similarities between these two constructions types: my intention is to show they are different types of beasts. One difference that becomes clear when we compare the restructuring and non-restructuring versions of the aspectual verb 'begin', is that while non-restructuring *tae* must match the transitivity of its complement, restructuring *-tia* does not change in form regardless of its complement.

(15) Embedded unaccusative verb:

a. Yuma txapu-**i** tae-a.
fish rot-SS.IPFV.NOM begin-PFV

b. Yuma txapu-tia.
fish rot-INCEP.PFV
The fish has begun rotting.'

(16) Embedded transitive verb:

a. Ẽ wixi ane-**kĩ** tae-w[a]-a.
1S.ERG book read-SS.IPFV.ERG begin-CLEX1-PFV

b. Ẽ wixi ane-tia.
1S.ERG book read-INCEP.PFV
'I began reading a book.'

The discussion of 'transitivity agreement' will be picked up in section 4.5, but the facts are still useful here to show that *tae* behaves like a verb, not like a functional head, as would be expected of a (functional) restructuring predicate. It has its own argument structure and it can be causativized by the lexical causative *-wa* (in fact it must be, whenever the embedded verb is transitive). Recall the discussion from chapter 3 that this lexical causative is a possible exponent of v that selects unaccusative

VPs. Therefore the fact that we find this lexical causative in constructions such as 16-a suggests that in such cases, 'begin' does not behave as a functional head – a restructuring predicate – but as a lexical verb that selects a clausal complement, and can be causativized.

Restructuring *tia*, in contrast, does behave as a functional head. I propose it is an 'inceptive' or 'ingressive' aspect head in the sense of (Cinque, 1999): thus the gloss INCEP. Based on its common positional flexibility in clausal structure, this is among the few projections that Cinque (1999) does not rank rigidly in his clausal hierarchy. Indeed, example 17 shows that *-tia* has a somewhat flexible merge position which translates as a scope difference in interpretation: it occurs outside an internal-argument introducer like the applicative, and either above or below an external-argument introducer like the productive Causative.

(17) a. Shaneihãu Shukuvena Shaya wai ku-wa-shũ-**tia**-ma.
chief.ERG Shukuvena Shaya plantation burn-CLEX1-APPL-INCEP-CPROD.PFV
'The chief made Shukuvena begin to burn the plantation for Shaya.'

b. Shaneihãu Shukuvena Shaya wai ku-wa-shũ-ma-**tia**.
chief.ERG Shukuvena Shaya plantation burn-CLEX1-APPL-CPROD-INCEP.PFV
'The chief began to make Shukuvena burn the plantation for Shaya.'

The most relevant property distinguishing the clause types here is that *tia* constructions are monoclausal: *-tia* does not have its own argument structure and extended projection in the way that *tae* does as a lexical verb; it is a verbal suffix, a functional head. One indication of this is that *-tia* forms a single phonological word with the lower predicate, while *tae* does not. Another piece of evidence poiting in the same direction is that as opposed to *tae*, *-tia* constructions never allow complement dislocation. This is expected if *tia* is a functional head and *tae* is a clause-selecting verb: according to Wurmbrand (2001), only non-restructuring predicates allow for this type of dislocation. This is shown in 19; 20 shows that the same is true of desiderative *-pai*.

(18) a. Baseline:

Shukuvenã [wixi ane-kĩ] tae-wa.
Shukuvena.ERG book read-SS.IPFV.ERG start-CLEX1.PVF

b. Extraposition of SS-complement clause:

Shukuvenã tae-wa, [wixi ane-kĩ].
Shukuvena.ERG start-CLEX1.PFV book read-SS.IPFV.ERG

c. Topicalization of SS-complement clause:

[Wixi ane-kĩ], Shukuvenã tae-wa.
book read-SS.IPFV.ERG Shukuvena.ERG start-CLEX1.PVF
'Shukuvena began reading a book.'

(19) No dislocation with restructuring 'begin':

a. *Ẽ tia wixi ane-(a).
1S.ERG INCEP book read-PFV

b. *Wixi ane-(a) ẽ tia.
book read-PFV 1S.ERG INCEP
intended: 'I began reading a book.'

(20) No dislocation with desiderative:

a. Ẽ yuma pitxã-pai.
1SG.ERG fish cook-DES
'I want to cook fish.'

b. *Ẽ pai, yuma pitxã.
1SG.ERG DES fish cook

c. *Yuma pitxã, ẽ pai.
fish cook 1SG.ERG DES

The table below summarizes the properties of restructuring and non-restructuring constructions:

SS-complement constructions	Restructuring constructions
Matrix subject is only ERG in the presence of an object	Matrix subject is only ERG in the presence of an object
OS can link the object of the lower predicate to subject in adjacent clause	OS can link the object of the lower predicate to subject in adjacent clause
No phase boundary between predicates	No phase boundary between predicates
Biclausal	Monoclausal
Transitivity agreement with aspectual verbs	No transitivity agreement
Higher predicate is a lexical verb	Higher predicate behaves like a functional head
Complement dislocation possible	Complement dislocation not possible

Table 4.2: Properties of complement-SS and restructuring constructions

I close this section proposing that while restructuring predicates like *-tia*, *-pai*, and *-kean* are functional heads that do not project their own argument structure and extended projection, predicates like *tae*, *xinã*, and *tapĩ*, that select SS-marked complements are non-restructuring clause-selecting lexical verbs, with their own extended projection. This means that SS is only licensed in biclausal constructions, meaning that two different verbs project their argument structure and have their own subjects that SS can coconstrue. Crucially 'biclausal' does not mean that the two clauses involved have the exact same structure: SS complements are structurally reduced, but they are clauses by the criteria just discussed.

4.2.3 Complement vs. adjunct SR

The most obvious contrast between constructions involving SS-complements and those involving adjunct SR clauses is that the latter involve adjunction, while the former, complementation: a satisfactory theory of SR will relate this structural difference to

the morphosyntactic and interpretational distinctions observed between the two constructions types.

The adjunct–complement distinction is confirmed by the possibility to extract elements from SS complements – shown in 21 – which is not available for adjunct SR clauses, by hypothesis because they are adverbial islands (Huang 1982, see chapter 2, section 2.3.4). 21 shows that a wh element can be extracted from an SS-complement with *tapĩ*, 'know', *xinã*, 'think', and *tae*, 'begin' as matrix verbs. The interrogative morpheme *=mẽ* observed in these sentences is a second position particle in the left-periphery of the matrix clause, which can attract a constituent to its specifier position, here the question word *awea*, 'what'.

(21) a. Awea$_k$=mẽ Shukuvenã [PRO t_k wa-kĩ] tãpĩ-a?
what=INT Shukuvena.ERG make-SS.IPFV.ERG know-PFV
'What does Shukuvena know how to build/make?'

b. Awea$_j$=mẽ Shukuvenã [PRO t_j pitxã-pai-kĩ] xinã-i?
what=INT Shukuvena.ERG cook-DES-SS.IPFV.ERG think-IPFV
'What is Shukuvena thinking about cooking?'

c. Awea$_i$=mẽ Shukuvenã [PRO t_i ane-kĩ] tae-wa?
what=INT Shukuvena.ERG read-SS.IPFV.ERG begin-CLEX1-PVF
'What did Shukuvena begin reading?'

Another extraction possibility attested with SS complements but not adjuncts is contrastive focus-movement of an internal DP:

(22) Yuma$_j$ ẽ t_j pitxã-kĩ tae-wa, atsa$_k$ ẽ t_k pitxã-kĩ
fish 1S.ERG cook-SS.IPFV.ERG begin-CLEX1.PFV yucca 1S.ERG cook-SS
tae-wa-ma.
begin-CLEX1-NEG.PFV
'The fish I have begun cooking, the yucca I have not.'

Extraction facts confirm the expected syntactic distinctions between adverbial and complement clauses, but this is not the only relevant difference between the SS constructions under discussion. Another important one is that complement SS clauses can

never have an overt subject, as illustrated in 23: if the embedded clause is extraposed, the subject must be in the matrix clause, as shown by the ungrammaticality of 23-b, compared to 23-a. Examples like 24 show that this restriction does not hold for adjunct SR clauses: it may have the overt subject in the SS clause or in the matrix clause (see chapter 2).

(23) a. Shayã tapĩ-a / tae-wa [yuma pitxã-**kĩ**].
Shaya.ERG know-PFV / begin-CLEX1.PFV fish cook-SS.IPFV.ERG
'Shaya knows how/began to cook fish.'

b. *Tapĩ-a / tae-wa [Shayã yuma pitxã-**kĩ**].
know-PFV / begin-CLEX1.PFV Shaya.ERG fish cook-SS.IPFV.ERG
Intended 'Shaya knows how/began to cook fish.'

(24) [Shukuvenã/*pro* ixixiwã pi-ashe] *pro*/Shukuvena maikiri ka.
S.ERG catfish eat-SS.PFV.NOM /S.NOM down.river go.PFV
'After Shukuvena/he ate catfish, he/Shukuvena went downriver.'

By hypothesis, this distinction comes down to sentences with complement SS clauses being raising and control constructions: because the higher subject in the matrix clause c-commands its lower copy/trace or PRO in the SS complement, only the higher one can be morphologically overt, otherwise we expect a violation of Principle C of the Binding Theory (Chomsky, 1981) (and/or a violation of the principles regulating how chains are spelled-out, which favour the spell-out of the highest copy). This proposal will be fleshed out in section 4.3.3.

In contrast, c-command does not necessarily obtain between the SS pivots in adjunction constructions, but it may, because of their somewhat flexible adjunction site. The paradigm in 25 shows that the SS clause may adjoin to the left or the right of the matrix clause: if left-adjoined, as in 25-a and 25-b, no c-command obtains between the pivots and it does not matter whether the morphologically overt subject is in one or the other clause. But when right-adjoined, a Principle-C violation occurs when *pro* is in the matrix clause, as in 25-d, suggesting it c-commands its antecedent. The structural and interpretational consequences of this paradigm will be fully discussed in chapter

5, but it still aids us here in the comparison between complementation and adjunction: regardless of the construction in question, the antecedent will necessarily be the morphologically overt subject when c-command obtains between SS pivots.

(25) a. [Shukuvena nuku-ashe] *pro* tsau-a.
Shukuvena arrive-SS.PFV.NOM sit-PFV

b. [*pro* nuku-ashe] Shukuvena tsau-a.
arrive-SS.PFV.NOM Shukuvena sit-PFV

c. Shukuvena tsaua, [*pro* nukuashe].
Shukuvena sit-PFV arrive-SS.PFV.NOM
'When/After Shukuvena arrived, he sat down.'

d. **pro* tsau-a, [Shukuvena nuku-ashe].
sit-PFV Shukuvena arrive-SS.PFV.NOM

And there is more. Note that I have not been using the term 'complement SR', but rather 'complement SS', since these complement clauses only allow for SS marking. This is in line with my hypothesis that they are raising and control constructions: only SS is possible because the subjects in matrix and complement clause are obligatorily coconstrued. This is also in line with the hypothesis in chapter 2 that DS is just a regular complementizer that does not enter into Agree relations and is licensed whenever SS is not available. In other words, SS and DS structures are in competition: whenever a speaker opts for a complement clause with a non-agreeing complementizer, it means that the subjects of the matrix and complement clauses are *not* coconstrued. If they were, the speaker would have opted for the SS complement. By hypothesis, complement clauses with non-agreeing complementizers are larger phasal structures which create barriers to Agree probes: I will discuss these structures and the pragmatic nature of their competition in section 4.3.2.

In contrast to SS-complements, however, adjunct SS clauses show no signs of being structurally reduced. In that respect, they are more similar to nominalized complements than SS-complements: they are domains of ergative case assignment and therefore phasal ForcePs, I assume. So how can we reconcile this with my claim that the locality that is necessarily for Agree cannot obtain with phasal complements, only with

structurally reduced SS complements? I argue this is a direct consequence of the PIC of Chomsky (2000): full-size complements are nominalized, such that the Fin probe is insulated by a D head and cannot probe upwards into the superordinate clause even if Fin moves to Force (see the discussion in section 4.2.1). In contrast adverbial clauses are not nominalized, such that once Fin moves to Force, the upward probe is at the edge of the clause and thus able to search upward for the matrix subject. This is another crucial distinction between adjunct and complement SS that I will argue in section 4.6.2 is a potential explanation for why SR is more common in adverbial than in complement clauses crosslinguistically.

Interestingly, it is not only DS marking that is absent from SS-complements: this clause type also lacks OS and SS marking from the perfective series. Allow me to clarify what I mean here: OS marking is not licensed *within* the complement clause, but this does not mean that the internal arguments in SS-complement clauses cannot be goals of an OS probe. We saw in examples 13 and 14 that they can, with the OS morpheme appearing in the extended projection of the *superordinate* verb. I will argue that OS is trumped by SS in complement clauses much like it is with unaccusative subjects, as discussed in chapter 2: whenever SS and OS are in competition in a given structure, it is SS that will be exponed. This independently motivated principle can explain why OS marking is not licensed within complement SS clauses, but is in the next clause up.

In turn, the impossibility of complement SS clauses to have perfective SS marking seems directly related to another contrast between these two clause types: only adjunct SR clauses may host adverbial morphemes with tense-related meanings, as in 26. Complement SS clauses – in which only the imperfective SS marker is licensed – can never have these, as shown with matrix verb *tae*, 'begin', in 27. Correcting the ungrammatical sentence in 27-a amounts to moving the temporal adverbial to the matrix clause, as in 27-b.

(26) a. [Shukuvena mishki-(**hai**/**xĩ**)-kĩ] ixixiwã atxi-a.
Shukuvena fish-REC.PST/PST.NT-SS.IPFV.ERG catfish catch-PFV
'While Shukuvena was fishing earlier today/last night, he caught a catfish.'

b. [Awa-ki ẽ tuwe-(**xin**)-ashe] (ẽ) itxu-xin-a.
tapir-at 1SG.ERG shoot-PST.NT-SS.PFV.NOM 1SG.NOM run-PST.NT-PFV
'Last night I shot a tapir and ran (in fear).'

(27) a. Shukuvenã wixi ane-(***xĩ**/***hai**)-kĩ tae-wa.
Shukuvena.ERG book read-PST.NT/REC.PST-SS.IPFV.ERG begin-CLEX1.PFV
Intended: 'Shukuvena began reading the book last night/today.'

b. Corrected to:

Shukuvenã wixi ane-kĩ tae-wa-**xĩ**/**hai**-a.
Shukuvena.ERG book read-SS.IPFV.ERG begin-CLEX1-PST.NT-PFV
'Shukuvena began reading the book last night/today.'

By hypothesis, the unavailability of both temporal adverbials and perfective SS marking is related to SS-complement clauses being tense-defective and as such, unable to express a before/after relation with respect to the matrix clause event. This additional piece of evidence pointing to a reduced structure for SS complements will be discussed in section 4.4.2.

The following table summarizes the properties of complement-SS and adjunct SR clauses.

SS-complement clauses	SR adjunct clauses
Complement clause	Adjoined adverbial clause
Is structurally reduced, not phasal (FinP)	Is a phasal ForceP
Subject cannot be overt	Subject may be overt
Only license IPFV SS markers	License PFV and IPFV SS, OS, and DS
Extraction of wh- and focus elements possible	No extraction of wh- or focus element
Tense-related adverbials not possible	Optional tense-related adverbials

Table 4.3: Properties of complement-SS and adjunct SR clauses

I close this section having discussed the most relevant properties of the different

Yawanawa clause types and how their structural differences reflect in the possible expression and interpretation of SR. We are now equipped to explore these structures in more detail in order to support and motivate my analyses.

4.3 The internal structure of SS complements

The internal structure of complement clauses will determine whether or not SS is licensed in them. In light of the typology of complementation just laid out in the last section, there are two crucial questions to pursue in this investigation: the first is whether there is evidence that SS complements are indeed structurally reduced when compared to nominalized complements, which never license SS. I will show evidence from Case in 4.3.1 to support this view.

The second question is how structurally reduced these clauses are: do they have enough internal structure to justify the licensing of SS at their edge? More specifically, do they have an internal subject to be coconstrued with a superordinate subject? Evidence from two sources will support the subject-internal hypothesis for SS clauses: suppletion in 4.3.2.1 and embedded applicative and causative constructions in 4.3.2.2.

Having established that SS complements are structurally reduced and have internal subjects, section 4.3.3 proposes that they are components of raising and control constructions, supporting the view that SR is an expression of cross-clausal anaphora.

4.3.1 Case matters

Case is deeply intertwined with the internal structure of complement SS constructions: we can determine the structural size and phasehood of a clause by checking (1) whether or not the clause is itself a domain of ergative case assignment, and (2) whether the clause triggers ergative case assignment on a higher argument. In section 4.2.1, I introduced the idea that when it comes to SS complement clauses, the answer to both (1) and (2) is no: they neither trigger ergative case assignment on the matrix subject, nor are they domains of ergative case assignment (i.e. they are not phasal ForcePs).

So how can these questions inform us about the internal structure of complement

SS clauses? Question (1) relates to Baker (2014)'s argument that ergative is assigned at the closure of the CP phase: it follows that if a clause is a domain of ergative case assignment, then it must also be a phasal CP (ForceP in my account). Question (2) relates to whether or not a clause behaves analogously to a DP when in complement position: if it triggers ergative case on the subject, then the clause must be nominal(ized), for example by having a DP projection at the top.

An essential tool for the pursuit of these questions is Baker (2015)'s algorithm of dependent case assignment: it is parametrized in such a way that in tripartite languages like Yawanawa (see chapter 1), both rules in 28 apply. Nominative-accusative languages have only 28-a, and ergative-accusative languages have only 28-b.

(28) Baker (2015, pp. 48, 49)

a. If there are two distinct NPs in the same spell out domain such that NP1 c-commands NP2, then value the case feature of NP2 as accusative unless NP1 has already been marked for case.

b. If there are two distinct NPs in the same spell out domain such that NP1 c-commands NP2, then value the case feature of NP1 as ergative unless NP2 has already been marked for case.

With this, we can begin to demonstrate that SS complement clauses are not domains of ergative case assignment and therefore not phasal: question (1) above. At first sight, this may seem straightforward, considering for instance the paradigm in 29 (previously 2): the matrix subject is only ergative in the presence of an embedded object, as in 29-a, so there must be no phase boundary between them.

(29) a. Shukuvenã wixi ane-**kĩ** tae-<u>wa</u>.
Shukuvena.ERG book read-SS.IPFV.ERG begin-CLEX1.PFV
'Shukuvena began reading a book.'

b. Shukuvena raya-**i** tae-a.
Shukuvena.NOM work-SS.IPFV.NOM begin-PFV
'Shukuvena began working.'

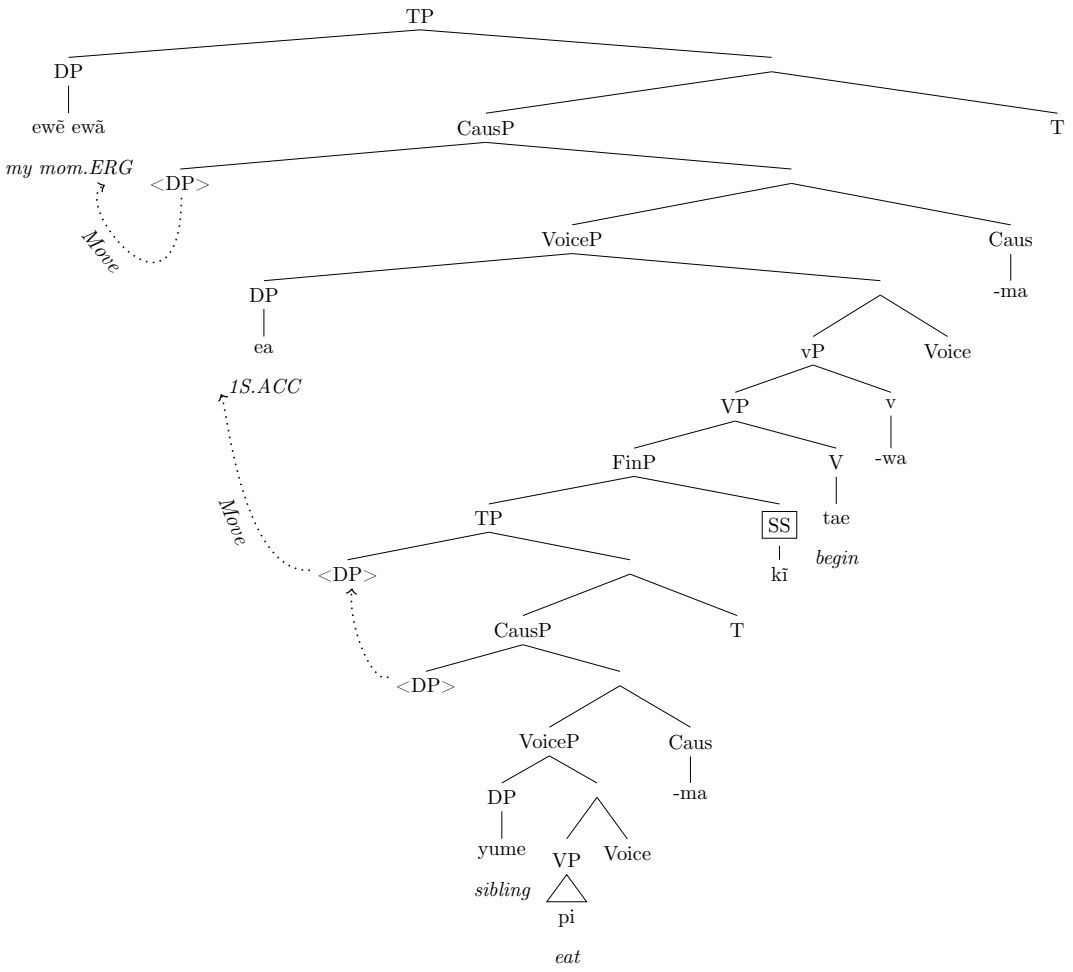
Recall however that by hypothesis we are dealing with raising constructions (see section 4.3.3 for detailed discussion), and in most cases the subject of the embedded clause raises to become the subject of the matrix clause as well. So if the subject is marked ergative in its final position, as it is in 29-a, it is not obvious whether it was assigned ergative in the embedded clause or in the matrix clause. So the embedded clause could still be a phasal CP/ForceP in which ergative case is assigned. As such, this investigation requires some careful curation of examples: what we need in order to determine the locus of ergative case assignment is an example in which the embedded subject raises, but does not become the subject of the matrix clause: 30 gives us just that. In this sentence *ea*, 'me', raises out of the complement clause, triggering SS marking: it is both the argument of 'causing to eat' in the embedded clause, and the argument of 'causing to begin' in the matrix clause. Because a causer is added to the matrix clause in a position that is hierarchically higher than the raised argument, however, it is this causer *ewẽ ewã*, 'my mother', that becomes the matrix subject, not the raised DP *ea*, 'me'.

(30) E-wẽ ewã e-a$_j$ [t_j yume pi-**ma**-kĩ] tae-wa-**ma**.
1SG-GEN mom.ERG 1SG-ACC sibling eat-CAUS-SS.IPFV.ERG begin-CLEX1-CPROD.PFV

'My mother made me begin to feed my sibling.' (lit. begin to make sibling eat)

The structure of 30 is represented in the tree in 31 (leaving out irrelevant projections). Here the lexical verb *tae*, 'begin', selects a SS-complement clause. We know from the discussion in section 4.2 that *tae* is an unaccusative raising predicate, and that whenever its complement SS clause has a transitive verb, the lexical causative *wa* must suffix to *tae* (see section 4.5 for detailed discussion of "transitivity agreement"). In addition to the lexical causative, we also have the productive causative *-ma* in the matrix clause, introducing the causer argument 'my mother'. I have shown in chapter 3 that the productive causative selects VoiceP, that is, it merges above the base position of the subject.

(31)



So how is this sentence informative when it comes to case? We need to look inside the SS complement to understand that. The first person pronoun is a causer argument in that clause, introduced and assigned a thematic role by the productive causative *-ma*. Being the highest argument in the complement clause, it raises from its merge position to Spec VoiceP in the matrix clause, triggered, I assume, by an EPP feature on Voice. When the causer *ewẽ ewã* is introduced by the productive causative it becomes the structurally highest DP, and thus moves to matrix subject position to satisfy T's EPP property.

So we have found the necessary example in which the raising DP does not become the matrix subject. The punchline here is that if the complement clause was a domain of ergative-case assignment, the raised DP *ea* would be ergative: it c-commands the causee

yume in that clause. But the only argument that receives ergative case in the whole construction is the matrix subject 'my mother'; the raised argument *ea* has accusative case, which must also be assigned at the closure of matrix ForceP. This means that ergative case is being assigned in the matrix clause, but not in the SS complement.[2] If it is true that the complement clause is not a domain of Dependent Case assignment, then we can infer that it is not phasal, in light of Baker (2014)'s proposal that ergative is a Dependent Case assigned at the closure of the CP phase (ForceP in my account).

Now contrast 30 with 32, whose complement and matrix clauses have different subjects. Not only is the embedded clause in 32 a domain of ergative case assignment, answering yes to question (1) above, – its subject *Shukuvenã* is ergative – but also it triggers ergative case assignment on the matrix subject *Shayã*, answering yes to question (2) as well. This pattern corroborates my claims that nominalized complements are larger structures – by hypothesis nominalized ForcePs – and supports the parallel I draw between them and DS-marked clauses.

(32) Shayã tapĩ-a, [Shukuvenã yuma itxapa atxi-a].
Shaya.ERG know-PFV Shukuvena.ERG fish many catch-PFV
'Shaya knows that Shukuvena caught a lot of fish.'

A SS complement, in contrast, does not count as a nominal for matters of dependent case assignment, even though it is an argument selected by the matrix verb. If the complement clause itself could trigger dependent case, we would expect the matrix subject in sentences like 33-a and 33-b to be ergative, contrary to fact. So SS complements answer no to question (2).

[2]In theory, it would be possible for ergative case to be assigned in the complement clause and then overridden by accusative in the matrix clause: this is attested in languages like Korean (Levin, 2016). It is however crosslinguistically rare, given that the Activity Condition in general will prevent a case-marked DP from receiving an additional case. Since there is no morphological evidence of case stacking in Yawanawa or related languages, I will assume it does not happen.

(33) a. **Shukuvena**$_i$ [t_i raya-i] tae-a.
Shukuvena.NOM work-SS.IPFV.NOM begin-PFV
'Shukuvena began working.'

b. **Shaya**$_i$ [PRO$_i$ saik-i] tapĩ-a.
Shaya.NOM sing-SS.IPFV.NOM know-PFV
'Shaya knows how to sing.'

Something important that sentence 33-b makes clear is that PRO is not counted as a nominal by the Dependent Case algorithm. If it were, we would expect *Shaya* in 33-b to be ergative, since it c-commands PRO. There is therefore, an interesting contrast between the symmetry of PRO and traces regarding dependent case assignment and their asymmetry when it comes to whether or not they can be goals of Agree. In section 4.3.3, I will show that traces are invisible to Agree probes (Chomsky, 2000, p. 131), but PRO is not, and discuss the consequences of this asymmetry for my proposal.

In summary, the discussion here supports my claims that unlike nominalized complements, SS complement clauses are neither domains of ergative case assignment, nor triggers of dependent ergative case on the matrix subject. This provides crucial insight into their syntactic structure: SS complements are not phasal and therefore structurally reduced when compared to nominalized complements. This is important to explain how a probe within the complement SS clause can Agree with the matrix subject, given the locality Agree requires: there is no phase boundary between the selecting matrix verb and the complement clause. But is there evidence to show that these complements are actually clausal, with their own extended verbal projection and internal subjects? I discuss that in the next section.

4.3.2 SS complements have subjects

Recall from the discussion in section 4.2.2 that one of the distinguishing properties of constructions involving SS complements is that they are biclausal: two verbal projections and two subjects need to be present for SS to be licensed. I showed that SS complements are structurally reduced, but crucially they need to be large enough to have an internal subject: a construction with a single subject simply will not license SS

marking because it does not have two subjects to coconstrue. This makes sense intuitively. The goal of this section is to motivate this claim empirically and theoretically.

There is evidence from two sources suggesting that SS complements have an internal subject. The first comes from suppletion, covered in chapter 3, and briefly reviewed here in section 4.3.2.1. Suppletion requires a type of locality only achieved if the subject is merged locally to the embedded predicate. And since suppletive predicates can occur in SS complements, they show us that these clauses have an internal subject. The second argument for an independent subject and extended projection within the SS complement is the possibility to have applicative and causative constructions in them. This is addressed in 4.3.2.2: the size of these embedded structures entail the presence of a subject. Finally, having established that complement clauses have internal subjects, section 4.3.3 draws the distinctions between aspectual and attitude-verb constructions based on the properties of raising and control.

4.3.2.1 Suppletion and locality

Suppletive predicates provide evidence that SS complements have internal subjects. I argued in chapter 3 that constructions involving verbs of motion project the functional head Motion, which probes the VoiceP phase for number features and conditions suppletion on two different pairs of predicates. I build on that in this section, arguing that because suppletive predicates can occur within SS complements, they provide evidence that these clauses have an internal subject.

The sentences in 34 have the suppletive predicate 'come/bring' in the SS complement clause of the aspectual verb *tae*, 'begin'. Recall that there are two possible ways to trigger plural suppletive forms: one is to have a plural argument like *yumehu* in 34-a as the single argument of an intransitive verb; the second is to have a transitive structure with two (or more) arguments, such that their singular features are added together to construct a plurality. 34-b is an example of that.

We know that whatever argument(s) is responsible for triggering the plural suppletive forms must be merged locally to the suppletive predicate. So the examples in 34 show that these triggers of suppletion need to be merged SS-clause internally (see

chapter 3 for detailed discussion).

(34) a. [Yume-hu [*t* **ve**-i] tae-hi(a)-ashe] *pro* venu-a-hu.
teen-PL.NOM come.PL-SS.IPFV.NOM start-CONC-SS.PFV.NOM lost-PFV-3PL
'The teenagers started to come but got lost.'

b. Shukuvenã [*t* a-wẽ maneti munuti-kĩ ve-kĩ] tae-wa.
Shuku.ERG 3-GEN guitar party-P.ERG come.PL-SS.IPFV.ERG begin-TR.PFV
'Shukuvena started bringing his guitar to the parties.'

Because the extended projection of motion predicates must include the functional head Motion, this head must be higher than 'come' and lower than 'begin' in the sentences here. We know from chapter 3 that the suppletion probe on Motion does not reach beyond the edge of the VoiceP phase: any arguments merged above that structural level are not computed in the suppletion calculation. This means that both in 34-a and 34-b, the subjects *yumehu* and *Shukuvenã* need to be merged within the lower VoiceP to be in the probing range of Motion.

Added to the evidence from applicative and causative constructions that will be addressed in the next section, the facts here support the argument that SS complement clauses have their own internal subject.

Note how example 34-a also provides evidence that the subject of the embedded verb 'come' becomes the subject of the whole sentence. The 'begin' clause is adjoined to the adjacent clause containing the verb *venu*, 'get lost', and co-construal of their subjects is indicated by the SS morpheme *ashe*. That is, this sentence shows, on the one hand, that the subject is merged complement-clause internally, and on the other, that it becomes the matrix subject. Evidence pointing in the same direction comes from a sentence like 35: the suppletive verb requires the plural subject *yumehu* to have merged complement-internally, and the plural agreement morpheme *-hu* on 'begin' shows that it becomes the subject of the matrix clause.

(35) Yume-hu munuti-nẽ ve-i tae-a-hu.
teenager-PL party-OBL come.PL-SS.IPFV.NOM begin-PFV-PL
'The teenagers began coming to the party/festival.'

As such, the facts here are compatible with two hypotheses. Either a PRO with plural features is merged in the SS-complement clause in an example like 34-a and obligatorily controlled by the matrix subject, or the subject is merged in the complement clause and raises into the matrix clause. In section 4.3.3, I will argue that both these structures occur, depending the selecting verb: aspectual verbs like 'begin' are raising predicates, and attitude verbs are control predicates. Assuming for now that this is true, we see in sentences such as 36 that a complement-internal PRO also triggers plural suppletion on 'come' and 'go'.

(36) Yume-hu [PRO$_{[PL]}$ nii **hu**-i] tapĩa-hu.
teenager-PL forest go.PL-SS.IPFV.NOM know.PFV-3PL
'The teenagers know how to hunt' (lit. know how to go to the forest)

In summary, suppletive predicates provide independent evidence for the structure of complement SS clauses: they have internal subjects. Recall that this is crucial to justify the SS morpheme at their edge: there is no reason for SS to be licensed if there are not two subjects to be coconstrued in a given construction. Before moving on to motivate the raising and control analyses, the next section discusses more evidence for the subject internal hypothesis of SS complements coming from applicative and causative constructions.

4.3.2.2 Applicatives and Causatives within the SS complement

The possibility to have applicative and causative constructions inside the SS complement is a diagnostic of the clause's structural size. An investigation of these constructions will support the biclausal hypothesis for constructions with SS complements, showing that they have an internal subject and need to be at least as large as TP.

Let us begin with causative constructions. Recall from chapter 3 that a productive causative can select a structure containing a lexical causative, as in 37-b (the lexical causative spells out as *-wa* or *-ma* depending on the root it selects). 37-a provides the more basic sentence with a single causative.

(37) a. Ẽ yume pi-**ma**.
1SG.ERG sibling eat-CPROD
'I fed my sibling.' (lit. made sibling eat)

b. E-wẽ ewã e-a yume pi-**ma-ma**.
1SG-GEN mother.ERG 1SG-ACC sibling eat-CLEX1-CPROD
'My mother made me feed my sibling.' (lit. made me make sibling eat)

Relevantly for the discussion here, a structure like 37-b can be embedded under 'begin' in a SS complement clause, as in 37-b.

(38) E-wẽ ewã e-a yume pi-**ma-ma**-kĩ tae-wa.
1SG-GEN mom.ERG 1SG-ACC sibling eat-CLEX1-CPROD-SS.IPFV.ERG begin-CLEX1.PFV
'My mother began to make me feed my sibling.'

Since we know that the productive causative selects VoiceP (c.f. Harley 2013, see the discussion in chapter 3), this type of structure shows that the internal structure of a SS complement can be as large as CausP, which necessarily includes a subject. Can they be even larger than CausP? Applicative constructions will show that they can.

The Yawanawa applicative morpheme introduces an affected argument in a clause and it can crucially select an unaccusative verb, as in 39-b[3] (these constructions were previously discussed in chapter 2, section 2.3.3.2). Example 39-a shows what the simple monoargumental unaccusative construction looks like.

(39) a. Ewẽ yuma-xta txapu-a!
my fish-DIM rot-PFV
'My little fish rotted!'

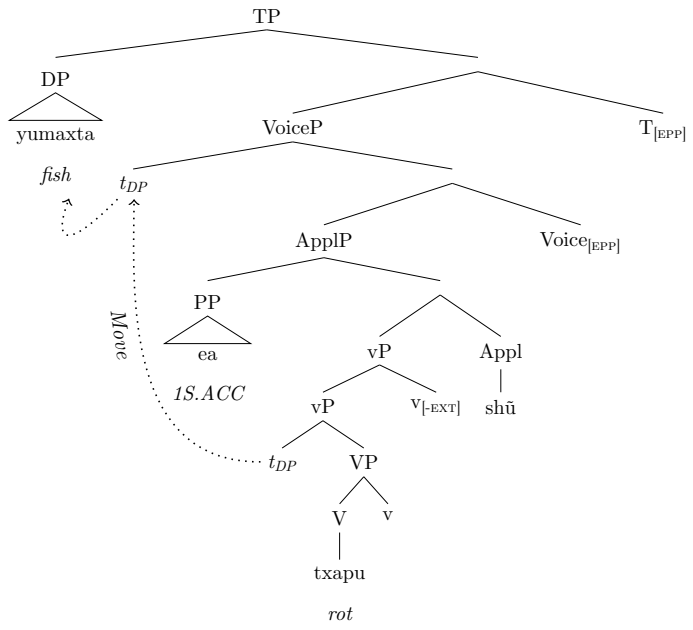
b. Ewẽ yuma-xta ea txapu-**shũn**-a!
my fish-DIM 1SG.ACC rot-APPL-PFV

[3]There is variation here regarding whether speakers overtly mark the theme ergative once it moves over the applicative argument. This particular example does not have ergative marking on the subject, but most other examples do (see, for instance, 44-b). Interestingly the phenomenon does not reduce to inter-speaker variation, since even the same speaker tends to be inconsistent in their spontaneous production. I assume that all derived subjects in applicative of unaccusative constructions are underlyingly ergative.

'My little fish rotted on me!'

The tree in 40 illustrates the structure of 39-b. The theme of unaccusative *txapu*, 'rot', moves over the applied argument to become the subject of the clause. I propose this movement takes place successive-cyclically via the specifier of VoiceP, assuming Voice has an EPP feature. It is clear from word order that this movement takes place, yet unexpected from a theoretical perspective, since the applied argument is structurally closer to the T head than the theme. Recall that to explain why this is possible, Baker (2014) proposes that the applicative head in analogous constructions in Shipibo selects a PP with a null P, rather than a DP, and this prevents the applied argument from moving to Spec TP to satisfy T's EPP property.

(40)



What is relevant for the present discussion is that these applicative of unaccusative constructions can occur inside a SS complement clause, as in 41. As such, this construction tells us that the complement clause needs to be at least as large as TP.

(41) Yuma-xta$_i$ [t_i e-a t_i txapu-shũn-i] tae-i.
fish-DIM 1SG-ACC rot-APPL-SS.IPFV.NOM begin.INTR-IPFV
'The little fish is beginning to rot on me.'

An alternative analysis would have the theme moving directly from its merge position to the Spec TP of the superordinate clause: that would not prove that the complement clause needs to have a TP projection. This alternative, however, does not take the SS morpheme into consideration, since what it indicates is that the subject of the embedded clause is coconstrued with the subject of the matrix clause. If the theme movement did not occur complement internally, T as a component of SS would probe down and Agree with the applied argument, which is the closest DP, not with the theme. In this case the subjects of the embedded and matrix clauses would be different and SS is predicted not to be licensed. Another SS-licensing alternative in which T agrees with the applied argument and attracts it to matrix subject position is

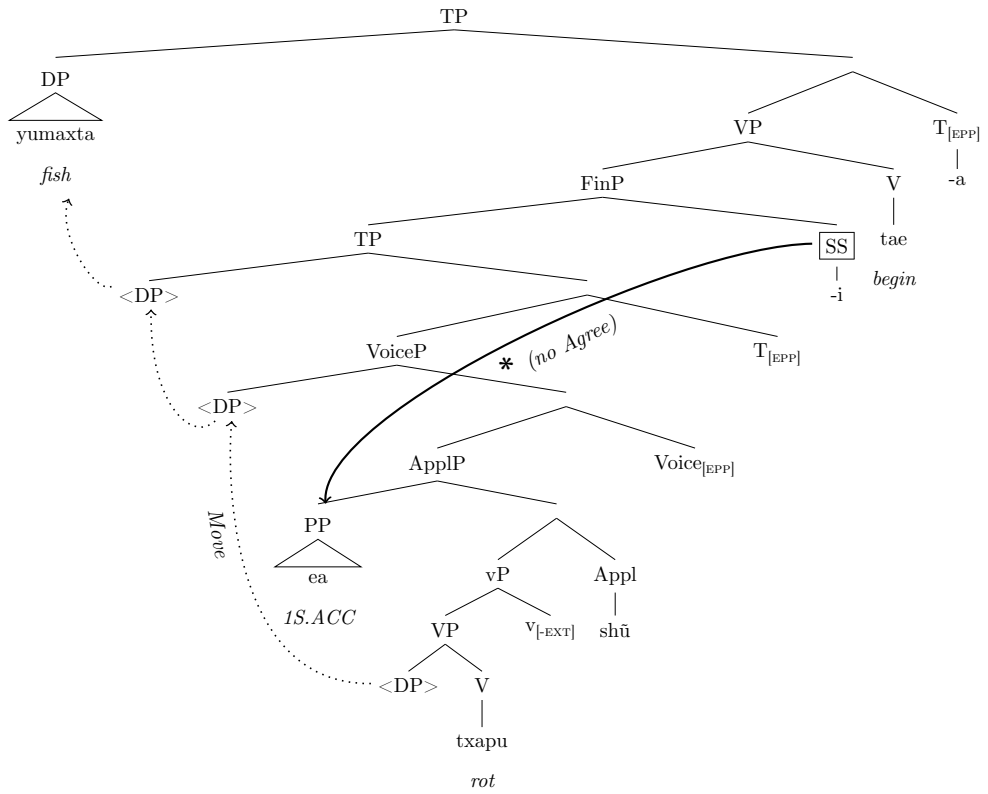
unattested, as illustrated by the ungrammaticality of 42.

(42) *E-a/Ẽ [*t* yuma-xta txapu-shũn-i] tae-i.
1SG-ACC/1SG.ERG fish-DIM rot-APPL-SS.IPFV.NOM begin.INTR-IPFV
Intended: 'The little fish is beginning to rot on me.'

One may wonder whether the applied argument would actually be an available goal to the SS probe, given my assumption that it is sheltered in this PP that prevents it from moving to satisfy T's EPP property (Baker, 2014): it is reasonable to expect that it would be sheltered from Agree probes as well. There is evidence however, that the null P head outside the applied argument is not a barrier to Agree probes: applied arguments can be pivots of OS constructions, and triggers for dependent case assignment, for instance (see chapter 2 and analogous facts in Amharic, c.f. Baker 2012).

So the theme must move over the applied argument complement-internally because once *tae*, 'begin', selects this structure, it is the theme that moves even further to become the subject of the higher clause. This is illustrated in 43 (I leave irrelevant projections out of the structure, for simplicity).

(43)



Because the theme must move to Spec TP complement-internally, this type of structure provides strong evidence that the SS complement clause is large enough to have an internal subject and its own extended functional projection. It needs to be at least as large as TP, though I am proposing it is a FinP, a choice I will motivate in section 4.4.1.

So now that we know the subject must originate complement-internally in constructions like 43, the other relevant question to motivate the raising analysis I am pursuing here is whether it actually becomes the subject of the superordinate clause. The following examples provide some concrete evidence. Sentence 44-a has the 3rd person plural agreement morpheme *-hu* on the unaccusative predicate *muxi*, 'break', and this morpheme remains on the unaccusative verb when the construction is applicativized, as in 44-b. In 45, however, once the aspectual predicate *tae*, 'begin', selects this structure, the agreement morpheme shows up on *tae*, rather than on the embedded unaccusative verb.

(44) a. E-wẽ ketxa mixtĩ-hu muxi-a-**hu**.
1SG-GEN plate little-PL break.INTR-PFV-3PL
'My dear little plates broke.'

b. Ewẽ ketxa mixtĩ-hãu e-a muxi-shũn-a-**hu**.
1sg-gen plate little-PL.ERG 1SG-ACC break.INTR-APPL-PFV-3PL
'My dear little plates broke on me.'

(45) E-wẽ ketxa mixtĩ-hãu e-a muxi-shũn-i-(*hu) tae-a-**hu**.
1SG-GEN plate little-PL.ERG 1-ACC break.INTR-APPL-SS.IPFV.NOM-PL begin-PFV-3PL
'My dear little plates began breaking on me.'

So agreement is showing that the DP that originates complement-internally becomes the subject of the matrix verb. Although a raising analysis seems to be the most straightforward, we must note that it would technically be possible for matrix T to reach into the embedded clause to find its goal, given the lack of a phase boundary between the clauses. I will argue for raising, however, based on the EPP. We see very clearly in simple applicatives of unaccusative constructions like 39-b that the theme argument must move to subject position, yielding a change in the order of constituents within the clause. By hypothesis, this movement is driven by T's EPP feature, so I will assume that this is the case across the board. In short, if it is true that the Spec TP position of a matrix clause must be filled, and subjects originate in the complement clause in 'begin' constructions, then the subject must raise from the SS-complement to the matrix clause.

In fact, there is evidence that the raising subject may move to an even higher position than Spec TP, coming from the Yawanawa predicate that translates as 'seem'. It is a second-position element – which basically means that it is a high functional head in clausal structure, arguably $\text{Mood}_{\text{evidential}}$ in the sense of Cinque (1999, 2001). It conveys the meaning that a speaker has gathered evidence to make a certain inference, as illustrated by the examples in 46: in 46-a, the speaker goes to the kitchen with the intention of getting the coco fruit they had left there earlier, but realizes it is missing; and in 46-b, the speaker is responding to my story that my host from a different indigenous group had many *buriti* palm trees in their village, but did not make *vinũ*, a

typical Yawanawa delicacy made out of the fruits.

(46) a. Tsuã=**raka** katsu reshavi pi-a.
INDET.ANM.ERG=EV.SEEM coco eat-PFV
'It seems/looks like someone has eaten the coco fruit.'

b. Atũ=**raka** vinũ tapĩ-a-ma. Atu tapĩ-ma-shei-we
3SG.ERG=EV.SEEM buriti know-PFV-NEG 3SG.ACC know-CPROD-FUT-IMP
ari nuku-shũ.
there arrive-SS.PFV.ERG
'It seems like he doesn't know how to make *buriti*. You will teach him when you get there.'

Crucially for the present discussion, the sentence in 47 shows that the subject raising from the SS-complement containing an applicative of unaccusative may raise to a position above this functional head *raka*, 'seem', in the matrix clause.

(47) Yuma-xta=**raka** e-a txapu-shũn-i tae-i.
fish-DIM=EV.SEEM 1S-ACC rot-APPL-SS.IPFV.NOM begin-IPFV
'It seems/looks like the little fish is beginning to rot on me.'

So the raising analysis is motivated. Additional evidence for this comes from examples like 48, in which the clause containing the aspectual predicate 'begin' and its SS-complement is adjoined to a matrix clause, giving rise to adjunct SS marking. The SS morpheme *shũ* indicates that the subject of both adjoined and matrix clauses is *takara*, 'the chicken'. We know that *takara* originates in a VP-internal position, since the complement of 'begin' contains an applicative of unaccusative. Putting these two pieces of information together, we can infer that *takara* raises from its original merge position to its final landing site as the subject of the 'begin' clause (via Spec TP of the SS complement clause). Again, I assume that the EPP feature on T forces subject movement to Spec TP.

(48) [[Takara$_j$ [e-a t$_j$ ewa-shũn-i] tae-**shũ**] *pro$_j$* vatxi westima pake-i]
chicken 1-ACC grow-APPL-SS.I.N begin-SS.PFV.ERG egg many lay-IPFV
'After the chicken began growing on/for me, it is laying many eggs.'

Similarly, 49 has the 'begin' construction as the matrix clause with an OS-marked clause adjoined to it. The OS morpheme shows that the object of 'get' is the same as the subject of 'begin'. This means that the argument which starts out as the theme within the SS complement – the pro-dropped *yuma* – must become the subject of the larger 'begin' clause.

(49) [[Ẽ yuma$_k$ hi-**a**] mã pro$_k$ [e-a t$_k$ txapu-shũn-i] tae-a]
1S.ERG fish get-OS already 1S-ACC rot-APPL-SS.IPFV.NOM begin-PFV
'I bought fish and it has already started to rot on me.'

This analysis of 'begin' as a raising predicate answers the question we set out to pursue: are SS complements large enough to have subjects? It becomes clear that they are at this point. The discussion shows that the complement clause must be at least as large as TP in order to account for embedded applicatives of unaccusatives. And the reason we ask this question in the first place is to explain the occurrence of the SS marker: if there was no subject, there would be no SS coconstrual. What the discussion here has shown is that there are indeed 'two subjects' to be coconstrued in complementation constructions, which turn out to be two instances of the same subject when raising is involved. The next section discusses the details of the raising and control analyses.

4.3.3 Raising and control

So far, I have been focusing mostly on the aspectual predicate 'begin' to develop the structural discussions in this section, but not all verbs that select SS-complement clauses are raising predicates. Attitude verbs like 'think', 'know', 'dream', and 'hope', which also select SS complements, are typical control predicates, as discussed in section 4.2.1.

Unlike raising predicates, which are all unaccusative, these verbs have an additional (experiencer) thematic role to assign. Not only do attitude predicates license an external argument, but also they impose certain selectional restrictions on them: they must be animate, volitional, and not expletive; i.e. they must have 'minds' in order to have attitudes.

Because causative constructions have agentive external arguments, they are predicted to be compatible with control predicates in general (assuming the causer is animate). The examples in 50 show that this is true:

(50) a. Ẽ yume pi-**ma**-kĩ tapĩ-a.
1SG.ERG sibling eat-CPROD-SS.IPFV.ERG know-PFV
'I know how to feed my sibling.'

b. Ẽ yume pi-**ma**-pai-kĩ xinã/ũi-i
1SG.ERG sibling eat-CPROD-DES-SS.IMPFV.ERG think/hope-PFV
'I'm thinking/hoping to feed my sibling.'

c. E-wẽ ewã e-a yume pi-**ma-ma-kĩ** ũi/xinã-i.
1-GEN mom.ERG 1-ACC sibling eat-CLEX2-CPROD-SS.IPFV.ERG hope/think-IPFV
'My mother is hoping/thinking to make me feed my sibling.' (lit. make me make sibling eat)

Inanimate subjects are acceptable in such constructions if consultants are given the appropriate contexts for them (here, a factory where engines are built by machines).

(51) Maquina-nẽ moto wa-kĩ tapĩ-a.
machine-ERG engine make-SS.IPFV.ERG know-PFV
'The machine knows how to build engines.'

Weather predicates, however, are never compatible with control predicates, as shown in 52-a, though they are perfectly acceptable in the SS complement of a raising verb like 'begin' or 'stop', as in 52-b:

(52) a. *Uik-i ũi/tapĩ/xinã-i.
rain-SS.IPFV.NOM hope/know/think-IPFV
Intended: 'It hopes/knows/thinks of raining.'

b. Uik-i tae/ene-a.
rain-SS.IPFV.NOM begin/stop-PFV
'It began/stopped raining.'

Yawanawa does not have a morphologically overt expletive, so we see no overt subject in 52-b and 52-a. Even with an overt subject like 'rain', as in 53-b however, the control construction does not become grammatical. 53-a shows that the same complement is perfectly grammatical in a raising construction[4].

(53) a. Ui pake-i tae/ene-a
rain fall-SS.IPFV.NOM begin/stop-PFV
'Rain began/stopped falling.'

b. *Ui pake-i ũi/tapĩ/xinã-i.
rain fall-SS.IPFV.NOM hope/know/think-IPFV
Intended: 'The rain hopes/knows/thinks of falling.

This data corroborates my claim that SS complement clauses may be embedded either under raising or control predicates. In either case, the clause is large enough to have its own subject – either a lexical DP or PRO – which will be one of the goals of the Agree probes that make up the SS coconstrual mechanism.

Before we move on to the actual derivation of SS marking in complementation, it is important to say a few words about the visibility of PRO in the face of syntactic mechanisms. Specifically, I am referring to the fact that PRO needs to be visible to an Agree probe – so that it can be coconstrued with the superordinate subject according to the proposal in section 4.4.1 – but invisible to the Dependent Case algorithm – so that it does not trigger ergative case on the matrix subject in control constructions with intransitive embedded verbs (see section 4.3.1). This asymmetry in the syntactic 'visibility' of PRO might seem odd at first, but I argue it finds crosslinguistic support and does not undermine the proposal. In fact, PROs that are invisible to the Dependent Case algorithm are crosslinguistically attested: Baker (2015) provides a hierarchy of null

[4]My consultants tend to reject constructions in which a control predicate embeds a clause with an unaccusative verb, but the reason for that is unclear to me.

nominal types regarding whether or not they are capable of triggering dependent case, with PRO lying right in the middle. That means that it is often but not necessarily visible to the case mechanism, so in light of this precedent, I will consider reasonable my assumption that PRO is not visible in Yawanawa.

We must ask ourselves what the alternative to having PRO would be. Since it is unlikely that attitude verb constructions involve raising – given their thematic properties and semantic restrictions on the external argument – the alternative to having a controlled PRO in these constructions would be to have a structurally smaller complement with no subject. This alternative is undesirable for a number of reasons: not only would it contradict the evidence just discussed in sections 4.3.2.1 and 4.3.2.2 that complement SS clauses have internal subjects, but also it would leave us with no explanation for why SS is licensed at all in these constructions. If they did not have two subjects to coconstrue, there would no reason to license SS. Therefore, I will assume that PRO is always present in the subject position of SS complements in attitude verb constructions, despite being invisible to the Dependent Case algorithm.

Finally, there is one more important discussion to raise pertaining to the topic of control: as we draw a parallel between complement SS on one side, and raising and control constructions on the other, the absence of object control from the paradigm seems to be a haunting disanalogy. And this disanalogy is not novel: it was previously noted by Hermon (1985), for instance, in her analysis of SR as control in Quechua, and by Hale (1992) to motivate his proposed distinction between control and SR in Hopi and Mismalpan languages.

The simple (i.e. boring) explanation for this gap in the Yawanawa paradigm would be that the language does not have object control constructions at all, as is true of a number of languages: typical object control constructions are expressed by different syntactic means. This is the case for many constructions, as exemplified in 54:

(54) a. Ẽ Tika tsau-we wa.
1S.ERG Tika sit-IMP say/tell.PFV
'I told Tika to sit down.' (lit. I said to Tika 'sit down')

b. Shukuvenã Shaya vepara-shũ iyu-a, ashã-kĩ.
Shukuvena.ERG Shaya fool-SS.PFV.ERG take-PFV fish-SS.IPFV.ERG
'Shukuvena convinced Shaya to go fishing.' (lit. fooled her and took her fishing)

So this hypothesis does not look so far fetched. Another possible explanation is that the structure of complement SS clauses in Yawanawa actually makes it impossible for object control to obtain. This explanation is based on a view of restructuring in which a complement-taking verb is optionally re-analyzed as a type of functional or auxiliary verb (Rizzi, 1978, 1982; Haegeman and van Riemsdijk, 1986). The basic idea coming from Rizzi (1978) is that a predicate like 'want' in Italian, for instance, can either behave as a lexical verb and select a full clause as its complement – building a construction that bans object clitic climbing, as in 55; (compare it to the verb 'hate') – or as a type of auxiliary in a construction that allows for object clitic climbing, as in 56, not available to a verb like 'hate'.

(55) Italian (Rizzi, 1978)

a. Mario vuole legger-**lo**.
Mario wants to.read-it
'Mario wants to read it.'

b. Mario odia legger-**lo**.
Mario hates to.read-it
'Mario hates to read it.'

(56) Italian (Rizzi, 1978)

a. Mario **lo** vuole leggere.
Mario it wants to.read
'Mario wants to read it.'

b. *Mario **lo** odia leggere.
Mario it hates to.read

Without going into the details of the analysis, the basic takeaway here is that there is no syntactic barrier (i.e. phase head) between the two predicates in a construction

like 56-a. Further evidence comes from the fact that the verb 'want', which normally takes auxiliary *avere*, 'have', can appear with *essere*, 'be', which is the auxiliary selected by the embedded verb. Again, this option is not available for a non-restructuring verb like 'hate'.

(57) Italian, (Rizzi, 1978)

a. Mario **sarebbe** proprio voluto andare a casa
Mario would.be really wanted to.go to home
'Mario would have really wanted to go home.'

b. *Mario **sarebbe** proprio odiato andare a casa
Mario would.be really hated to.go to home
'Mario would have really hated to go home.'

There are many different analyses of restructuring available in the literature, but the basic idea behind all of them is that a construction which would normally be biclausal – like those in 55, for instance – is somehow reanalyzed (restructured) or base-generated as monoclausal, that is, without a clause (i.e. phase) barrier between the predicates. This might look at odds with my argument in section 4.2.2 that constructions with SS complements are biclausal, but recall that what I mean by that is simply that two subjects need to be licensed in the construction – one in the embedded clause and one in the superordinate clause – I certainly do not mean that there needs to be a phase barrier between the predicates. In fact, it is crucial that there is no phase barrier between a selecting predicate and a complement clause for SS to obtain.

As such, thinking of restructuring in this sense allows us to draw a parallel to Yawanawa attitude verb constructions, which can select both nominalized and SS clauses as complements. If this optionality in terms of complement type indicates that these predicates have an ambiguous nature between lexical and auxiliary-like verbs, resembling that of Italian 'want', then we have a potential syntactic argument to explain the absence of object control. Object control verbs like 'persuade' in Italian never allow for clitic climbing, suggesting that the presence of an object eliminates the possibility that a predicate will be reanalyzed as an auxiliary-like verb.

So perhaps the same thing is happening in Yawanawa: control predicates can either select a nominal object – which will force them to behave as a lexical verb – or a structurally reduced SS clause – which will force them to behave as an auxiliary-like verb – but not both. So object control with SS complements is expected not to be possible in this view. This seems like a more motivated explanation for the absence of object control in Yawanawa. The view of SS-complement-selecting verbs as semi-lexical semi-functional elements will also find support in the analysis of Hualapai SS that I develop in section 4.6.1. With this, let us move on to explain how the SS coconstrual obtains.

4.4 Deriving the SS coconstrual in complementation constructions

I wrap up the account of complement SS constructions in this section, putting together all the pieces discussed so far. My proposal is that complement SS works analogously to adjunct SS: T Agree-links to the subject within the SS clause, and Fin Agree-links to the subject of the matrix clause. By means of T-to-Fin movement and subsequent fusion of the two heads, we achieve the configuration for coconstrual discussed in chapter 2: one syntactic terminal linked to two nominal pivots. This configuration enforces coindexation between the pivots, which will give rise to a bound variable reading, given the c-command relation between them.

In 4.4.1, I develop this derivation, based on all the properties of complement SS constructions discussed throughout the chapter. Then in 4.4.2 I discuss the reduced paradigm of SR in complementation: I focus on the absence of DS and perfective SS in 4.4.2.1 and in the distribution of OS in 4.4.2.2.

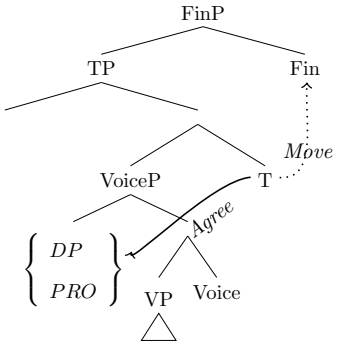
4.4.1 The derivation of SS

Let us briefly recapitulate the most relevant properties of the SS complementation construction, as discussed throughout the chapter. First, SS complements are structurally reduced and non-phasal when compared both to matrix and nominalized clauses which lack SR markers. We saw evidence from the case patterns in section 4.3.1 that SS

complements neither trigger ergative case on the matrix subject, nor are themselves domains of ergative case assignment. Despite being non-phasal, these complements are large enough to have an internal subject, and we saw evidence from suppletion, as well as causative and applicative constructions that they need to be at least as large as TP. I propose here that they are FinPs, analogous to non-phasal infinitives.

Proposing that complement SS clauses are FinPs makes the SS coconstrual mechanism in them basically analogous to that of adjunct SR. I propose that in both these clause types, the T head lacks ϕ feature slots, and as such, it can probe for and create an Agree-link with the closest DP, but it cannot copy its features. The closest DP to T in the complement clause is the subject: either a full DP, in raising constructions (including the derived subject of applicative of unaccusatives), or PRO, in control constructions. This is the first link of the SS computation in both adjunct and complement SS. It is important to stress that even in raising constructions, this DP is still within the complement clause when T agrees with it; it raises after the Agree-link is established. This is important because if movement happened first, the link between T and the embedded subject would not be possible: traces (or lower copies) are invisible to Agree, according to Chomsky (2000, p. 131). After establishing an Agree-link with the subject, T head-moves to Fin. I illustrate the derivation in different steps to highlight the timing of operations: the initial steps are in 58.

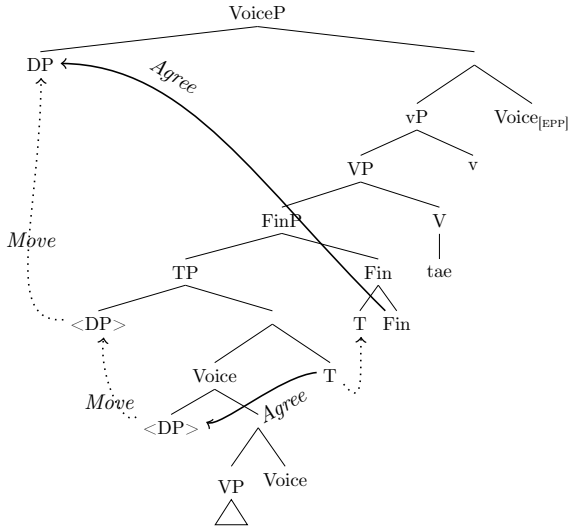
(58) 1st step of the derivation: raising/control construction



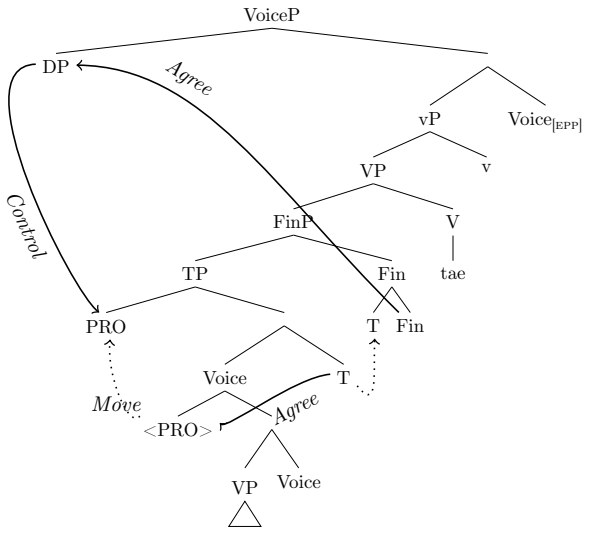
The second link of the SS computation comes from the Fin head in both adjunction and complementation constructions: it probes up into the matrix clause to find the

closest argument, that is, the superordinate subject. In adjunction constructions, this goal will be in matrix SpecTP when Fin probes, and in complementation, it will be in matrix Spec VoiceP: either the antecedent of PRO, or the raising argument itself, on its way to the final matrix subject position. I make a couple of important assumptions here: the first is that raising is triggered by an EPP feature on matrix Voice; the second is that the upward probe on Fin remains active until phase closure, so it can reach the raised DP at the edge of the VoiceP phase, but it can go no farther than that. These steps are illustrated in 59 for raising and 60 for control.

(59) 2nd step of the derivation: raising construction

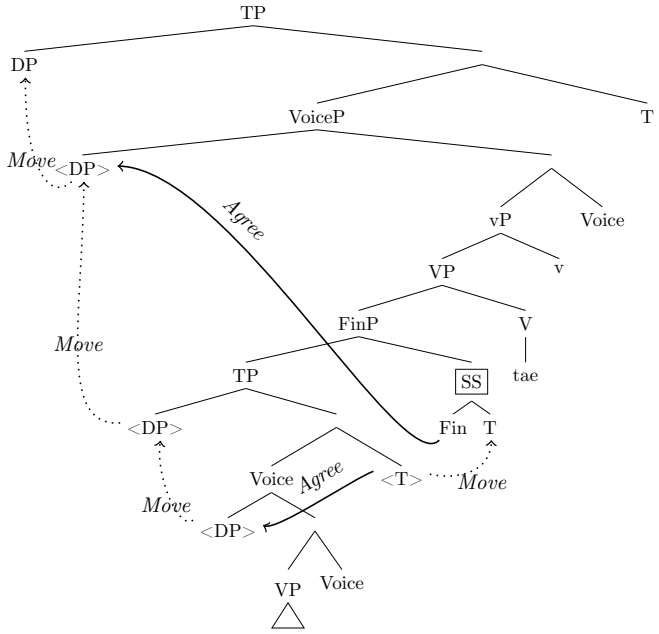


(60) 2nd step of the derivation: control construction

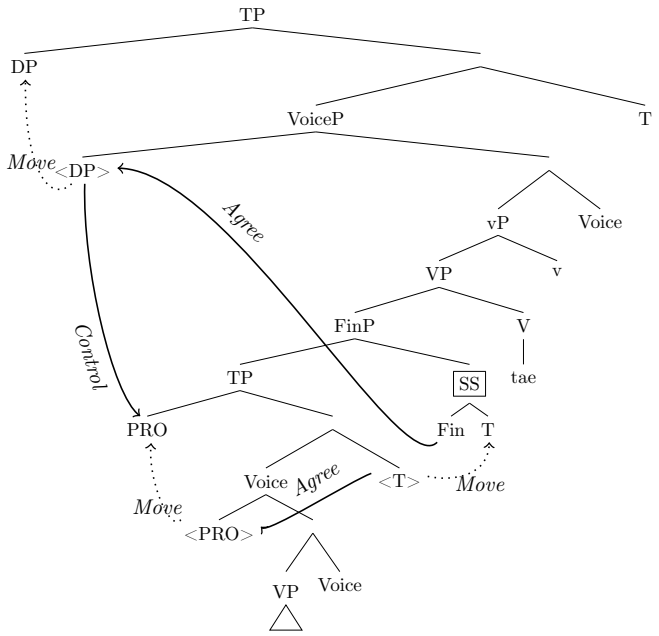


I assume that movement of T to Fin allows these heads to fuse together, in a way analogous to what happens in adjunct SS. As such, we get one structural node – the T-Fin complex – linked to two DPs, or two instances of the same DP in the case of raising constructions. The full derivation is illustrated in 61 for raising and 62 for control.

(61) Full derivation: raising construction



(62) Full derivation: control construction



It is important to ask, could it be a problem that in raising constructions like the one in 61, the subjects standing in the SS relation are actually two different links in the same A-chain? I argue that it is not, because the links are established at different derivational moments by different heads: T probes down into the SS clause and Fin probes up into the matrix clause, so no head is probing a DP trace. Being in the same chain, the two copies of the raised DP will have the same index regardless of the SS mechanism, but SS is exponed anyway. Because the raised DP and its trace stand in a c-commanding relation, the coconstrual achieved in this kind of construction is one of bound variable anaphora (see chapter 5 for the details of interpretation). This claim that SS can be defined over two links in the same A-chain will be further discussed in section 4.6.1, where I extend my analysis to SS marking in auxiliary constructions in the Yuman language Hualapai.

Another question that may arise in light of the derivation proposed is whether there is any evidence that the raising subject indeed lands in matrix Spec VoiceP, rather than directly in Spec TP. I argue there is, based on example 30, which played an important role in the discussion of case in section 4.3.1: I repeat it here as 63.

(63) E-wẽ ewã e-a yume pi-**ma**-kĩ tae-wa-**ma**.
1-GEN mom.ERG 1SG-ACC sibling eat-CPROD-SS.IPFV.ERG begin-CLEX1-CPROD.PFV
'My mother made me begin to feed my sibling.' (lit. begin to make sibling eat)

So how is this example important? Note that the productive causative *ma* selects the transitivized verb 'begin', and introduces a causer argument into the matrix clause. Being the highest nominal argument in the construction, this causer is the argument that moves to Spec TP to become the matrix subject. Therefore, this means that the raising DP *ea* in this construction must land in matrix Spec VoiceP: it cannot raise directly to Spec TP, since we see that position occupied by the causer in the matrix clause. Because the specifier of Voice functions as the escape hatch of the phase, I will assume that it is the obligatory landing site of all successive-cyclic raising DPs, regardless of the argument structure of the embedded verb.

Sentence 63 is also informative of the properties of the same-subject marker. Note how it links the subject of the embedded clause (the agent of 'causing to eat') to the *causee* of the matrix clause, not to the causer, which is the matrix subject. This is a fundamental difference between SS marking in complement and adjunct constructions: the SS relation in constructions involving adjunct clauses never involves the causee. In other words, the lower argument of a causative construction cannot be co-construed with the subject of an adjacent clause: this is shown in 64-a. The only acceptable construction is the one in 64-b, where the pivot of the SS relation is the causer: to achieve that, the causative morpheme must be present in both clauses. This is expected, given my proposal and assumptions about the structure of adverbial same-subject clauses: they are ForcePs that adjoin high enough in the matrix clause (AspP) that the SS probe on Fin can only find the matrix subject in Spec TP, as it searches upwards.

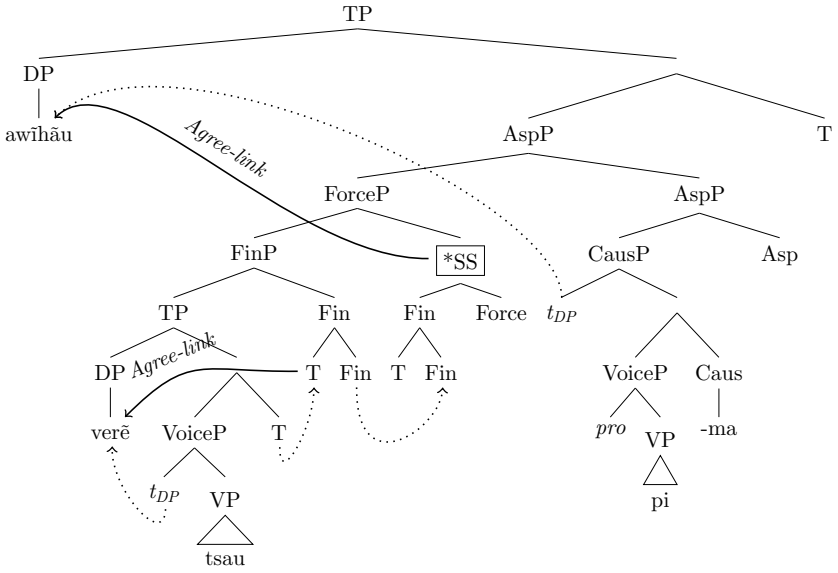
(64) a. *Awĩhãu verẽ$_i$ tsau-shũ *pro$_i$* pi-ma.
woman.ERG son sit-SS.PFV.ERG eat-CPROD
Intended: 'The woman made her son sit and eat.'

b. Awĩhãu$_k$ verẽ tsau-*(ma)-shũ *pro$_k$* pi-ma.
woman.ERG son sit-CPROD-SS.PFV.ERG eat-CPROD
'The woman made her son sit and (made him) eat.'

Now imagine what the structure of 64-a would have to look like: *verẽ tsau-shũ* would have to adjoin to the extended projection of the verb *pi*, 'eat', below the level of VoiceP. This would be necessary in order for the SS probe to search upward and find *verẽ* as its goal in the Spec VoiceP position. What the ungrammaticality of 64-a suggests is that the SS clause must indeed adjoin higher, as I propose. Specifically, I propose it adjoins to AspP: if the SS clause were to adjoin to VoiceP, for instance, which is a position structurally lower than the productive causative, we would still expect the SS clause to scope below the causative.

The ungrammatical structure of 64-a is illustrated in 65: when Fin probes up, it finds the causer *awĩhãu*, rather than the causee *verẽ*, which is lower in the structure. This makes coindexation unattainable between the two goals of Agree, and as expected, SS is not licensed. For the structure of the grammatical 63, which involves complementation and coconstrual with the causee, see the tree in 94.

(65) *



This is how the SS coconstrual is derived in complementation structures, as compared to adjunction structures. The mechanisms are the same – two heads that Agree-link to two DPs and fuse together, enforcing coconstrual – with differences in interpretation arising from the structural size and merge position of the SS clause in each type

of construction (see chapter 5 for a detailed account of interpretation).

4.4.2 Why the SR paradigm is limited in complementation

Recall that an important property of complement clauses is that they only permit imperfective SS: DS, OS, and perfective SS markers are all absent from this clause type. This section investigates and explains that, with 4.4.2.1 focusing on DS and perfective SS, and 4.4.2.2 focusing on OS.

4.4.2.1 DS and perfective SS are missing

DS marking is absent from complement clauses, but this does not mean DS meanings do not obtain. Recall from chapter 2 that adverbial DS constructions are syntactically different from SS and OS, in that they lack special complementizers that Agree or fuse together to indicate argument coconstrual. I propose that something analogous occurs in complementation: the equivalent of DS are the nominalized complements discussed in section 4.2.1, which never have agreeing complementizers. Just like I argue that adjunct DS clauses do not actually have the "different-subject" meaning expressed anywhere, I propose that the same is true in complementation: nominalized complements are the "DS" clauses in this context. It is true that their complementizers look morphologically different – i.e. *-kẽ, -nũ* vs. ∅ – , but so do the non-agreeing complementizers of English adverbial vs. complement clauses, i.e. when, while, as, because, vs. that, ∅, how.

Supporting evidence for this view comes from the fact that in general, Yawanawa nominalized complements have different subjects than the matrix clause: this complement type is in competition with SS complements (for attitude verbs only; aspectual verbs cannot have nominalized complements). In order to express subject coconstrual between the matrix and complement clauses, a speaker will opt for the structurally reduced non-phasal SS-complements. These allow for Fin to probe upward into the matrix clause and find the matrix subject at the edge of the phase, in Spec VoiceP. Even if nominalized clauses had agreeing complementizers, an upward probe on Fin would be insulated by the D head at the top of the clause and thus unable to search

into the superordinate clause[5]. But it is not always the case that the subjects of matrix and nominalized complement clauses are different. Just like adverbial "DS" clauses can stand in for SS and OS in certain cases – when the exact morpheme is not available, for instance – nominalized complements can also express SS meanings in certain cases. Once again this shows that the DS meaning is not categorical and that the competition between SS and DS is pragmatic in nature, since it can be overturned. More specifically, because complement SS clauses cannot express a Tense value that mismatches that of the matrix clause (see discussion immediately below), a nominalized clause must be employed for such mismatches to be expressed. In these cases, illustrated in 68, we see nominalized complements with subjects that match that of the matrix clause.

Now the unavailability of perfective SS markers in SS complements comes from a very different source. As I discussed in section 4.2.3, it seems directly associated to the unavailability of adverbial morphemes with tense-related semantics, which are optionally available in adjunct SS clauses. By hypothesis, the unavailability of both temporal adverbials and perfective SS marking is due to SS-complement clauses being tense-defective: I motivate this argument in what follows.

The relevant examples are repeated here: 66 shows the tense adverbials (realized as verbal affixes) being licensed in adjunct SR clauses, and 67 shows they are not grammatical in SS complementation involving aspectual predicates. The corrected example in 67-b has the tense adverbials in the matrix clause.

(66) a. Shukuvena mishki-(**hai**/**xĩ**)-kĩ ixixiwã atxi-a.
Shukuvena fish-REC.PST/PST.NT-SS.IPFV.ERG catfish catch-PFV
'While Shukuvena was fishing earlier today/last night, he caught a catfish.'

b. Awa-ki ẽ tuwe-(**xin**)-ashe (ẽ) itxu-xin-a.
tapir-at 1SG.ERG shoot-PST.NT-SS.PFV.NOM 1SG.NOM run-PST.NT-PFV
'Last night I shot a tapir and ran (in fear).'

[5]An exception to this is found in Washo, where a D head at the top of a complement clause does not stop the upward searching probe. According to Arregi and Hanink (2019), this happens because D is not a phase head in this language. They also discuss an alternative view to explain this, which consists of the heads C and D collapsing into a single phase head, based on work by (Bošković, 2015)

(67) a. Shukuvenã livro ane-(***xĩ/hai**)-kĩ tae-wa.
Shukuvena.ERG book read-PST.NT/REC.PST-SS.IPFV.ERG begin-CLEX1.PVF
Intended: 'Shukuvena began reading the book last night/today.'

b. Corrected to:

Shukuvenã livro ane-kĩ tae-wa-**xĩ/hai**-a.
Shukuvena.ERG book read-SS.IPFV.ERG begin-CLEX1-PST.NT-PFV
'Shukuvena began reading the book last night/today.'

This impossibility to express a before/after relation between matrix and embedded events is not surprising when we consider aspectual predicates and their complements. Rather than introducing new events, aspectual predicates delimit the event encoded by the embedded verb, – its starting, finishing, or pausing point. So it is expected that aspectual constructions will not allow for a tense mismatch between matrix and embedded clause in any language, i.e. *Yesterday Hazel began mending her clothes today. In other words, the eventualities in embedded and matrix clause must overlap, given the meaning of the verbs. But the same restriction regarding tense mismatches in the SS-complement applies to Yawanawa constructions involving the verbs *tapĩ*, 'know', and *nama*, 'dream', as shown in 68, which is not necessarily expected.

(68) a. Shayã manĩa itxapa vana-(***shei**)-kĩ nama-(xina).
Shaya.ERG banana many plant-FUT-SS.IPFV.ERG dream-PST.NT
Intended: 'Shaya dreamed (last night) of planting a lot of bananas in the future.'

b. Corrected to:

Shayã manĩa itxapa vana-shei nama-(xina).
Shaya.ERG banana many plant-FUT dream-PST.NT
'Shaya dreamed (last night) that she was going to plant a lot of bananas in the future.'

c. *Shaya tapĩa nashavata wasi raya-ha(i)-i.
Shaya.NOM know.PFV today constantly work-REC.PST-SS.IPFV.NOM
Intended: 'Shaya knows how she was working a lot today.'

d. Corrected to:

Shayã tapĩa nashavata wasi raya-haya.
Shaya.ERG know.PFV today constantly work-REC.PST.IPFV
'Shaya knows that she was working a lot today.'

The difference, I argue, is that unlike aspectual predicates, attitude verbs can take nominalized complements: note that correcting each of the examples in 68 involves replacing a SS complement with a nominal clause. So one side of the generalization is that the complement clause may mismatch in tense with the matrix clause, as long as the complement clause is a nominalized ForceP. Example 68-d is especially telling because it has an ergative matrix subject and an intransitive embedded predicate: we know from section 4.3.1 that this only occurs when the embedded clause is nominal, since it is counted for purposes of case assignment, unlike SS-complements.

The other side of the generalization is that SS complements may not mismatch in Tense with the matrix clause. Interestingly, however, Tense in SS-complements does not seem to be anaphoric on matrix Tense, as is the case of adjunct SS. In other words, it is not the case that a sentence like 69 means that Shaya dreamed last night of planting a lot of bananas *last night*: the planting event is irrealis.

(69) Shayã manĩa itxapa vana-kĩ nama-xina.
Shaya.ERG banana many plant-SS.IPFV.ERG dream-PST.NT
'Shaya dreamed (last night) of planting a lot of bananas.'

I take this to indicate that T has different specifications in adjunct and complement SS clauses: in the former, it is anaphoric on matrix tense – i.e. T has an [anaphoric] Tense feature – and as such, canonical SS clauses can have temporal adverbials as long as they are compatible with the tense specification of the matrix clause. SS-complements, on the other hand, lack Tense altogether: I assume these clauses have a [-Tense] specification on the T head. As such, it is not the case that the embedded Tense is anaphoric on matrix tense: the SS complement is analogous to a gerundive clause.

In fact, Pires (2006) describes a clause type that closely resembles SS complements: he calls them TP-defective gerunds. Although he does not posit a Fin head for these

structures like I do for SS complements, the two clause types share relevant properties, including the impossibility to express a before/after relation to the superordinate clause event by means of morphology associated with Tense and perfectivity. So, I take the absence of perfective SS markers (and Tense adverbials) to be a consequence of defective Tense in SS complements.

4.4.2.2 OS marking in complementation

Having briefly discussed OS marking in complementation in section 4.2.2, I revisit the examples and develop a more in-depth analysis here. There are two sides to the issue: the first concerns the unavailability of OS marking inside complement clauses, and the second, its occurrence in superordinate clauses.

OS marking can be used as a strong indicator of structure in complementation constructions: it helps us show that complement SS clauses are non-phasal, since the locality required by its Agree probes would not obtain otherwise. As thoroughly discussed in chapter 2, OS marking is the result of a probe on Voice searching down into its c-command domain and Agree-linking to an internal argument: either a direct or indirect object, or an applied argument. Because Voice is a phase head, when it is merged, we expect the content of the next phase down to no longer be available for syntactic operations. This means that if a given complement clause is phasal, – ForceP or DP – we predict OS probes not to be able to reach goals inside it, a prediction that is borne out and illustrated in 70.

(70) *[Shayã tapĩ-**a** [Shukuvenã yuma$_k$ itxapa atxi-a]], *pro*$_k$ txapu-a.
Shaya.ERG know-OS Shukuvena.ERG fish many catch-PFV rot-PFV
'Shaya knows that Shukuvena caught a lot of fish and the fish rotted.'

In contrast, if a given complement is structurally reduced and non-phasal, we expect the OS probe to be able to reach and Agree-link to a DP inside it. The examples in 71 (previously 13) show that this is borne out: an object inside a complement SS clause can be the goal of an OS probe. In each of the examples a clause containing an aspectual verb with a SS-complement is adjoined to a matrix clause, such that adjunct

SR marking is licensed. In 71-a, OS marking links the goal/recipient argument of the complement SS-clause to the subject of the adjacent matrix clause, and in 71-b, it links the theme.

(71) a. [Tika=nẽ Maria$_i$ tapima-kĩ tae-w(a)-**a**], *pro*$_i$ inim-a.
Tika=ERG Maria teach-SS.IPFV.ERG begin-CLEX1-OS be.happy-PFV
'Tika began teaching Maria$_i$ and she$_i$ was happy.' (from B&CS)

b. [Shukuvenã wixi$_k$ ane-kĩ tae-wa-hi(a)-**a**] awẽ wixi$_k$ venu-a.
Shuku.ERG book read-SS.IPFV.ERG begin-CLEX1-CONC-OS his book lost-PFV
'Shukuvena started reading the book$_k$, but it$_k$ disappeared/got lost.'

Note that OS marking appears in the extended projection of the *superordinate* verb *tae*, 'begin', not inside the SS complement clause. The reason for this, I argue, is not very deep: it goes back to the general principle presented in chapter 2 that whenever both SS and OS are possible in a given structure, SS trumps OS. The principle was formulated with unaccusative predicates in mind, since they have derived subjects which are merged as objects but still only license SS in adjunct SR constructions, never OS. It seems safe to assume that the same principle can explain the cases in 71: because in each example the object being linked to the adjacent subject is the object of the embedded clause, OS marking could technically be licensed at the edge of the complement. But it is not, by hypothesis because it competes with SS for that spot: SS targets the raising subject, according to the discussion in 4.4.1. So that is the reason we do not see OS *inside* the complement clause. But how does it come to be licensed outside it?

The data here allows us to formulate two possible explanations. The first is that the *embedded* Voice head Agree-links to a local internal argument and raises into the matrix clause (Voice-to-Voice movement), bringing the link along with it: this long head movement would be enabled by the non-phasal status of the SS-complement clause. From matrix Voice, all would proceed as in the regular OS derivations discussed in chapter 2. The other possibility is that OS in such constructions is simply a result of the probing action of *matrix* Voice.

So how can we distinguish between these two analyses? We can actually make a

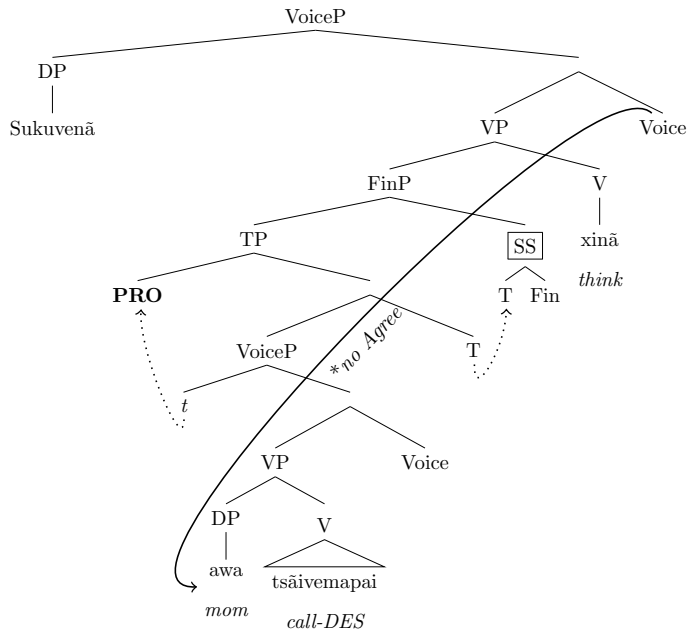
clear prediction, given the two types of predicates that select SS complements. If it is matrix Voice that probes down to Agree with a DP in the complement clause, then we expect non-object DPs within the clause to intervene if they are present. Both examples in 71 involve aspectual verbs, which by hypothesis only have a trace (or lower copy) of the raised subject in SpecTP. The complements of attitude verbs however, have PRO in SpecTP. And since it is crucial for the analysis of complement SS that PRO is visible to Agree, then we predict that OS will not be compatible with attitude predicates if *matrix* Voice is the head responsible for probing. If the probing head is embedded Voice, there should be no incompatibility.

Example 72 tilts the scale towards the matrix Voice hypothesis: objects in the complement clauses of attitude verbs *cannot* be the goals of an OS probe.

(72) a. [Shukuvenã a-wa tsãivema-pai-kĩ xinã/nama/ũi-ai-**nũ**],
Shukuvena.ERG 3-mother call-DES-SS.IPFV.ERG think/dream/hope-IPFV-DS
a-wa u-a. (*xinã/nama/ũi-a)
3S-mother come-PFV think/dream/hope-OS
'(Just) when Shukuvena was thinking/dreaming/hoping to call his mother$_i$, she$_i$ arrived.'

I interpret the asymmetry between aspectual and attitude constructions regarding compatibility with OS as support for the hypothesis that matrix Voice is responsible for probing: it looks down into the complement clause and Agree-links to the closest DP. Because this closest DP is PRO in the complement of attitude verbs, then only DS will be licensed in constructions like 72. This is illustrated in 73. In contrast, the availability of OS in sentences like the ones in 71 shows that unlike PRO, the trace (or lower copy) of a raised DP is invisible to Agree.

(73)



This proposal that matrix Voice is responsible for OS in complementation forces me to assume that the complement of embedded VoiceP is still available at the moment in which matrix Voice is merged. This is in line with Baker (2014, 2015)'s proposal that Voice is a "soft-phase head" in certain languages. This means that Voice triggers the spell out of its complement – which fixes postsyntactic properties like word order and morphosyntactic features – but this spellout does not actually remove the complement from the representation. This characterization of Voice as a soft phase head is independently needed in Yawanawa in order for a VP-internal direct object to trigger ergative case on the subject (analogously to Baker (2014, 2015)'s proposal for Shipibo). As such, I assume it also plays a role in allowing matrix Voice to probe inside the complement of embedded Voice when it comes to OS in complementation.

It is important to note that not only does the asymmetry between the examples in 71 and 72 support the analysis of OS being put forth here, but also it supports the proposal that attitude verbs are indeed control predicates, with PRO being visible to Agree probes. I grant that the need for PRO to be invisible to the Case mechanism (as discussed in section 4.3.1) may look potentially problematic at first, but the asymmetry here adds to the contrasts discussed in section 4.3.3 between the complement clauses of

raising and control predicates.

4.5 Residual issues: transitivity agreement and case marking on SS morphemes

Recall that the two imperfective versions of SS markers that occur in complement clauses are distinguished by a single feature: while -*kĩ* expones ergative case, -*i* expones nominative. I have abstracted away from this so far, but now the goal of this section is to investigate the puzzling nature of this case feature, which does not seem to correlate perfectly to the clause's argument structure or to the case marking of its subject. I will correlate this puzzling pattern of case marking to the equally puzzling phenomenon of transitivity agreement – which I have also glossed over so far – and propose that Baker (2014, 2015)'s algorithm of Dependent Case assignment provides a natural solution that unifies the two.

I argue that what is relevant for both these phenomena is not the surface case morphology exponed by the DPs involved, but rather the underlying feature system that rules vocabulary insertion of case features. More specifically, DPs are assigned a [High] or [Low] feature at phase closure, according to whether they are c-commanding or being c-commanded by another DP in the same phase. As such, a [High] feature is assigned to a c-commanding DP at any phase, but it will only trigger vocabulary insertion of ergative case marking on a DP in the ForceP phase (CP according to Baker 2015). So if a syntactic head agrees with a [High] DP at an intermediate stage of the derivation, it will copy a feature that would normally spellout as ergative, even though ergative morphology may end up not being exponed on the agreeing DP. I discuss this in detail in what follows.

4.5.1 Case marking on SS

I have shown that the complement SS paradigm is composed of ergative -*kĩ*, as in 74-a and 75-a and nominative -*i*, as in 74-b and 75-b, but I have not included the computation of these case features in the analysis of complement SS developed in section 4.4.

(74) a. Shayã yuma pitxã-**kĩ** tapĩ-a.
Shaya.ERG fish cook-SS.IPFV.ERG know-PFV
'Shaya knows how to cook fish.'

b. Shaya saik-**i** tapĩ-a.
Shaya.NOM sing-SS.IPFV.NOM know-PFV
'Shaya knows how to sing.'

(75) a. Shukuvenã wixi ane-**kĩ** tae-wa.
Shukuvena.ERG book read-SS.IPVF.ERG begin-CLEX1.PFV
'Shukuvena began reading a book.'

b. Shukuvena raya-**i** tae-a.
Shukuvena.NOM work-SS.IPFV.NOM begin-PFV
'Shukuvena began working.'

The reason I have postponed this analysis is because the case computation in these constructions is a puzzle in itself, and better understood if discussed separately. The simple hypothesis according to which the SS marker agrees in case with the superordinate subject is not entirely correct: this becomes evident from a sentence such as 30 (repeated here as 76). The case of the argument linked to the SS marker does not match the case on the SS morpheme itself: SS is ergative *kĩ* in this clause, whereas the argument it links to, *ea*, is accusative. What this shows is that the SS marker in SS-complements does not agree in Case with the raised DP. So it is important to raise this issue in light of our claims in Baker and Camargo Souza (2020) that SS markers agree in case with the superordinate subject. We make this argument in light of adjunct SS clauses, but it has become clear that it does not hold for complement SS. It poses the question of whether there is a broader generalization that can account for both cases.

(76) Ewẽ ewã e-a$_j$ [t_j yume pi-**ma**-kĩ] tae-wa-**ma**.
my mom.ERG 1SG-ACC sibl. eat-CPRD-SS.IPFV.ERG begin-CLX1-CPRD.PFV

'My mother made me begin to feed my sibling.' (lit. begin to make sibling eat)

In Baker and Camargo Souza (2020), we propose that case agreement on SS markers

obtains by an additional head that probes for the superordinate subject's Case feature, independently of the heads T and C that probe for SS (in chapter 2 I propose Force is the head responsible for probing for Case; see Clem 2019 for a different view). This proposal makes the prediction that the SS coconstrual and Case agreement can be controlled by different DPs, but we do not observe that with adjunct SR constructions. That happens because by hypothesis, SS clauses adjoin high enough in clause structure that the only DP c-commanding them is the superordinate subject. Here, however, the picture changes. Sentences with raising predicates potentially have the SS marker c-commanded by multiple DPs, as is the case in 76. So such examples are crucial to corroborate the proposal that Case agreement works independently of the SS computation in syntax, even though they are exponed as a single head. But then what does the SS head in complement clauses agree with?

Initially, it seems that the answer to this question could be simply that the SS marker agrees in Case with the subject of the superordinate clause, independently of whether the subject is internally or externally merged. This could be the case of 76: the externally merged causer 'my mother' is ergative and so is the SS marker *-kĩ*. However, this simple solution makes a prediction that is not borne out in certain contexts, namely applicative constructions involving unaccusative verbs. These constructions are possible in Yawanawa (and also in Shipibo, see the discussion in section 4.3.2.2) and deserve a closer look in this context.

The examples in 77 illustrate the derivation of two Yawanawa applicative of unaccusative constructions: 77-a and 77-c have the baseline unaccusative sentence, in which the single argument surfaces with unmarked nominative case (absolutive in Shipibo), and 77-b and 77-d show that in the applicativized version of the sentence, the *theme* is in subject position and marked ergative.

(77) a. Ẽ-wẽ kamã na-a.
1SG-GEN dog.NOM die-PFV
'My dog died.'

b. E-wẽ kãmã-**nẽ** e-a na-shũ-ã.
1SG-GEN dog-ERG 1SG-ACC die-APPL-PFV
'My dog died on me.'

c. E-wẽ ketxa mixtĩ-hu muxi-a-hu.
1sg-gen plate little-PL break.INTR-PFV-3PL
'My dear little plates broke.'

d. Ewẽ ketxa mixtĩ-**hãu** e-a muxi-shũn-a-hu.
1sg-gen plate little-PL.ERG 1SG-ACC break.INTR-APPL-PFV-3PL
'My dear little plates broke on me.'

The role these constructions play in the current discussion is the following: once we embed applicatives of unaccusatives in the complement of an aspectual verb like 'begin' (see section 4.3.2.2), we can make a clear prediction. If it is true that the SS morpheme agrees in case with the matrix subject, then SS will be ergative in these constructions. This is true in Shipibo (Baker, 2014), but example 78 shows that this prediction is not borne out in Yawanawa. Here the matrix subject – which starts as the theme of the lower verb – is ergative, but the SS marker at the edge of the complement clause is nominative *-i*, not ergative *kĩ*. Note that the plural subject-agreement marker *-hu* on the matrix verb shows that the lower verb's theme indeed becomes the matrix subject.

(78) E-wẽ ketxa mixtĩ-**hãu**$_i$ [t_i e-a t_i muxi-shũn-**i**] tae-a-hu.
1SG-GEN plate little-PL.ERG 1-ACC break.intr-APPL-SS.IPFV.NOM begin-PFV-3PL
'My dear little plates began breaking on me.'

Therefore, these applicative of unaccusative constructions suggest that the SS marker in Yawanawa complement clauses is sensitive to something other than the surface case of the raising and/or the matrix argument. SS seems to be sensitive to argument structure in a way that is not exactly correlated to how case is morphologically exponed. And note that it is also not correlated to the number of arguments a verb can license: applicatives of unaccusatives have two arguments, but still do not trigger ergative case on SS. What seems relevant to license *-i* rather than *-kĩ* is the fact that these constructions have two *internal* arguments – rather than one internal and one external. So the

question becomes how to encode that in our theory. I argue that looking at transitivity agreement will provide the missing pieces of the puzzle.

Before we do that, however, let us make clear what the connection is between these two seemingly unrelated phenomena. In other words let us ask, how exactly can transitivity agreement relate to case marking on the SS morpheme? The connection is that these two phenomena share the same puzzling behavior: both seem to rely on a notion of 'transitivity' that is neither defined in terms of case morphology nor in terms of the number of arguments a verb can license. We learn this from applicative of unaccusative constructions like 78: it licenses two arguments – the higher of which is ergative – but it lacks (1) ergative case on the SS morpheme, and (2) *-wa* suffixation on 'begin', that is, *tae* is not transitivized by the lexical causative when it embeds a SS complement with an applicative of unaccusative. Compare it to the paradigm in 79, for instance, in which *-wa* is obligatory in 79-b where the embedded verb is transitive, but not acceptable in 79-a, where it is intransitive.

(79) a. Shukuvena [*t* raya-i] tae-a. (*tae-wa)
Shukuvena.NOM work-SS.IPFV.NOM begin-PFV
'Shukuvena began working.'

b. Shukuvenã [*t* wixi ane-kĩ] tae-*(wa).
Shukuvena.ERG book read-SS.IPFV.ERG begin-CLEX1.PFV
'Shukuvena began reading a book.'

This is how these two puzzling and seemingly unrelated phenomena start to come together. I argue that both will find an explanation in Baker (2014)'s algorithm of Dependent Case assignment.

4.5.2 Transitivity agreement

Before we dive into the explanation that correlates case marking on SS morphemes to transitivity agreement, let us more clearly describe the phenomenon at hand. Transitivity agreement or transitivity matching is well known in the Panoan literature (Valenzuela, 2003; Zariquiey, 2011) and it is observed crosslinguistically in a number

of different constructions. In Shipibo, for instance, aspectual verbs exhibit transitivity agreement with the predicate within their complement. Interestingly for the sake of comparison, the verb *peo*, 'begin', in Shipibo is inherently *transitive*, according to Valenzuela (2003, p. 319) – in contrast to Yawanawa's unaccusative *tae* – and must be *detransitivized* whenever its infinitival complement has an intransitive verb, as in 80-b.[6] (Valenzuela (2003) interprets the changing morphology of SS markers as being transitivity-related, so her glosses reflect that. See Baker (2014) for the proposal that SS markers actually expone case agreement).

(80) Shipibo (Panoan, Valenzuela 2003, p. 319)

a. E-n-ra bana-kin peo-ke.
1-ERG-EV SOW-SS.IPFV.TR begin-PFV
'I began to plant (it).'

b. E-a-ra ransa-i peo-**koo**-ke.
1-ABS-EV dance-SS.IPFV.INTR begin-MID-PFV
'I began to dance' (e.g., at a party).

Here, the morpheme *koo*, which according to Valenzuela (2003) is an allomorph of the middle marker, is responsible for detransitivizing 'begin'. So the underived form of 'begin' is transitive and possibly detransitivizable with additional morphology in Shipibo, but intransitive and possibly transitivizable with additional morphology in the related language Yawanawa. This suggests that transitivity agreement is a robust phenomenon in these Panoan constructions.

Additional support for this view comes from the Panoan language Kashibo-Kakataibo in which 'transitivity' interestingly goes in different directions with the verbs 'begin' and 'finish': 'begin' is inherently transitive and 'finish' is inherently intransitive. According to Zariquiey (2011), "if the dependent verb is intransitive, the predicate *pëu*, 'to begin' needs to carry the reflexive marker in order to become intransitive and match the transitivity value of the lexical verb. If the dependent verb is transitive, the reflexive

[6] I modify the glosses slightly to match the standard of the present work.

marker cannot be included." This is shown in 81:

(81) Kashibo-Kakataibo (Panoan, Zariquiey 2011)

a. 'ux-i kana pëu-**ukut**-i-n
sleep-SS.IPFV.INTR NAR.1SG begin-REFL-IPFV-1/2
'I begin to sleep.'

b. pi-kin kana pëu-i-n
eat-SS.IPFV.TR NAR.1SG begin-IPFV-1/2
'I begin to eat (something).'

The verb 'finish', in contrast, is intransitive and takes the transitivizer *-o/-a* (Zariquiey (2011)'s "factitive marker") if the embedded verb within the SS complement is transitive. (As with the Shipibo examples, Zariquiey (2011) analyzes the SS markers as varying with respect to the transitivity of the embedding predicate, thus the glosses.)

(82) Kashibo-Kakataibo (Panoan, Zariquiey 2011)

a. 'Ux-i kana sënë-a-n
sleep-SS.IPFV.INTR NAR.1SG finish-PFV-1/2
'I finished sleeping'

b. Pi-kin kana sënë-**o**-a-n
eat-SS.IPFV.TR NAR.1SG finish-FACT-PFV-1/2
'I finished eating.'

Like in the Panoan languages, transitivity agreement targets aspectual predicates in the Tibeto-Burman language Dulong/Rawang, as shown in 83. The detransitivizing reflexive/middle suffix attaches to an aspectual verb when the embedded predicate is intransitive as in 83-b, but not when it is transitive as in 83-a. (Transitive verbs in this language require the presence of the non-past third person marker *ò* before the non-past declarative ∅, and transitive subjects can take the agentive marker *ì*.)

(83) Dulong/Rawang (Tibeto-Burman; LaPolla 2000, pp. 293, 294)

a. à:ng-í sh ng rí-mv̄n-ò-∅
3SG-AGT tree/wood carry-continue-3.TR-N.PAST
'He is continuing to carry the wood.'

b. àng yøp-mv̄n-**shì**-∅
3SG sleep-continue-REFL/MID-N.PAST
'He is continuing to sleep.'

Besides aspectual constructions, 'transitivity agreement' is also observed in serial verb constructions in many languages. In fact, this is the most common environment to observe the phenomenon: it is found in Amazonian, Oceanic, and Australian languages, to name a few (Aikhenvald and Dixon, 2007; Berger, 2020)[7]. In the Arawakan language Tariana, for instance, directional serial verbs must match in transitivity with the construction's main verb. According to Aikhenvald (2007), the intransitive verb -e:ɾu 'get stuck' must be transitivized by the causative when used in a serial verb construction with a transitive verb. This is shown in 84.

(84) Tariana (Arawakan, Aikhenvald 2007, p. 194)

a. nu-wheta nu-eɾi-**ta**
1SG-hang.CAUS 1SG-get.stuck-CAUS
'I stuck it (by) hanging (e.g. picture on the wall)'

b. *nu-wheta nu-eɾu
1SG-hang.CAUS 1SG-get.stuck

In Yawanawa, transitivity agreement only manifests itself in constructions with aspectual predicates, as far as I know: if the verb selected by 'begin' is intransitive, unaccusative *tae* remains unaltered; if it is transitive, *tae* is 'transitivized' by means of the lexical causative *-wa*. So what exactly does *-wa* insertion entail? We saw in the last section that it does not correlate to the number of arguments a verb licenses, since it does not occur when the SS-complement is an applicative of unaccusative clause. Recall

[7] I thank Mike Berger for pointing me to these references.

from chapter 3 that *-wa* is a lexical causative which enables unaccusative predicates to license an external argument: it also occurs in simple sentences like 85-b, where *tae* has a DP complement. 85-a shows underived *tae* selecting a single nominal argument.

(85) a. Raya/ vari tae-a.
work sun begin-PFV
'Work/Summer has begun.'

b. Shukuvenã raya tae-**w(a)**-a. (*tae-ma)
Shukuvena.ERG work begin-CLEX1-PFV begin-CLEX2
Shukuvena has begun the work[8].' (lit. made the work begin).

Given that *tae* is unaccusative, I assume that independently of the type of complement it takes – be it nominal or clausal – it assigns its single thematic role to that complement. The lexical causative provides the additional thematic role needed for 'begin' constructions to have an external argument: this is straightforward for constructions in which *tae* takes a nominal complement. When it comes to clausal complements then, what exactly is the function of *-wa*, since the raising subject gets a thematic role in the embedded clause? One hypothesis is that *-wa* is an exponent of thematic role agreement or Voice matching: whenever the embedded verb has an external argument in Spec VoiceP, then the matrix verb must also have one, so *-wa* comes to the rescue when the matrix verb is unaccusative. Despite the initial plausibility of this hypothesis (c.f. Wurmbrand and Shimamura 2015), it will not get us very far.

The reason for this is the following: in a sentence like 86, for instance, it becomes clear that a generalization in terms of the notion of 'external argument' alone is not enough to explain *-wa* suffixation in complementation constructions. The embedded predicates in this sentence are unergative and as such, their single argument would standardly be considered 'external', given that by hypothesis, it is licensed by an agentive v and introduced in the Spec VoiceP (c.f. Harley 2017), but *-wa* is not used here.

[8] As in English, *raya*, 'work' can be either a noun or a verb.

(86) Shukuvena raya/ itxu/ tsãik-i tae-a.
Shukuvena.NOM work run-SS.IPFV.NOM begin-PFV
'Shukuvena began working/running/speaking.'

Therefore, the phenomenon of 'transitivity agreement' cannot be explained in terms of thematic role agreement, because all intransitive verbs behave as a natural class when it comes to it: unergatives pattern with unaccusatives, not with transitives. As such, it is not correct to say that *-wa* appears in the matrix clause whenever an external argument with agentive thematic role is licensed in the complement clause. So we have eliminated two hypotheses to explain *-wa* suffixation: number of arguments of the embedded verb, and Voice or thematic role matching. In addition, as I mentioned in the last section, 'transitivity agreement' cannot be conditioned by the case marking of the raising argument either. Here is why: first, ergative case is only assigned in the matrix clause (see section 4.3.1), so the timing would not work. Because the complement clause is not a phase, arguments within it will only be case-marked at the closing of the *superordinate* phase. This means that when *tae* is merged, the arguments within the complement clause still do not have case, so it cannot be that their case is triggering *-wa*. Secondly, we saw in the last section that ergative[9] (derived) subjects of applicative of unaccusatives do not trigger *wa* insertion.

Therefore because case marking does not always correlate with argument structure, it cannot be the driving force behind transitivity agreement: applicatives of unaccusatives remain intransitive, despite their ergative subjects. There is an additional diagnostic from Baker (2014) to show that this is true. Recall that Shipibo and Yawanawa have a pair of predicates used in short answers that are very similar to English 'do', but differ minimally with respect to transitivity: *ik* substitutes for intransitive verbs, and *ak* substitutes for transitive verbs (I propose in chapter 3 that Panoan 'do' is the

[9]Again, this exhibits some variation among speakers in Yawanawa. Some are more consistent than others in always marking the subject ergative in applicative of unaccusative constructions. One of my main consultants, RS, marks the subject ergative most of the time – he produced 78 – but not all of the time, since he also produced 39-b for instance, where the subject is not ergative. In Shipibo, the subjects are more consistently marked ergative in these constructions (c.f. Valenzuela 2003; Baker 2014).

spellout of a verbalizing v head in the absence of an overt verb root). When it comes to applicatives of unaccusatives – which have an additional argument and ergative case marking on the subject – the version of 'do' employed in short answers to them is the intransitive *ik*, not the transitive *ak*. As such, once again we see that case and 'transitivity' mismatch in these constructions, and that 'transitivity agreement' does not correspond directly to case morphology.

(87) –Mĩ kãmã-**nẽ** mi-a na-shũ-ã-mẽ? –Ehẽ, ik-a. (*ak-a)
2SG.GEN dog-ERG 2SG-ACC die-APPL-PFV-INT yes do.INTR-PFV do.TR-PFV
'–Did your dog die on you? –Yes it did.'

What the data here strongly suggest is that aspectual predicates like 'begin' are sensitive to this same notion of transitivity that is being expressed by the 'do' predicates: what counts is whether or not the embedded verb has both an internal *and* an external argument. While applicative of unaccusatives make clear that an additional *internal* argument does not trigger *-wa* suffixation on 'begin', a sentence like 88 shows that an additional *external* argument does. Here, the lexical causative *-wa* licenses an external argument in the embedded clause, and this in turn triggers *-wa* suffixation in the selecting verb as well.

(88) Shukuvenã$_j$ [t_j wai ku-**wa**-kĩ] tae-**wa**-i.
Shukuvena.ERG plantation burn-CLEX1-SS.IPFV.ERG begin-CLEX1-IPFV
'Shukuvena is beginning to burn the plantation.'

So how can we tap into this notion of 'transitivity' in a theoretically motivated way? 'Transitivity' in general will correlate to case marking or argument structure, but here, it does not seem to correlate to either: on the one hand, unergatives and unaccusatives pattern alike, so *-wa* suffixation is not triggered by an external argument in embedded Spec VoiceP; on the other, applicatives of unaccusatives have ergative subjects, but they also do not trigger *-wa* insertion in the matrix clause.

I propose that the notion of 'transitivity' here finds an explanation in the mechanism

of case assignment in its derivation by phase, as developed by Baker (2014, 2015). I argue that in spite of the apparent conundrum with applicatives of unaccusatives, the system of dependent case assignment actually accounts for the Yawanawa facts naturally, if we look beyond the morphology of case.

4.5.3 Two birds with one stone: dependent case theory underlies case and transitivity

Given my proposal that Baker (2014, 2015)'s Dependent Case theory will be essential to solve the double puzzle of case on SS morphemes and transitivity agreement, I begin this section with a brief review of the relevant tools that this system provides. I then proceed to propose that rather than being sensitive to the *case morphology* of a raising DP, both these phenomena are conditioned by its *feature value* instead. More specifically, I argue that case on the SS morpheme, as well as transitivity on aspectual predicates, are sensitive to the raising DP's [High] or [Low] feature. Because both these agreement phenomena take place at an intermediate stage of the derivation, the DP they agree with might end up exponing a different case feature in surface morphology, which it acquires at a later stage of the derivation. As such, case morphologies may mismatch, but we can still show that it is the raising DP that is responsible for both transitivity agreement and case marking on SS morphemes. I will show in what follows that this proposal makes the correct predictions and allows us to have a unified system underlying both 'transitivity' and case assignment.

In Baker (2014, 2015)'s system, case is calculated derivationally phase by phase and different cases are assigned at the spellout of each phase, but the general calculation is based on the same condition: c-command relations between nominals. As such, in a tripartite language like Yawanawa, dependent ergative case is assigned to the higher nominal in the ForceP domain (Baker's CP) and dependent accusative case is assigned to the lower. If only one DP is present in the phase, it gets default nominative (unmarked) case at spellout.

Baker (2015) proposes that morphology spells out case according to the features acquired by the nominal elements in the course of the derivation: one feature represents

the c-command configuration, and another represents the domain of case assignment. In this system, Yawanawa's dependent ergative case would be the spellout of the features [High, Force], accusative case would be the spellout of [Low, Force], and nominative case would be the elsewhere form, when no height feature is present.

Let us assume then that in general, at the closure of a phase X, features are assigned to nominals standing in a c-command relation: [High, X] to the higher, [Low, X] to the lower. If the phase contains a single nominal, it does not receive a height feature (though it possibly still receives a domain feature X). The crucial diverging point I propose from Baker (2014, 2015) is that these features can be overridden in the course of the syntactic derivation, independently of whether or not they receive a morphological exponent in that phase.[10] As such, if there are two DPs in a c-command relation when the complement of Voice is shipped to spellout, the higher one has [High, Voice], the lower one has [Low, Voice], and neither will receive a morphological exponent at this derivational stage.

I propose that after spellout, these case-related features can be overridden: in a basic transitive construction, the subject will move into the higher phase and get [High, Force], whereas the object will get [Low, Force]. So when this structure is shipped

[10]The main reason to abandon Baker's idea that the dependent case system keeps track of novelty, such that pre-existing c-command relations are not re-computed at each spellout cycle, is because it makes wrong predictions. The mechanism is crucial for him to explain the difference between double-absolutive verbs and applicatives of unaccusatives in Shipibo – which despite having only internal arguments, have different patterns of case marking – but it would not work for the sentences involving SS complements and raising subjects in Yawanawa. With an applicative of unaccusative, for instance, the theme argument is merged in object position, so at the closure of the embedded Voice phase, it gets [Low, Voice]. Then – following Baker (2014) and the discussion in section 4.3.2.2 – it would move complement-internally to Spec,TP. The next phase head to merge is matrix Voice, since the SS complement is non-phasal. At this point, the theme argument would receive [High, Voice] and the applied argument would receive [Low, Voice] (assuming VoiceP is a soft phase in the sense of Baker (2015), so that the applied argument would still be visible at this point). Here is the problem: when the theme once again moves to matrix Spec TP and the complement of ForceP is sent to spellout, the c-command relation between the theme argument and the applied argument is not novel (it is the same as in the previous phase). So the novelty-tracking system predicts that ergative case is not assigned to the raising subject, contrary to fact.

to spellout, case morphology corresponding to the ForceP phase will be exponed: the featural content that spells out ergative case is [High, Force], and accusative case is [Low, Force]. Basic intransitive subjects will have no such features and will spellout unmarked for case, while a derived subject in an applicative of unaccusative construction will spellout as ergative.[11]

These are all the ingredients needed to account for transitivity agreement in aspectual constructions, as well as case marking on complement SS. My proposal is that rather than being sensitive to the *case marking* of the raising DP, both these phenomena are conditioned by its *feature value* instead, which in turn will also condition case assignment. This allows us to have a much desired unified system underlying both 'transitivity' and case assignment. It also allows a head to copy a DP's case feature at an intermediate derivational stage, so that the DP may later acquire a different feature that mismatches the one on the head.

I begin to illustrate the proposal with applicatives of unaccusatives, where the mismatch in case morphology is observed. Consider sentence 78 again, copied below as 89. Its derivation is illustrated in steps in what follows.

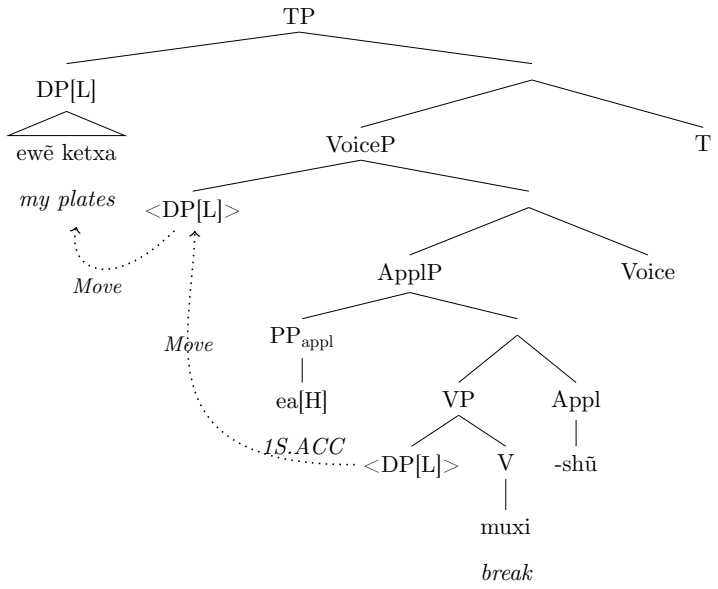
(89) Ewẽ ketxa mixtĩ-hãu$_k$ [t_k ea t_k muxi-shũn-i] <u>tae</u>-a-hu.
my plate little-PL.ERG 1SG.ACC break.intr-APPL-SS.IPFV.NOM begin-PFV-3PL
'My dear little plates began breaking on me.'

In the complement clause, the unaccusative VP is selected by the Applicative head (glossing over other projections in this general area), which introduces the applied argument *ea*, 'me'. Once the phase head Voice is merged, it triggers the spellout of its complement and the relevant c-command relations are computed within it: the

[11] Yawanawa lacks Shipibo's dyadic unaccusatives, which are the main reason behind Baker (2014)'s novelty of c-command condition that I abandon here. I can imagine an alternative explanation for why these constructions do not have ergative subjects in Shipibo, along the lines of Zariquiey Biondi (2012). He shows that the object of a double absolutive in Kashibo-Kakataibo is a covert oblique: as such, this argument could be receiving some type of inherent case, which would make it unavailable to the Dependent Case algorithm. The construction would thus surface with two arguments that *look* absolutive, but one of them is actually oblique, with ∅ morphology.

applied argument is assigned [High, Voice] and the theme is assigned [Low, Voice]. Because ergative and accusative are not assigned in the VoiceP phase, no morphological exponents are inserted at this point. The derivation continues: T establishes an Agree relation with the theme – which has moved to Spec VoiceP – and triggers its movement to Spec TP, by hypothesis to satisfy T's EPP feature (recall that the applied argument cannot satisfy the EPP on T because it is inside a PP, c.f. Baker 2014). Because the theme argument moves over the applied argument, their c-command relation is inverted, but this will only be computed at the closure of the next phase, matrix VoiceP.

(90)



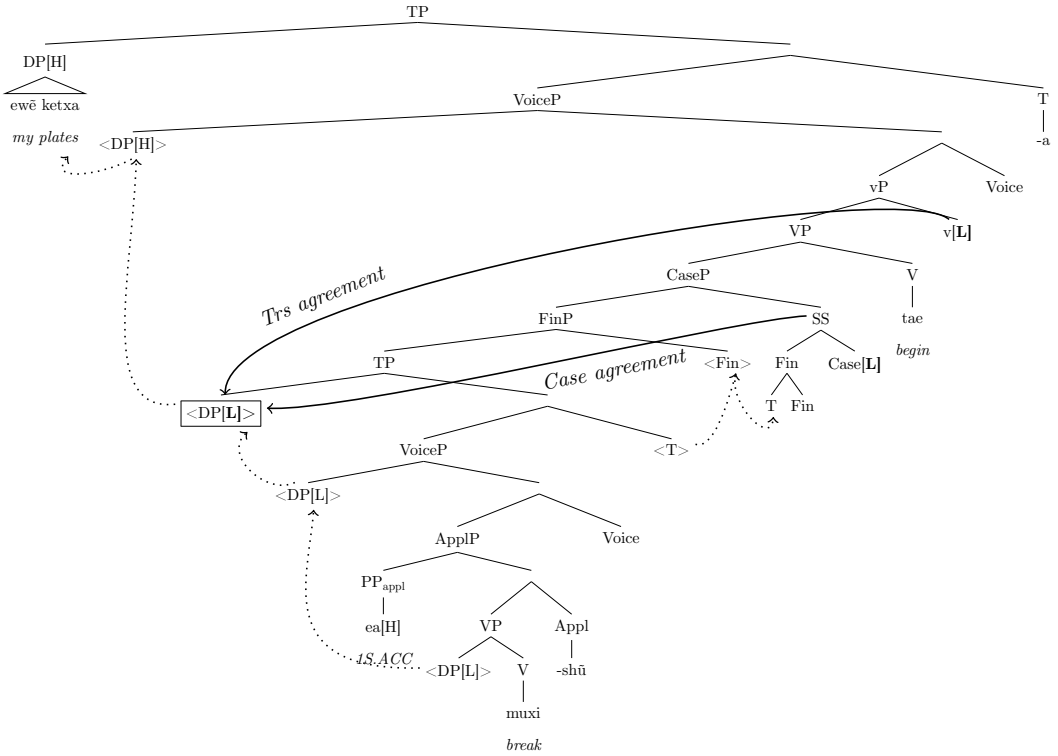
Now comes the most relevant part of the derivation for the current discussion. Once the aspectual predicate *tae*, 'begin', selects this clause as its complement, the v head that immediately dominates the verb probes down and establishes an Agree relation with the highest argument within the complement clause, i.e. the theme in Spec TP, copying its [Low] feature. Because of the [Low] value, the lexical causative is *not* inserted in the matrix clause.

Similarly, the Case head at the edge of the SS clause probes down for a Case feature and establishes an Agree relation with the closest DP, which also the theme in Spec TP. The Case head copies the theme's [Low] feature and it is *this* feature that will determine

the realization of Case on the SS morpheme: *-i* is the exponence of [Low]. As such, this system correctly predicts that the raised theme DP in applicative of unaccusative constructions will *not* trigger ergative case marking on the SS morpheme in Yawanawa. Nor will it trigger the transitivization of 'begin'.

Once the theme argument moves into the higher domains of the clause, it is assigned [High], since it c-commands the applied argument at the spellout of this phase. At the spellout of matrix ForceP, this feature triggers vocabulary insertion of ergative case morphology on theme. This is why the case on the SS morpheme mismatches that on the theme: the [L] feature is acquired at an intermediate derivational stage. The full derivation is given in 91:

(91)



In Shipibo, where we get both transitive 'begin' and ergative SS with applicative of unaccusatives, I propose that the Case head probes upwards instead (as it does in adjunct SS constructions), and Agrees with the [High] feature that the raised DP acquires in the matrix clause. The relevant Shipibo paradigm in given in 92: 92-a and

92-b show the baseline sentences, with transitive and intransitive embedded constructions, respectively. 92-c and 92-d show that when the embedded SS clause contains an applicative of unaccusative, SS has ergative marking and the compatible form of the aspectual predicate is transitive *peo*.

(92) a. E-**n**-ra nami pi-**kin** peo-ke.
1SG-ERG-EV meat eat-SS.IPFV.ERG begin-PFV
'I began eating meat.' (from Baker's fieldwork notes)

b. E-**a**-ra ransa-**i** peo-**koo**-ke.
1SG-ABS-EV dance-SS.IPFV.INTRS begin-MID-PFV
'I began to dance (e.g., at a party).' (Valenzuela, 2003, p. 319)

c. Yapa-**n**-ra e-a payo-xon-**kin** peo-ke.
fish-ERG-EV 1SG-ABS rot-APPL-SS.IPFV.TR begin-PFV
'The fish began rotting on me.'

d. *Yapa-∅-ra e-a payo-xon-**i** peo-**keo**-ke.
fish-ABS-EV 1SG-ABS rot-APPL-SS.IPFV.INTR begin-MID-PFV
(from Baker's fieldwork notes)

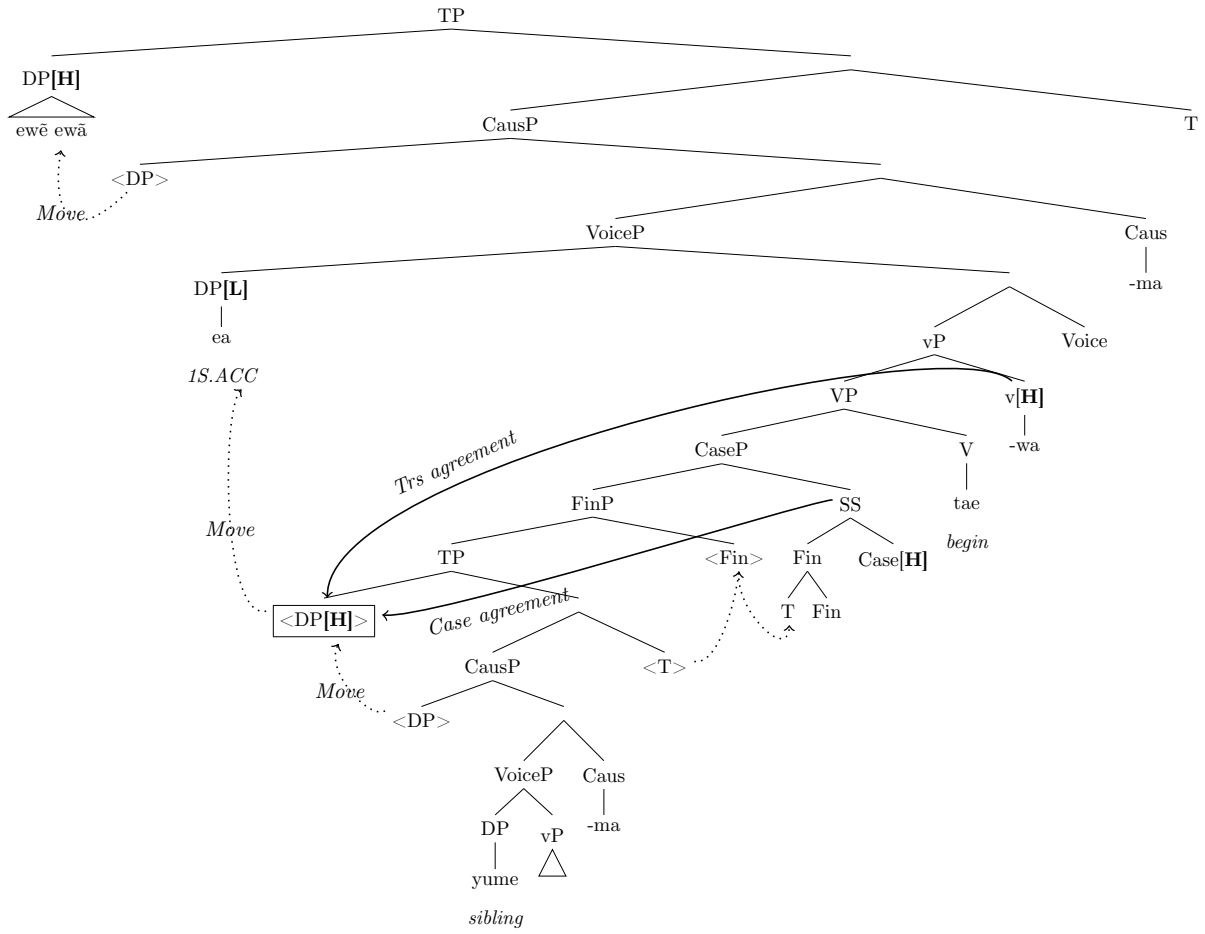
This is how the derivation goes for an applicative of unaccusative construction. Crucially, this system also makes the right predictions for an example like 30 (copied here as 93), which seems problematic at first sight. Note that the SS morpheme is ergative and the lexical causative is inserted in the matrix clause, but the case of the raised DP surfaces as accusative.

(93) Ewẽ ewã e-a$_j$ [$_{FinP}$ t_j yume pi-**ma**-kĩ] tae-wa-**ma**.
my mom.ERG 1-ACC sibl. eat-CPRD-SS.IPFV.ERG begin-CLEX1-CPROD.PFV
'My mother made me begin to feed my sibling.' (lit. begin to make sibling eat)

This derivation starts with a causative construction in the complement clause, as illustrated in 94. I assume that the productive causer is a phase head, so at the closure of the CausP phase, the causer gets a [High] feature because it c-commands the causee (and the theme). It is this [High] feature that will be copied both by matrix v and the

Case head. This [High] feature on the raised DP is only overridden at the closure of matrix ForceP, when it receives [Low] from being c-commanded by the matrix causer. As such, the raised DP will surface with accusative case and mismatch the ergative SS morpheme.

(94)



This finally allows us to give an analysis of *-wa* suffixation: this morpheme expones a [H(igh)] feature on matrix v, acquired in the course of the derivation by means of transitivity agreement. In structures like 94, where *-wa* is present, matrix v has [H], and in structures like 91, where *-wa* is absent, it has [L]. And this solution forces us to say something about the thematic status of *-wa*: in simple clauses with DP complements, it seems to be the head responsible for licensing an external argument for unaccusative predicates (see examples 85), but in complex constructions with clausal complements,

it does not seem to be thematic, because the raising subject receives its thematic role in the lower clause. I will not have something especially insightful to say about this, but I see a few possible ways to explain the thematic nature of *-wa*. The first is to say that *-wa* is always thematic and that the embedded subject raises into a thematic position. This type of movement has been proposed in the movement theory of control (c.f. Boeckx, Hornstein, and Nunes 2010, among others) but here and elsewhere it leaves unexplained many of the properties distinguishing raising from control constructions. The second possibility is to stipulate that *-wa* is thematic in simple sentences with DP complements – it licenses and theta marks an external argument – and non-thematic in complex sentences with clausal complements – the raising subject is theta-marked in the embedded clause. The third and more plausible option is that *-wa* is not thematic in either construction: it simply signals the presence of an external argument by exponing its [H] feature, but the licensing of the external argument itself is the role of a different head, namely the "Licensing Phrase" (LP) in the sense of Mitchley (forthcoming).

I close this section with a number of relevant takeaway points for the overall picture of this chapter. Once again we see that Case patterns in complement clauses are indicators of structure. We saw in section 4.3.1 that SS complements are not domains of ergative case assignment, which allowed us to infer that they are structurally reduced when compared to nominalized clauses. This fact was crucial to explain how the locality required for Agree obtains in this type of clause, as opposed to the nominalized complements. In this section, we discussed how Depend Case Theory allows us to account for the puzzling pattern of case marking on SS morphemes, showing that a straightforward feature system can be the basis for a unified view of transitivity and case marking, with a simple parametric variation distinguishing Yawanawa from Shipibo. We have thus discussed all the major properties of SS complements that were introduced in the overview of section 4.2 and developed throughout the chapter. The next and final section takes the analysis here beyond Yawanawa and Panoan languages, showing that it holds up crosslinguistically.

4.6 A crosslinguistic view

The goal of this section is to discuss how to take what we learn from Yawanawa beyond the Panoan context. The first step is to look at Yuman auxiliary constructions through the lens of Yawanawa complement SS, in 4.6.1. I propose that the account developed here allows us to analyze these widely attested structures as actual SS constructions, turning away from McKenzie (2012)'s view that they are some type of vestigial SR system. Section 4.6.2 discusses the implications of my proposal for the overall crosslinguistic picture, arguing that the structural properties of complement SS might explain why they are much less common typologically than adjunct SR.

4.6.1 Extension: SS in Hualapai auxiliary constructions

According to McKenzie (2012)'s survey of switch-reference in North American languages, Hualapai is among a number of other languages – especially of the Yuman family – that require SS morphemes between main verbs and auxiliaries. While McKenzie (2012) dismisses the SS marking in these languages as "undoubtedly merely a vestige of the former SR system", I believe that the analysis I propose for Yawanawa complement SS clauses fares well with the Hualapai data. This section is dedicated to investigating these constructions more closely. My overall proposal is that what looks like SS in Hualapai auxiliary constructions is indeed SS: these sentences are biclausal and closely resemble Yawanawa raising constructions.

The following excerpt from the Hualapai reference grammar (Watahomigie, Bender, and Yamamoto, 1982) describes the widespread distribution of V-Aux constructions in the language:

> When we select those sentences which are not questions or imperatives, we find that there are three types of sentence-endings: *-yu*, "be", *-wi*, "do", and *-i*, "say". These are called auxiliary verbs. What they do to the sentences is to complete them by characterizing them and telling us what kinds of verbs are used.(...) In general, those verbs which take the auxiliary verb *-yu* are intransitives, i.e., verbs which do not take the object noun. (...) When

> the verb involves a transitive action, i.e., some agent acts on an object, the auxiliary -*wi* appears after the verb. (...) The auxiliary verb -i is added to the verbs of saying such as speaking, singing, shouting, yelling and so on. The verb describes something that can be done by using the mouth.

What this excerpt tells us is that with the exception of questions and imperatives, every type of Hualapai sentence involves auxiliary verbs. And interestingly, these verbs agree in transitivity with the main predicate of the sentence, much like in some Panoan complement SS constructions. Initially it seems possible that these so-called auxiliaries are actually just inflectional elements, such that the sentences they appear in are monoclausal. This is how McKenzie (2012) characterizes them, thus dismissing the possibility that they are SS-marked. Recall that much of the discussion I developed in this chapter revolves around the internal structure of complement SS clauses, to prove that they actually have their own subject and extended verbal projection: that was necessary to motivate the analysis of the SS morphemes at their edge as actual SS morphemes, analogous to those in adverbial clauses.

I argue that a closer inspection of Hualapai simple sentences strongly suggests they are biclausal, and thus very similar in structure to Yawanawa complement SS constructions. Consider the sentences in 95, for instance. Both have two sets of agreement morphemes: as shown in 95, the lower verb has subject (and possibly also object) agreement, and the auxiliary has subject agreement only (crucially, 3rd person agreement is ∅ and I have added that to the examples for clarity).

(95) Hualapai (Yuman; Watahomigie, Bender, and Yamamoto 1982 via McKenzie 2012)

a. Ma-ch **mi**-sma:-k=**m**-yu
you-NOM 2-sleep-SS=2-BE.AUX
'You are sleeping'

b. Waksigwij(a)-ch isavgo-l waksi ba ∅-jiyum-j(i)-k-∅-wi
cowboy-NOM corral-in cow them 3/3-LET(MANY)GO-PL-SS-3-DO.AUX
'Cowboys are driving cows into the corral.'

Assuming that subject agreement is the result of the head T probing and entering an Agree relation with the closest DP in its domain, I take the multiple agreement markers in these sentences to indicate the presence of multiple T heads. If this is true, then the structures containing the lower verbs 'sleep' and 'let many go' in the examples above are at least as large as TP. That is, these structures have their own extended verbal projection and they are large enough to have their own internal subjects. In other words, the sentences in 95 are not composed of a single clause as McKenzie (2012) argues, but rather of what looks like a structurally reduced clause selected by a matrix verb. This is analogous to the structure I propose for Yawanawa complement SS constructions, and as I argue, justifies the occurrence of SS markers: they link coconstrued subjects in adjacent clauses. In each of these sentences, the subject would raise from the lower clause into the matrix subject position, triggering SS marking and a bound variable reading of the lower copy/trace.

There are further indications that simple sentences in Hualapai are biclausal. Besides the evidence coming from subject agreement, sentences like the ones in 96 have additional inflectional morphemes in the lower SS clause. The morpheme -*i*, 'suddenly', in 96-a is described as indicating that the action expressed by the verb is characterized as "instantaneous". As such, it is either the morphological exponent of an aspectual head, or it is an aspectual adverb, which would presuppose the presence of an aspectual head. Similarly, 96-b has the future morpheme *(w)ay*, which I assume is a possible morphological exponent of the T head.

(96) Hualapai (Yuman; Watahomigie, Bender, and Yamamoto 1982, p. 81)

a. baday(a)-ch ∅-ja:d-**i**-k-∅-i
old.man-NOM 3-yell-suddenly-SS-3-SAY.AUX
'The old man yelled.'

b. nyi-tha-ch nyaja'alo-m ∅-yuw-**(w)ay**-k-∅-yu
nyi-DEM-NOM east-from/away.from 3-come-FUT-SS-3-BE.AUX
'He will be coming from the east.'

Again, these sentences show that the lower clause in each of these examples needs to be

at least as large as TP. But in fact, they can be even larger, as shown by 97. The lower clause in this sentence has an evidential morpheme, which according to the hierarchy of Cinque (1999, 2001), is a head higher than T in the clausal spine. Also note how the auxiliary verb is itself inflected for past tense, which corroborates the view that it is an independent verb rather than just an inflectional head.

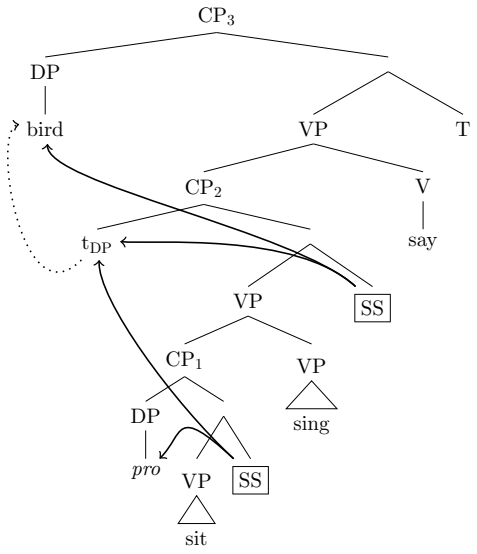
(97) Hualapai (Yuman; Watahomigie, Bender, and Yamamoto 1982)

Helen-ch sal(a)-m gwe Ø-ma:-**w**-k-Ø-wi-ny
Helen-NOM hand-with something 3/3-EAT-EV-SS-3-DO.AUX-PST
'Helen ate with her hands (I have some evidence of it).'

To wrap up this discussion, I let us take a look at the more complex sentence 98, which has both complement and adjunct SS. Note that the adjunct SS clause (labeled 1) looks basically indistinguishable from the complement SS clause (labeled 2). Both constructions have a verb marked with subject agreement and a SS morpheme. Both are dependent clauses scoping under the 'auxiliary', which I argue is in fact the matrix verb in the construction. I propose that the verb *i* embeds the clause containing the verb 'sing', which in turn, has the adverbial clause with the verb 'sit' adjoined to it (it is also possible that the adverbial clause with the verb 'sit' adjoins to the matrix clause, that is, the higher VP in 99). This is schematized in 99, assuming each clause is a CP, for the sake of simplicity.

(98) [jibay-ch [[joq ja:hk Ø-wa'-k]$_1$ Ø-swa:d-k]$_2$-Ø-i]$_3$
bird-NOM juniper on.top.of 3-sit-SS 3-sing-SS-3-SAY.AUX
'A bird is sitting on top of the juniper tree and is singing.'

(99)



This schema illustrates how the subject in 98 could be raising from the complement SS clause to the matrix clause in a way that very much parallels Panoan aspectual constructions. As such, the analysis of SS I develop for Yawanawa could perfectly well extend to Hualapai, regardless of whether the SS clause I label 'CP' here turns out to be a TP or a FinP. What is crucial is that for each SS morpheme in the structure, there is one syntactic terminal linking to two subject pivots. The final interpretation of this structure would be one in which a c-commanding DP syntactically binds two variables: its own trace (or lower copy) in the SS complement clause, and *pro* in the adverbial clause.

To sum up, this section has shown that complement SS constructions in Yawanawa find analogues in the Yuman language Hualapai. Under close inspection, Hualapai simple sentences can be shown to be biclausal, with each clause having its own extended projection and internal subject. If the subject raises from the lower to the matrix clause, much like what we see in Yawanawa aspectual constructions, then there is plenty of motivation to analyze the SS morphemes within these Hualapai constructions as actual SS, analogous to the ones in adverbial clauses (contra McKenzie 2012). The proposal developed throughout this chapter therefore finds crosslinguistic support.

4.6.2 Typological implications

In this last section, I discuss some crosslinguistic implications of the proposal put forth in this chapter. The main point I make here is that the proposal helps shed light on the generalization that crosslinguistically, SR is more common in adjunct clauses than in complement clauses[12] (see Baker and Camargo Souza In press for a version of this discussion). Finer (1984, p. 7), for instance, builds his entire theory on the assumption that SR never occurs in complementation structures but then needs to go back and revise that assumption after the publication of Haiman and Munro (1983), in which several languages are shown to have it. Those are certainly less numerous than adjunct SR, however. Out of all the North American SR languages surveyed by McKenzie (2015), for instance, 29 of them are reported to have SR in adjunct but not complementation constructions, while only one is said to have SR in complementation but not adjunct constructions. There appears to be an implicational universal that if a language has SR in complement clauses, then it will also have it in adverbial adjunct clauses.

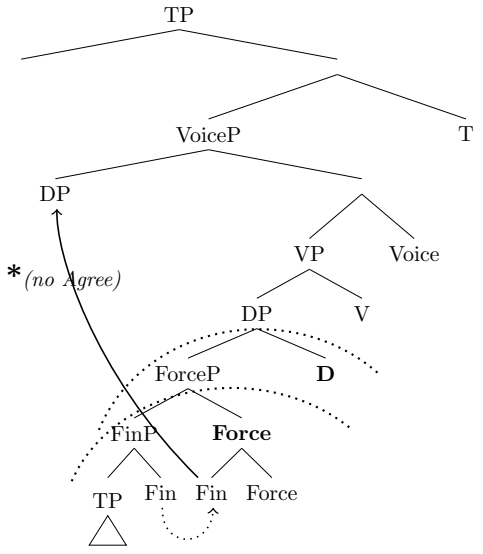
So why would that generalization be true and how do Yawanawa complement SS constructions begin to shed light on that? The explanation, I argue, is directly linked to the locality of Agree. Since by hypothesis, the syntax of SR is Agree-based and Agree is limited by the phase-impenetrability condition (PIC; Chomsky 2000), a matrix subject is more easily accessible to a probe originating in an adverbial clause because, in contrast with complement clauses, adverbial clauses are never nominalized. The reason for this distinction is most likely connected to thematic role assignment: nominal elements – including nominalized clauses – need thematic roles and receive one when they are verbal arguments, e.g. complements. Conversely, verbs do not assign thematic roles to adjuncts and as such, we do not expect them to be nominalized. The issue that nominalization raises to locality is that if a clause has a D head at the top, then this D head will insulate its complement and prevent any probes within it from reaching elements outside the clause – assuming D is a phase head. I showed in this chapter

[12] I am abstracting away from SR in coordinate constructions here.

that SR does not obtain in Yawanawa nominalized complements: it is only licensed in reduced complements, selected by verbs that typically select infinitives or participles crosslinguistically. The same is true in Shipibo – though the distribution of complement SR is more restricted than in Yawanawa – as well as in the Yuman V-Aux constructions discussed in section 4.6.1.

An immediate hypothesis that derives from this is that complement SR is only licensed in structurally reduced clauses crosslinguistically: if a complement clause is nominalized, – i.e. has a D head at the top of ForceP – then the complement of the phase head Force is expected to be insulated from the superordinate clause. Being introduced in the spec of VoiceP, the matrix subject would therefore not be accessible to a SR probe within the complement clause: this is illustrated in 100. If instead, the complement clause is not phasal – i.e., has a reduced structure like FinP or TP – then the matrix subject is expected to be accessible to the complement-internal SR probe (see for instance 61).

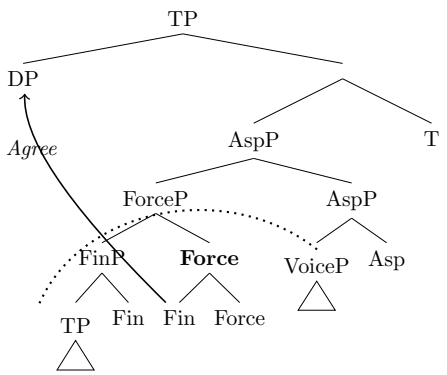
(100) Nominalized complements do not have SS: locality for Agree does not obtain.



Conversely, I showed that adverbial SR clauses are ForcePs with no D head at the top: they are domains of ergative case assignment, on the one hand, which distinguishes them from reduced clauses, and they are not nominalized, on the other hand, which

distinguishes them from full-sized complements. The lack of a D head at the top of the clause allows the SR probe within adverbial clauses to access the matrix subject: the movement of Fin to Force gets the upward probe at the edge of the phase, as illustrated in 101.

(101) ForceP adjuncts have SS: locality for Agree does obtain.



It is important to note that even though Yawanawa does not have ForceP complements (see section 4.2.1), the prediction is that it would be possible for such complements to have SR: just like in adjunct clauses, Fin-to-Force movement could get the upward probe at the edge of the phase, such that it could reach elements outside the clause. In fact, some languages have SR marking in a wider range of complement clauses, some of which are clearly not structurally reduced. Among these are Washo (Hokan/isolate) and Choctaw (Muskogean), as briefly discussed in chapter 2. While at first sight, it seems that a sentence like 102 from Washo could have a structurally reduced complement clause, translating into something like, 'Adele remembers seeing the mountain', this does not hold under closer inspection. The complement clause is nominalized and has matrix-like inflection in addition to the SR marker (SS has ∅ exponence, DS is š).

(102) Washo (Hokan/isolate; Arregi and Hanink 2019, pp. 14, 5)

Adele [*pro* daláʔak ʔí:gi-yi-∅-ge] hámup'a-yé:s-i
Adele [pro mountain 3/3.see-IND-SS-NMLZ.ACC] 3/3.forget-NEG-IND
'Adele remembers that she saw the mountain.'

So it seems that Washo can have SR in full-sized nominalized complement clauses, while Yuman and Panoan languages cannot. We must ask therefore, what it is that distinguishes these two types of languages. A hint in the right direction comes from Washo reduced complements. Similarly to Panoan languages, Washo has two kinds of complement clauses: structurally large complements like the one in 102 are selected by "factive" verbs in the sense of Bochnak and Hanink (2017): these are roughly equivalent to 'that' complements in English. The second kind of complement is structurally reduced and selected by what Bochnak and Hanink (2017) call "non-factive" verbs, a category that greatly overlaps with the Yawanawa "attitude" verbs I analyze throughout this chapter: among them are 'think', 'believe', and 'dream'. Interestingly, these structurally reduced complements in Washo never have SR, as illustrated in 103:

(103) Washo (Hokan/isolate; Bochnak and Hanink 2017)

a. Béverli [démlu di-begúweʔ-é:s-aʔ] hámu-yi
Beverly food 1-buy-NEG-DEP 3.think-IND
'Beverly thinks I didn't buy the food.'

So if Washo structurally reduced complements never license SR, while full-sized complements do – the opposite of Yawanawa – how can I say that this language supports my generalizations? The answer, I argue, is that Washo is different in having the SR probe in Force rather than in Fin. This puts the upward-probing head at the edge of full-sized clauses on the one hand, and on the other, it predicts that structurally reduced clauses will not have them at all. As such, my proposal is that the morpheme *-aʔ*, which occurs at the edge of Washo reduced complements such as 103 is an exponent of Fin (Bochnak and Hanink 2017 call it 'dependent mood marker'), while the SR markers themselves are exponents of Force (Bochnak and Hanink 2017; Arregi and Hanink 2019 call it C).

Independent evidence for this view comes from Washo adverbial clauses like 104. This type of clause has the 'dependent' marker *-aʔ* – indicating it is a subordinate clause, like the reduced complements of attitude verbs – followed by the SR marker – here, DS *š*. This is consistent with the dependent marker being an exponent of Fin and

the SR marker an exponent of Force: Washo adverbial SR clauses are ForcePs just like in Panoan languages.

(104) Washo (Hokan/isolate; Jacobsen 1964 via Bochnak and Hanink 2017)

[l-émlu-**yaʔ**-š] ʔ-í:meʔ-leg-i
1-eat-DEP-SR 3-drink-REC.PST-IND
'While I was eating, he was drinking.'

As such, the data here corroborates the hypothesis that while Panoan and Yuman languages have the upward SR probe in Fin, – and as such this head needs to move to Force in order to reach the edge of the clause – Washo has the upward probe in Force, such that it starts out at the edge of the embedded clause. Since reduced complements do not have a Force head, then they are predicted not to have SR in Washo, as is observed. It is important to highlight that the nominalizer that appears outside of the SR marker in 102 could potentially disrupt the locality I am proposing obtains between the embedded Force head and the matrix subject in Washo constructions. I argue that for Yawanawa and languages of its type, the presence of a nominalizing D head at the top of a clause prevents SR from being licensed; so why does it not happen in Washo? This is an issue that Arregi and Hanink (2019, p. 9) deal with, considering two possible solutions: they propose that either the D head in Washo is not a phase head, or that alternatively, the C ('Force' here) and D heads are 'collapsed' into a single phase barrier in this type of clause, based on work by Bošković (2015). Assuming that either of these alternatives are true, we can say that Force is in effect at the edge of the clause in Washo.

Therefore, my revised generalization is that the position of SR probes is parametrized: while in some languages, they are exponents of Fin and therefore not at the edge of the clause (c.f. Rizzi 1997), in other languages they are exponents of the phase head Force. I expect that the former languages will only allow for SR in complements if they are structurally reduced clauses, (or ForcePs in which Fin moves to Force) but not if they are nominalized; while the latter will do the exact opposite and *not* license SR in

reduced complements.

Patterns of complementation in Choctaw give even clearer indications than this hypothesis is on the right track. Sentences like the ones in 105[13] show that SR markers in Choctaw lie outside the complementizer *ka*, which is consistent with the hypothesis that they are exponents of a Force head (and that *ka* expones Fin).

(105) Choctaw (Muskogean; Broadwell 2006, p. 269)

a. John-at anokfilli-h [pisachokma-ka-t].
John-NOM think-TNS good.looking-COMP-SS
'John$_i$ thinks that he$_i$ is good-looking.'

b. John-at anokfilli-h [pisachokma-ka-N].
John-NOM think-TNS good.looking-COMP-DS
'John$_i$ thinks that he$_k$ is good-looking.'

In contrast, a sentence like 106, which Broadwell (2006, p. 278) categorizes as having no overt complementizing suffix, has no SR marking. According to Broadwell (2006, p. 279), "the verbs that allow this kind of complement all have the semantics of thought, belief, or perception. This may correlate with a crosslinguistic tendency for complements of these verbs to be reduced or less than fully clausal." As such, this is consistent with the prediction here: since Choctaw has Force as its upward probing head, we should observe no SR marking in structurally reduced clauses.

(106) Choctaw (Muskogean; (Broadwell, 2006, p. 269))

John-at iya-tok sa-yimmi-h.
John-NOM go-PST 1SII-believe-TNS
'I believe John went.'

Finally, sentences like 107 show that the SR paradigm of Choctaw is even more complex, suggesting that a certain type of complement clause may expone SR on Fin. This is a

[13]Broadwell (2006) underlines a vowel to indicate that it is nasalized (a). Here, I choose to represent nasalization with a capital N following the vowel, for clarity.

separate paradigm from the Force-based one seen in 105, with SS *-cha* as in 107-a, and DS *-na*, as in 107-b. This type of complement clause is selected by certain "psychological" verbs like 'anger', 'be glad', 'be surprised', 'be difficult for', etc. (Broadwell, 2006, p. 276).

(107) Choctaw (Muskogean; Broadwell 2006, p. 274)

a. Charles-at im-ikallo-h [abiika-**cha**].
Charles-NOM III-difficult-TNS sick:L-SS
'It's hard on Charles that he got sick.'

b. Sa-nokoowa-chi-h [Pam-at hamburger a-hokóopa-**na**].
1SII-angry-CAUS-TNS Pam-NOM hamburger 1SIII-steal:L-DS
'It made me mad that Pam stole my hamburger.'

I close this discussion leaving the hypothesis open for future research: languages whose SR markers are exponents of Fin (or perhaps lower heads in the clausal spine, like T) will only allow for SR in complement clauses if they are structurally reduced and therefore not phasal; while languages whose SR morphemes expone a Force head will have SR in a wider range of complement clauses, including full-size finite ones, but not in structurally reduced clauses (unless they also have a Fin-based paradigm, like Choctaw).

4.7 Conclusion

This chapter investigated SS complement clauses. I have shown that in Yawanawa these are non-phasal complements of raising and control predicates and that SS is licensed by a biclausal configuration that parallels that of canonical SS constructions: argument co-construal obtains in a configuration with Agree links between a functional node and two nominal expressions. These surviving links have consequences in each interface once the derivation is shipped to spellout: in the morphological component of grammar, Agree-copy does not take place, and in the semantic component, the link is interpreted as a binding relation.

In order to build the analysis, I compared SS complements to other Yawanawa clause types: I showed that they are distinct both from adjunct SS and from nominalized clauses. I also contrasted SS complementation structures with restructuring configurations, showing that the latter never license SS because they are truly monoclausal – they have a single extended verbal projection and a single subject position, so no subject coconstrual can obtain. To prove that SS complementation structures are biclausal, I discussed their internal structure and provided evidence for an internal subject position. I also showed that the predicates that select SS complements project their own argument structure and extended projection.

The discussion of structure allowed me to build the case that SS in complementation is licensed in raising and control constructions. This links the discussion in this chapter to my overall view that SR is an expression of cross-clausal anaphora, with a syntactic component – realized by the Agree-without-agreement mechanism – and a semantic component – which interprets surviving Agree-links as an instruction to coconstrue the linked DPs. The means to achieve interpretation will be the topic of chapter 5.

I also address an additional puzzle related to SS complement clauses in this chapter, namely the fact that case marking on SS morphemes and the phenomenon of "transitivity agreement" between a matrix and an embedded verb do not seem to fall out from case morphology or argument structure. I argued that the same mechanism of dependent case proposed by Baker (2014, 2015) underlies both phenomena, without having to resort to an informal or unmotivated notion of 'transitivity'. I also showed that both phenomena are intricately related and parametrized within the Panoan family.

I conclude the chapter looking beyond Panoan languages and proposing that my theory of SS in complement clauses may extend to Yuman languages like Hualapai, which always have SS marking between an auxiliary and an embedded verb. I also proposed the crosslinguistic hypothesis that languages whose SR markers are exponents of Fin (or perhaps lower heads in the clausal spine, like T) will only allow for SR in complement clauses if they are structurally reduced (i.e. not nominalized); while languages whose SR morphemes expone a Force head will have SR in a wider range of complement clauses.

Chapter 5

Quantification, plurality, and patterns of anaphora in SR

5.1 Introduction

My main claim in this dissertation is that SR is a system that expresses cross-clausal anaphora. One of the things that makes the study of anaphora so interesting – and also so complex and diverse crosslinguistically – is the fact that it involves coordinated work from all modules of grammar: anaphora in general, and SR as one of its manifestations, cannot be explained simply as a 'syntactic' or a 'semantic' phenomenon. SS and OS morphemes indicate coconstrual between a pair of nominal pivots, but whether the coconstrual comes down to binding or simply coreference is up to semantics to determine based on two main factors: the syntactic structure that is shipped to the semantic module for interpretation — whether or not there is c-command between the nominals involved, and whether the structure is one of complementation, coordination, or adjunction — and the nominal types of the pivots — can they express an anaphoric relation to each other given a certain structure? As such, the role of syntax is key because it creates a structure (by means of Merge) and establishes relations between nominal elements therein (by means of Agree). Once syntax ships a structure for interpretation, semantics interprets referential dependencies as it would in any construction: we find in SR sentences the same types of coconstrual that Universal Grammar would allow in analogous syntactic configurations from non-SR languages. The goal of this chapter is to develop this claim and explore the challenges that patterns of coconstrual pose to accounts of SR that are simply morphosyntactic in nature. The chapter also poses questions that remain unanswered: can the notion of 'coconstrual' stand for a natural class in UG, since SR seems to be morphosyntactically expressing different types of referential dependencies as a single category? What exactly is the role of discourse

salience in anaphoric relations?

In chapter 4, I investigated the occurrence of SR in complementation structures, in which coconstrual between pivots comes down to (syntactic) bound variable anaphora. The present chapter will return to the syntax and semantics of SR constructions involving adjunction, and explore how the coconstrual of non-referential quantificational pivots in SR can inform our theory. Unlike the majority of theories of SR, which place the burden of pivot coconstrual on complementizers, I develop a modular account of SR: syntax encodes which nominals are to be coconstrued in a given construction; semantics makes sure coconstrual obtains, making use of the mechanisms independently made available by UG; and morphology expones the SR morphemes, which are amalgamations of different heads and their features. My main proposal is that the lack of c-command between pivots in adjunction structures on the one hand, and the patterns of anaphora to sets on the other, show that syntactic bound variable anaphora is not always available in SR (contra Baker and Camargo Souza (2020)). Instead, I propose that the type of coconstrual that obtains in each SR construction is up to semantics to decide: it may be syntactic bound variable anaphora, but it may also be dynamic semantic binding, or simply coreference.

Dynamic binding is made possible by interpreting adverbial complementizers as dynamic conjunctions, as in 1. Since SR morphemes are constructed from several building blocks – the adverbial complementizer itself, Tense/Aspect heads, and links of Agree – if the meaning of the adverbial complementizer is that of a dynamic conjunction, then it passes to the clause on the right the context outputted – and potentially changed – by the clause on the left.

(1) $[\![\mathrm{C_{adv}}]\!] = \lambda l.\lambda r.\lambda g \bigcup_{h \in lg} rh$ type: $T \rightarrow T \rightarrow T$

Having this simple dynamic semantics for adverbial complementizers also explains why they underspecify the semantic relation that exists between matrix and adverbial clause. By hypothesis, it is by fusing with Tense and Aspect heads with different values that these complementizers acquire the additional adverbial-like meanings observed

crosslinguistically.

The discussion is organized in the following way: section 5.2 lays out a brief typology of Yawanawa nominal expressions that will play a part in SR constructions throughout the chapter. Section 5.3 discusses, in light of Thomas (2019), the ways in which SR can make reference to sets in Yawanawa. I argue that quantificational expressions do not quantifier-raise out of SR clauses and consequently, they do not give rise to bound variable anaphora. As such, I motivate the need for dynamic binding in section 5.4. Section 5.5 delves into the syntactic structures of SR constructions involving adjunction, exploring what clausal ordering paradigms reveal about the structures upon which semantic interpretation is computed. I argue that these constructions provide additional evidence that c-command between pivots and bound variable anaphora does not obtain in all types of SS/OS coconstrual. Section 5.6 explores the SR sub-phenomenon of partial coreference which has received growing attention in the literature, arguing against proposals that put the burden of interpretation on syntax: I discuss Arregi and Hanink (2019) in 5.6.1, and Nevins and van Urk (2020) in 5.6.2. I argue instead, in 5.6.3, that the patterns observed reveal the characteristics of anaphora and that interpretation is (as in all other cases) the role of semantics, not the result of syntactic phenomena like partial Agree, for instance. Section 5.7 focuses on semantic interpretation itself: it starts with a brief discussion in 5.7.1 of SR constructions in which syntactic binding obtains, then in 5.7.2, I provide a brief summary of the main motivations and proposals of dynamic semantic theories. Following discussion of a compositional dynamic system in 5.7.3, section 5.7.4 develops a dynamic account of SR constructions containing definite and indefinite DPs, then 5.7.5 focuses on indeterminate pro-forms, and 5.7.6 on generalized quantifiers. Section 5.8 concludes.

5.2 Nominal typology

I am claiming that the types of nominals involved in SR constructions play a decisive role in whether or not coconstrual is possible in a given sentence. As such, before delving into the analysis of coconstrual per se, this section will provide a brief introduction to Yawanawa nominal typology. Since all nominal types can be found in SR constructions,

they will all be relevant for the discussions throughout this chapter.

Let us begin with simple definite and indefinite DPs. Yawanawa has bare nominals that are underspecified for definiteness: the DPs *awĩhu*, 'woman' in 2-a, and *awĩhuhãu*, 'women' in 2-b, for instance, can be interpreted as definite or indefinite. The demonstratives in 2-c can further specify the referent of a nominal, but it is most common to see definites and indefinites patterning exactly alike when it comes to their morphological expression.

(2) a. Awĩhu itxu-i.
woman.NOM run-IPFV
'A/the woman is running.'

b. Awĩhu-hãu pitxã-kan-i.
woman.PL.ERG cook-3PL-IPFV
'(The) women are cooking.'

c. Na/a/ua awĩhu itxu-i.
DEM.PROX/MED/DIST woman run-IPFV
'This/that[1] woman is running.'

I will show throughout the chapter that when it comes to SR constructions, these bare nominals pattern like proper names in that they introduce discourse referents that can be subsequently picked up by a pronoun. In a sentence like 3, for instance, *pro* in the second clause makes reference to the individual introduced in the first, independently of it being deterministic, as the definite referents, or non-deterministic as the indefinite.

(3) Shayã / Awĩhãu pani tewe-ashe, *pro* rak[a]-a.
Shaya.ERG / woman.ERG hammock tie-SS.PFV.NOM lay.down-PFV
'After Shaya/a woman/the woman tied a/the hammock, she laid down.

[1]Yawanawa distinguishes 3 deictic reference points on its demonstratives, which I gloss as 'proximal' – close to the speaker (and possibly also to the hearer), as in 'this woman here' – 'medial'– close to the hearer or at a medium distance from both speaker and hearer, as in 'that woman right there' – and 'distal' – far from both speaker and hearer, as in 'that woman over there'.

When proper names or bare nouns are conjoined, they introduce *n+1* referents into the discourse, with *n* the number of names in the coordinate construction. The additional referent is their mereological sum, which will be the antecedent picked up by *pro* in a SS construction like 4. In order to make unambiguous reference to each one of the atomic elements in the plurality, the proper name in question must be repeated: *pro* can only pick up the full plurality as its referent. The use of SS in this kind of partial coconstrual scenario will be discussed in section 5.6.

(4) [Shukuvena yahi Shaya nuku-ashe] *pro*/Shu/Sha usha-i k[a]-a.
Shu.NOM plus Sha.NOM arrive-SS.PFV.NOM pro/Shu/Sha sleep-SS.IPFV.NOM go-PFV
'When Shukuvena and Shaya arrived, they/Shukuvena/Shaya went to sleep.'

Yawanawa third person pronouns can be morphologically overt in simple clauses like 5-a, but they are most often dropped even in these cases, regardless of them being subjects or objects. First and second person pronouns as in 5-b and 5-c are more commonly overt, although also very often omitted, when the context permits (see for instance 6-c). Yawanawa resembles languages like Spanish, in which the overt forms of third person pronouns have obviative, rather than anaphoric effects, and as such, only *pro* occurs as an anaphoric element in SS and OS constructions. Regardless of person, whenever *pro* and an overt pronoun are coconstrued in a given sentence, the overt pronoun will obligatorily be the antecedent (see section 5.5 for discussion).

(5) a. (A-hu) sai-kan-i.
3-PL sing-3PL-IPFV
'They are singing.'

b. Ẽ/mĩ tsãik-i.
1/2SG.NOM speak-IPFV
I am/You are speaking.

c. Ẽ mi-a ũi-a.
1SG.ERG 2SG-ACC see-PFV
'I saw you.'

When it comes to quantificational and non-referential DPs, we find a variety of them involved in Yawanawa SR constructions. Indefinites with overt determiners like in 6-a will be treated like the bare nominals in 2: they introduce (non-deterministic) referents that can become antecedents of subsequent pronouns. The same is true of cardinal indefinites, as in 6-b. I assume these are weak determiners in the sense of Milsark (1974), which simply count the individuals satisfying the properties in their restrictor and scope: they do not presuppose the existence of the set of entities in the restrictor. I will show in section 5.3 that in contrast with 'true' quantifiers, maximal set anaphora is not available for such DPs modified by numerals, precisely because they do not introduce sets into discourse. Finally, the indefinite partitive *atirihi* in 6-c is especially interesting in that it simultaneously introduces a referent, like other indefinites do, and makes anaphoric reference to a previously introduced plurality. This will also be discussed in section 5.3.

(6) a. Yume-hu westirasi hu-a-hu.
teenager-PL some go.PL-PFV-3PL
'Some teenagers left.'

b. Nawa rave nuku-a-hu.
foreigner two arrive-PFV-3PL
'(The) two foreigners arrived.'

c. *pro* manĩa westirasi ak-a. A-tirihi txive-a.
banana some do-PFV 3-some.of remain-PFV
'I ate some bananas. Some of them are left.'

Unlike existentials, other quantifiers are not referential. They introduce sets of individuals into discourse, which either correspond to their restrictor (maximal set) or to the intersection of restrictor and scope (reference set). I will show in section 5.3 that a semantic analysis which simply gives wide scope to this type of quantifier when it is the antecedent of a pronoun often makes the wrong predictions regarding interpretation. Among these are *westima* and *itxapa*, which both mean 'several' or 'many, *itxapama*, 'few', and *X-sima* 'more than X', with X a numeral. These are

shown in 7-a. The universal quantifier in Yawanawa behaves analogously to maximal-set introducing quantifiers: *X ashkãyahi* introduces the full restrictor set X into discourse such that it can subsequently become the antecedent of a pronoun. The obligatory plural agreement in 7-b shows that the universal in Yawanawa behaves like English 'all', rather than distributive 'every', which triggers singular agreement.

(7) a. Yuma westima / itxapa / itxapama / rave-sima ẽ atxi-a.
fish many / a.lot / few / 2-more.than 1SG.ERG catch-PFV
'I caught many/a lot/few/more than 2 fish.

b. Yume-hu ashkãyahi hu-a-hu.
teenager-PL all go.PL-PFV-3PL
'All the teenagers left.'

It does not take a very attentive reader to notice that some of these quantifiers are morphologically complex: suffixing negation to 'many', *itxapa*, gives us 'few', *itxapama*, for instance. I acknowledge this and will gloss over it for the remainder of the chapter. I assume the internal morphology of these quantifiers does not prevent them from acting as a unit, much like what happens with morphologically complex quantifiers crosslinguistically, for instance English 'a lot of', 'more than X', and 'at least Y'. I choose therefore to gloss them as a unit, abstracting away from their internal structure.

There is one last class of nominals that will be addressed in this chapter: indeterminate phrases. These are DPs that have no meaning of their own and necessarily scope under a clausal operator in order to receive an interpretation. They find analogues in Japanese, for instance (Kuroda, 1965; Kratzer and Shimoyama, 2002; Shimoyama, 2006) and will be interpreted as indefinites here (see section 5.7.5). The examples in 8 show that the interpretation of an item like *tsua* varies according to the sentential operator it scopes under: negation in 8-a, and the interrogative morpheme in 8-b. This is the only way to achieve negative quantification in Yawanawa: there are no negative quantifiers like English 'nobody'.

(8) a. Tsua u-a-**ma**.
INDET.ANM.NOM come-PFV-NEG
'Nobody came.'

b. Tsua u-a=**mẽ**?
INDET.ANM.NOM come-PFV=INT
'Who came?'

These are the nominal types that will be discussed in the context of SR constructions throughout this chapter. I will show that the anaphoric relations they enter are the ones we expect from crosslinguistic patterns of anaphora, given their type. I begin the discussion in the next section by analyzing Yawanawa patterns of anaphora to sets in SR constructions.

5.3 SR and anaphora to sets

Investigating the distribution of SR in sentences containing quantificational expressions, Thomas (2019) highlights the problem previously discussed by McKenzie (2010, 2012) of treating SR as a device that tracks subject reference. According to him, a co-referential analysis of SS fails to account for sentences in which one of the pivots involved in the SS relation is anaphoric to a set associated with the other. He illustrates this situation with 9 from Mbyá Guarani, where the quantified expression 'few villagers' is co-construed with the (null) subject of the second clause.

(9) Mbyá (Tupi-Guarani; Thomas 2019)

Mbovy'i tekoapygua kuery o-mba'apo **vy**, no-mo-mba voi-i.
few villager PL A3-work SS NEG-CAUS-finish quick-NEG
'Since few villagers were working, they didn't finish quickly.'

Here, SS indicates that the subject of the second clause is anaphoric to the intersection of the restriction and nuclear scope of the quantifier in the first clause, i.e. the villagers who were working. Since the quantificational subject does not refer, this type of example points to the inadequacy of any analysis of SR based solely on co-reference.

I will explore the patterns of reference to sets in Yawanawa SS constructions in light of Thomas (2019)'s account of SR based on Mbyá, highlighting the ways in which adverbial SR constructions involving quantificational pivots reveal patterns of discourse anaphora. I will follow Thomas (2019) in concluding that these patterns call for a dynamic binding account, but my proposal diverges from his when it comes to the mapping of structure to meaning. His proposal is reminiscent of Finer (1984) in analyzing the SR morpheme as a pronoun, which indirectly establishes an anaphoric relation between the pivots. I will argue that my 'Agree-without-agreement' account (see chapter 2) offers a more promising way to generalize coconstrual interpretations to the full range of SR constructions, without raising the structural issues inherent to Thomas (2019)'s account (though it certainly still leaves certain questions unanswered, which I will highlight in the course of the discussion).

In order to discuss patterns of anaphora to sets, let us review the types of sets that are made available by quantified DPs. Quantificational structures of the form D(A)(B) have the following sets associated with them: the reference set $A \cap B$ (the intersection of the set of villagers and the set of people working in 9), the maximal set A (the set of villagers), and the complement set A–B (the set of villagers who are *not* working). In what follows, I will show, following Thomas (2019), that SS marking in Yawanawa may indicate both reference set and maximal set anaphora – according to the patterns attested crosslinguistically in non-SR languages (c.f. Nouwen 2003) – but *not* complement set anaphora. The behavior of Yawanawa and Mbyá Guarani regarding anaphora to sets supports my claim that SR morphemes are morphological exponents of anaphoric relations made available by Universal Grammar.

5.3.1 SS with reference and maximal set anaphora

Example 10 shows that besides allowing anaphora to the reference set of a quantificational DP, as illustrated by 9, SS is also licensed in structures containing anaphora to the maximal set in Mbyá.

(10) Mbyá (Tupi-Guarani; Thomas 2019)

Mbovy'i tekoapygua i-jayvu kuaa español py vy o-mba'apo tekoa py.
few villager B3-speak know Spanish in SS A3-work village in
'Since few of the villagers can speak Spanish, they work in the village.'

Here, the reference of the (null) 3rd person plural pronoun in the second clause is not the reference set 'villagers who can speak Spanish', but rather the maximal set of villagers. In other words, the sentence does not mean that few villagers work in the village, but rather that all (or perhaps most) of them do. 11 shows that anaphora to sets is also indicated by SS in Yawanawa: 11-a and 11-b show anaphora to the reference set and 11-c, to the maximal set.

(11) a. [Yura westima rak(a)-ashe] *pro* usha-hu.
person many.NOM lay.down-SS.PFV.NOM sleep.PFV-3PL
'When/as/after many people laid down, they fell asleep.'

b. [Yura itxapama-shũ ru ũi-shũ] *pro pro* rete-a-hu.
person few-ERG howl.monkey see-SS.PFV.ERG kill-PFV-3PL
'When/as few-ERG people saw howler monkeys, they killed them.

c. Kamãnawa itxapama-shũ nawã tsãi tapĩ-ashe, *pro*
K.people few-ERG foreginer.GEN language know-SS.PFV.NOM
shanẽ anu-ashe raya-kan-i.
village.OBL there-NOM work-3PL-IPFV
'Since few Kamãnawa folks speak Portuguese, they work in the village.'

It is important to note that despite being available, maximal set anaphora is not *necessarily* marked with SS in Yawanawa. SS is only licensed in cases analogous to those that allow for maximal set anaphora cross-linguistically. As discussed by Nouwen (2003), the determining factor that makes maximal set anaphora possible is a presupposition that the domain of quantification is not empty. The reasoning is simple: in order for a set to be a possible antecedent for an anaphoric element, it is necessary that this set is not empty. The examples in 12 illustrate this: 12-a shows that while a sentence with the quantifier 'few' may license maximal set anaphora in English, 12-b,

shows that maximal set reference is not a general option.

(12) From Nouwen (2003)

a. Few students are in the department. Twenty of them went to the beach.

b. #There are four students in the garden. Five of them are at the beach.

Nouwen (2003) explains that the determining factor for whether or not maximal set anaphora is possible is the strength of determiners: only strong determiners (in the sense of Milsark 1974) are expected to license maximal set anaphora, because only these trigger a presupposition that their domain is not empty. Certain determiners, like 'few' and 'many', may have both weak and strong readings: for instance, the weak reading of sentence 12-a says that the students that are currently in the department are few in number, while the strong reading says that the number of students is small when compared to the total number of students. It is the strong reading that allows for reference to the maximal set. Other determiners, however, are either always weak or always strong[2], as illustrated in the examples in 13. According to Nouwen (2003), it is enough to find two visiting unicorns to falsify 13-c, that is, no reference is made to the total set of unicorns. But to falsify 13-b, the visitors must be the majority of a given set of unicorns.

(13) From Nouwen (2003)

a. No unicorns have ever visited this forest. $\not\Rightarrow$ there are unicorns

b. It is unlikely that most unicorns visited this forest. $\Rightarrow$ there are unicorns

c. It is unlikely that two unicorns visited this forest. $\not\Rightarrow$ there are unicorns

As such, we can show that maximal set anaphora in Yawanawa behaves just like it does in languages with no SR systems: it is not possible when the antecedent is a weak determiner, since there is no presupposition that its domain of quantification is

[2]This property of weak vs. strong determiners is related to intersectivity: intersective determiners provide no information about their domain. Formally, a determiner D is intersective iff $D(A)(B) \Leftrightarrow D(A \cap B)(B)$ (c.f. Barwise and Cooper 1981; Keenan 1987).

not empty. In these cases, a SS marker cannot make reference to the maximal set, as it does in 11-c. The only possible reading of 14 is one involving reference set anaphora: the people working with the foreigners are the two English speakers, not the full set of relatives.

(14) E-wẽ yura rave inglês tapĩ-ashe, *pro* nawa-hu-ve raya-misi.
1S-GEN relative 2 English know-SS.PFV.NOM foreigner-PL-COM work-HAB
'Since two relatives of mine know English, they (the two) often work with the foreigners.'
Not: Since two relatives of mine know English, (most/all) my relatives often work with the foreigners.

Here, because the determiner *rave*, 'two' is weak (intersective), it simply counts the individuals satisfying properties A and B in the first clause; it does not introduce a maximal set of relatives. As such, the set is not available to anaphoric relations. This asymmetry between weak and strong determiners in their interaction with SS marking provides evidence for the claim that SR follows well documented patterns of discourse anaphora: on the one hand, different types of quantificational DPs give rise to different possibilities of coconstrual between pivots, and on the other, reference set anaphora is available with SS marking, even when maximal set anaphora is not. This is expected, since reference to the reference set seems to be the only kind of pronominal anaphora with a quantificational antecedent which is truly robust, i.e. available with all quantifiers (Nouwen, 2003).

While 14 shows an example of a SS construction where maximal set anaphora is not possible, 15 illustrates a context which has maximal set anaphora, but that can only give rise to DS. I argue that this provides evidence for another one of my claims, namely, that nominal type plays a crucial role in SS licensing. The sentence describes a situation in which lots of foreigners have arrived in the village and split up in two big groups to do different activities. Because the set of foreigners is known not to be empty, the conditions for maximal set anaphora are met: the partitive determiner 'some of them' is strong. The first sentence (subscripted as 1) has the quantifier *westima*, 'several', with restrictor A being the set of foreigners, and nuclear scope B being the set of people who

arrived in the village. In the second sentence (2), the quantified DP *atirihi* in clause (a) is anaphoric to the reference set (A∩B) of the previous quantified expression, that is, the set of foreigners who arrived in the village. As such, the set of foreigners who arrived in the village is the maximal set of *atirihi* in clause (a): 'some of <u>them</u> (the ones who arrived) went hunting'. The quantified DP in clause (b) makes reference to the same full set of foreigners, that is, the maximal set of the quantified DP in clause (a). If maximal set anaphora were always indicated by SS, we would expect SS marking to be possible in clause (2) of 15, contrary to fact; only DS is accepted.

(15) $_1$[Nawa-hu westima nuku-a-hu].
foreigner-PL several arrive-PFV-3PL

$_2$[[$_{(a)}$ A-tirihi nii k[a]-ai-**nũ**/***kĩ**],
3-some.of forest go-IPFV-DS/SS.IPFV.ERG

[$_{(b)}$ a-tirihi uni ak-i hu-a-hu]].
3-some.of ayahuasca take-SS.IPFV.NOM go.PL-PFV-3PL

'Several visitors arrived in the village. While some of them went hunting, some of them went off to drink ayahuasca.'

Intuitively, DS marking makes sense here: the set of people going hunting is different from the set of people drinking ayahuasca. But I have shown that SS is possible in cases of maximal set anaphora with strong determiners, so why not here? Again, the reason for this is *not* that the quantified DP *atirihi* in clause (b) cannot have as its antecedent the full set of visitors (which is the maximal set of the quantifier in clause (a)). In fact, because *atirihi* is a partitive, it *must* have the full set of visitors as its antecedent. The reason why SS is not licensed here, I argue, is because besides being a partitive, *atirihi* is also an indefinite.

Consider 11-b again: this sentence does not mean: 'some people saw howler monkeys and *some people* killed them'; it means that the (few) people who killed the monkeys are the same ones who saw them. That is achieved by the reference set of the quantified DP in the first clause binding the (null) pronoun in the second. In 15, although the pronoun inside the partitive defines the quantificational domain of the quantifier to be

the maximal set of visitors, the fact that the partitive expression itself is an indefinite prevents SS from being licensed. The role of an indefinite is to introduce a discourse referent, and as such, it cannot be bound in the same way as a pronoun. A semantic analysis of these facts will be developed in section 5.7.4. For now, it should suffice to say that the novelty inherent to the denotation of the indefinite in 15 is crucial for the SR computation: it prevents SS from being licensed because anaphora cannot obtain.

To summarize, the discussion so far has shown that SS constructions with quantificational pivots follow patterns of discourse anaphora made available by UG which have been widely studied in languages without SR systems. This supports the idea that SS morphemes are exponing cross-clausal anaphoric relations universally made available by semantics.

5.3.2 Complement set anaphora is not expressed by SS

Returning to set reference, recall that there is a third set connected to quantificational structures of the type D(A)(B) that has been claimed to license anaphora in certain cases: the complement set A–B, as illustrated in the English sentence 16, from Nouwen (2003). The pronoun 'they' refers to the MPs who did not attend the meeting.

(16) Few MPs attended the meeting. They stayed home instead.

In both Mbyá and Yawanawa, reference to the complement set never licenses SS: only DS is accepted in these cases, as shown in 17.

(17) a. Mbovy'i kyri-ngue o-guereko telefono celular rã/*vy nd-o-guereko-i va'e kuery
few child-PL A3-have phone cell DS/SS NEG-A3-have-NEG REL PL
o-motare'ỹ ha'e kuery pe.
A3-envy 3 PL DOM
'Since few children have a cell phone, those who don't are jealous of them.'

b. Vakehu-hu itxapama usha-nũ/*i, usha-ma-ti shushu-kan-i.
child-PL few sleep-DS/SS.IPFV.NOM sleep-NEG-NMLZ play-3PL-IPFV
'While few children are sleeping, those who are not are playing.'

Thomas (2019) points out that whether or not anaphora to the complement set

actually exists is a topic of debate, but there seems to be consistent data showing that downward entailing[3] proportional[4] quantifiers – like 'few' in the examples above – do license complement anaphora crosslinguistically (Nouwen, 2003). So at first sight, it seems we should expect SS marking to be possible in 17 and the fact that it is not is a potential disanalogy between SR and patterns of anaphora.

However, this seems to be the exception that proves the rule. Recall that according to Nouwen (2003), reference to the reference set is the only kind of pronominal anaphora with a quantificational antecedent which is robust. In fact, he proposes that quantificational structures *never* introduce complement sets: the property of conservativity, inherent to natural language quantifiers makes it so that only two sets are needed to derive the truth-conditions of a sentence D(A)(B), namely, A and A∩B. Thus, according to Nouwen (2003), if these sets are introduced and related in the way D designates, then these are the two sets that will be accessible for subsequent anaphoric reference. As such, reference to the complement set is only possible as the result of a pragmatic inferential process: to avoid contradiction, a hearer will infer that the speaker is making reference to the complement set as a last resort strategy. This process is completely different in nature from actual anaphora. Therefore, the fact that SS is not compatible with complement set reference is *not* a disanalogy between SR and anaphora. What it tells us is that in order for a SS morpheme to be exponed, the anaphoric pivot in the second clause needs to make reference to an available antecedent introduced by the pivot in the first clause. Recall the central role of syntax and the links of Agree connecting the antecedent to the anaphoric element: if there are no Agree-links or no available antecedents, then only DS is expected to be licensed.

This distribution of SR marking in sentences containing quantificational pivots motivates Thomas (2019)'s proposal that SR is sensitive to *discourse reference*, rather than to the actual referents of its pivots. Because they introduce multiple discourse

[3]A quantifier D(A) is monotone increasing (or upward entailing) if and only if ∀B ⊆ B': D D(A)(B) → D(A)(B'). A quantifier D(A) is monotone decreasing (or downward entailing) if and only if ∀ B ⊆ B': D(A)(B') → D(A)(B).

[4]A quantifier is proportional if for restrictor A and scope B, |A∩B|/|A| ≤ k, with k a fraction or %.

referents, quantified and plural pivots are crucial to support this claim. In what concerns semantic interpretation, therefore, I agree with Thomas (2019)'s claim that the adequate theory of SR must be [at least partially] dynamic: I develop this account in section 5.7.4.

5.4 Motivating a dynamic account

Reasons to motivate a dynamic semantic account of SR are multiple, the first of which are the patterns of anaphora to sets I have been discussing so far. Thomas (2019) points out that these differ significantly from constructions where a single quantifier binds the two pivots in the SS relation. In such cases, illustrated with examples from multiple languages in 18, giving wide scope to the quantified DP results in the right truth conditions for the sentence (though see section 5.7.5 for arguments against this view based on examples like 18-c).

(18) a. Pitjantjatjara, (Georgi, 2012)

Minyma tjuta-ngku pu<u>n</u>u atu-ra nyina-nyi.
woman many-ERG wood chop-ANT(MERG) sit-PRES
'Many women would be sitting around making wooden artifacts.'

b. Kiowa, (McKenzie, 2012)

Háun hájél èm gúnmāuch<u>ḗ</u> èm dāujāugū
NEG person.INDEF 3.RFL dance-IMP=WHEN.SS 3.RFL sing+act-NEG
'Nobody$_1$ sang while they$_1$ danced.'

c. Yawanawa, (Baker and Camargo Souza, 2020)

[Tsua munu-shũ] *pro* mama aya-ma.
INDET.NOM dance-SS.PFV.ERG pro.ERG yucca.drink drink.PFV-NEG
'Nobody danced and drank caiçuma (yucca drink).' (i.e. It is not the case that [[when somebody danced] they drank yucca drink].)

According to McKenzie (2012), SS is "redundant, yet still required by the grammar" in cases such as these, in which quantifiers can bind a variable to derive coconstrual. In each of the sentences in 18, giving wide scope to the quantifier allows it to bind the (often null) pronoun in the adjacent clause. That is also the approach we adopt in Baker and

Camargo Souza (2020). However, the fact that SS clauses are adverbial islands (Huang 1982; see chapter 2) indicates that this scope-based solution is unsatisfactory. I repeat the relevant paradigm in 19: 19-a is the baseline sentence, with a final SS clause. The ungrammaticality of 19-b in contrast to 19-c shows that a wh-element can be extracted from a matrix clause, but not from a SS clause.

(19) a. Shayã mai keti hi-a [manĩa shuku pitxã-pai-kĩ]
Shaya.ERG earth pot buy-PFV plantain green cook-DES-SS.IPFV.ERG
'Shaya bought a clay pot willing to cook green plantains.'

b. *Awea=mẽ Shayã mai keti hi-a [*t* pitxã-pai-kĩ]?
what=INT Shaya.ERG earth pot buy-PFV cook-DES-SS.IPFV.ERG
Intended: 'What did Shaya buy a ceramics pot willing to cook?'

c. Awea=mẽ Shayã *t* hi-a [manĩa shuku pitxã-pai-kĩ]?
what=INT Shaya.ERG buy-PFV earth pot cook-DES-SS.IPFV.ERG
'What did Shaya buy, willing to cook green plantains?'

Because syntactic islands are also barriers for quantifier raising, as illustrated by the classic example in 20, these facts point to the insufficiency of QR-based accounts of SR. The sentence can only mean that the house will be inherited in the event of all/a few of the relatives being dead. It cannot mean that every/a few relatives are such that if they die, the speaker will inherit a house (i.e. for each dead relative, a house is inherited).

(20) If/When every/a few relatives of mine die, I'll inherit a house.

✓ if/when>Q;

*Q>if/when (adapted from Reinhart 1997)

Even if we were to abstract away from this and insist on a QR-based approach in which a quantifier syntactically binds the coconstrued pronoun, that still would not solve the problem. Giving wide scope to one of the pivots in the SS relation does not always give rise to the right truth-conditions, as discussed by Thomas (2019). I illustrate the problem with an analogous example from Yawanawa in 21 (11-c).

(21) Kamãnawa itxapa-ma-shũ nawã tsãi tapĩ-ashe, shanẽ
K.people many-NEG-ERG foreginer.GEN talk know-SS.PFV.NOM village.OBL
anu-ashe raya-kan-i.
there-NOM work-3PL-IPFV
'Since few Kamãnawa folks speak Portuguese, they work in the village.'

This sentence illustrates an instance of maximal set anaphora and it means that since the intersection between set A – Kamãnawa folks – and set B – people who speak Portuguese – is small, Kamãnawa folks (maximal set A) work in the village. Now, consider the interpretation the sentence receives if we give wide scope to the quantified expression: 'Few Kamãnawa folks are such that they speak Portuguese and work in the village.' This sentence is verified if the intersection between the set of Kamãnawa folks and the set of people working in the village is small, which is *not* what the sentence means. As such, examples such as these show the insufficiency of a scope-based analysis for quantified DPs in SS relations, and point towards the need for a dynamic account.

In this light, it is important to highlight the distinction between quantificational and binding scope. The issue illustrated in 20 is that quantifiers other than the existential cannot take scope *upward*, out of an adverbial island: they do not take exceptional *quantificational* scope. But they certainly can scope *rightward*, that is, they have exceptional *binding* scope. Both quantifiers in 20 can be coconstrued with a plural pronoun that they do not c-command, as in 22. A dynamic account of meaning will allow us to explain how binding can obtain in these cases, crucially without the quantifier scoping out of the island to c-command the pronoun.

(22) a. If <u>every relative of mine</u> comes to my birthday party, I will be happy to see <u>them</u>.
b. If <u>a few relatives of mine</u> come to my birthday party, I will be happy to see <u>them</u>.

A potential alternative that needs to be addressed is why not propose that the SS (and OS) complementizers, in their lexical entries, can encode different kinds of set-theoretic relations between pivots (McKenzie, 2012; Arregi and Hanink, 2019; Ikawa, forthcoming). This would allow anaphoricity to be built into the lexical entry of these morphemes, such that if they are absent from a sentence (or if DS is present), a hearer

can assume that no anaphoric relations are being communicated.

One of the problems with such an approach is that it does not take into account the overall phenomenon of dynamic binding, which manifests independently of SR. In other words, we would be missing a generalization by needlessly proposing two different explanations to the same phenomenon. What I mean is that building anaphoricity into the lexical entries of the SS and OS morphemes would implicate that in contexts where these morphemes are absent, no anaphora obtains. This, however, is not true. Recall that my proposal is that SS and OS marking are morphosyntactic expressions of cross-clausal anaphoric relations, which means that there is no SS/OS without anaphora. However, the reverse does not hold: there certainly is cross-clausal anaphora without SS/OS marking. Some examples of this come from sentences like the ones in 23.

The indefinite DP *awa*, 'tapir' in 23-a and the quantified DP *neshu ravesima*, 'more than two turtles' in 23-b are each antecedents to a (null) pronoun in the matrix clause. The two important things to observe here are the following: first, scoping the DPs in question to a high position in their sentence gives the wrong truth conditions, analogously to the discussion surrounding example 11-c/21. Sentence 23-a would mean that there is a tapir such that whenever Shukuvena sees it, he shoots at it; and sentence 23-b would mean that there are at least two turtles such that Shukuvena kills them whenever he sees them. These interpretations are absurd and clearly not what the sentences mean. What we need is an account that gives us the interpretation that, in every situation in which Shukuvena sees a tapir/at least two turtles, he kills the tapir or the turtles he sees in that situation.

(23) a. [Shukuvenã$_{i}$ awa$_{m}$ ũi-kĩ] *pro*$_{i}$ a$_{m}$-ki tuwe-misi.
Shukuvena.ERG tapir see-SS.IPFV.ERG DEM-AT shoot-HAB
'If/when Shukuvena sees a tapir, he shoots at it.'

b. [*pro*$_{k}$ Neshu rave-sima$_{j}$ ũi-kĩ], Shukuvenã$_{k}$ *pro*$_{j}$ rete-misi.
turtle 2-more.than see-SS.IPFV.ERG Shukuvena.ERG kill-HAB
"If/When Shukuvena sees more than two turtles, he kills them.' (less than that isn't enough to feed his family)

The second thing to note in these examples is that the anaphoric relation in question is *not* the one indicated by the SS morpheme: SS links the subjects in each of these sentences, but it is the (scopeless) anaphoric relation between the objects that is causing the issue here. These relations are morphologically unmarked; there is no morphological exponent O=O in Yawanawa to express that. What I take this to mean is that encoding anaphoric relations into the SR morpheme – subject=subject, object=subject, max set=subject, etc. – would simply not be enough. What this type of example shows is that dynamic binding obtains independently of SR marking. This supports my claim that it is not the SR morpheme itself that is responsible for anaphoric relations – neither by how it operates in syntax, as we saw above, nor in its lexical entry, as argued here – it simply expones certain relations that are deemed morphosyntactically relevant.

My claim therefore is that SR morphology indicates the existence of an anaphoric relation between two pivots, and that it is the semantic component of grammar that is responsible for computing the possible interpretations. Two things will be crucial to determine what the possible interpretations will be: the syntactic structure that is shipped to the semantic module, and the nominal types of the pivots.

This is where my proposal diverges from that of Thomas (2019). Regarding nominal types, I have already discussed their relevance for the SR computation around example 15. Independently of maximal anaphora, the novelty conveyed by the indefinite in that sentence prevents SS from being licensed. This is expected given what we know about indefinites: it is not a fact about SR, it is a fact about anaphora in general. The main point of divergence between my proposal and Thomas (2019)'s is syntax. According to his theory, SS is a pronoun, anaphoric to one of the pivots, and it requires that the other pivot introduce or retrieve a discourse referent that is identical to the value of this anaphor:

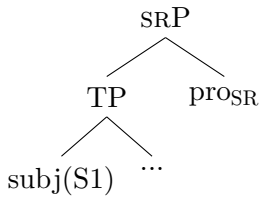
> "In a structure [[S_1 vy/rã] S_0], the SR marker vy/rã introduces a covert pronoun pro_{SR}. The use of SS marking is acceptable only if:
>
> 1. subject(S_0) and subject(S_1) agree in grammatical person and

2. pro_{SR} is anaphoric to subject (S_1) and the discourse referent it retrieves is identical to the discourse referent introduced or retrieved by the maximal projection of the subject (S0). [With conjoined DPs, a discourse referent for the sum of the conjuncts is available at the maximal projection.]

DS marking is used when SS marking is unacceptable. (Thomas, 2019)

One of the main issues with this proposal, I argue, is that it does not take syntactic structure into consideration. In Thomas (2019)'s proposal, semantic interpretation must be computed from a syntactic structure in which the pro_{SR} is anaphoric to something it c-commands, as illustrated in 24:

(24)



This structure violates the principles of the Binding Theory, which cannot be ignored independently of the framework. Dynamic semantics gives us the tools to account for binding without c-command, but it cannot do away with Binding Theory in configurations where c-command does obtain between the nominal elements.

What I argue instead is that syntax indicates by means of Agree-links the existence of an anaphoric relation between two pivots (c.f. chapter 2). Given the nominals linked by Agree, semantics will determine whether the relation is possible: it will consider (1) the possible discourse referents introduced by the antecedent – definite, indefinite, ref-set, max-set; (2) the nominals involved and whether or not they are the right type for an anaphoric relation, and (3) the syntactic features (if any) of the anaphoric nominal (c.f. Comrie 1983; Roberts 2017; Thomas 2019; Nevins and van Urk 2020).

So far, I have not addressed item (3), but it is known that anaphors must match their antecedents in ϕ features crosslinguistically. As such, the fact that this same feature

matching is required between an antecedent and an anaphoric expression in an SR construction only strengthens the analogy I am drawing between the two. Nevins and van Urk (2020) propose a syntactic solution to the generalization that person features seem to take precedence over number when it comes to the matching requirement (see section 5.6.2), but, I argue that this is also independent of SR. It simply has to do with the fact that certain plural antecedents give rise to multiple discourse referents, including singular ones. A plural DP like *Sonia and Adam*, for instance, gives rise to three discourse referents: Sonia, Adam, and their mereological sum. As such, any nominal that is linked to this DP in a SS or OS relation will have to match the antecedent in ϕ features: here 3rd person will be invariable, independently of the antecedent, but number features will vary: they may be plural if the mereological sum Adam$\oplus$Sonia is the relevant antecedent, as in 25-a, or singular, if either atomic element of the plurality is the antecedent, as in 25-b and 25-c.

(25) a. As <u>Sonia and Adam</u> reached the base of the mountain, they started climbing.
b. As <u>Sonia</u> and Adam reached the base of the mountain, she started climbing.
c. As Sonia and <u>Adam</u> reached the base of the mountain, he started climbing.

In sum, I have discussed patterns of anaphora to sets in SR constructions in this section, and argued, following Thomas (2019), that they reveal properties characteristic of discourse anaphora attested crosslinguistically. I focused on quantified DPs as antecedents in this section and will discuss other types of plural antecedents in section 5.6, which give rise to 'partial co-reference' interpretations like the ones illustrated in 25. I also showed in this section that the types of nominals involved in the SR computation are crucial to determining whether or not SS can be licensed, that is, whether or not a discourse anaphoric relation can be established. This gives nuance to claims such as 'maximal/reference set anaphora licenses SS' – which is not true if the second nominal is an indefinite – or 'SS pivots must match in person but not number' – which is not true outside the realm of plural antecedents. Finally, I argued that because semantic interpretation depends on syntactic structure, syntax plays a more central role in the computation of SR than what Thomas (2019)'s proposal suggests. I turn to the central

role of syntactic structure in the next section.

5.5 Building structures for interpretation

We now know that SS is licensed in cases of reference set and maximal set anaphora, as well as in cases in which a quantifier inside a syntactic island binds a subsequent pronoun in the adjacent clause. These cases are evidence for the need of a dynamic account of SR, since binding by quantifier raising is syntactically constrained and/or gives the wrong truth conditions in these cases. In section 5.7.4, I will discuss the details of the dynamic account I am proposing for the interpretation of (certain) SS and OS structures, and in order to do so, I lay out in this section my arguments and assumption regarding the syntactic structures upon which interpretation applies. The basic tenet of dynamic semantic frameworks is that a sentence's meaning is its potential to change a context: a sentence or clause takes a context as input and outputs a potentially changed context, which in turn becomes the input to the subsequent sentence or clause. Crucially, this inputting and outputting of contexts proceeds from left to right. I will argue that this left-to-right directionality of interpretation is key to the understanding of SR, regardless of the types of pivots involved. And I will show in this section that the syntactic structures upon which interpretation is computed condition – alongside the nominal types involved in the SR relation – what the possible anaphoric relations turn out to be.

Chapter 4 focused on SR in complementation structures, where raising and control configurations straightforwardly determine the possible morphological expressions of the SS pivots: the higher, c-commanding one, is always the overt antecedent, and the lower, c-commanded one, the null trace or anaphoric PRO. As discussed in chapter 2, there are clear syntactic diagnostics showing that other than these complementation structures, SR clauses are adjuncts in Yawanawa, as in many other languages. For instance, extraction of a wh-element is possible from the matrix clause, but not from the adverbial SR clause, which indicates, on the one hand, that no restrictions such as the Coordinate Structure Constraint (Ross, 1967) are at play, and on the other, that the SS clause is an adverbial island (Huang, 1982). In addition, the order between matrix and

SR clause may change without interpretational consequences for the temporal chronology of events, which is expected of adjuncts, but not coordinate constructions. Because the SR clause may precede or follow the main clause, we find a wider range of possible morphological expression of the pivots as well: the overt subject may be in one or the other clause. And c-command obtains between the pivots in some configurations but not in others, so it is crucial to take a closer look at syntactic configurations to understand how they determine interpretation. In what follows, I will show that although the SR clause may freely adjoin to the left or the right, this position of adjunction will have consequences for the possible interpretation of the construction and the morphological expression of the pivots.

5.5.1 The multiple sites of adjunction

The paradigm in 26 shows the possible orders between matrix and SS clauses and the possibilities for pivot expression in Yawanawa. The pattern we observe is the following: if the SS clause follows the matrix clause, the matrix clause cannot have *pro*, as indicated by the ungrammaticality of 26-d. This is shown for a proper name here, but we will see that it holds independently of nominal type (indefinite DP, overt pronoun, quantifier).

(26) a. [Shukuvena nuku-ashe] *pro* tsau-a.
Shukuvena arrive-SS.PFV.NOM sit-PFV

b. [*pro* nuku-ashe] Shukuvena tsau-a.
arrive-SS.PFV.NOM Shukuvena sit-PFV

c. Shukuvena tsau-a, [*pro* nuku-ashe].
Shukuvena sit-PFV arrive-SS.PFV.NOM
'When/After Shukuvena arrived, he sat down.'

d. **pro* tsau-a, [Shukuvena nuku-ashe].
sit-PFV Shukuvena arrive-SS.PFV.NOM

Note that this paradigm is parallel to that of English adverbial (temporal) clauses, as illustrated in 27:

(27) a. [When/as/after Andy$_i$ arrived], he$_i$ sat down.

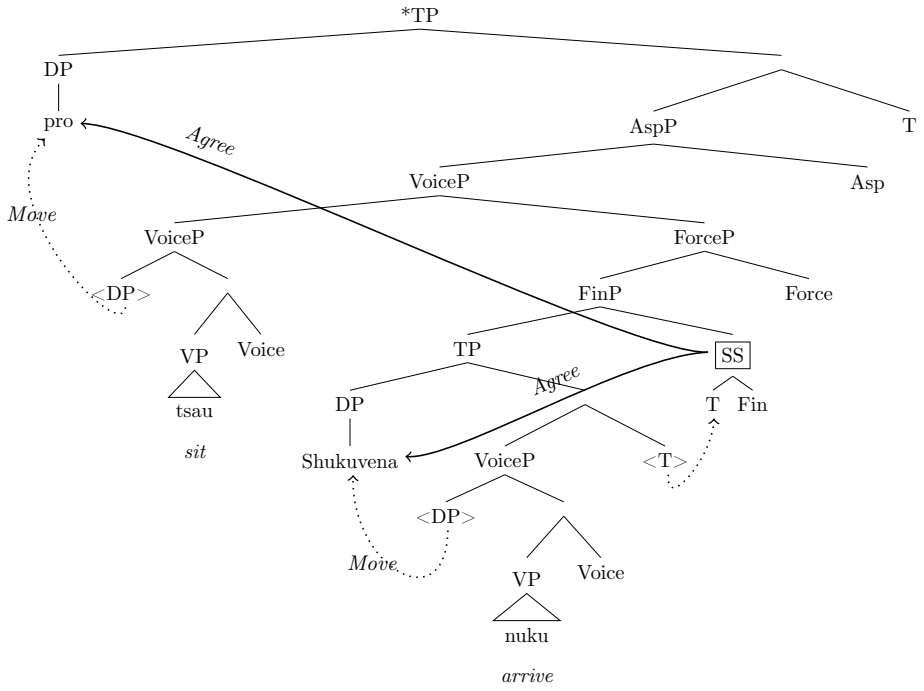
b. [When/as/after he$_i$ arrived], Andy$_i$ sat down.

c. Andy$_i$ sat down [when/as/after he$_i$ arrived].

d. *He$_i$ sat down [when/as/after Andy$_i$ arrived].

I propose that this parallel is not accidental: the asymmetries observed here are due to the adverbial clause having multiple possible adjunction sites. Examples 26-c and 26-d for instance, transparently show in their surface structure that the SS clause is right-adjoined. Analogously to analyses of English adverbial clauses such as that of Reinhart (1976) and Chierchia (1995), I propose that right-adjoined clauses are structurally lower than left-adjoined ones: I propose that their initial site of adjunction is VoiceP on the right, and AspP on the left (then topicalization or extraposition may follow). As such, the ungrammaticality of 26-d is attributed to a principle C violation: *pro* c-commands its antecedent in the structure, as illustrated in 28. Since in 26-c it is the lexical DP that c-commands *pro*, grammaticality obtains.

(28) Ungrammatical structure of 26-d: *pro* c-commands its antecedent



26-b, I argue, is derived exactly like 26-c, with subsequent topicalization of the SS clause, which gives the surface order observed with the SS-clause in sentence-initial position (c.f. Chierchia 1995). Assuming, as is standard, that binding holds in the semantic module following reconstruction of the anaphoric element (Chomsky, 1993; Fox, 1999), the proper name c-commands *pro* at the derivational moment that is relevant for interpretation. So examples 26-b through 26-d are straightforward: because c-command obtains between the pivots, *pro* is interpreted as a bound variable, much like the structures discussed in chapter 4. As such, I will not have much more to say about them in this section (see section 5.7 for discussion). I will focus instead on the more challenging 26-a, in which there is no c-command between the pivots.

Note that it cannot be the case that 26-a is derived like 28, with a right-adjoined SS clause that topicalizes. If it were, we would expect the same problem we find with 26-d, where *pro* c-commands its antecedent at the relevant moment for interpretation. Although the violation is not visible in the surface structure, Principle C is still expected to apply once A'-movement of the SS clause reconstructs. Since 26-a is a perfectly grammatical construction, in contrast to 26-d, it needs to have a different structure. Before I move on to propose what this structure is, let me empirically motivate the claim that interpretation applies to reconstructed structures.

Recall from chapter 4 that I propose that the constructions containing SS-complement clauses involve raising and control. As such, in an example like 29, the subject *Shukuvenã* is merged in the complement clause and raises into the matrix subject position, from where it c-commands its trace or lower copy.

(29) Shukuvenã$_i$ [t$_i$ wixi ane-kĩ] tae-wa.
Shukuvena.ERG book read-SS.IPFV.ERG begin-CLEX1.PFV
'Shukuvena began reading a/the book.'

Relevantly for the present discussion, the complement clause in this construction may either extrapose (to the right), as in 30-a, or topicalize (to the left) as in 30-b. In both cases, the trace or lower copy of the subject ends up in a position that is not c-commanded by the higher copy, and as such, must reconstruct to its base position to

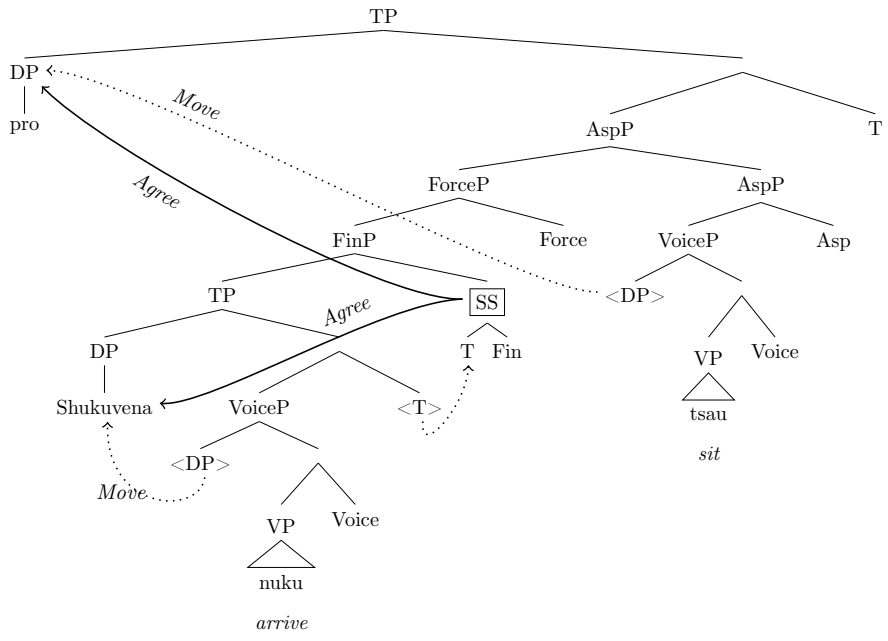
be properly interpreted.

(30) a. Shukuvenã$_i$ tae-wa, [t$_i$ wixi ane-kĩ].
Shukuvena.ERG begin-CLEX1.PFV book read-SS.IPFV.ERG

b. [t$_i$ wixi ane-kĩ], Shukuvenã$_i$ tae-wa.
book read-SS.IPFV.ERG Shukuvena.ERG begin-CLEX1.PFV
'Shukuvena began reading a/the book.'

With this piece of evidence coming from a construction in which the SS pivots clearly stand in a c-command relation, I will assume that A'-movement reconstructs for semantic interpretation across the board. Therefore, going back to the adjunct constructions under discussion, I propose that in 26-a, the SS clause starts out left-adjoined to matrix AspP as illustrated in 31.

(31) Structure for 26-a: SS clause is left adjoined



Many questions arise in light of this structure. The most obvious one is probably, why adjoin the SS clause to AspP, below the landing site of the matrix subject? Note that once *pro* moves to matrix subject position, it will c-command its antecedent such that we must ask why a Principle C violation does not obtain. The reason for this

adjunction site is partly theory-internal: recall from chapter 2 that the head at the edge of the SS clause needs to probe upward and Agree-link with the closest nominal, i.e. the matrix subject. There is evidence however that the SS clause is indeed in the scope of matrix inflection, such that this adjunction site is motivated, not merely stipulated. The examples in 32, for instance (previously in chapter 4), show that the SS clause scopes under temporal adverbials in the matrix clause.

(32) a. [Shukuvena mishki-(hai)-kĩ] ixixiwã atxi-**hai**-a.
Shukuvena fish-REC.PST-SS.IPFV.ERG catfish catch-REC.PST-PFV
'Earlier today while Shukuvena was fishing, he caught a catfish.'

b. [Awa-ki ẽ tuwe-(xin)-ashe] (ẽ) itxu-**xin**-a.
tapir-at 1S.ERG shoot-PST.NT-SS.PFV.NOM 1S.NOM run-PST.NT-PFV
'Last night I shot a tapir and ran (in fear).'

Therefore, I assume there is enough evidence to argue that the SS clause adjoins to a position lower than matrix T. But if this is the case, then why do we not get a Principle C violation here? There are two possible explanations for what is going on with 26-a vs. 26-d. Again, the question is, why does 26-d incur a Principle C violation, but 26-a does not, assuming the structures in 28 and 31.

A possible explanation for this asymmetry is that in 31, the *pro* in matrix subject position does not *actually* c-command its antecedent in the SS clause, because it is only the higher copy of *pro* in the chain that is in a c-commanding position. From its base-position, *pro* does not c-command its antecedent. But then what about 28? Why would the same thing not apply there? The base position of *pro* is Spec VoiceP, so it is not the case that both its copies c-command the antecedent in the SS clause. Or do they? According to the standard definition of c-command, they possibly do: A c-commands B iff the first branching node dominating A also dominates B. The first branching node dominating *pro* in the specifier of VoiceP is VoiceP, and it is also VoiceP that dominates the adjoined SS clause, though it is a different VoiceP node. In fact, it is exactly in order to accommodate for the binding behavior of structures containing adjuncts that Reinhart (1976) reformulates the definition of c-command slightly. And

under this revised definition, c-command does obtain in the present case (also Chomsky 1986):

(33) Node A c(onstituent)-commands node B iff the first branching node α_1 dominating A either dominates B or is immediately dominated by a node α_2 that dominates B, and α_2 is of the same category type as α_1 .

Here, the nodes α_1 and α_2, which have the same category, would be the two VoiceP nodes. Since the higher one (α_2) dominates the SS clause, it means that *pro* does indeed c-command its antecedent from its base position, that is, both copies of *pro* c-command their antecedent. This could be an explanation for the asymmetry between the structures with a right and left-adjoined SS clause.

5.5.2 The role of precedence

Another possible explanation for the asymmetry between the structures with a right and left-adjoined SS clause is that precedence is playing a role: while in 28, *pro* precedes its antecedent from its base position, it does not precede it in 31. Much work on binding and crossover phenomena show that antecedents must linearly precede the anaphoric expressions they bind (Shan and Barker, 2006; Barker and Shan, 2008; Bruening, 2014). Bruening (2014) for instance, argues that the notion of precede-and-command (henceforth p-&-c; c.f. Langacker 1969; Jackendoff 1972; Lasnik 1976) is superior to that of c(onstituent)-command, in tune with a theory of grammar in which sentences are interpreted in a left-to-right fashion. If this is correct, it could be precedence that is playing a crucial role in distinguishing 28 from 31 in terms of Principle C.

A notion of precedence will indeed play a central role in my proposal for the semantics of SS and OS: an antecedent introduced in the left clause is available to an anaphoric element in the right clause, but not the other way around. As such, Bruening (2014) could be a syntactic theory that aligns with this view. So how can we tell if it makes the right predictions across the board? I propose we shift our attention to syntactic objects to verify it.

For Bruening (2014), the notion of 'command' that is relevant in p-&-c is not that of c(onstituent)-command, but rather that of phase-command, defined below:

(34) PHASE COMMAND: X phase-commands Y iff there is no ZP, ZP a phasal node, such that ZP dominates X but does not dominate Y.
Phasal nodes: CP, vP, NP [I assume that ForceP and VoiceP are the phasal nodes rather than CP and vP].

With this, we predict that an object will p-&-c a right-adjoined SS clause: if the SS clause adjoins to VoiceP on the right, then VoiceP, which is the first phasal node dominating the matrix object, also dominates the SS clause. In contrast, when the SS clause is left-adjoined, the matrix object does not p-&-c it. This asymmetry may explain the contrast between the sentences in 35. In 35-a, the matrix object *pro* p-&-c's its antecedent in the SS clause, which would explain the unacceptability of the sentence in the framework of Bruening (2014). 35-b, in contrast, does not have the same issue, since *pro* does not p-&-c its antecedent. So the asymmetry here points towards precedence playing a role in cross-clausal anaphoric relations independently of SR: SS links the subjects in these examples, but it is the anaphoric link between the objects that is causing the Principle C violation.

(35) a. ?/* Shayã$_i$ *pro*$_k$ pitxã [*pro*$_i$ tunu$_k$ atxi-shũ].
Shaya.ERG cook.PFV mandim.fish catch-SS.PFV.ERG
'Shaya cooked it, when she caught a/the fish.'

b. ✓ [Shayã$_i$ *pro*$_k$ atxi-shũ] *pro*$_i$ tunu$_k$ pitxã.
Shaya.ERG catch-SS.PFV.ERG mandim.fish cook.PFV
'When Shaya caught it, she cooked a/the fish.'

In addition, if it is indeed the base position of the subject that matters to explain why 31 does not incur a Principle-C violation – in other words, not *both* copies of *pro* p-&-c its antecedent – then unaccusative matrix subjects should also be informative of whether or not Bruening (2014)'s phase-command is the relevant notion here. This is

because the merge position of unaccusative matrix subjects is much lower than VoiceP, and as such they do not c-command out of VoiceP from their base position. They do p-&-c, however. The OS paradigm with matrix verb *txapu*, 'rot',[5] in 36 corroborates this view.

This OS paradigm follows the same pattern as the SS one in 26: 36-d is ungrammatical because it incurs a Principle C violation. If it is indeed the case that *both* copies of *pro* need to hold the relevant relation to its antecedent (as we learn from the (a) examples of the paradigm, i.e. the left-adjunction structure in 31), then the relevant relation needs to be p-&-c. This is because the lower VP-internal copy of *pro* does *not* c-command the OS clause in 36-d, but it does p-&-c it[6]. The tree in 37 gives the derivation for the ungrammatical 36-d (the same structure applies to the other constructions with right-adjoined OS clauses – 36-b and 36-c, by hypothesis).

(36) a. [Shukuvenã tũnũ-ki xinãvenu-a] *pro* txapu-a.
Shukuvena-ERG mandim.fish-DAT forget-OS rot-PFV

b. [Shukuvenã *pro* xinãvenu-a] tũnũ txapu-a.
Shukuvena-ERG forget-OS mandim.fish.NOM rot-PFV

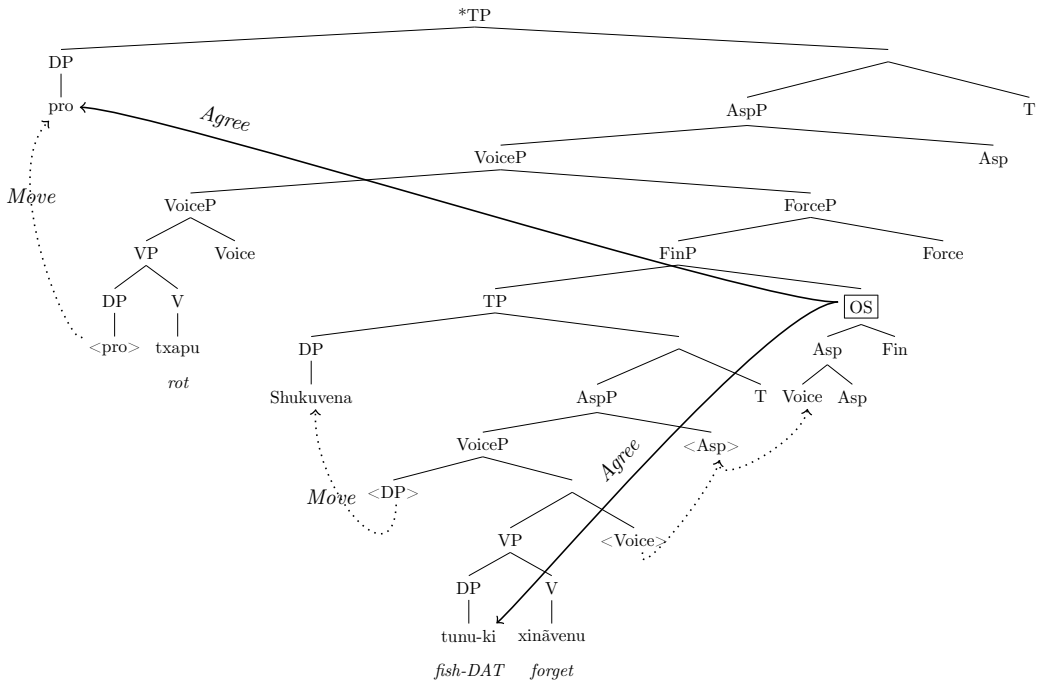
c. Tũnũ txapu-a, [Shukuvenã *pro* xinãvenu-a].
mandim.fish.NOM rot-PFV Shukuvena-ERG forget-OS
'Shukuvena forgot about the mandim (a type of fish) and it rotted.'

d. **pro* txapu-a, [Shukuvenã tũnũ-ki xinãvenu-a].
rot-PFV Shukuvena-ERG mandim.fish-DAT forget-OS

[5]It is important to note that in 36-c, the pause between the clauses as well as the correct stress pattern on the verb – (txá:).(pu.á) – are essential to convey the desired interpretation. The stress pattern (txa.pú).a gives rise to a different interpretation, in which the fronted DP *tunu txapua* 'rotten mandim fish' is the object of the verb 'forget'.

[6]There is a possible alternative here, in which the theme moves through Spec VoiceP on its way to Spec TP, and it is this intermediate position that will count for purposes of binding interpretation. In this view, Reinhart (1976)'s modified version of c-command would be enough to explain the ungrammaticality of the construction. I will not follow it here however, because it requires a stipulation I cannot motivate.

(37) Ungrammatical structure of 36-d: *pro* p-&-c's its antecedent



This view allows us to draw a clear distinction between the left and right-adjunction structures. Again, I will set the latter aside, assuming that the anaphoric relation expressed by SS in them is one of syntactic binding: in the presence of c-command (or p-&-c) *pro* is a variable bound by its antecedent. I will focus instead on the left-adjunction structures (the (a) examples in the paradigm), in which no syntactic binding obtains. These are the ones that call for the dynamic semantic account I propose in the following sections. Note that the fact that an asymmetry in terms of structure exists at all between the left and right-adjunction constructions indicates that SS does not always express the same type of anaphoric relation. When c-command (or p-&-c) obtains between the pivots, SS expresses syntactic binding, and when it does not, it expresses semantic binding. It is up to semantics to interpret anaphoric links according to what is possible in a given structure.

With this, let us take a step back and re-evaluate the consequences of the discussion developed in this section. First, I have shown with clause ordering paradigms that the anaphoric relations expressed by SS and OS morphemes are not always of the same type: they may be syntactic or semantic, depending on the structure that is shipped to

interpretation. I have argued that Bruening (2014)'s p-&-c makes the right predictions when it comes to Principle C, independently of SR marking. Bruening (2014)'s theory also harmonizes with the view that the computation of discourse anaphora proceeds from left to right: in the absence of syntactic binding, the antecedent in the SS construction must be in the left-most clause, and the anaphoric *pro* must be in the right. As such, 38 lays out the predictions for the possible patterns of anaphora with adjunct SS (or OS) constructions[7]:

(38) Adjunct SS/OS constructions

a. ✓ [[DP_i V-SS/OS] pro_i V-Infl]

b. ✓ [DP_i V-Infl [pro_i V-SS/OS]]

c. *[pro_i V-Infl [DP_i V-SS]]

The syntactic structures explored in this section play a central role in the structure-to-meaning mapping of SR constructions. The paradigms support my overall proposal that SR is the expression of anaphora, adding to the evidence from section 5.3 that syntactic binding (c-command) between pivots is not a pre-requisite for SS and OS to obtain. Here, I have shown that precedence plays a central role in the interpretation of SS/OS anaphora. Put together, these two sections support the need for a dynamic account of interpretation, which will be sketched in section 5.7.4. In the next section, I will argue that the structural differences discussed here are also key to the understanding of 'partial co-reference', a SR sub-phenomenon that has received some recent attention in the literature.

[7]This poses an interesting question regarding SR marking in coordination. Given that conjuncts in a coordinate construction do not enjoy the same relative freedom of merge site and extraposition that adverbial clauses do, what looks like backward anaphora in constructions involving adverbial clause adjunction should not surface in languages in which SR is licensed in coordination.

5.6 Partial co-reference and patterns of anaphora

Taking into account the structural facts just discussed, this section will focus on the anaphoric possibilities that arise in SR constructions involving a different type of plural antecedent. Section 5.3 discussed quantificational DPs and anaphoric reference to sets; here, I discuss a phenomenon that has come to be known as 'partial coreference' in the SR literature. Partial coreference refers to SR constructions in which one of the pivots is a subset or superset of the other, that is, a plural antecedent in one clause is coconstrued with one or more of the atomic elements that compose it in the other.

Because a great deal of work on SR has been done by syntacticians, it is surprising that the structural distinctions inherent to the different constructions in which SR is found cross-linguistically have not been taken into account in the existing typologies of partial co-reference (Nonato, 2014; McKenzie, 2015; Nevins and van Urk, 2020). These typologies gather data from multiple SR languages and focus on two facts: (1) whether the language marks cases of partial co-reference with SS or DS, and (2) which morpheme is employed to express coconstrual from a superset to a subset ("shrinking co-reference") or from a subset to a superset ("growing co-reference"). The issue with these typologies, I argue, is that regarding the directionality of partial co-reference in a given language, they invariably report the data based on whether the subset/superset is in the SR clause or in the matrix clause. This information does not provide a complete picture of the phenomenon because it clusters together the full range of SR structural configurations: adjunction, coordination, and complementation. But as I have previously discussed, conjuncts in a coordinate construction do not enjoy the same relative freedom of merge site and movement (with potential reconstruction) that adverbial clauses do: conjunct 1 is always to the left of conjunct 2 in coordinate constructions, but an adverbial SS clause may adjoin to the matrix clause on the right or left, with or without c-command between the pivots, and it may topicalize (to the left) or extrapose (to the right) and reconstruct for interpretation. And the possibilities of anaphora in complementation constructions, where the pivots stand in a c-command relation, differ greatly from the possibilities in adjunction and coordination constructions, where they do not necessarily.

It is no wonder that it has been extremely difficult to come up with generalizations that explain the distribution of 'partial co-reference' across SR languages.

If partial co-reference is a syntactic phenomenon, the prediction is that the direction of Agree will be relevant to determine the direction of 'growing' and 'shrinking' coreference, i.e. Agree probes down into the SR clause first, then up into the matrix clause (Nevins and van Urk, 2020). If this is correct, then it will make sense to ask the question of whether the subset to superset relation proceeds from matrix to SR clause or from SR to matrix clause. Conversely, if the partial co-reference relation is ruled by semantic interpretation, the prediction is that the direction of Agree does not matter. My proposal predicts that if SR is indeed an expression of anaphora, then a superset to subset relation will be allowed *from left to right* to the extent that those relations are known to be allowed in anaphora. As such, taking into consideration the syntactic structure upon which interpretation applies is crucial for us to compare apples to apples. If this is the correct way to see it, then the relevant questions to ask are the ones that determine the type of anaphoric link being expressed by the SR morpheme: (1) does syntactic binding, semantic binding or coreference obtain between the SS/OS pivots? (2) what kind of nominals are involved in the SS/OS relation? (3) which clause is on the left and which is on the right? I propose in this section that once the variability in structures is taken into consideration, we get a clearer picture of the typology of partial coreference. The generalization is that a nominal element can be coconstrued with the argument it is syntactically linked to (by means of the Agree-without-agreement mechanism) and other potential salient discourse antecedents that are somehow linked to this argument.

Let us first review and discuss some recent extant accounts of partial coreference in SR constructions and see how they compare to the view I am proposing.

5.6.1 Arregi & Hanink (2019)

Arregi and Hanink (2019)'s account of SR puts forth two hypotheses to account for partial co-reference. Their starting point is the Washo language, in which they observe an optionality between SS and DS in cases of partial co-reference. The first hypothesis

involves the assumption that the value of the index feature [ID] in plural DPs has one index for each individual in its referent (c.f. Sportiche 1985). They propose that agreeing C in Washo may copy exactly one index [ID] on each nominative DP it agrees with, giving the following explanation for the optionality between SS and DS:

(39) Copy **same index** from plural DP as singular DP

[DP[ID:i] ... C[ID:i,i]] DP[ID:**i**,j] → SS

(40) Copy **different index** from plural DP as singular DP

[DP[ID:i] ... C[ID:i,j]] DP[ID:i,**j**] → DS

Since their proposal is Agree-based, – a complementizer searches for pivots once downward into its clause and once upward into the matrix clause – I assume this operation in which C copies an index feature from its pivots corresponds to Agree-copy (Arregi and Nevins, 2012). As such, when it comes to a plural pivot which is a coordinate &P, I assume the probe on C Agree-links to the &P and with that, all the features within it become available for Agree-copy to choose from. This needs to be the case because in syntax, a probe could not simply skip the first available matching goal it encounters (&P) and choose to Agree with the next one down the structure (one of the conjuncts; c.f. the Intervention condition on *Agree*). If my assumptions about the operations are correct, then this first hypothesis of Arregi and Hanink (2019)'s regarding partial co-reference is analogous to cases of partial agreement, which are well studied in the literature.

We know from Hindi, Southern Slavic, and Bantu languages that agreement with coordinate DPs varies cross-linguistically and that this variation is constrained in ways that are well understood (Bhatt and Walkow, 2005; Marusic, Nevins, and Saksida, 2007; Bhatt and Walkow, 2013; Marušič, Nevins, and Badecker, 2015; Mitchley, 2015). An agreeing functional head may expone features from (a) the coordinate DP as a whole – either a default or a 'resolved' value, calculated from the component conjuncts, (b) the hierarchically closest conjunct – highest conjunct agreement (HCA), or (c) the linearly closest conjunct – closest conjunct agreement (CCA).

As such, the optionality between SS and DS in sentences like 41 from Washo could be due to the availability of both HCA and CCA leading to the scenarios in 39 and 40.

(41) Washo (Hokan/isolate; Arregi and Hanink 2019)

[Adele ida Emily wagayáy-aʔ-{š,∅}] Emily bašáʔ-i.
[Adele and Emily 3.talk-DEP-{DS,SS}] Emily 3.write-IND
'Emily is writing while Adele and Emily are talking.'

In order to confirm this hypothesis, it would be important to see an example with a coordinate subject DP composed of three conjuncts. The reason why such an example would be especially informative is because the theory of conjunct agreement predicts that the middle conjunct would not be available to HCA or CCA. As such, Arregi and Hanink (2019)'s explanation of SR in terms of index agreement would find a strong a basis in the theory of partial agreement if SS were *not* licensed in cases where the middle conjunct was made to co-refer with the subject in the adjacent clause. Being in a position to the left of C, the linearly closest conjunct would be the third, and the hierarchically closest would be the first, so the middle conjunct would necessarily trigger DS.

Such examples are unfortunately not available in their paper, but a slight variant of 41 they discuss suggests that their proposed mechanism does not behave like conjunct agreement in the expected ways. It must be the case for them that an Agree probe is free to pick up the index feature of *whichever* conjunct in a coordinate subject, not only the (linearly or hierarchically) closest ones. The relevant example is 42.

(42) Washo (Hokan/isolate; Arregi and Hanink 2019)

[Emily gé:gel-aʔ-{š,∅}] Adele ida Emily wagayáy-i.
[Emily 3.sit-{DS,SS}] Adele and Emily 3.talk-IND
'Adele and Emily are talking while Emily is sitting.'

Differently from the previous example, here the first conjunct in the coordinate subject

DP happens to be both the hierarchically and the linearly closest to probing C[8]. But this conjunct is not co-referent with the subject of the adjacent clause. As such, the grammaticality of SS in this example does not find validation in the overall theory of partial agreement; it entails that Agree works differently in cases of SR partial coreference. I argue that the need for this stipulation weakens the argument that index-agreement is the mechanism responsible for partial coreference in SR.

Data from Yawanawa provides further evidence against an index-agreement account of partial coreference in SR. In a sentence like 43, with a 3-conjunct coordinate subject, SS is licensed independently of which of the conjuncts shows up as the subject of the adjacent clause. This is unexpected in a theory of partial agreement. HCA and CCA would give SS with Shukuvena and Nixiwaka, respectively, but SS with Shaya is unexpected under any known pattern of conjunct agreement. Here, 'resolution' would result in agreement with the index feature on the &P, which would give DS, independently of which DP is in the matrix clause.[9]

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[8]Unless the SR clause in this example reconstructs to a right-adjoining position for interpretation, in which case the first conjunct would be the hierarchically closest, and the second one would be the linearly closest.

[9]Karlos Arregi (p.c.) points out that this is not the only way to interpret their analysis: according to him, it can be implemented as always involving resolved agreement in cases of coordinated nominals. What he means by 'resolved agreement' is that the indices of all the conjuncts are in the root node of the coordinated DP, and one of them is copied by Agree, so that examples with coordination and SR don't involve HCA or CCA. If this is the case, he argues, A&H do not make the prediction I discuss below. This is true, but I believe this type of analysis makes another type of unwanted prediction, which also creates a disanalogy between Agree and patterns of partial coreference in SR. It is the following: if resolved Agree actually works this way, we would predict that in a sentence whose subject is the coordinated DP *Anna and John*, the probe on T could copy the feature set of just one of the DPs, which would be available at the root node. So we could end up with singular subject agreement like, **Anna and John is walking the dogs*, but that is unattested. Therefore, I believe that either way to interpret their analysis ends up creating a disanalogy to Agree.

(43) [Shukuvena yahi Shaya inũ Nixiwaka nuku-ashe], Shaya usha-i
S.NOM plus S.NOM and N.NOM arrive-SS.PFV.NOM S.NOM sleep-SS.IPFV.NOM
ka.
go.PFV
'When Shukuvena, Shaya and Nixiwaka arrived, Shaya went to sleep.'

It is important to note that DS is also an option in cases like 43. This non-obligatoriness of SS in itself is a typologically relevant fact, given that in North America, no languages surveyed by McKenzie (2015) are reported to have obligatory SS in partial co-reference cases [10]. Under a view of SR as discourse anaphora, SS is expected not to be obligatory in examples like these, given that one available antecedent for the matrix subject will always be the full &P, that is, the mereological sum of the referents in each conjunct, which will not corefer with any of the single conjuncts. If a speaker opts for the non-agreeing DS complementizer, the full &P will be interpreted as the relevant antecedent (see the detailed discussion in section 5.6.3).

Recall that Arregi and Hanink (2019)'s proposal puts forth two hypotheses to account for partial co-reference. The second one is that there are different entries for vocabulary insertion of the C head responsible for SR (Ikawa (forthcoming) has a similar view). It assumes that the value of [ID] is a set that contains a different index for every individual in its referent. According to this hypothesis, Agree copies the index sets from both subjects, and different set-theoretic relations are exponed by different vocabulary entries, as in 44.

(44) Alternative vocabulary entries for C

a. $[_{C}$ ID:x, ID:y$] \rightarrow$ š (where $x \neq y$)

b. $[_{C}$ ID:x, ID:y$] \rightarrow \emptyset$ (where $x \cap y \neq \emptyset$)

As they are defined, both of these vocabulary entries would be possible candidates to expone partial co-reference, since in these cases the ID sets from the subjects would be distinct – satisfying 44-a – but their intersection would be non-null – satisfying 44-b.

[10] Though they are claimed to exist in Papua New Guinea, as pointed out by Arregi and Hanink (2019), c.f. (Roberts, 2017)

Arregi and Hanink (2019) propose that in such cases, either exponent can be inserted in C.

The authors note that this hypothesis would allow for a cross-linguistic picture in which obligatory DS or SS could obtain in partial co-reference cases. That would simply require setting the default vocabulary item to SS or DS: for languages in which SS is obligatory in partial coreference cases, 44-a would be defined and SS would be the elsewhere form; conversely, for languages in which DS is obligatory in partial coreference cases, 44-b would be defined and DS would be the elsewhere form.

Arregi and Hanink (2019) note a possible overgeneration problem with this hypothesis, since they are skeptical that languages in which SS is obligatory with partial co-reference actually exist (vs. Roberts 2017). I believe there is an additional overgeneration problem with this analysis that the authors do not address. It is the prediction that examples like 45-a from Yawanawa and 45-b from Mbyá Guarani will (possibly or obligatorily) have SS, contrary to fact. Only DS is possible in both languages in such cases of 'overlapping reference'.

(45) a. [Mã Shukuvena yahi **Nixiwaka** nuku-a-nũ] **Nixiwaka** yahi
already Shukuvena.NOM plus Nixiwaka.NOM arrive-PFV-DS Nixiwaka.NOM plus
Shaya usha-i hu-a-hu. (*nuku-ashe)
Shaya.NOM sleep-SS.IPFV.NOM go.PL-PFV-3PL arrive-SS.PFV.NOM
'When Shukuvena and Nixiwaka arrived, Nixiwaka and Shaya went to sleep.'

b. Mbyá (Tupi-Guarani; Thomas 2019)

[**Maria** ha'upei Pedro o-vaẽ rã/*vy] Juan ha'upei **Maria** o-mo-potĩ oo.
Maria and Pedro A3-arrive DS/SS Juan and Maria A3-Cs-clean house
'When Maria and Pedro arrived, Juan and Maria cleaned the house.'

Thomas (2019) argues that in sentences like these, the possible antecedents within the SR clause are each of the conjuncts in the coordinate DP – Shukuvena or Nixiwaka in 45-a, Maria or Pedro in 45-b – as well as their sum. And none of these has a referent that is identical to the matrix subject on the right clause – the sum of Nixiwaka and Shaya in 45-a and the sum of Juan and Maria in 45-b.

Therefore these facts suggest that for SS to be licensed, the subject in the second

clause (here, the matrix clause) must be identical in reference to one antecedent made available by the subject in the first clause (here, the switch-reference clause). However, examples like the ones in 46 show that this analysis is in fact too restrictive. In 46-a we have the subject *nã rave*, 'the two', in the matrix clause being coconstrued by means of SS with antecedents disjointly introduced by the subject *and the object* in the SS clause. That is, the anaphoric element is able to make reference to two antecedents that are salient in discourse, independently of their syntactic function. Even more strikingly, 46-b allows one of the disjoint antecedents linked by SS to be in a separate sentence, uttered by a different speaker.

(46) a. [Txini-mã yume ushã-pa[i]-i sai-hia-**i**]
Txini.ERG younger.sibling sleep.TR-DES-SS.IPFV.NOM sing-CONC-SS.IPFV.NOM
nã rave usha-hu.
DEM.PROX 2 sleep-PL
'Txini was singing (willing) to make her baby sister sleep, but instead, the two of them fell asleep.'

b. A: Awea-mẽ Shukuvenã nayametã wa-xĩa?
what-INT Shukuvena.ERG last.night do-PST.NT

B: Shaya u-**shũ** nã rave-tã yuma pi-xĩa-hu.
S.NOM come-SS.PFV.ERG DEM.PROX 2-ERG fish eat-PST.NT-3PL
'A: –What did Shukuvena do last night? B: –Shaya came over and the two of them ate some fish.'

So once we compute these patterns all together, what do they tell us about Arregi and Hanink (2019)'s theory of partial coreference? While their second hypothesis, in 44, could explain why SS is licensed in 46, – assuming that the subject 'the two of them' in the matrix clause of each sentence has two indices – neither of their hypotheses can predict the obligatoriness of DS in 45. In addition, even though they propose parameters that would account for obligatory DS or obligatory SS across languages, this does not capture the fact that within the same language DS or SS may be obligatory in certain partial coreference constructions and optional in others.

In contrast, consider Thomas (2019)'s proposal that an anaphoric element can be

coconstrued by means of SS with a previously introduced referent that is *salient* in discourse. This view seems to be on the right track, with one additional property coming from the data here: the salient discourse referents may be introduced separately in previous discourse. So this means that the right-clause subject is anaphoric to a left-clause subject *plus* potentially other salient referents. Note that this type of anaphora with split antecedents is crosslinguistically common in non-SR languages: the English analogues of the Yawanawa sentences in 46, for instance, have a pronoun that refers to antecedents introduced separately in the discourse. This supports my view of SR as anaphora in a couple of ways. First, it shows that the types of anaphoric relations expressed are the ones made available by UG; and secondly, it shows that there is an important role played by semantics in calculating what the available salient antecedents are for a given nominal expression: syntax (and morphology) alone would not be able to do the job.

Note however, that this view raises an issue for examples like 45, because it is not immediately clear that DS should be obligatory in these cases. The issue is that in 45-a, *Shaya* could potentially be salient in discourse, and the same is true about *Juan* in 45-b. So we would expect SS to be possible in these cases as well. 47 provides an answer: if *Shaya* is a salient antecedent, the same sentence we had in 45-a becomes acceptable with SS.

(47) Shaya atsana-i. [Mã Shukuvena yahi Nixiwaka nuku-**ashe**] Nixiwaka
Sha.NOM be.tired-IPFV already Shu.NOM plus N.NOM arrive-PFV-DS N.NOM
yahi Shaya usha-i hu-a-hu.
plus Sha.NOM sleep-SS.IPFV.NOM go.PL-PFV-3PL
'Shaya is tired. When Shukuvena and Nixiwaka arrived, Nixiwaka and Shaya went to sleep.'

If we shift focus to other types of superset-subset relations, Thomas (2019)'s argument for the role of salience in anaphora continues to be relevant. The contrast he highlights between the Mbyá Guarani sentences in 48 and 49 shows that theories ascribing set-theoretic relations to SS morphemes do not go far. This means that whileArregi

and Hanink (2019)'s second hypothesis (in 44), is able to explain why SS is licensed in 48, it cannot explain why SS is *not* licensed in 49.

(48) Mbyá (Tupi-Guarani; Thomas 2019)

Juan ha'upei Maria o-vaẽ vy/*rã Juan o-mo-potĩ oo.
Juan and Maria a3-arrive SS/DS Juan a3-caus-clean house
'When Juan and Maria arrived, Juan cleaned the house.'

(49) Context: A drunk *jurua* (non-indigenous person) caused trouble in the Guaraní village. Juan is one of the villagers who frequently represents the village in negotiations with *jurua* authorities.

I-pochy rã/*vy tekoapygua kuery, Juan i-jayvu ta policia pe.
B3-angry DS/SS villager PL Juan B3-talk PROSP police DOM
'Since the villagers are angry, Juan will talk to the police.'

The contrast between these two sentences is important because in both cases, a superset subject in the first clause is connected by means of SR marking to a subset subject in the second. However, SS is only licensed in 48, which according to Thomas (2019), makes an antecedent salient enough to be picked up. Even though Juan is one of the villagers in 49, the definite description does not make him available as an antecedent and as a consequence, SS is not licensed.

50 shows that the same pattern is attested in Yawanawa, supporting Thomas (2019)'s claim that salience of an antecedent plays a role in the licensing of SS in partial co-reference cases. Here, the (morphologically unmarked) definite DP *yurahu* does not make the chief a salient antecedent, and as such, SS cannot be licensed.

(50) Yura-hu nutsi-ai-**nũ** shaneihãu governador yui-misi. (*nutsi-kĩ)
relative-PL angry-IPFV-DS chief.ERG governor tell-HAB angry-SS.IPFV.ERG
'When the relatives (the villagers, including the chief) get angry, the chief always tells the governor.'

Both hypotheses put forth by Arregi and Hanink (2019) would make the wrong predictions in this case. Assuming as they do that the value of the index feature [ID] in plural DPs has one index for each individual in its referent, both hypotheses would predict that the index referent to Juan and the chief would be available to the C probe in 49 and 50 respectively. As such, SS should be licensed, contrary to fact.[11]

5.6.2 Nevins & van Urk (2020)

Another recent agreement-based account of partial coreference in SR is that of Nevins and van Urk (2020). The authors assume the view that SR probes collect ID-features from the arguments they Agree with (c.f. Arregi and Hanink 2019; Clem 2019) and propose that the directionality of Agree – the fact that downward Agree precedes upward Agree derivationally – accounts for two generalizations found in the SR literature about partial co-reference facts. The first they call Wiesemann's generalization, or "the subset asymmetry" (Wiesemann, 1982; Stirling, 1993), and it states the following:

(51) The subset asymmetry (Wiesemann 1982's generalization)

> Some languages permit SS only when the main clause subject is a subset of the dependent clause subject, but no language permits SS *only* when the main clause subject is a superset of the dependent subject.

The second is what Nevins and van Urk (2020) call 'the person asymmetry'. It states that some languages permit SS in instances of partial co-reference only when the two nominals match in person, but no SR system is sensitive to matching in number or gender only.

How can the directionality of Agree account for these generalizations in their view? They introduce the 'redundancy parameter', given below, which prohibits copying of a

[11] Mark Baker (p.c.) points out that a possible way to interpret A&H's account is to assume that the value of the index feature [ID] in plural DPs has one index for each *salient* individual in its referent. With this change, their account could explain the unacceptability of 50, but it would still leave the examples in 45 and 46 unexplained.

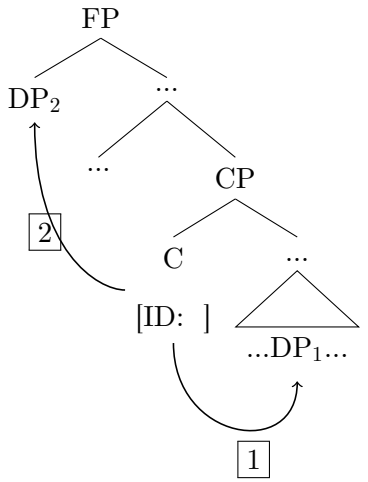
feature if it represents a subset of a value already present on the probe:

(52) Redundancy parameter (Nevins and van Urk, 2020)

A probe P will not copy a feature F:val if that value is a subset of a value for F already present on P.

As such, in a SR configuration such as 53, C will copy values from DP_1 in step 1 of the derivation (downward probing), and it will fail to copy the values for the same features from DP_2 in step 2. So, if DP_1 is a superset of DP_2, then the proposal predicts that the ID-probe will fail to copy in step 2 the ID-features that were already copied in step 1. Conversely, if DP_1 is a subset of DP_2, then step 2 of the derivation will copy additional ID-features that were not copied in step 1, leading to a possible feature conflict. As such, the ID-probe will fail to copy features in step 2 only in configurations in which DP_1 – that is, the subject of the SR clause – is a superset of DP_2 – the subject of the matrix clause.

(53)



Since Nevins and van Urk (2020) assume Arregi and Hanink (2019)'s view that DS is the exponence of a [ID] feature conflict, then they predict that no DS marking will arise in configurations where the matrix clause subject is the subset. The authors make this a parameter because it must be absent in languages such as Washo, where

no subset/superset asymmetry is observed. As discussed around examples 41 and 42, both SS and DS are licensed in partial co-reference examples in Washo.

A simpler way to describe this is the following: C probes down into its own clause first, so if the superset is in it, the upward step of Agree will not copy redundant features from the matrix subject. This proposal makes very clear predictions that contrast with my view of SR as anaphora. One prediction it makes is that independently of the linear order between SR and matrix clauses, the generalization will hold, since the directionality of Agree is kept constant: probe down into the SR clause first, then up into the matrix clause.

An initial problem I see with this proposal is that it makes a strong prediction that in languages with the Redundancy Parameter, SS will be obligatory in partial coreference cases in which the main clause subject is the subset. This is at odds both with Wiesemann's generalization and with cross-linguistic data. The generalization states that SS is *permitted* in these cases, not that is it obligatory. There is also nothing in the generalization that says SS is *not* permitted when the main clause subject is the superset: it simply states that there are no languages in which SS is used *only* in these cases (in addition to cases in which the subjects are identical, of course). In other words, the categorical nature of the syntactic approach they propose does not match the non-categorical nature of the generalization. In addition, whether or not languages with obligatory SS in partial coreference cases even exist is an open question, as highlighted by Arregi and Hanink (2019). They are unattested in McKenzie (2015)'s survey of North American languages, and despite being claimed to exist in Papua New Guinea (c.f. Roberts 2017), the fact is disputed in the absence of negative evidence and exhaustive paradigms (Arregi and Hanink, 2019; Roberts, 1987; Bruce, 1984). In contrast, Nevins and van Urk (2020)'s proposal makes the prediction that SS should be obligatory for partial co-reference cases in every language with the Redundancy Parameter.

Another problem I see with Nevins and van Urk (2020)'s proposal is that it does not account for the SS/DS optionality of partial co-reference in languages like Washo. It may account for languages that fit Wiesemann's generalization (if we gloss over the

obligatoriness of SS), but it does not have much to say about the ones that do not: in fact, it predicts that DS should be obligatory in those, since the multiple Agree mechanism will necessarily lead to feature conflict.

Yawanawa is another instance of a language in which either SS or DS may be licensed in partial co-reference cases like 54. Note that not only is there 'optionality', but also that SS in 54-a is used in a (spontaneously produced) sentence where the main clause subject is the superset.

(54) a. [Ẽ Txini nuku-hãin-**i**] nũ ka.
1SG.ERG Txini meet-GO.PL-SS.IPFV.NOM 1PL.NOM go.PFV
'As I met Txini, we (I+Txini) left'

b. [Ẽ Txini nuku-a-**nũ**] nũ ka.
1SG.ERG Txini meet-PFV-DS 1PL.NOM go.PFV
'When I met Txini, we (I+Txini) left'

Again, what this seems to show is that the categorical nature of the syntactic approach Nevins and van Urk (2020) propose does not match the non-categorical nature of the data. In contrast, an SS-as-anaphora approach can explain the data in 54: SS is possible, as in 54-a, because there are two salient discourse referents that can be coconstrued with the plural pronoun *nũ*, and one of them is the embedded subject. DS is also possible, as in 54-b, conveying the interpretation that each singular discourse referent disjointly introduced does not correspond to the exact referent of the plural anaphoric element.

The second generalization that Nevins and van Urk (2020) attempt to account for is the so called 'person asymmetry'. It states that some languages permit SS in instances of partial co-reference only when the two nominals match in person, but no SR system is sensitive to matching in number/gender only.

Their agreement-based proposal of partial coreference involves the idea that the person probe is lower than the number probe (c.f. Preminger 2011; Coon and Keine 2020), so that person features are accessed before number (and gender) in an Agree operation. When a SR ID-probe is merged with ϕ probes, this hierarchy of features is

respected. This gives three typological possibilities according to Nevins and van Urk (2020):

1. Pure ID-probe: no ϕ-featural sensitivity (observed in: Washo, Yankunytjatjara)
2. ID-probe with person: a conflict in person also gives rise to DS (observed in: Kĩsêdjê, Kewa, Kobon)
3. ID-probe with person and number: a conflict in any feature gives rise to DS (observed in: Hua)

There is certainly an interesting asymmetry regarding person features in Yawanawa, which suggests that the language fits into the 'person asymmetry generalization'. It is illustrated by the contrast in 55: SS is only possible in the configuration in 55-b – superset 1PL → subset – when person features match. 55-a shows that DS is possible independently of the features involved.

(55) a. [Nũ ka-[a]i-**nũ**] ẽ / Txini sai[k]-kãin-a.
1PL go-IPFV-DS 1SG.NOM / Txini.NOM sing-GO.SG-PFV
'As we were going, I/Txini was singing.'

b. [Nũ ka-**i**] ẽ / *Txini sai[k]-kãin-a.
1PL go-SS.IPFV.NOM 1SG.NOM / Txini.NOM sing-GO.SG-PFV
'As we were going, I/*Txini was singing.'

From the perspective of SR as anaphora, this asymmetry could be due to the fact that a first person plural pronoun necessarily makes first person singular salient, since "we" necessarily = "I+other(s)". As such, SS is expected between a first person plural and a first person singular subjects. However, "we" does not make *Txini* salient, so only DS is expected if *Txini* is the matrix subject in 55-b. One way to test if this hypothesis is actually on the right track is to evaluate these sentences in a larger context. It turns out that the asymmetry observed in 55 disappears if the discourse referent *Txini* is previously introduced into the discourse context, as shown in 56.

(56) Txini sai-misi. [Nũ ka-**i**] Txini sai[k]-kãin-a.
Txini.NOM sing-HAB 1PL go-SS.IPFV.NOM Txini.NOM sing-GO.SG-PFV
'Txini always sings. We were going and Txini was singing.'

This suggests that SR is sensitive to discourse referents in a way that purely syntactic approaches cannot capture. In fact, attempting to analyze Yawanawa data in light of Nevins and van Urk (2020)'s two syntactic proposals leads to a conundrum. In sentences such as the ones in 55, C would probe down into its clause and find the first-person plural subject. Then, it would probe up and find the first-person singular subject – a subset of the first. If Yawanawa were a language with an active Redundancy Parameter, then the matrix subject's ID would not be copied at all, so no feature clash would arise and *only* SS would be licensed. But we saw evidence above that there is optionality between SS and DS in Yawanawa partial co-reference cases, suggesting that the parameter cannot be active. So, if Yawanawa is a language with an inactive Redundancy Parameter, then the ID feature of the matrix subject would be copied onto C in cases such as 55. As such, the ID features C has collected do not match and we predict DS. There is no way to predict 55-b, which has SS. What is most relevant here is that neither scenario predicts the SS/DS optionality observed in the empirical data (I will discuss this optionality in section 5.6.3).

So what *does* the person asymmetry tell us about the nature of SR? Let us first consider cases of anaphora involving singular entities, like in the sentence, 'When Selen$_i$ got home from yoga, she$_i$ immediately took a shower.' It is clear and well understood why the anaphoric pronoun *she* here must match in person (and also number and gender) with the antecedent *Selen*. The ϕ-features on the pronoun are presuppositions on the reference of its antecedent, and as such, anaphor and antecedent must be ϕ-compatible. Otherwise, we end up with a scenario of presupposition failure. The same is true of anaphora involving plural entities, only with more possibilities given the plurality of possible antecedents. As previously discussed, Thomas (2019) analyzes this in terms of salience: a sentence such as 'When Maria and Juan arrive, he/she/they will make dinner' will allow for all three anaphoric pronouns in the matrix clause because of the available antecedents that are salient in discourse, namely: Maria, Juan, and their

sum. So if English were a SR language, it would not be hard to imagine why both SS and DS could be licensed in this sentence: it has a much wider range of combinatorial possibilities between antecedent and anaphoric pronoun. In summary, the idea is that ϕ-feature matching is a well known property of discourse anaphoric relations, which does not necessarily involve Agree (c.f. Kratzer 2009; Safir 2014).

We should still be able to explain why there is variation between languages regarding whether or not SS pivots need to match in person features. I present the contrast between 57 and 58 to add to Nevins and van Urk (2020)'s brief typology above. While Mbyá requires person-matching to obtain between SS pivots, Huichol does not. The contrast between these two languages is especially relevant because they both have first person plural pronouns that are morphologically specified for clusivity. Since this 1PL.INCL pronoun is introduced in the first clause, we expect a second person singular antecedent to be salient enough in discourse to license SS. However, this is only true in Huichol; in Mbyá person-matching is necessary to license SS.

(57) Mbyá (Tupi-Guarani; Thomas 2019)

Nhande nha-vaẽ rã/*vy re-mo-potĩ ta oo.
we.INCL A1.PL.INCL-arrive DS/SS A2.SG-CAUS-CLEAN PROSP house
'When we[INCL] arrive, you[SG] will clean the house.'

(58) Huichol (Uto-Aztecan; Comrie 1983, p. 26)

[tame te-haataʔazɨa-ka] ʔeekɨ pe-petɨa.
we 1PL.INCL-arrive-SS you 2SG-leave
'When we[INCL] arrived, you[SG] left.'

The fact that such variation exists in the requirement for person-feature matching between SS pivots is intriguing. On the one hand, it suggests that there could be a parameter at play, which is active in certain languages but not others. On the other hand, if this were the case, we would expect the languages in which the parameter is not active *not* to require feature matching in general between an anaphoric element and its antecedent, which is unlikely. I leave this question open for future research:

since there is no reason to believe that the syntax and/or semantics of SR differs from Mbyá to Huichol, could the person asymmetry in SR be due to an active parameter, according to which if the feature content of the SR pivots mismatch, a derivation with a SS morpheme will crash? Or is this asymmetry related to a crosslinguistic difference in the type of antecedents that a given pronoun can make salient in discourse? I am unable to test my hypotheses in Yawanawa, since the language does not have an inclusive vs. exclusive distinction in its first person plural pronouns, but the question is certainly relevant.

There is another natural question that arises in light of the arguments I develop in this section: if reducing partial coreference to agreement is not the right way to look at partial co-reference, then why is it even possible to have a generalization such as that of Wiesemann's? First of all, it is important to point once again to the non-categorical nature of the generalization. The fact that "no language permits SS *only* when the main clause is a superset of the dependent subject" does not mean they do not permit it at all. And most of all, *permitting* certainly does not mean *requiring*, so this is a tendency observed in some languages, not a rule.

I argue that the reason it is even possible to make such a generalization is because the majority of the SR sentences found in the literature have the SS clause – containing the superset subject – preceding the matrix clause. In a view of SR as (discourse) anaphora, the superset subject coming first makes multiple antecedents available to the subset subject, as discussed above (each individual member of the set, as well as their sum). While this order of clauses will remain constant in languages where SR is found in coordinate constructions (e.g. Kĩsêdjê; c.f. Nonato 2014, 2018), it can vary in languages where SR is found in adverbial clauses, since these have different adjunction site possibilities (see section 5.5). The issue with the generalization is that it is based on the assumption that what matters for partial coreference cases is only whether the subset is found in the SR clause or in the matrix clause. I am arguing that an important aspect to consider is whether the superset is in a structural position that grammatically allows it to be the antecedent of the subset, i.e. to the left of it. So asking the right question involves a lot of careful work with structures, beginning by separating

languages in which SR is licensed in coordinate vs. adjunct vs. complementation structures. Once we start comparing apples to apples, I believe that the crosslinguistic picture will look much less messy and random. I explore this in the next section.

5.6.3 Partial coreference as discourse anaphora

It is probably clear by now that regarding partial co-reference, the predictions made by a theory of SR as discourse anaphora are quite different from theories that attempt to reduce all of SR to agreement. My proposal is that in syntax, Agree-link simply points to the two arguments standing in the SS (or OS) relation and the links inform the other modules of grammar that there is an anaphoric relation between the two arguments. Semantics will evaluate the nominal expressions involved and determine whether or not the indicated anaphoric relation is possible, given the available antecedents. If no antecedent is found for the anaphoric element, for instance, or if the available antecedents are all different from the pointed-to anaphoric element, the derivation will crash. Morphology, in turn, will simply expone the SS (or OS) morpheme indicating the existence of an anaphoric relation, as instructed by syntax. This module of grammar does not have access to indices and has no voice in how coconstruals are established, in my view.

The anaphoric relation that will be established in cases of partial coreference is not one of binding, but rather one of coreference. I have discussed informally that in dynamic semantic accounts, the context that is outputted by one sentence or clause becomes the input to the next. This mechanism, which will be described in detail in section 5.7, allows for anaphoric expressions to pick up referents that have been previously introduced in discourse. For instance, the first time reference is made to Shukuvena in a given text, this individual will be added to the context, linked to a certain index, e.g. [1 $\rightarrow$ Shukuvena]. As long as this referent is still salient[12], it is possible to make anaphoric reference to it by means of a coindexed pronoun – pro_1, if this is a Yawanawa text, he_1 if it is an English text.

[12] I use the term 'salient' informally here, meaning that a discourse referent has been introduced recently enough in discourse.

Proper nouns have dual function: besides introducing new referents in discourse, they can also anaphorically pick up previously introduced referents. So in a sentence like 43, copied here as 59-a and 59-b, the first clause introduces 4 discourse referents – [1 → Shukuvena, 2 → Shaya, 3 → Nixiwaka, 4 → Shu⊕Sha⊕Nixi] – and the second clause can make anaphoric reference to any of them, licensing SS.

(59) a. [Shukuvena[1] yahi Shaya[2] inũ Nixiwaka[3]][4] nuku-ashe, Shu$_1$/ Sha$_2$/ Nixi$_3$ usha-i ka.
Shu.NOM plus Sha.NOM and N.NOM arrive-SS.PFV.NOM Shu/ Sha/ Nixi.NOM sleep-SS.IPFV.NOM go.PFV
'When Shukuvena, Shaya and Nixiwaka arrived, Shukuvena/ Shaya/ Nixiwaka went to sleep.'

b. [Shukuvena[1] yahi Shaya[2] inũ Nixiwaka[3]][4] nuku-ashe, *pro*$_4$ usha-i hu-a-hu.
Shu.NOM plus Sha.NOM and N.NOM arrive-SS.PFV.NOM sleep-SS.IPFV.NOM go.PL-PFV-3PL
'When Shukuvena, Shaya and Nixiwaka arrived, they went to sleep.'

A relevant observation is that DS is also possible in 59-a. This bring us to the important question of why in all these cases of partial coreference, we see optionality between SS and DS. This may initially look at odds with my claim that DS interpretations come about by pragmatic blocking, so let us take a moment to clarify what this means. Recall that SS and OS interpretations come about by the orchestration of functional heads containing ϕ probes and affix features that trigger head movement and fusion. The heads involved in DS constructions, in contrast, do not have the ϕ probes and affix features: DS is a default clause type in my account. Recall that as default, DS clauses do not actually have a 'different subject' meaning: they are only interpreted as such because the more specific SS and OS forms are available to convey anaphoric relations.

Partial coreference cases are not much different: if a speaker uses DS instead of SS and OS, they are conveying a specific meaning (which is pragmatically calculated). This meaning is that there is no referential dependency between the arguments of two

clauses. In a sentence like 59-a therefore, if a speaker chooses to employ DS rather than SS, the meaning they convey is that the discourse referent retrieved by the subject of the second clause differs from that retrieved by the subject of the first clause. As such, the hearer infers that they must be referring to discourse referent 4 in the first clause, for instance, not discourse referent 1. Because all four discourse referents are made available, the speaker may choose to highlight the anaphoric relation by using SS or not highlight it, by using the default form. As such, we still get the pragmatic blocking effect here if DS is used.

Now 59-b differs from 59-a because it has plural morphology on the matrix verb. This suggests that the only unambiguous reference Yawanawa's featureless *pro* can pick up is that of the sum of the atomic elements of the plurality (4). I suggest that this has a morphological explanation. Yawanawa pronouns differ from English ones in that they are not morphologically specified for gender. As such, the English equivalent of 59 can make anaphoric reference to each of the antecedents introduced in the first clause using pronouns – as shown in 60 (previously 25) – but the Yawanawa sentence cannot.

(60) As [Sonia^1 and Adam^2]^3 reached the base of the mountain, she$_1$/he$_2$/they$_3$ started climbing.

So the reason why Yawanawa and other SR languages cannot express partial co-reference cases with pronouns like English is probably not a very deep one. Having *pro* in an example like 59-b will only allow for a reading in which the antecedent is the plural DP because a singular interpretation of *pro* – with singular rather than plural agreement on the verb – would lead to an infelicitous reading analogous to that of 61: the sentence is not ungrammatical, but since the pronoun has two potential antecedents that are salient and have matching ϕ features, it is fatally underdetermined.

(61) #As Sonia and Arcadia reached the base of the mountain, she started climbing.

So, both in English and in Yawanawa, the issue seems to boil down to pragmatic competition between the morphological forms available: a speaker will choose to employ

the proper name anaphorically whenever the pronoun choices that the language makes available leads to an infelicitously underdetermined interpretation of the sentence.

Recall that there is some cross-linguistic variation regarding which SR morpheme gets exponed in this kind of construction: it is an open question whether or not there are languages in which *only* SS is possible in cases of partial co-reference (see section 5.6). Mbyá might be one of these, but it is not clear from Thomas (2019). More common are languages like Yawanawa and Washo, which may have either SS or DS with partial co-reference cases. In 62, from Washo (previously 41), both *Adele* and *Emily* in the first clause are available antecedents to the second clause's subject *Emily*, so SS is expected. And because the sum of Adele⊕Emily is also an available antecedent, then DS is also expected, since Emily ≠ Adele⊕Emily.

(62) [Adele[1] ida Emily[2]][3] wagayáy-aʔ-{š,∅} Emily$_2$ bašáʔ-i.
Adele and Emily 3.talk-DEP-{DS,SS} Emily 3.write-IND
'Emily is writing while Adele and Emily are talking.'

In general, since these coordinated DPs introduce referents for each of the conjuncts as well as for their sum, there are two potential antecedents for the proper name in the second clause and the optionality of SS and DS marking reflects that. Again, I do not believe that the explanation for the difference between Yawanawa and Washo, on the one hand, and Mbyá, on the other, is very deep (if there is even a difference in fact): the availability of multiple possible antecedents is compatible with the SS/DS optionality. Mbyá morphology might be simply exponing a (speaker?) preference for SS marking in the presence of a salient antecedent. This, of course, is an empirical question that will remain open for now: how does the salience of a discourse referent affect a speaker's choice of SS vs. DS in 'optional' cases?

Example 42 (copied here as the two sentences in 63) also illustrates the idea that because coordinated DPs introduce multiple referents, they can often give rise to either SS or DS. An additional challenge it poses, however, is that it has the subset subject *Emily* in the left clause, such that when the superset subject is introduced in the second clause, *Adele* might still not be an available discourse referent. Still, SS is possible. So

why is this the case? There are two possible explanations, I believe. One is to consider the flexibility in the adjunction site of adverbial clauses (see section 5.5), such that it is possible that the surface order of the clauses is derived from an underlying structure in which the SR clause is right-adjoined, illustrated in 64. Here, the plural DP introduces 3 referents into context and one of them, *Emily*, is picked up by a subsequent DP in the following clause. So either SS or DS would be possible, according to the discussions above. The other possibility is that the surface order of sentence 63 indeed reflects its reconstructed structure, in which case the DP *Adele* is simply picking up a referent which has already been introduced in previous discourse (or is available in the real-world context).

(63) Emily$_2$ gé:gel-aʔ-{š,∅} Adele$_1$ ida Emily$_2$ wagayáy-i.
Emily 3.sit-{DS,SS} Adele and Emily 3.talk-IND
'Adele and Emily are talking while Emily is sitting.'

(64) [Adele^1 ida Emily^2]^3 wagayáy-i Emily$_2$ gé:gel-aʔ-{š,∅}
Adele and Emily 3.talk-IND Emily 3.sit-{DS,SS}

Now the examples in 65 (previously 46) may look more puzzling at first sight, but in reality, are not more challenging for a view of SR as anaphora than the examples just discussed: Agree-link points to two DPs in syntax – the subjects in matrix and SS clauses – indicating that there is an anaphoric relation between them. Then, it is up to semantics to determine if the contextual antecedents available allow for the indicated relation. In both sentences, they do: *nã rave*, 'the two of them' is syntactically linked to the subject *Txini* in 65-a, and is therefore able to pick it up as an antecedent, along with the salient discourse referent *yume*. Similarly, in 65-b, the anaphoric expression picks up the subject it is syntactically linked to, plus an additional salient discourse referent.

(65) a. Txini-mã yume ushã-pa(i)-i sai-hia-**i**,
Txini-ERG younger.sibling sleep.TR-DES-SS.IPFV.NOM sing-CONC-SS.IPFV.NOM
nã rave usha-hu.
DEM.PROX 2 sleep-PL

'Txini was singing (willing) to make her baby sister sleep, but instead, the two of them fell asleep.'

b. A: Awea-mẽ Shukuvenã nayametã wa-xĩa?
what-INT Shukuvena.ERG last.night do-PST.NT

B: Shaya u-**shũ**, nã rave-tã yuma pi-xĩa-hu.
Sha.NOM come-SS.PFV.ERG DEM.PROX 2-ERG fish eat-PST.NT-3PL
'A: – What did Shukuvena do last night? B: – Shaya came over and the two of them ate some fish.'

As such, these examples very much parallel the anaphoric link licensed in analogous sentences of English, as shown in66, though of course, English lacks the syntactic component of SS/OS. The anaphoric element in 66-a for instance, is in matrix object position and would not license SR even if this was an SR language[13]. Again, this supports my view that what is special about SR languages is that they choose to morphosyntactically expone certain cross-clausal anaphoric relations, not that they express relations that are unique or otherwise unattested.

(66) a. When Hazel was singing to her little sister, I watched the two of them fall asleep.

b. A: What was Sam doing last night? B: Arcadia came over and they/the two of them had some sushi.

In summary, this section has discussed partial co-reference data from multiple languages, closely analyzing two recent syntactic proposals that try to account for the phenomenon: Arregi and Hanink (2019) and Nevins and van Urk (2020). I showed that Arregi and Hanink (2019)'s proposal is weakened by the disanalogy to partial Agree and by the mistaken predictions in cases of inclusive/overlapping reference. Regarding Nevins and van Urk (2020), I argued that the categorical predictions made by their syntactic proposal do not match the non-categorical nature of the partial co-reference

[13]But see Clem (2019) for the argument that the Panoan language Amahuaca does in fact expone SR relations involving matrix objects.

data. I proposed that a view of SR as anaphora makes predictions that more closely match the data, and posed a number of questions to guide future investigations. In the next section I sketch a proposal of how the semantic module assigns interpretations to SR structures.

5.7 The interpretation of SR as anaphora

5.7.1 Not all coconstruals are born equal

I have been discussing evidence from multiple sources to support a view of SR as anaphora. According to my proposal, syntax points to the pivots to be coconstrued in a SS or OS construction, and semantics is responsible for interpretation, given the structure it receives from syntax. As such, whether the coconstrual comes down to syntactic or semantic binding, or merely coreference, will depend on the syntactic structure — whether or not there's c-command between the nominals involved — and the nominal types of the pivots — what kind of anaphoric relation they can express to each other given a certain structure. If an anaphoric relation is possible, semantics will assign an interpretation to the structure, if not, the derivation will crash.

Therefore when it comes to interpretation, my proposal expands on that of Baker and Camargo Souza (2020): while we propose in that paper that all SS and OS relations translate into variable binding in semantics, I take a much broader approach here. By discussing patterns of anaphora to sets, partial coreference, and SS/OS in complementation constructions throughout this dissertation, I have amassed large amounts of data to support the view that there are multiple ways for the semantic module to achieve anaphoric interpretations in SS and OS constructions. Bound variable anaphora is only one of them.

The basic idea is that SS and OS marking map to different types of coconstrual between pivots, according to what can possibly be achieved by the semantic module, given a certain structure. As such, the basic tenet of my view is that SR conveys multiple types of nominal coconstrual, all of which are independently made available by UG. As such, what is special about SR languages is that they choose to morphosyntactically

expone certain inter-clausal anaphoric relations, not that they allow for exotic or otherwise unattested forms of anaphora. What I intend to do in this section, therefore, is to lay out my assumptions about the semantic component of grammar and sketch an account for the patterns of anaphora observed in SR constructions, given Agree without Agreement. I do not intend to provide a full semantic account of all the patterns of anaphora discussed here, but rather a general perspective on what the patterns suggest about the nature of SR. One general question that my account poses, for instance, is whether 'coconstrual' can be understood as a type of natural class of phenomena: Safir (2004) introduces it simply as a descriptive term to indicate that two nominal expressions point to the same referent, but SR systems seem to group binding and coreference phenomena under the same category, as I have been discussing. In addition, I have argued that 'salience' of an antecedent plays a role in SR grammar, but I have been using the term informally and will continue to do so throughout this section. Therefore, as this section begins to weave together the threads necessary for a full account of SR as anaphora, it also acknowledges the questions that are left unanswered.

Recall my proposal that surviving Agree-links that are passed on to the semantic module are interpretable. Let us begin therefore by proposing how this interpretation obtains. In other words, there must be a mapping between Agree-link pointers in syntax and elements that the semantic module is able to interpret. I argue that 67 from Baker and Camargo Souza (2020) does the job:

(67) A head H bearing pointers to two DPs, α and β, is equivalent to the feature sets of α and β both containing instances of the same numerical index.

This is minimally different from saying that α and β have *the same* numerical index, which is relevant to include partial coreference cases. Other than this, I argue, there is nothing more to be said that is specific to SR coconstruals: it all comes down to the semantic module interpreting possible anaphoric relations between nominal expressions. I develop and support this claim in what follows. My main focus will be on the SS/OS constructions in which binding obtains in the absence of c-command between the pivots:

the challenging (a) examples of the paradigms discussed in section 5.5, in which the SS-clause is left-adjoined. Before moving on to that, however, let us say a few words about bound variable interpretations.

I showed in section 5.5 that with the exception of the (a) examples in the clausal ordering paradigms of adjunct SS and OS – repeated in 68 – pivots stand in a c-command (or precede-&-command) relation, such that syntactic binding obtains in those constructions.

(68) a. [Shukuvena nuku-ashe] *pro* tsau-a.
Shukuvena arrive-SS.PFV.NOM sit-PFV

b. [*pro* nuku-ashe] Shukuvena tsau-a.
arrive-SS.PFV.NOM Shukuvena sit-PFV

c. Shukuvena tsau-a, [*pro* nuku-ashe].
Shukuvena sit-PFV arrive-SS.PFV.NOM
'When/After Shukuvena arrived, he sat down.'

d. **pro* tsau-a, [Shukuvena nuku-ashe].
sit-PFV Shukuvena arrive-SS.PFV.NOM

So how does the semantic module 'know' when to interpret SS constructions as bound variable anaphora, or coreference? A rule like 69, from Grodzinsky and Reinhart (1993) provides a general principle: favor bound variable anaphora as the form of coconstrual whenever it is possible.

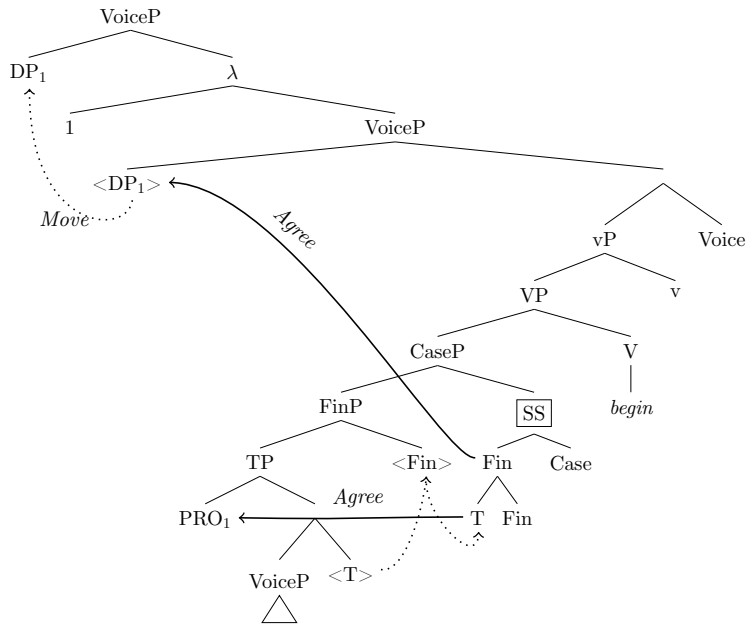
(69) NP A cannot corefer with NP B if replacing A with C, C a variable A-bound by B, yields an indistinguishable interpretation. (Grodzinsky and Reinhart, 1993)

Assuming with Chomsky (1981) that X binds Y if X c-commands Y and X and Y are coindexed, bound variable readings will be achieved in SS and OS constructions in which: (1) there is a c-command relation between the pivots, and (2) the nominal types of the pivots are such that coindexation can be achieved without infringing the rules of the Binding Theory. As I have shown throughout this dissertation, complementation

constructions involving SR receive bound variable interpretations: the raising and control constructions discussed in chapter 4, both in Panoan and Yuman languages, as well as the complement and relative clauses of Washo and Choctaw (Arregi and Hanink, 2019; Broadwell, 2006). In raising constructions, the higher copy of the DP A-binds the lower copy (or trace); in control constructions the higher DP binds PRO in the SS clause; in complement or relative clauses, the overt DP binds the *pro* or the operator in the lower clause.

This is illustrated in 70 (previously in chapter 4), with a Panoan control construction. The fact that the complement clause is structurally reduced allows for Agree to link the pivots, according to the discussion in chapter 4. It is not the lexical entry of Fin that enforces anaphoric relations: Fin is a regular (non-finite) complementizer. It is the surviving Agree-links between the pivots that enforce coindexation between them, according to the mapping in 67 (this mapping turns out to be redundant in raising constructions, since coindexation is already enforced by the nature of A-chains). As such, once T and Fin (and also Case) fuse in this type of construction, the resulting syntactic node denotes that: (1) its complement is a subordinate clause, as per the lexical entry of the complementizer, (2) the event of the complement clause is imperfective, as per the lexical entry of Asp/T, and (3) the two nominal elements that the syntactic terminal labeled 'SS' points to are coindexed, as per the mapping rule in 67.

(70)



In addition to complementation, bound variable anaphora can also obtain in certain adjunct constructions (more specifically, examples (b)-(d) of the adjunction paradigm in section 5.5). I employ a standard diagnostic of bound variable anaphora to show that this is true: the ellipsis context of 71 only allows for a sloppy identity interpretation. The subject *Shukuvena* in the first sentence c-commands *pro* in the adjoined SS clause, as *Shaya* in the second sentence c-commands *pro* in the ellipsis site. Here the person listening to the chief while Shaya falls asleep must be Shaya herself (a sloppy interpretation), not Shukuvena (a strict interpretation). The strict interpretation here would not license SS in the ellipsis site, leading the derivation to crash.

(71) Shukuvena usha [*pro* shaneihu nika-i]. Shaya rihi.
Shukuvena.NOM sleep.PFV chief listen-SS.IPFV.NOM 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)

In summary, bound variable anaphora obtains in the usual contexts in which a pronoun or copy/trace is c-commanded by and coindexed with an antecedent DP. Since

bound variable readings are not available in many SS/OS constructions in which there is no c-command between the pivots however, then other types of coconstrual must obtain. I will argue in what follows that dynamic binding is one of these types: it allows us to capture the patterns of anaphora without c-command observed in adjunct SS and OS constructions. In order to build up to this analysis, I dedicate the next subsection to explaining the framework of dynamic semantics that I am adopting here.

5.7.2 Dynamic semantics: overview and assumptions

The goal of this section is to provide a brief summary of the motivations and the fundamentals of dynamic semantic frameworks, aiming to build a foundation for my proposal that adverbial complementizers in SR constructions are dynamic conjunctions. The main idea is that as dynamic conjunctions, they do not encode anaphoric relations (S=S, O=S, S≠S) in their lexical entry per se, but rather they carry information about referents from one clause to the next, allowing for anaphoric relations to be established in the absence of scope.

Much of the dynamic semantics tradition arises from and revolves around the discussion of how to interpret pronouns. A debate that laid the ground for the field happened between Geach (1962) – who following work by Frege and Russel, claimed that anaphoric pronouns in natural language correspond to bound variables in predicate logic – and Evans (1977), who raises issues for this view. One of the issues is illustrated by the contrast between the pronouns in 72 and 73: in 73, the pronoun *she* lays outside the scope of the operator and as such, should not be considered bound in the same way as *he* is bound in 72.

(72) <u>Every man</u> knows <u>he</u> is mortal.

(73) <u>A student</u> walked to the river. <u>She</u> whistled.

Since then, many dynamic theories[14] of meaning have been developed, but the general view that settles the operator scope issue is that there is a disanalogy between predicate logic and natural language quantification: the scope of the existential in 73 does not close off, because this is a type of operator with context-changing potential. And context change potential is precisely what is identified with meaning in dynamic theories. More specifically, the meaning of an expression is not its truth-conditions, as in classic semantics, but instead its potential to change the context.

It is important to define what is meant by context here. The relevant notion is that of a set of labelled values which correspond to the individuals playing a role in discourse. When a value is specified in the context, it is possible to make anaphoric reference to it. As such, if the context provides a value for x, an occurrence of x will be dynamically bound, even if it is not in the scope of the binder in the classical sense. This provides the tools to explain why in a sentence like 73 the pronoun in the second clause is bound by the indefinite in the first.

In this framework, indefinites are *dynamic* existential quantifiers, which means they contribute to changing the context by introducing referents. Other types of noun phrases do not have the same context change potential that existentials do, as illustrated by the contrast in 74: 74-b shows that the universal quantifier cannot bind the subsequent pronoun outside its syntactic scope. Unlike existentials, universal quantifiers are *static*.

(74) from Chierchia (1995, p. 2)

a. John introduced [a new student]$_1$ to the chairperson, and Bill introduced him$_1$ to the dean.

b. *John introduced [every new student]$_1$ to the chairperson, and Bill introduced him$_1$ to the dean.

[14]Some of the foundational works in dynamic semantics are: Kamp (1981), Heim (1982), Heim (1983), Barwise (1987), Rooth (1987), Groenendijk and Stokhof (1991a,b), Kamp and Reyle (1993), Dekker (1993, 1994), and Muskens (1996).

This contrast between the two quantifiers is given in the dynamic logic in 75. The universal quantifier does not change the context in a way to provide a value for the pronoun in 74.

(75) a. $(\exists x : \phi)(\psi)\&\tau = (\exists x : \phi)(\psi\&\tau)$

b. $(\forall x : \phi)(\psi)\&\tau \neq (\forall x : \phi)(\psi\&\tau)$

As such, sentences containing a universal quantifier and other non-context-changing predicates function as so called *tests* on contexts. Given an input context, these expressions test whether or not the variables present receive values, but they do not add new values to the context. If the test is successful, the same input context is returned. If it fails, we end up with the empty set, denoting that values cannot be assigned to the variables in the derivation.

This explains cases in which pronouns are bound in the prototypical sense, such as in 72, and cases in which they are are dynamically bound (free in the prototypical sense), as in 73. The so called e-type pronouns constitute a third case, illustrated by the classic example in 76, originally from Evans (1980), which does not correspond to either of these two. The referent that the pronoun *they* picks up in this sentence is the full set of senators who admire Kennedy, that is, the intersection of the maximal set of senators and the set of Kennedy admirers.

(76) Few senators admire Kennedy; and they are very junior.

Note how this type of pronominal anaphora is different from a bound reading: if the quantified DP 'few senators' were to bind the pronoun 'they', the sentence would mean that 'few senators are such that they admire Kennedy and they are junior.' But that is not what the sentence means. In fact, as Nouwen (2003) points out, the bound interpretation would be compatible with a scenario in which most senators admire Kennedy but only a few of them are very junior. The quantificational DP in 76 also cannot be treated as an existential quantifier, since simply introducing a set of few Kennedy-admiring senators to the context does not create the correct anaphoric effect.

It does not suffice that there is a small set of senators who admire Kennedy, because that would not give the exhaustive reading of the pronoun: 'they' picks up *the full set* of Kennedy admirers and assigns to them the property of being very junior, not just *some* set of senators who are Kennedy admirers.

Against this backdrop of issues that e-type pronouns raise, they have received two kinds of treatment in the literature. The dynamic view interprets pronouns uniformly as variable-like entities, with changes in their reference attributed to the context. The second view, in the tradition of Evans (1977), is that not all pronouns are created equal: pronouns are either bound and behave like variables, or e-type and behave like definite descriptions. More specifically, e-type pronouns receive their reference through the reconstruction of a description from the antecedent sentence. In 76, the pronoun 'they' would mean 'the senators that admire Kennedy' and in 73, 'she' would mean 'the student who walked to the river'. While this theory fares well with sentences containing quantificational DPs, it encounters challenges with sentences containing simple indefinites like 77 or cardinal DPs such as 78.

(77) If a man is in Athens, <u>he</u> is not in Rhodes. (Heim, 1982)

(78) Three ladies came in. <u>They</u> ordered beer. (Nouwen, 2003)

The problem here is that if the meaning of a pronoun is a definite description, then their referents are presupposed to be unique or maximal. But 'he' in 77 is clearly not referring to the unique man in Athens and 'they' in 78 is not referring to all the ladies who came in the bar. So, while e-type approaches fare well with quantified antecedents that are challenging to early dynamic theories, sentences such as 77 and 78 pose serious challenges to e-type approaches, but not to dynamic theories: both 'a man' and 'three ladies' are treated as existentials, which introduce referents into the context and are subsequently picked up by pronouns.

The proposal I develop here for the interpretation of anaphora in switch-reference constructions is dynamic in the sense that it views all pronouns as variables and their different interpretations as a result of context change. Unlike static views of meaning,

in which sentences take an assignment function as input for pronominal interpretation and return a truth value, in dynamic frameworks, the sentence affects change upon the incoming assignment and returns it updated, as its output. This will be a crucial notion to explain how binding without scope obtains in SR constructions involving adjunction.

More specifically, my proposal follows the general framework of Dynamic Predicate Logic (DPL, Groenendijk and Stokhof 1991a), which uses the syntax of first order predicate logic to derive meaning as context-change potential – and adopts more closely the compositional account of Muskens (1996), as modeled by Charlow (2019). In this tradition, sentences are interpreted as mathematical relations between contexts: a context is inputted, the sentence is evaluated with respect to it, and a potentially changed context is outputted. Contexts are modeled as sets of assignment functions – functions mapping variables to the individuals playing a role in discourse. As such, the pair of assignment functions $< g, h >$ is in the interpretation of ψ if h is a possible output of interpreting ψ with respect to g: this can be represented as $g[\![\psi]\!]h$, with $[\![.]\!]$ mapping formulae to relations between assignment functions (that is, sentence meanings). Assignment functions are fed 'pointwise', that is, one at a time, to the sentence being interpreted. The new assignments that the sentence outputs are then collected, so that they can in turn be fed to the following sentence in discourse. With this, any changes that sentence ψ brings about to a context are then passed on to the subsequent discourse, which explains how dynamic binding obtains: the context that is outputted by one sentence serves as input to the next.

So what are the possible changes that a sentence can bring to a context? Recall that most predicates and quantifiers function as so called 'tests' on a context: if the variables they contain find interpretations in the input context g, then the same context is returned as output: $g = h$. So, no changes occur in these cases. Existential quantifiers, however, are context-changing operators, so for $g[\![\exists x(\psi)]\!]h$, h is identical to g, except in the value it assigns to x. Existentials are the source of context change, as formalized in 79:

(79) $g[\![\exists x(\phi)]\!]h :\Leftrightarrow \exists k :$ g and k differ at most in the value they assign to x and $k[\![\phi]\!]h$

Understanding how these concepts interact with a compositional view of meaning will be essential for the interpretation of our syntactic structures. I discuss how that can be done in the next subsection.

5.7.3 Compositional dynamics

In standard dynamic frameworks[15], sentences denote relations on assignments. Let g be the type of assignment functions, and Sg the type of sets of assignments ($g \rightarrow t$). Dynamic propositions therefore have the type $g \rightarrow Sg$, a relation on assignment functions. Following Charlow (2019), I adopt a capital T to represent this semantic type (the notation ::= is short for 'is defined as'):

(80) $T ::= g \rightarrow Sg$

From here, we can also define the semantic types of predicates. An intransitive verb like 'walk' takes an individual (e) and an assignment function (g), and returns a set of assignments (Sg).

(81) $[\![\text{walk}]\!] := \lambda x.\lambda g.\{g|x \in \text{walk}\}$ type: $e \rightarrow T$

With this, we can derive the meaning of a simple sentence like 'Morgan walks', assuming for now that names have type e.

(82) $[\![\text{Morgan walks}]\!]=[\![\text{walks}]\!][\![\text{Morgan}]\!]=(\lambda x.\lambda g.\{g|x \in \text{walks}\})\text{m}=\lambda g.\{g|\ \text{m} \in \text{walks}\}$

If it is true that Morgan walks, then the input assignment g is returned, such that the sentence denotes an identity relation. If it is not true, then the sentence returns the empty set, that is, the sentence denotes the empty relation.

[15]The framework adopted in this section comes from Charlow (2019), whose model follows that of Muskens (1996) and Groenendijk and Stokhof (1991a).

This is how simple sentences can be interpreted. Recall from the discussion in the previous section, however, that certain expressions incur changes upon an input context by introducing new referents. Specifically, I discussed the context-change potential of existentials. Just like in static semantic theories, dynamic existentially quantified DPs also need a higher type than e, because they need to take a property as argument – its scope – and intersect it with the property in its restrictor in order to return a truth-value in static semantics, and a modified context in dynamic. From the definitions of dynamic propositions and dynamic properties just discussed, we can infer the definition and semantic type of existentially quantified DPs. Consider a sentence like 'A student walks', minimally different from 82. We know from 80 and 81 that the meaning of this sentence needs to be as in 83:

(83) $\lambda g.\{g|\ \exists \mathrm{x} \in \text{student: walks x}\}$

Therefore, the existentially quantified DP needs to be defined as in 84:

(84) $[\![\text{a student}]\!] = \lambda f.\lambda g.\bigcup_{\text{student x}} f\mathrm{x}g$ type: $(e \rightarrow T) \rightarrow T$

Because of their analogous context-change effect – that of introducing referents – definite DPs, including proper names, are actually treated analogously to indefinites: they are functions from dynamic properties $(e \rightarrow T)$ to dynamic propositions (T). This is illustrated in 85.

(85) a. $\text{morgan}^1 := \lambda_{\mathrm{f}}\lambda_{\mathrm{g}} f\ \psi\ g^{1\rightarrow \mathrm{m}}$ type: $(e \rightarrow T) \rightarrow T$

b. $\text{a student}^2 := \lambda_{\mathrm{f}}\lambda_{\mathrm{g}} \cup_{\text{student x}} f\ \psi\ g^{2\rightarrow \mathrm{x}}$ type: $(e \rightarrow T) \rightarrow T$

Their higher quantificational type requires us to define the rule of Predicate Abstraction in dynamic terms. 86-a gives the static version of PA and 86-b, its conversion into a dynamic version:

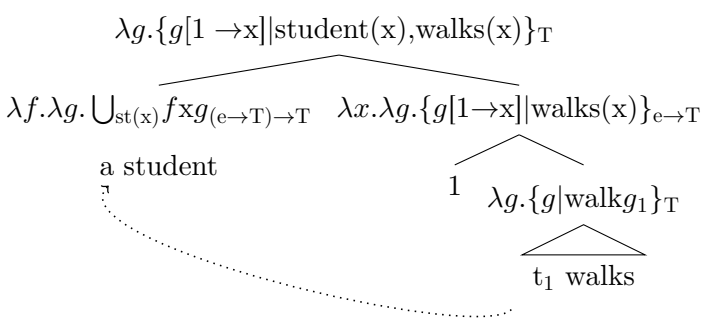
(86) Predicate Abstraction

a. Static: $[\![\lambda_{\mathrm{n}}\alpha]\!]^g = \lambda x.[\![\alpha]\!]^{g[n\ \rightarrow\ x]}$

b. Dynamic: $[\![\lambda_{\mathrm{n}}\alpha]\!] = \lambda x.\lambda g.[\![\alpha]\!]g[n \rightarrow x]$

With this, we can compositionally derive the meaning of 'a student walks', as illustrated in 87.

(87)



So far we have the tools to compositionally derive dynamic meanings of simple sentences with definite and indefinite DPs. These are given again below.

(88) a. [Morgan^1 walked to the river] $= \lambda_g\{g^{1\rightarrow\mathrm{m}}|\mathrm{walk\text{-}river(m)}\}$

b. [A student^2 walked to the river] $= \lambda_g\{g^{2\rightarrow\mathrm{x}}|\mathrm{student(x),walk\text{-}river(x)}\}$

Now the final aspect we need to explain before moving on to the analysis of SR constructions is how it is that the definite and indefinite DPs introduced in the sentences in 88 can become the antecedents of subsequent pronouns they do not scope over, as in 89. The following paradigm, adapted from Charlow (2019) illustrates this. In the tradition of Barwise (1987), antecedents receive a superscripted index and anaphoric elements, a subscripted corresponding index.

(89) a. Morgan^1 walked to the river. She$_1$ whistled

b. A student^2 walked to the river. She$_2$ whistled.

The new sentence in these examples does not introduce any changes to the context: rather, it tests the context and returns it unchanged if the predicate is true of the referent indicated by the numerical value of the index (n). If it is not, the empty set is

returned, as in 90:

(90) $\lambda_{\mathrm{g}}\{g\}$ if whistle(g_{n}) else $\emptyset$

Crucially, in order for the pronouns to receive the desired interpretations in each of the examples in 89, the new sentence has to take as input whatever context the first sentence outputs. For that, we need dynamic conjunction, defined in 91. I opt to represent it as ';' rather than 'and' to reflect the fact that dynamic conjunction crucially does not reduce to the syntactic notion of conjunction – often structured as an &P – or merely to the lexical entry for the conjunction 'and' per se. It is a more general operation that connects a sequence of two clauses in a discourse, independently of whether or not they are part of the same sentence.

(91) $[\![;]\!] = \lambda r.\lambda l.\lambda g \bigcup_{h \,\in\, lg} rh$ type: $T \rightarrow T \rightarrow T$

What this definition says is that dynamic conjunction takes as arguments two sentences (or clauses) – r, (short for 'right' conjunct), and l (short for 'left' conjunct) – as well as an assignment function g. There is a set of assignment functions lg, which is the output of interpreting sentence l with respect to the input assignment g, and this set of assignment functions lg is fed pointwise (one at a time) as input to the second sentence r. The second sentence, in turn, outputs and collects the new set of updated assignments h. Involving the 3 sets of assignment functions (g, lg, and h; $T \rightarrow T \rightarrow T$), this definition makes conjunction both *internally* and *externally* dynamic. It is internally dynamic because any changes brought about by the first clause will be reflected in output context lg and will therefore affect the interpretation of the second clause. And it is externally dynamic because any changes brought about by the conjunction of l and r will be carried on to the subsequent discourse in output context h.

With this, we can finally derive binding in the absence of scope in 88-a and 88-b, as given in 92.

(92) a. Morgan^1 walked to the river. She$_1$ whistled $= \lambda_{\mathrm{g}}\{g^{1\rightarrow \mathrm{m}}|\mathrm{walk(m),whistle(m)}\}$

b. A student^2 walked to the river. She$_2$ whistled. $= \lambda_{\mathrm{g}}\{g^{2\rightarrow \mathrm{x}}|\mathrm{student(x)},\mathrm{walk(x)},$ $\mathrm{whistle(x)}\}$

The sequence of sentences in 92-a (previously 88-a) takes an assignment g as input and outputs a set of assignments in which the value 1 corresponds to the individual Morgan, if it is true that this individual walked to the river. Similarly, the set of assignments outputted by 92-b (previously 88-b) associates 2 to a student who walked to the river.

This will give us the necessary tools to derive a compositional dynamic account of SR adjunction constructions involving definite and indefinite DPs. I develop that in the next section, and address quantificational DPs in section 5.7.6.

5.7.4 Definite and indefinite DPs in SR constructions

As in dynamic semantic theories, I analyze pronouns in SR constructions as ordinary bound variables. The types of interpretation they receive result from how these variables are evaluated with respect to the possible antecedents made available by context. As discussed in the beginning of this section, classical Binding Theory has no trouble interpreting a pronoun or trace as bound whenever it is c-commanded by and coindexed with its antecedent. By hypothesis, links of Agree enforce this coindexation and the SS morpheme itself simply expones an anaphoric relation leading to a bound reading.

When it comes to SR constructions involving adjunction, however, c-command does not necessarily obtain between the nominal pivots, and therefore bound readings cannot be always due to syntactic binding (see the adjunction paradigm in section 5.5). In the same way that happens in constructions involving syntactic binding, however, links of Agree point to the pivots and enforce coindexation between them in this type of construction as well. Recall that it is these non-dereferenced links of Agree originating from the same syntactic node that are interpreted as indicating an anaphoric relation between the pivots. Unlike most SR theories which place the burden of coconstrual on the SR morpheme itself, I argue that the lexical entry of the complementizer in each

of these constructions does not encode anaphoric relations at all. Anaphoric relations arise from the mechanisms independently made available by UG: syntactic and semantic binding, and coreference, independently of the complementizers involved in a given construction.

What I propose is special about adverbial complementizers in SR constructions, that may give rise to bound readings of coindexed DPs independently of c-command, is that they are dynamic conjunctions. As such, they allow for an antecedent in the first clause to dynamically bind a pronoun in the second, as discussed in the last section. The only difference between the dynamic conjunction defined in 91 and adverbial complementizers is that the latter are final heads and will therefore merge with the left 'conjunct' before the right, as in 93:

(93) $[\![\mathrm{C_{adv}}]\!] = \lambda l.\lambda r.\lambda g \bigcup_{h \in lg} rh$ type: $T \rightarrow T \rightarrow T$

This idea that adverbial complementizers are simply dynamic conjunctions is compatible with the fact that SR clauses in Yawanawa are underspecified for their semantic relation to the matrix clause (also in Mbyá and many other languages, c.f. Thomas 2019). The additional complementizer-like meanings that they denote – 'after', 'while', 'because' – come from the Tense/Aspect heads they fuse with in the course of the derivation. As such, I assume that the perfective meaning of the SR morphemes – SS *-ashe* and *-shũ*; OS *-a*, and DS: *-kẽ* – in Reichenbachian terms, denotes that the event time (E) of the SR clause precedes the reference time (R) of the sentence, which is given by the Tense value of the matrix clause: E<R. In turn, the imperfective meaning of SS *i* and *kĩ*, and DS *nũ* denotes that the event time (E) of the SR clause overlaps with the reference time of the sentence: E=R.

Recall from the discussion in section 5.5 that adverbial SR clauses have different possible sites of adjunction to a matrix clause. This discussion becomes crucial here, since by definition, the right 'conjunct' of a dynamic conjunction has access to the contextual values stored in the left 'conjunct', but not the other way around. I argued

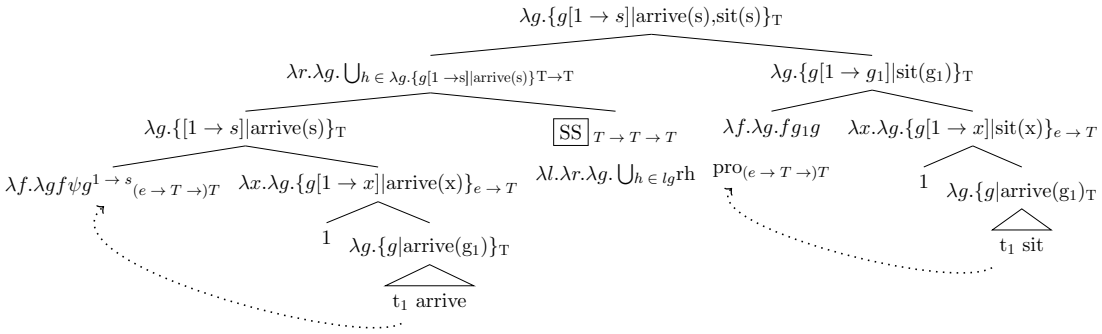
that syntactic binding will often be the anaphoric relation established between the pivots, since they stand in a c-command (or p-&-c) relation in right-adjunction structures. Now we have the tools to derive binding in the absence of c-command, which obtains when the adverbial clause is left-adjoined.

Consider 94-a (previously 26-a; see the tree in 31 for the full syntactic derivation): the proper name *Shukuvena* introduced in the left clause is the antecedent of *pro* in the right clause, but it does not c-command (or p-&-c) it. Dynamic conjunction interprets the clause on the right according to the assignment outputted by the clause on the left, allowing *pro* to be bound by its antecedent, as in 94. A compositional derivation is given in 95.

(94) a. [Shukuvena nuku-**ashe**] *pro* tsau-a.
Shukuvena arrive-SS.PFV.NOM sit-PFV
'When Shukuvena arrived, he sat down.'

b. [Shukuvena^1 arrive-SS]$_{\mathrm{L}}$ [*pro$_1$* sat]$_{\mathrm{R}}$ $= \lambda_g\{g[1{\rightarrow}\mathrm{s}]|\mathrm{arrive(s),sit(s)}\}$

(95)



If the antecedent of *pro* is a bare common noun, – which in Yawanawa is underspecified for a definite or indefinite interpretation – we get similar results, as shown in 96. What characterizes the indefinite interpretation is non-determinism: while the context will map a unique woman salient in context to x in 96 if it is true that that unique woman arrived and sat down, if the DP is read as indefinite, the output context contains a set of women such that for each of them, it is true that she arrived and sat down. The same non-deterministic interpretation applies to indefinites with overt

determiners, as in 96-c.

(96) a. Awĩhu nuku-ashe *pro* tsau-a.
woman arrive-SS.PFV.NOM sit-PFV
'As a/the woman arrived, she sat down.'

b. [woman^1 arrive]$_L$ [pro$_1$ sat]$_R$ = $\lambda g\{g[1\rightarrow x]|$woman(x),arrive(x),sat(x)$\}$

c. Yura wetsa nii ka-itame-shũ, *pro* ru ũi-a.
person some forest go-PST.REC-SS.PFV.ERG howler.monkey see-PFV
'Some villager went hunting and saw a howler monkey.'

d. [villager^1 hunt]$_L$ [pro$_1$ saw-monkey]$_R$ = $\lambda g\{g[1\rightarrow x]|$villager(x),hunt(x),saw-monkey(x)$\}$

Plural[16] and cardinal indefinites behave in the same way, assuming that type e includes singular and plural individuals. In 97, an output assignment is returned in which X maps to a plurality of 2 foreigners if and only if it is true that for each pair of foreigners in the context, they caught a catfish while fishing.

(97) a. Nawa rave mixki-kĩ *pro* ixixiwã atxi-a-hu.
foreigner two fish-SS.IPFV.ERG fish catch-PFV-3PL
'While (the) two foreigners were fishing, they caught catfish.'

b. [two foreigners^2 fishing]$_L$ [*pro$_2$* catch-catfish]$_R$ = $\lambda g\{g[2\rightarrow x]|$2-foreigners(X), fish(X), catch-catfish(X)$\}$

This is how definite and indefinite DPs can dynamically bind a pronoun they do not c-command. The next subsection will address a specific type of indefinite licensed in negative and interrogative contexts, and show that the account just developed here also makes the right predictions for them.

[16]By 'plural' here I mean plural indefinites with determiners. Because it is well-known in the literature that anaphora to bare plurals triggers a maximal interpretation, this type of nominal expression will be discussed alongside quantified DPs in the next section.

5.7.5 Indeterminate phrases and dynamic binding

Yawanawa and other Panoan languages do not have negative quantifiers and wh words per se. As is common crosslinguistically (Payne, 1997; Haspelmath, 1997; Bhat, 2000; Dayal, 2016), what we find in Yawanawa is a common morphological component which can take on distinct meanings depending on the clausal operator they interact with: these are known as indeterminate pro-forms (c.f. Kuroda 1965; Kratzer and Shimoyama 2002; Shimoyama 2006). In Yawanawa, *tsua*, in 98 is an indeterminate pro-form with an [animate] feature and *awea* is one with a [inanimate] feature. Both receive different interpretations depending on the operator they scope under – as a negative quantifier if negation, as in 98-b and 99-b, and as a question/wh word if under the interrogative morpheme, as in 98-a and 99-a.

(98) a. Tsua u-a=mẽ?
INDET.ANM come-PFV=INT
'Who arrived?/ Did anyone arrive?'

b. Tsua u-a-ma.
INDET.ANM come-PFV-NEG
'Nobody arrived.'

(99) a. Awea mĩ wa-i ka-i=mẽ?
INDET.INAN 2S.ERG do-SS.IPFV.NOM go-IPFV=INT
'What are you going to do?'

b. Ẽ awea wa-i ka-i-ma
1S.ERG INDET.INAN do-SS.IPFV.NOM go-IPFV-NEG
'I'm not going to do anything.'

Relevantly for the present discussion, these indeterminate phases can participate in anaphoric relations in SS (and OS) constructions, as shown in 100 with negation. Note how this clausal ordering paradigm mirrors that of definite and indefinite DPs in 26.

(100) a. [Tsua munu-kĩ] *pro* mamã aya-ma.
INDET.ANM.NOM dance-SS.IPFV.ERG yucca.drink drink-NEG

b. [*pro* munu-kĩ] tsuã mamã aya-ma.
dance-SS.IPFV.ERG INDET.ANM.ERG yucca.drink drink-NEG

c. Tsuã mamã aya-ma, [*pro* munu-kĩ].
INDET.ANM.ERG yucca.drink drink-INT dance-SS.IPFV.ERG
'Nobody drank mamã while dancing.'

d. ?**pro* mamã aya-ma, [tsua munu-kĩ]
yucca.drink drink-NEG INDET.ANM.NOM dance-SS.IPFV.ERG

This type of nominal expression has traditionally been analyzed in the framework of alternative semantics (Kratzer and Shimoyama, 2002; Shimoyama, 2006); see Charlow (2019) for an alternative-based dynamic account that reconciles exceptional quantificational and binding scope). Here, I propose that a standard dynamic treatment of indeterminate pro-forms as existential quantifiers can account for their exceptional binding scope in SS constructions.

As before, I will assume that examples (b)-(c) of the paradigm involve right-adjunction – with subsequent topicalization of the SS clause in 100-b – such that the indeterminate pro-form c-commands (or p-&-c's) *pro* and syntactically binds it. Focusing on the structure in 100-a, where no syntactic binding obtains, we can show that the dynamic binding account adopted here makes the right predictions.

Recall from the previous discussion that dynamic predicates function as tests on a context: they take an input context and return it unchanged if the test is successful, that is, if a context g assigns a value for x that is in the extension of P, then P(x) returns g unchanged. Negation, as defined in predicate logic and lambda notation in 101, is also a test: given an input function f, it checks whether there is an assignment function h which can be a proper output. If so, the test *fails*. A successful test therefore returns the input assignment unchanged.

(101) a. $f[\![\neg(\psi)]\!]g :\Leftrightarrow f = g \ \& \ \neg\exists h : f[\![(\psi)]\!]h$

b. $\neg \text{ m} := \lambda_g \ \{g\}$ if m$g = \emptyset$ else $\emptyset$

With this, we can give the derivation for 100-a: as an existential, *tsua* introduces a discourse referent in the left clause that dynamically binds *pro* in the right clause.

Scoping over the conjunction, negation makes sure that no referents in the context satisfy the predicates in its scope.

(102) a. Tsua munu-kĩ *pro* mamã aya-ma.
INDET.ANM.NOM dance-SS.IPFV.ERG yucca.drink drink-NEG
b. $[[\text{human}^1 \text{ dance}]_L\ [\text{pro}_1 \text{ drink}]_R\text{-NEG}] = \lambda g\{g|\neg\exists\, \text{x human(x),dance(x),drink(x)}\}$

This definition of negation makes a very strong prediction: any changes to the context brought about in its scope will *not* be passed on to subsequent discourse. In other words, the fact that negation returns the input context unchanged means it is an externally static operator. This is a welcome prediction, as illustrated by the unacceptability of 103-a. It is not possible to follow up the sentence from 100-a with a pronoun anaphoric on the 'referent' of *tsua*. Compare it with the felicitous continuation in 103-b, where the referent of the indefinite is passed on.

(103) a. [Tsua[1] munu-kĩ *pro₁* mamã aya]-ma. #*pro₁* sai-xĩ-a.
IND.NOM dance-SS.IPFV.ERG y.drink drink-NEG 3S sing-PST.NT-PFV
'Nobody drank mamã while dancing. #(S)he was singing.'

b. Awĩhu[2] nuku-ashe *pro₂* tsau-a. ✓ *pro₂* atsana-i.
woman arrive-SS.PFV.NOM sit-PFV be.tired-IPFV
'As a/the woman$_2$ arrived, she$_2$ sat down. ✓ She$_2$ is tired.'

In summary, we can treat indeterminate pro-forms as indefinites: as an existential quantifier, it will introduce a referent in the SS clause, which will be passed on conjunction-internally to the the right clause and bind *pro*. Crucially, this is possible because negation is taking scope over the matrix and the SR clause in this case. Because negation is externally static, the referent that the indeterminate pronoun introduces in its scope does not get passed on to subsequent discourse, which is a welcome result: in the scope of negation, indeterminate pro-forms function as negative quantifiers.

An interesting issue arises when *pro* is outside the scope of negation, as illustrated by the examples in104. Even though negation scopes over the SR clause, OS in 104-a, and SS in 104-b are still licensed, as long as the matrix *pro* subject is plural (this

is evidenced by the obligatory plural agreement in both sentences). On the one hand, these sentences provide further support for my claim that maximal set anaphora licenses SS and OS, as discussed in section 5.3. On the other, it raises the puzzling question of how the max set can be accessible for anaphoric reference, since it is generated under negation (see **cha19** for a similar problem related to ref sets).

(104) a. [Shukuvenã tsua kena-yama-hi[a]-a] *pro* ve-a-*(hu).
Shukuvena.ERG IND.ACC call-NEG-CONC-OS come.PL-PFV-3PL
'Even though Shukuvena did not invite anyone, they came.'

b. [Tsua munu-yama-hia-kĩ] *pro* mamã aya-*(hu).
IND.NOM dance-NEG-CONC-SS yucca.drink drink-3PL
'Even though nobody danced, they drank mamã.'

Although I do not have an immediate answer to this question, these sentences are relevant because they shed light on another property of indeterminate pro-forms: under negation, they behave like strong quantifiers in the sense that they introduce maximal sets as discourse referents. This will be discussed in the next section, which focuses on the patterns of exceptional binding scope of non-existential quantifiers.

5.7.6 Dynamic generalized quantifiers and anaphora to sets

As discussed in section 5.3, (non-existential) quantifiers can also be dynamic binders in SR constructions. Because quantificational DPs do not refer in the same way that definite DPs do, for instance, patterns of anaphora to sets, made available by generalized quantifiers, are crucial to characterize the type of coconstrual in SS and OS clauses as actual binding, rather than mere coreference. In this section, I adopt a semantics for dynamic generalized quantifiers that makes reference sets and maximal sets available for further anaphoric reference.

Recall from the discussion in section 5.3 that anaphoric expressions bound by generalized quantifiers always have maximal entities as their antecedents. The same is true of bare plurals, as shown 105-a: *pro* refers to the maximality of the people who were taking ayahuasca last night.

(105) a. Yura-hãu uni a-xĩ-**shũ** *pro* nayameta anã
relative-PL.ERG ayahuasca do.TR-PST.NT-SS.PFV.ERG tonight again
uni a-kan-i.
ayahuasca do.TR-3PL-IPFV
Villagers were doing ayahuasca last night and they're doing it again tonight.'

The examples in 106 work similarly to 105-a. It is the reference set of the quantified DPs 'several people' in (the minimally different) 106-a and 'more than 2 people' and in 106-b that are the antecedents of *pro*.

(106) a. Yura westima-shũ uni a-xĩ-shũ *pro* nayameta
relative several-ERG ayahuasca do.TR-PST.NT-SS.PFV.ERG tonight
anã uni a-kan-i.
again ayahuasca do.TR-3PL-IPFV
Several villagers were doing ayahuasca last night and they're doing it again tonight.'

b. Yura rave-tiishũma ru ũi-kĩ *pro* rete-a-hu.
person 2-more.than howler.monkey see-SS.IPFV.ERG kill-PFV-3PL
'More than two people, as they saw howler monkeys, killed them.'

We cannot account for these cases with the tools discussed so far. While nothing needs to change regarding the semantics of the adverbial complementizer per se – it is a dynamic conjunction across the board – the semantics of generalized quantifiers will need to introduce reference and maximal sets into the context, so that they can become antecedents of pronouns. In order to accomplish this, I adopt the semantics in 107, following Kanazawa (1994), Chierchia (1995), and Charlow (2019).

(107) $[\![\text{Q people}^1]\!] = \lambda f.\lambda g.\{g[1 \rightarrow \oplus \text{ X}] \mid \text{X}=\{\text{x} \in \text{people} \mid \exists h \in fxg\}, \text{Q(people,X)}\}$

type: $(e \rightarrow T \rightarrow T)$

Here, the output assignment function g maps 1 to the mereological sum ($\oplus$) of X, which in turn, is defined as the set of people who pass the test denoted by the predicate in the first clause. In 106-b, for instance, it is the people who saw howler monkeys,

which corresponds to the quantifier's reference set. $\mathbb{Q}$ is the relation on sets associated with the determiner (Barwise and Cooper, 1981): 'several' in 106-a denotes that the number of people who were drinking ayahuasca is large if compared to the total amount of people in the context. The output context g maps 1 to the reference set X if it is true that several people drank ayahuasca, otherwise the empty set is returned.

(108) [several people^1 aya-last-night]$_L$ [pro$_1$ aya-tonight]$_R$ = $\lambda g.\{g[1 \rightarrow \oplus$ X]| X={x $\in$ people|aya-last-night(x), aya-tonight(x)}, Several(people,X)}

This is how reference set anaphora obtains in a dynamic framework. Maximal set anaphora relies on an even simpler semantics: the set made available for subsequent reference is the quantifier's restrictor. In 109-a (previously 11-c), *pro* refers to all the Kamãnawa folks, and in 109-b, *pro* refers to everybody, which are the maximal restrictor sets of the quantifiers.

(109) a. Kamãnawa itxapama-shũ nawã tsãi tapĩ-ashe, *pro*
K.people few-ERG foreginer.GEN language know-SS.PFV.NOM
shanẽ anu-ashe raya-kan-i.
village.OBL there-NOM work-PL-IPFV
'Since/Because few Kamãnawa folks speak Portuguese, they work in the village.'

b. Ashkãyahi munu-kĩ *pro* mamã aya-hu.
everyone.NOM dance-SS.IPFV.ERG yucca.drink drink-PFV.PL
'While everyone danced, they drank *mamã*.'

The semantics in 110 makes maximal sets available as pronominal antecedents: the output assignment g maps 1 to the mereological sum of Y, which is the restrictor 'Kamãnawa folks' in 109-a. The only condition for a successful output in this case is that the restrictor is not empty, which obtains with strong quantifiers (see section 5.3).

(110) $[\![$Q K-folks$^1]\!]$ = $\lambda f.\lambda g.\{g[1 \rightarrow \oplus$ Y]| Y={y $\in$ K-folks| Y$\neq \emptyset$}}

type: $(e \rightarrow T \rightarrow T)$

I close this section with the takeaway that the patterns of anaphora in SR constructions do not differ from those made available by UG crosslinguistically. Dynamic semantics provides the tools necessary to derive dynamic binding in the absence of scope for the full range of nominal types involved in SR constructions.

5.8 Conclusion

The main goal of this chapter has been to motivate and sketch a semantic account of SR as anaphora by analyzing constructions with different nominal types. Unlike the majority of theories of SR, which place the burden of pivot coconstrual on complementizers, I develop a modular account of SR: while syntax encodes which nominals are to be coconstrued in a given construction, semantics needs to make sure coconstrual obtains, making use of the mechanisms independently made available by UG.

This argument is built on the fact that SR is licensed in a variety of constructions, with a variety of nominal types. So there is no single mechanism of coconstrual to account for all of them: on the one hand, patterns of anaphora to sets associated to (non-referential) generalized quantifiers show that SR relations cannot be reduced to mere co-reference, on the other, limitations on scope (due to adverbial islands, for instance) show that SR relations cannot always be reduced to syntactic binding. Therefore, I argue that in the absence of syntactic binding, SR conconstrual obtains by means of dynamic binding or coreference. This, in turn, raises an important question about referential dependencies: can the term 'coconstrual' actually stand for a category in natural language anaphora, beyond its originally intended descriptive nature? SS and OS seem to suggest that the answer to this question is yes.

I show that dynamic binding is made possible by interpreting adverbial complementizers as dynamic conjunctions. I argue that SR morphemes are constructed from several building blocks: the adverbial complementizer itself, Tense/Aspect heads, and links of Agree. As such, if the meaning of the adverbial complementizer is that of a dynamic conjunction, then it passes to its right conjunct the context outputted – and potentially changed – by its left conjunct. Having this simple dynamic semantics for

adverbial complementizers also explains why they underspecify the semantic relation that exists between matrix and adverbial clause. By hypothesis, it is by fusing with Tense and Aspect heads with different values that these complementizers acquire the additional adverbial-like meanings observed crosslinguistically.

It is also by fusing with the T head (or Voice in the case of OS) that adverbial complementizers in SR constructions come to enforce coconstrual between pivots. As proposed in chapter 2, based on Baker and Camargo Souza (2020), when a syntactic terminal is linked by means of Agree-link to two different nominals and these links survive in the course of the syntactic derivation, they come to be interpreted as a relation of coindexation between the two nominals. Since this coindexation can be partial, my proposal encompasses patterns of partial coreference in terms of anaphora as well.

Chapter 6

Conclusion

This dissertation proposes a modular account of switch-reference, arguing that as one of grammar's multiple ways to express anaphora, the phenomenon cannot be characterized as simply syntactic or semantic in nature. My account focused mainly on the Panoan language Yawanawa, using its expression of SR as a starting point to explore the parameters that lead to variation from one language to another. My goal has been to study how each module of grammar contributes to build a language's SR system, showing that the types of argument coconstrual that are morphosyntactically expressed in SR languages do not differ in nature from the types of coconstrual made available by Universal Grammar and found in non-SR languages. This ends up posing a number of theoretical questions that remain open for future work, including why certain languages care to morphosyntactically express cross-clausal anaphora in the form of a SR system, while others do not.

I argued in chapter 2 that the syntactic component of SR is Agree-based: pivot selection follows the well-known properties of the Agree operation, namely the c-command, intervention, phase, and activity conditions. Differently from previous authors, however, I argue that certain instances of Agree may be interpreted as DP coconstrual. More specifically, I propose that if the operation Agree-link applies, but Agree-copy does not (in the sense of Arregi and Nevins 2012), links of Agree are passed on to the semantic module, where they are interpreted as a referential dependency between DPs. This proposal is based on the robust crosslinguistic generalization that although SR morphemes exhibit the characteristic properties of Agree when it comes to pivot selection, they paradoxically never exhibit phi-feature agreement. This theory relies on an orchestration of functional heads linking to nominal elements in order to derive the SS

and OS coconstruals: it differs from previous accounts, which rely on complementizers alone to do the job.

I have shown that while the basic paradigm encountered in the majority of SR languages distinguishes between same-subject (SS) and different-subject (DS) constructions, the SR system of Yawanawa and its Panoan relatives expands on this by including reference tracking of objects. This strengthens the syntactic view of the phenomenon, since it provides evidence that SR needs to make reference to the grammatical functions of *subject* and *object*. In my proposal for the syntax of SS and OS adverbial constructions, the head T in a SS clause and Voice in an OS clause Agree-links with the closest DP, and the Fin+Force complementizer cluster Agree-links with the matrix (superordinate) subject. Then the lower Agreeing head in the adverbial clause moves the Fin+Force terminal and fuses with it, bringing the tail of the Agree-link along. This results in a pair of links originating from the same syntactic terminal that connects one embedded argument to the matrix subject: this configuration is interpreted as a coconstrual relation by semantics. DS clauses, in contrast, have no special heads that undergo Agree or fuse together: they are ordinary adjunct clauses that I argue are interpreted as not indicating coconstrual by pragmatic blocking. Since there are specialized constructions to express coconstrual, if a speaker opts for the non-agreeing complementizer, then they must mean that no coconstrual obtains.

Chapter 3 focuses on number-based suppletion in Yawanawa, showing that the locality required for suppletion to obtain provides independent evidence that subjects are merged complement-internally. This is crucial for the analysis of switch-reference in complementation constructions: it provides a better understanding of argument structure and the roles performed by the different heads in the Yawanawa extended verb phrase. In addition, it sheds light on the structural size of clausal complements, serving as a valuable building block for chapter 4.

My analysis of Yawanawa's understudied and crosslinguistically unusual pattern of suppletion also stands on its own, making important contributions of both typological and theoretical nature. From a theoretical perspective, it contributes to the discussion

about locality domains in Distributed Morphology, since the domain of contextual allomorphy is a topic of debate. I argue that verb suppletion in Yawanawa and some of its relatives requires the domain of contextual allomorphy to be the phase: external arguments as well as applied and causer arguments are computed into the suppletion calculation. Yawanawa suppletion is so unusual because plural suppletive forms are triggered not only by one of the verbal arguments being plural, but also by the sum of participants involved in the verbal event being plural. That is, if the verb has multiple singular arguments, plural suppletive forms are still triggered. I propose an indirect mechanism to explain the suppletive patterns observed. Rather than having an adjacent nominal argument trigger vocabulary insertion of the suppletive verb directly, I propose that a probe collects the features of the arguments within the phrase – which is the domain of contextual allomorphy – and that linear adjacency is required between the suppletive verb and the probing head. I show that intervention effects are observed when elements occurring between the target and the trigger of suppletion in clausal hierarchy are morphologically overt, but not if they are null. I propose that plurality can be computed from multiple single goals by means of a morphological rule that converts a bundle of [SG] features into a [PL] feature. Crucially, this rule applies only after an operation that Deal (2015) calls 'smashing', which bundles the features collected by the suppletion probe into a single set.

The topic of chapter 4 is SR in complementation constructions: Yawanawa same-subject markers occur in the complements of attitude verbs like 'know', 'think', 'dream', and 'forget', as well as aspectual verbs like 'begin', 'finish', and 'stop'. I investigate, among other questions, why SS is licensed in the complement of these specific verbs in Yawanawa, but not others. Since these are verbs that select infinitives cross-linguistically, and infinitives are structures often smaller than CP, the distribution challenges most theories of SR, which rely on complementizers alone to achieve argument coconstrual. I show that the Agree-without-agreement view of SR in which SS and OS obtain by an orchestration of functional heads instead fares well with the SR paradigm in complementation. I show that SS occurs in structurally reduced clauses in other languages as well, including Yuman languages, which have SS morphemes between main

verbs and auxiliaries. So I extend my proposal to these languages, showing that it can account for the distribution of SS and counter McKenzie (2015)'s argument that there is "no second subject" in the complementation constructions in question.

My discussion of structure allows me to build the case that SS in complementation is licensed in raising and control constructions, linking the discussion in chapter 4 to my overall view that SR is an expression of cross-clausal anaphora. The proposal can be summarized as follows: SS marking in complementation constructions obtains when a structurally reduced clause is selected by a matrix verb, giving rise to a raising or control configuration. The reduced, non-phasal structure of the complement clause – which I argue is a FinP – allows for a probe within it to Agree with the matrix subject in a way that parallels the derivation of adjunct SS discussed in chapter 2. The discussion corroborates my view that the patterns of anaphora observed in SR languages do not differ from those of non-SR languages.

The morphosyntactic expression of SR certainly varies from language to language, however. I showed that one of the main points of variation lies in the distribution of SR markers within the language: a relevant question is what type of subordinate clause will express coconstrual between one of its arguments and a superordinate subject. I showed that this distribution varies from language to language, according to the syntactic properties of different types of subordinate clauses, and how they allow the Agree-based syntactic component of SR to operate. Adverbial adjunct clauses, for instance, are never nominalized and occupy a position in sentence structure that allows a probe at its edge to search upwards into a superordinate clause. When it comes to complementation structures, we find much more variation: some languages do not express SR in complement clauses at all, others have it only in a certain subcategory of complement clauses. In general, nominalized complements do not express SR because their nominalizing head insulates any potential probes from reaching beyond the clause edge. I showed that certain languages have their upward searching probe on the Fin head, such that reduced complement clauses (analogous to infinitives) express SR, while others have it on Force instead, such that reduced clauses – which lack a Force head – do not express SR. I showed that as a general rule, only biclausal structures that are large

enough to have two subject positions can express SR: restructuring constructions with no embedded subject, for instance, simply do not have two subjects (or two instances of the same raised subject) to coconstrue by means of SR.

Despite the strong syntactic component, I argue in chapter 5 that a purely syntactic proposal cannot account for the full range of possible coconstruals found in SR constructions. I show with patterns of anaphora to sets and plural antecedents that these relations include syntactic and semantic binding, as well as coreference relations. In other words, syntax plays a central role in the grammar of SR, but it is not the only module of grammar doing the heavy lifting. Semantics is responsible for taking a structure and assigning it meaning, a process which will naturally depend on the structure itself. This view raises another central question I leave open for future research: it seems to suggest that Safir (2004)'s term 'coconstrual' may actually delineate a category in natural language anaphora, beyond its originally intended descriptive nature. In other words, SR is exponing different kinds or referential dependencies as a type of natural class.

Another topic for future research that I raise in chapter 5 concerns the precise nature of discourse salience and its effects on partial coreference phenomena: I show that salience plays an important role in licensing SS vs. DS in these cases, but what exactly characterizes a referent as salient? This question will influence how we do fieldwork, because it requires us to elicit sentences in discourse, with appropriate contexts. The lack of such data in light of the crucial role of discourse salience in SR systems makes for incomplete and inaccurate paradigms. Appropriate contexts might also help future researchers determine the exact nature of the optionality between SS and DS in cases of partial coreference: does it come down to free variation or are speakers assigning meaning to one choice of SR marker over the other according to contextual cues?

Finally, the view of SR as anaphora predicts that the phenomenon could cover cases of cross-sentential anaphora. This seems to be borne out, since we have known since Jacobsen (1967) that SR markers are observed in what he calls "sentence-introducing particles". These SR-marked sentence particles, which Jacobsen (1967) describes as

making anaphoric reference to the previous sentence in the Hokan-Coahuiltecan languages Tonakawa, Kashaya, and Washo, are also found in Yawanawa and its Panoan relatives. The occurrence of SR-marking in these particles raises important issues to my account of SR – as well as to any other views of SR that have a syntactic component. I propose that as a subcategory of anaphora, SR has an important semantic component, but my account crucially relies on the Agree-without-agreement mechanism that takes place in syntax. When it comes to cross-sentential anaphora, an Agree-based mechanism would not be tenable, given that the locality conditions Agree requires would not be met. So whether or not cross-sentential SR reduces to the same phenomenon as cross-clausal SR remains an open question.

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