

Abstract: This chapter reviews fifty years of literature on *switch-reference* (SR), a grammatical phenomenon found in more than 70 North American languages and at least six South American families, in which one clause is morphologically marked to show whether or its subject refers to the same entity or entities as the subject of a structurally nearby clause. Our review is organized around three central issues: to what extent is SR a semantic phenomenon or a syntactic phenomenon, what sorts of clauses can be marked for SR, and what counts as a subject for purposes of SR marking. We also briefly point out some similarities and differences between SR and some other reference-tracking devices found in American languages.

Switch-Reference in American Languages: A Synthetic Overview

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1. Introduction

SWITCH-REFERENCE (SR) is a grammatical phenomenon in which one clause is morphologically marked to show whether or not one of its nominal arguments refers to the same entity or entities as a nominal argument of a structurally nearby clause. In the large majority of cases, the nominal arguments in question are the subjects of the clauses involved, in some sense of “subject” to be made precise. Thus the fundamental contrast in switch-reference systems is between SAME SUBJECT (SS) marking and DIFFERENT SUBJECT (DS) marking. (1) shows a canonical pair from Mojave.

- (1) Mojave (Yuman, Langdon and Munro 1979: 322–323)
- a. *Nya-isvar-k i:ma-k.*
when-sing-SS dance-TNS
‘When he_i sang, he_i danced.’ (The same person did both.)
 - b. *Nya-isvar-m i:ma-k.*
when-sing-DS dance-TNS
‘When he_i sang, he_k danced.’ (Different people did each action)

The suffixes *-k* and *-m* on the verb ‘sing’ crucially vary according to whether or not the subjects of the two clauses are interpreted as being the same. These markers are typical in that SR markers are usually outermost affixes or particles on the verb of one of the clauses. SR markers may also express other grammatical notions, such as the temporal or causal relationship between the two clauses, but it is their reference tracking function that makes them of special interest.

SR phenomena of this sort are found in quite a few North American languages. McKenzie’s (2015a) useful survey finds it in some 70+ languages from this region. He shows that the phenomenon is common in the Western USA and adjoining parts of Mexico, but not in

other parts of the continent—except perhaps in the Inuit languages of the far North (see §5 below). SR also qualifies as an areal phenomenon in that it occurs in a wide range of the language families that are represented in this area (Yuman, Muskogean, Uto-Aztecan, Siouan, Kiowa-Tanoan, Pomoan, Yokutsian, ...) but not in languages from these same families spoken in other regions. SR is by no means unique to this one linguistic area, however. It is also found in several language families of South America, including Quechuan, Jean, Jivaroan, Tukanoan, Takanan, and Panoan languages, to name a few. We include select examples from Quechuan and Panoan languages in our discussion, for comparative purposes. SR is also found in the Eastern Hemisphere, particularly in New Guinean and Australian languages. Although data from these languages has been important in the literature on SR—especially Roberts’s (1987; 1988a; 1988b) studies of Amele, Austin’s (1980) study of Diyari, and Austin’s (1981) survey of SR in Australian languages—they are not included in this discussion, given space restrictions and the focus of this volume. This broader distribution does, however, suggest something significant about the status of SR for general linguistic theory. On the one hand, since the same phenomenon (more or less) is found in different regions of the world, Universal Grammar must naturally allow for it; it cannot be a *sui generis* phenomenon that arose once as some combination of particular historical factors. On the other hand, the phenomenon is entirely missing in large areas of the world, so Universal Grammar must not require it either. Furthermore, SR is usually pervasive in languages that have it, with reference marking appearing multiple times in almost any page of natural text.

The broad flow of research on SR has been as follows. The first general discussion of SR was Jacobsen’s (1967) seminal article, from exactly 50 years ago. This work coined the term “switch-reference”, brought together material from a variety of languages, and put the topic on the radar of linguists at large. This then became a hot topic for typologists and descriptive linguists in the 1970s and 1980s, as featured in the collection of Haiman & Munro (1983), for example. The first major formal-generative-syntactic theory of SR is that of Finer (1984; 1985), who analyzed it in terms of Chomsky’s (1981) government-binding theory as extended by Aoun (1981); for related work, see Broadwell (1990; 1997), Hale (1992 – who builds also on Jeanne 1978, a forerunner to Finer’s approach), the minimalist update in Watanabe (2000), and Camacho’s (2010) variant built on agreement in case. In the wake of this prominent syntactic analysis, a reaction set in, arguing that SR is more semantic than syntactic. From the semantic viewpoint, SR is primarily concerned with whether or not *events* are closely related, rather than whether subjects are the same or not. Stirling (1993) is the most comprehensive expression of this view, but Mithun (1993) and others are very similar in spirit. The Stirling tradition continues in contemporary work by McKenzie (2012; 2015a; 2015b), who distinguishes SR in adjunct clauses from SR in conjoined clauses and clause chains, claiming that the latter expresses a relationship between (Austinian) situations, not (Davidsonian) events. Another notable recent contribution is Keine (2013), which takes the further step of saying that most or all SR has the syntactic structure of coordination: SS structures are VP coordinations with a single shared subject, whereas DS clauses are vP/TP coordinations that have two distinct subject positions. Both McKenzie (2015a) and Nonato (2014) dispute this claim, however, McKenzie demonstrating that SR is not inherently tied to any type of connective, and Nonato showing that canonical SS may show up in what is clearly TP coordination. One of the themes that we explore

here is that it may be time for the pendulum to swing back from semantic accounts towards the syntactic SR found in embedded clauses.

The rest of this chapter is organized as follows. First we discuss to what extent SR is a syntactic phenomenon or a semantic phenomenon, and indeed whether it is a unified phenomenon in this respect (§2). Then we turn to the important question of what kind of clauses are reference marked in American languages: adjunct clauses, complement clauses, coordinated clauses, even some relative clauses—but not, we claim, nominalized clauses (§3). Then we consider the question of what precisely counts as the subject for same-subject and different-subject marking in various American languages (§4). This is important, because we know that different theoretical principles make use of different senses of subject, so if one can identify what sense(s) of subject are relevant to SR, it could bear on what theoretical principles are at work in SR. Overall, we suggest that there is reason to consider a neo-Finarian syntactic approach, but one that uses principles of agreement and control more than principles of Binding theory *per se*. Finally, we explore the natural boundaries of the SR phenomenon by comparing it briefly with superficially similar reference tracking devices in American languages, such as “fourth person” marking in Inuit (§5).

2. Switch-reference: how strict? how syntactic? how semantic?

2.1 Arguments for syntactic SR

As already mentioned, Finer (1984; 1985) presented an analysis of SR that is fundamentally syntactic in nature, attributing it to the Binding theory, the same aspect of linguistic theory that regulates the use of pronouns like *them* and anaphors like *themselves*. One argument that he presented in favor of such a view is that SR marking is obligatory in many languages even when there is no functional pressure to avoid ambiguity. For example, in SR languages like Mojave, Choctaw, and Seri, verbs necessarily agree with their first person subjects. Therefore, in examples like (2a,b) there is no ambiguity as to whether the subjects of the two clauses are coreferential or not: they must be in (2a), and they must not be in (2b). Nevertheless, SS/DS marking is required in (2) as much as it is in (1) where there is potential ambiguity.

(2) Mojave (Yuman, Langdon & Munro 1979: 322; via Finer 1985: 38)

- a. *ʔin^več pap ʔ-əkxi:e-k ʔ-sa^vi:-k.*
 I potato 1SG-peel-SS 1SG-fry-TNS
 ‘After I peeled the potatoes, I fried them.’
- b. *ʔin^več pap ʔ-əkxi:e-m Judy-č Ø-čsa^vi:-k.*
 I potato 1SG-peel-DS Judy-NOM 3SG-fry-TNS
 ‘After I peeled the potatoes, Judy fried them.’

Therefore, if the function of SR is ambiguity reduction, that function has been “grammaticized” here—and grammaticized function is another name for syntax.

Second, Finer points out that SR seems crucially to be marking whether subjects are the same across clauses, not whether topics are the same. This is suggested by an example like (3) from Yavapai (another Yuman language).

- (3) Yavapai (Yuman, Kendall 1975; via Finer 1985: 37)
Tokatoka-č Savakyuva u-t-m, čikwar-kiñ.
 Tokatoka-NOM Savakyuva see-T-DS laugh-COMPL
 ‘When Tokatoka looked at Savakyuva, he (Savakyuva) laughed.’

Here the object of the transitive first clause could presumably be the topic (in a suitable context), and it is the same as the only argument of second clause, which is therefore that clause’s natural topic. Thus if SS indicated sameness of topic, SS marking should be possible here. Nevertheless, only DS marking can be used. This suggests that the morphology truly is tracking grammatical subjects rather than pragmatic topics (compare also with the Shipibo example in 7b).

Third, Finer shows that SR depends on a notion of structural (syntactic) closeness, not on say linear order. Thus, it is possible in many languages (although not all) for the reference-marked clause to follow the main clause, and still SR works the same way (e.g., see 6 below). Furthermore, when there are three clauses, the reference marking on the first clause can be determined by either what is the subject of the second clause (the linearly adjacent one), or by what is the subject of the third clause (the nonadjacent one), depending on whether the syntactic embedding structure is [[[S1] S2] S3] or [S1 [[S2] S3]]. This observation has been replicated many times, although it is not always stated in syntactic terms. Gordon (1983) provides a good illustration with the pair of sentences from the Yuman language Maricopa in (4). In (4a), the DS marking on first clause goes with a syntactic structure in which the first clause is embedded inside the second clause, which in turn is embedded in the third clause ([[S1] S2] S3]). In contrast, the first clause of example (4b) bears SS marking, indicating a structure in which the first clause is embedded in the third clause, but not in the second clause ([S1 [[S2] S3]]).

- (4) Maricopa (Yuman, Gordon 1983)
- a. [S₃ [S₂ [S₁ 'ayuu ny-rav-m S₁] ny-wik-m S₂] '-wik-pat-k S₃].
 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. [S₃ [S₁ 'ayuu ny-rav-k] [S₃ [S₂ ny-wik-m S₂] '-wik-pat-k S₃] S₁]
 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]].’

There are good reasons, then, to treat SR as a syntactic phenomenon, at least in some languages.

In light of facts like these, Finer (1984; 1985) analyzes SR as a binding relation in the sense of Chomsky (1981). Since he assumes that SR relates the subjects of matrix and adjunct clauses, however, the subjects being tracked are not in a c-command relationship. As a result, one subject cannot bind the other directly within Chomskian theory. Finer solves this problem by proposing that it is really the complementizers of the clauses that establish the binding relations: they can be pronominal or anaphoric. In each clause, the subject establishes a relation with the Agr (T) head, which in turn establishes a relation with the complementizer (C) of the clause. The gist of his theory is sketched in Figure 1, with some updates to express it in terms of current generative views about basic clause structure. Once each complementizer is coindexed with its

local subject via T, principle A of the Binding Theory forces the lower complementizer to assume anaphoric form (SS) if the subjects are the same, and principle B forces it to assume pronominal form (DS) if the subjects are different. In other words, Finer’s SR system achieves indirect binding relations between subjects via their local syntactic relations with functional elements in each clause.

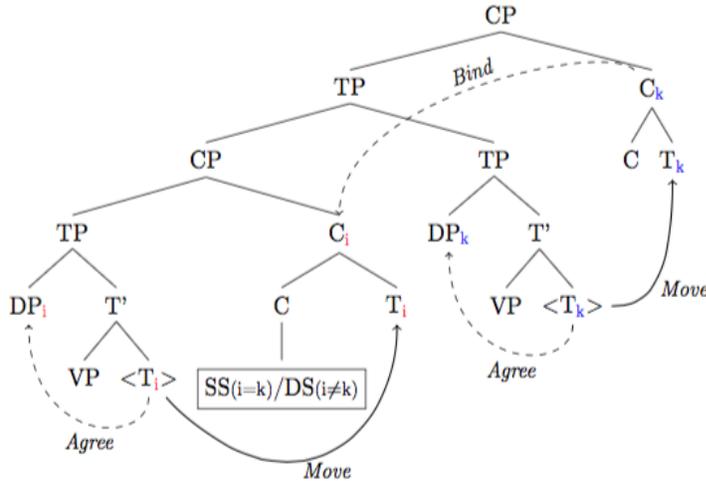


Figure 1: Finer’s account of SS and DS

2.2 Arguments for semantic SR

There are also, however, considerations that point away from a predominately syntactic account of SR. Many of these are gathered together by Stirling (1993), who criticizes Finer’s approach and discusses many instances of “noncanonical” SR. Her views are inspired by Givón’s (1983) notion of SR as a device that operates at the discourse level and tracks topic continuity rather than subject reference per se.¹ For example, in (5a) from Kiowa, SS marking can be used instead of the expected DS marking as long as Kathryn and Esther are part of a unified letter writing campaign—say to apply political pressure for some cause (from Watkins 1993: 149, via McKenzie 2012). Conversely, in (5b) from Kiowa, DS marking is used despite the subjects being the same because the events are not part of a single coherent situation, but are independent events happening at different times (McKenzie 2012: 154).

- (5) Kiowa (Tanoan, Watkins 1993: 149; via McKenzie 2012)
- a. *Kathryn g^jæ-gúʔ gɔ/nɔ Esther=àl g^jæ-gúʔ.*
 Kathryn 3SGS/3PLO-write.PRF and.SS/and.DS Esther=too 3SGS/3PLO-write.PRV
 ‘Kathryn wrote a letter and Esther wrote one too.’
- b. *K^hí.dèl k^ʔʒe:-tɔ ʔéʔ-ʔǎ:m-ě: nɔ é:-hó:-dek^hi*
 yesterday frybread-INV 1PL.EXCL.S/3INV.O-eat.PRV and:DS here-DEF-NOM+day

¹ See also Woodbury (1983) for a different argument that SR operates in larger discourse units than clauses/sentences. There seems, however, to be a real difference between Eskimoan languages and others in this respect; see §5 for discussion.

kí+sǎn é-ʔǎ:m-ě:
 meat+boil 1PL.EXCL.S-eat.PRV
 ‘Yesterday we made frybread and today we made boiled meat.’

Such examples, Stirling says, are too common and consistent within and across languages to be ignored, and must be integrated into a general theory of SR—a claim often echoed by others (Mithun 1993; McKenzie 2012; Keine 2013). Instead, she claims that SR marking fundamentally expresses a relationship between two eventualities: SS indicates continuity between the eventuality in the marked clause and the eventuality in the context clause, whereas DS indicates some type of discontinuity between the two eventualities (see also Mithun 1993). More specifically, she says that SS is used when the matrix clause does not introduce a new “protagonist” referent that was not already present in the reference-marked clause. Because she defines protagonist as the referent of the *agentive* subject (1993: 64), her characterization of SS allows for some instances of SS marking in which the tracked subjects overlap in reference, but do not strictly have the same reference, as in (17) below. DS is used when the two eventualities differ in some eventuality parameter, usually (but not necessarily) if the superordinate clause introduces a new protagonist not present in the marked clause. Other eventuality parameters are location, time, and actuality, and changes in these parameters can also justify DS marking, as the change of time does in (5b). Note also that the generalization for SS marking and the generalization for DS marking are not exact opposites of each other. In this way, Stirling allows for the possibility of SS or DS marking being used in seemingly free variation, as appears to happen in some cases, including (5a). Stirling’s work has had lasting impact, shifting the field away from primarily syntactic accounts of SR.

McKenzie (2012; 2015b) brings Stirling’s basic view into the 2010s, developing it in formal semantic terms (Stirling used Discourse Representation Theory). He makes many of the same basic points, in the context of his fieldwork on Kiowa and his ambitious survey of SR in North American languages. From the semantic side, his main contribution is the plausible one of saying that the morphemes in noncanonical SR cases are relating (Austinian) situations rather than (Davidsonian) events/eventualities—a distinction that we do not discuss further here.

2.3 Two kinds of SR: a semantic kind and a syntactic one?

McKenzie also makes what could prove to be a crucial empirical observation: he claims that noncanonical switch-reference is quite typical in cases where the clauses seem to be joined by way of conjunction (or clause chaining), but is not found in cases where one clause is subordinated to another as an adjunct or an argument. He demonstrates that this is true internally to Kiowa. The particles *gɔ* versus *nɔ* seen in (5) are markers of clausal coordination, and with them noncanonical SR is not uncommon and can be brought out in fieldwork by suitable manipulations of the context. But the same language also has subordinating SR morphemes, including *-tsě:/-ě:* ‘when.SS’/‘when.DS’, and these give only canonical SR judgments regardless of context. Thus SS marking is categorically rejected with different subjects in (6a), and (6b) cannot have DS marking when the subjects are interpreted as coreferent, regardless of how the relationship between the events is construed.

- (6) Kiowa (Tanoan, McKenzie 2015b: 21-22)
 a. *Bill Ø-tsǎn [Sam gjà-hó:+ai:-gu=tsě:].
 Bill 3S-arrive.PRV Sam 3SG.AN/3PL.O-travel+start.off-IPFV=when.SS

(‘Bill arrived when Sam was leaving.’)

- b. **Bill èm-hâ:* [*é-bô:=è:*].
Bill 3SG-arrive.PRIV 3SG.AN/1SG.D-see.PRIV=when.DS
(‘Bill₁ stood up when he₁ saw me.’)

This suggests that two quite different phenomena may be attested, which have not been clearly distinguished in much of the literature to date. McKenzie (2015a) also claims that his broad crosslinguistic survey supports this generalization: noncanonical SR is attested in cases of coordination and clause chaining, but not with true clausal embedding. Weisser (2012) makes the same point clearly (and at approximately the same time), adding that two Australian languages, Yakanytjatjara and Pitjantjatjara, are very much like Kiowa in showing noncanonical SR in conjoined structures but not in purpose clause adjuncts.

There are other hints in the literature that also point in this direction. For example, two of the languages that Stirling (1993) discusses in the most detail are Imbabura Quechua (IQ) and Amele. She shows that noncanonical SR is far more prevalent in Amele than in IQ—maybe SR in IQ is only canonical, once one gets the right notion of subject (see §4). This matches with the fact that reference-marked clauses are clearly subordinate clauses in IQ (see below), whereas Amele is a quintessential case of clause chaining, arguably a form of coordination (cf. Nonato 2014). There is also good reason to say that reference marked clauses in the Panoan languages Shipibo and Yawanawa are subordinate clauses, as argued by Camargo-Souza (2016), and these languages do not seem to have noncanonical SR: at least, Valenzuela (2003) doesn’t mention it, and we have found no clear cases when searching through her many examples, or in our own parsing of texts. Also suggestive on this point are Hale’s (1992) remarks on Uto-Aztecán. In Hopi the markers *-t* SS and *-q* DS are clearly attached to the verb in the marked clause as complementizers, and there is no noncanonical SR (as far as Hale 1992 or Jeanne 1978 state, anyway). In contrast, the O’odham cognate to *-t* is *-c*, and this has become separated from the marked clause, now serving as a marker of conjunction. Correlated with this, Hale observes several instances of noncanonical SR in O’odham, different from Hopi. So the McKenzie/Weisser generalization seems very promising, although much remains to be done to confirm it in specific languages—an important area for future research.²

If this generalization is correct, it has two important consequences for future research. The first is that SR is not a unified phenomenon, such that we should stop using the same term for both types. We suggest, then, that the term “noncanonical switch-reference” should be replaced with a new term like SWITCH-SITUATION, clearly distinguished from switch-reference proper. The second consequence is that we need a new syntactic approach to switch-reference proper, for the substantial set of constructions in which “same subject” and “different subject” are accurate characterizations. It looks to us (and Weisser 2012) like Finer was right that SR is

² In particular, what counts as “clause chaining” is not very well defined by McKenzie (or others). We hope that this category can be reduced to either a particular kind of conjunction (as Keine 2013 does for Amele, and Nonato 2014 for Kisédjê), or a particular kind of subordination, depending on the language (see also Broadwell 1997 for another possible structure). If that is correct, then we need to sort out which instances of clause chaining are which in order to fully evaluate the McKenzie/Weisser empirical generalization. Some potential problems may be lurking here. For example, Mithun (1993) shows that there is noncanonical SR in Central Pomo, and McKenzie classifies this as clause chaining, consistent with his generalization. But if forced to choose between conjunction and subordination, there is some reason to think that most of Mithun’s cases are subordination: for example, three of the four SS markers allow the reference-marked clause to follow the main clause. So there is important work to be done here.

syntactic for a coherent subset of the languages/constructions that have been said to have SR. And whereas McKenzie (2012) makes a contribution to the theory of switch-situation, he has almost nothing to say about switch-reference, even though that is also present in Kiowa.

The Panoan languages Shipibo and Yawanawa have an additional feature that points toward SR being syntactic. In these languages there is actually a three-way contrast in part of the SR paradigm. Perfective/sequential subordinate clauses in Shipibo can be marked SS (*-ax* or *-xon*, depending on the case of the matrix subject; see Camacho 2010), or DS (*-ke-tian*), or with a third marker (*-a*, O=S), which signals that the object of the embedded verb is the same as the subject of the matrix verb.

(7) Shipibo (Panoan, Valenzuela 2003: 424; Baker 2014: 364)

- a. *José-ra Rosa oin-ax xobo-n ka-ke.*
 José-PRT Rosa see-SS.ABS house-LOC go-PRV
 ‘José_i, he_i seeing Rosa_j, went home.’
- b. *José-kan Rosa oin-a-ra, xobo-n ka-ke.*
 José-ERG Rosa see-O=S-PRT house-LOC go-PRV
 ‘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-PRV-DS-PRT s/he home-LOC go-PRV
 ‘When José_i saw Rosa_j, he_m/she_k (someone else) went home.’

Although object-equals-subject coreference marking is a rare phenomenon, and challenging for any existing theory, the fact that it is possible provides a hint as to the intrinsic nature of SR. Suppose that we grant to Stirling and McKenzie that (7a) exhibits a continuity of eventualities/situations and (7c) involves discontinuous events/situations because of the introduction of the new agentive subject in the second clause. Where then does (7b) fit in? One could say that (7b) is like (7a) rather than (7c) because the second eventuality doesn’t introduce a new referent, but then how does one distinguish O=S from SS? Alternatively, one could say that (7b) is like (7c) rather than (7a) in that the two eventualities have different protagonists, but then how does one distinguish O=S from normal DS? Either way, O=S seems to require crucial reference to the syntactic notion of grammatical relations—an expansion of Finer’s point concerning examples like (3).

Panoan’s three way distinction also points away from Keine’s (2013) view that SR reduces to two different types of coordination, SS being VP conjunction with a single shared subject, and DS being vP conjunction with room for two different subjects, one in each vP. Keine’s proposal is summarized in structural form in Figures 2 and 3 (based on Keine 2013: 803-804).

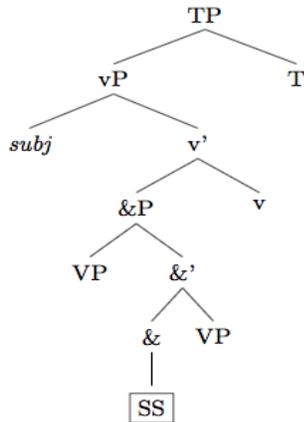


Figure 2: SS as VP coordination

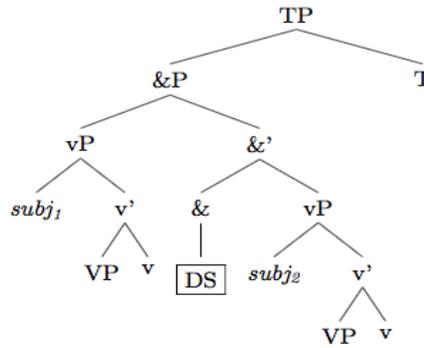


Figure 3: DS as vP coordination

While analyzing SS as VP conjunction in this way has a priori plausibility for some languages, the view could not be generalized to O=S, given normal structural theories of conjunction: there is simply no constituent that contains the subject and the verb but not the object that can be conjoined with a normal VP (cf. English *Chris [[_{VP} came in] and [_{VP} Pat saw]]). In contrast, something like Finer’s approach does have prospects for generalizing to this case, given that there are functional heads in the structure of the clause that agree with the object of the clause rather than the subject in some languages. (Indeed, Finer (1985: 52) foresees the possibility of O=S in his system, mentioning Yup’ik as a possible case; see section 5 below.) For more on O=S marking in Panoan and its implications for the theory of SR, see Baker & Camargo-Souza (in progress).

The tentative conclusion, then, is that there is a syntactic type of switch-reference that involves clausal embedding, and a semantic type that involves clausal conjunction, better called “switch-situation”. Although there is recent work that makes progress on the (semantic) theory of switch-situation, there has been less recent attention paid to the theory of switch-reference proper.

3. The distribution of SR over clause types

We have seen that the distinction between clausal conjunction and clausal embedding seems to be very important for a theory of SR. However, there are also various subtypes of clausal embedding: adjunction, complementation, sentential subjects, adnominal clauses including relative clauses and so on. Empirically, it seems that languages differ in interesting ways as to how SR distributes over these different kinds of clauses. Theoretically, this distribution may hold hints as to the nature of the phenomenon. For example, Finer’s (1984; 1985) theory was originally designed to work for adjunct clauses, and though he originally claimed that SR is not found with complement clauses, he does sketch an account of how SR might work on clausal complements (1984: Chapter 4). In contrast, Keine (2013) takes a strong stand that (one kind of) SR is completely impossible with complement clauses. McKenzie’s (2015a) survey brings together quite a bit of data on this topic. He claims that there is no type of clause that cannot be marked for SR in some language or another. He also provides evidence that a kind of implicational hierarchy is at work: SR marking is most common on adjunct clauses (especially temporal and causal adjuncts, but also conditional clauses), as in all the examples so far. It is of

intermediate frequency on complement clauses, and it is rarer, although attested, on relative clauses. In this section, we consider issues that arise concerning SR on clauses other than adjunct clauses and conjoined clauses.

3.1 SR in complement clauses

In accordance with McKenzie's survey, some languages limit SR to adjunct clauses, whereas others extend it to complement clauses. For example, in Shipibo and Yawanawa, SR is usually marked on adjunct clauses; canonical complement clauses are nominalizations which are not reference marked.³ This is also the case for Quechua dialects other than IQ, Kiowa, Seri and Pomoan. The situation in Yuman languages is not entirely clear. Gordon (1983) and Munro (1976) state that reference-marked clauses in Maricopa and Mojave express clauses that are naturally translated as complement or subject clauses in English, but it is not certain that they are structural complements or subjects in those languages; Munro (1976: 40) provides awkward but conceivable paraphrases in which the reference-marked clauses are adjuncts. Presumably the matter could be clarified by familiar grammatical tests involving extraction, binding, and scope, but this has not been done systematically. Muskogean languages like Choctaw provide clear examples of reference marking on complement clauses, such as (8).

- (8) Choctaw (Muskogean, Broadwell 2006: 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].*
 John-NOM think-TNS good-looking-COMP-DS
 'John_i thinks he_k is good looking.'

The Uto-Aztecan language Hopi also has SR on both adjunct clauses and complement clauses. There the distinction is made salient by the fact that SR marking is morphologically different: adjunct clauses have SS *-t* vs DS *-q*, whereas complement clauses have SS *-y* vs. DS *-t* (Jeanne 1978; Hale 1992).

Imbabura Quechua provides an interesting contrast with other Quechuan varieties. Most of the Quechuan languages have *-spa/-shpa* (SS) vs *-pti/-kpi/-jpi* (DS) on temporal, manner, and conditional adjunct clauses, but IQ has innovated an SS-DS contrast on subjunctive clauses as well (Muysken 1977: 70; Cole 1982: 63; van Gijn 2016: 168). These subjunctive clauses can be used as purpose clause adjuncts, but they can also be the complements of verbs like 'want'. In the latter use, they function very much like infinitival complements (see 13).

- (9) Imbabura Quechua (Quechuan, Cole 1982: 37)
- a. *Muna-y-man ñuka mama-ta riku-ngapaj* (SS subjunctive complement)

³ The only complements that might be reference-marked in Shipibo and Yawanawa are the complements of certain auxiliary verbs (e.g. 'go', 'begin', 'be', see (17)), where only SS marking is possible. McKenzie (2015a: 33) shows that similar verb-auxiliary constructions in Yuman languages also mark SS. He analyses it as a historical vestige of a former SR construction, since these constructions always require SS and there is no second subject to be tracked.

want-1SG-COND my mother-ACC see-SBJV.SS
 ‘I want that I see my mother; I want to see my mother.’

- b. *Muna-ni Juzi pay-paj mama-ta riku-chun* (DS subjunctive complement)
 want-1SG Jose he-of mother-ACC see- SBJV.DS
 ‘I want Jose to see his mother.’

Indeed, Keine (2013: 817) accepts Imbabura Quechua as one language for which his deconstruction of SR as conjunction may not apply. See also Assman (2012) for an analysis of the canonical SR system of Quechua.

As already mentioned, Finer’s (1984; 1985) syntactic analysis of SR was initially designed to account for SR on adjunct clauses. This was convenient for him, since it is clearest that the C-Agr complex of the lower clause is *locally* c-commanded by the C-Agr complex of the higher clause in this case, in the way needed for Binding theory to apply (see Figure 1). And inasmuch as SR is most robustly attested in adjunct clauses, it is appropriate for a theory to begin there. But it is now clear that SR can happen in complement clauses too, so it is important to ask whether a theory of that sort can be extended. It seems like it potentially can be, since the C-Agr complex in an embedded clause is still c-commanded by the C-Agr complex in the matrix clause: see Finer (1984: Chapter 4), Broadwell (1990; 1997), and Hale (1992).

The one potentially serious issue for extending a Finerian account from adjuncts to complements concerns locality: is the reference marker in a complement clause close enough to its antecedent in the matrix clause to have an anaphoric dependency on it? To answer this question, we must reconsider what the antecedent of the SS anaphor really is. Finer and Hale assumed that SS anaphors are bound by functional heads (C+T) in the superordinate clause, but an alternative that emerges more clearly with complement clauses in view is that a superordinate nominal could itself be the antecedent of an SS anaphor. Such a model would be reminiscent of a control construction, as we discuss some below. Whichever of these is the true antecedent, one would think that the reference marker in a complement clause is close enough to its antecedent, since binding/control-type relations normally are local to a clause, not to smaller constituents.⁴ For example, an anaphor in object position can be bound by the subject of the same clause, and one would think that the same could be true for an anaphoric SS marker on a clause in the object position. This seems adequate for examples like (8a) in Choctaw or (9a) in IQ.

However, interesting (challenging) questions now arise for ditransitive verbs which select an object as well as a subject and a reference marked complement clause. The question here is whether the anaphoric reference marker could take the object of the matrix clause as its antecedent rather than the subject of the matrix clause in this one particular structure, resulting in an S=O relationship. If SR is modeled on reflexive anaphora, we would expect this to be possible in some languages but not others, just as *self*-type anaphors are subject-oriented in some languages (like Norwegian and Japanese) but permit object antecedents in others (like English). If SR is modeled on control, we would expect the S=O pattern to be the norm, just as transitive verbs with infinitival complements like *persuade* normally have object control (the verb *promise* being a notable exception). In point of fact, however, it seems that reference marking remains

⁴ The one sort of neo-Finerian theory that might have more trouble generalizing SR to complement clauses is one based purely on Agree relationships, such as Camacho (2010). It is not clear that the C head on a CP inside VP is close enough to the matrix subject to enter into Agree with it, there being a phase head (v) and sometimes a goal object between the two.

strongly subject oriented even in this situation, as shown in (10a) from Choctaw, and (10b) from IQ. These examples must have non-anaphoric DS rather than anaphoric SS marking, even though there is a nearby potential antecedent in the form of the object.

- (10) a. Choctaw (Muskogean, Broadwell 2006: 273)
 [*Iya-l-aachi-h-o*] *a-maka-tok*.
 go-1SG.I-IRR-TNS-PTCP.DS 1SG.III-say-PST
 ‘She ordered me to go.’
- b. Imbabura Quechua (Quechuan, Hermon 1984: 123)
Juan-da kunvinsi-rka-ni [(pay) Kitu-man ri-chun].
 Juan-ACC persuade-PST-1SG.S he.NOM Quito-to go-SBJV.DS
 ‘I persuaded Juan (that) he go to Quito.’

This is a challenge for reducing SR fully to the familiar phenomenon of control. Hermon (1985) tries to do so for Quechua, but identifies this as a residue. Similarly, Hale (1993: 67) uses the parallel fact as an argument for distinguishing control from SR/obviation in Hopi and Mismalpan languages. Seeing this in terms of Binding theory, one could stipulate that anaphoric SR markers are always subject-oriented anaphors, an existing type of anaphor, but one would like to know why that should be. There is something more to understand here.

3.2 SR and relative clauses

McKenzie (2015a) says that SR marking is also possible on relative clauses, although this is rarer than on complements. IQ, for example, does not have this, nor do the Yuman languages, Seri, or the Panoan languages. One notable family that does allow SR on relative clauses is Muskogean; (11) gives an example from Choctaw.

- (11) Choctaw (Muskogean, Broadwell 2006: 29)
 [*Ofi' ipiita-li-k-aash-ma*] *balii-t* *kaniiya-h*.
 dog feed-1SG.I-TNS-PREV-D.DS run-PART go:away-TNS
 ‘That dog I fed ran away.’

The fact that there could be reference marking on a relative clause is more surprising and potentially problematic from a Finerian perspective: one might very well expect that the relative operator and DP head of the relative clause would disrupt the locality that an anaphoric reference marker needs to have with its antecedent in the matrix clause. But in fact Choctaw actually supports this style of reasoning, as an exception that proves the rule. Relative clauses in Choctaw are crucially internally headed, not externally headed (note that ‘dog’ is not marked as nominative in (11), as an external head should be). Thus the structure of the matrix subject in (11) may not be $[_{DP} DP CP]$ but just $[CP]$ with DP inside it. Even more strikingly, Broadwell (2006: 300) shows that it is possible to move out of relative clauses in Choctaw, in marked contrast with most other languages, in which relative clauses are islands (the Complex NP Constraint of Ross 1967):

- (12) Choctaw (Muskogean, Broadwell 2006: 300)

Kátomma-h John-at [ofi' aa-písa-tok-at] chopá-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?’

Broadwell conjectures that so-called relative clauses in Choctaw are not syntactically DPs, but just CPs in complement position that (somehow) receive a special entity-denoting interpretation in the semantics (see also Gordon & Munro 2017). If so, then it is not surprising that it is precisely this language that also allows reference marking on relative clauses. Overall, the path is open to say that reference marking is subject to syntactic locality, normal headed-relative clause structures disrupt that locality, and reference marking is seen on relative clauses only when they are independently known to have exceptional (simpler) syntactic structures. Other languages that have SR on relative clauses are Washo and Hopi, possibly for reasons mentioned in the next subsection.

3.3 SR and nominalization

McKenzie (2015a) says that there is no type of embedded clause that is entirely immune to being reference marked in North American languages, but we think this may not be quite true: nominalized clauses seem (almost) never to be reference marked. This may sound like a terminological quibble, since one can claim that nominalized clauses are not clauses at all, but rather noun phrases. But in fact nominalized clauses can have much of the same structure as ordinary clauses; in particular, gerund-like nominalizations in many languages have internal structures that are very similar to clauses in terms of licensing objects, allowing aspect marking, allowing adverbial modifiers, and so on. Often such structures are analyzed as having a single nominal head near the top of the phrase that otherwise consists of a normal verbal/clausal structure; for example, a determiner head might take a VP/vP/AspP complement rather than its usual NP complement (Abney 1987). If this is true, and even gerund-type nominalizations do not involve SR marking, this could tell us something significant about the grammar of SR: that it is category sensitive, and usually involves the very top layer of the clause.

First we briefly assess the empirical situation. IQ is particularly striking in this respect, since it has a rich range of nominalizations as well as reference marked clauses, and the two can appear in (apparently) the same environments, such as the complement of ‘want’: compare (13a) with (9a) repeated as (13b). Cole (1982), Hermon (1985), and Cole & Hermon (2011) point out that “infinitive” and “nominal” clauses are noun-like in the sense that the clause as a whole is marked for accusative case, and in that they allow their own object to not be marked for accusative case, as seen in (13a). In contrast, SS clauses like the one in (13b) are not nominal in these respects: they do not bear accusative case themselves, and direct objects inside them must be accusative.

- (13) a. Imbabura Quechua (Quechuan, Hermon 1985: 25)
Aycha-(ta) miku-na-ta muna-ni. (infinitive)
 meat-(ACC) eat-NOM-ACC want-1SG
 ‘I want to eat meat.’
- b. Imbabura Quechua (Quechuan, Cole 1982: 37)
Muna-y-man ñuka mama-ta riku-ngapaj. (SS subjunctive)

want-1SG-COND my mother-ACC see-SBJV.SS
 ‘I want that I see my mother; I want to see my mother.’

There is a systematic complementarity in this: no clause is marked for both SR and morphological case in IQ.

Once we are alert to this issue, we observe the same thing in other languages. For example, in Shipibo clauses marked with infinitive *-ti* are nominalized in that they can occupy the direct object position and trigger ergative case on the subject, as seen in (14a), and they can be marked for case (oblique), as in (14b). They however show no SS/DS distinction, as can be seen in (14b).⁵ In contrast, the embedded clause in (15), although it is functionally equivalent to a complement clause in some Romance languages, is marked SS but is not nominal, as shown by the fact that it does not trigger ergative case on the matrix subject.

(14) Shipibo (Panoan, Baker fieldnotes)

a. *E-n=ra* [Rosa *jo-ti*] *onona-ke*.
 I-ERG=PRT Rosa come-INF know-PRV
 ‘I know that Rosa will come.’

b. *E-a=ra* *keen-ai* [(*mia*) *tee-ti-nin*].
 I-ABS=PRT want-IPFV (you) work-INF-OBL
 ‘I want (myself) to work’, or ‘I want you to work.’

(15) Shipibo (Panoan, Baker fieldnotes)

No-a=ra [-- *bewa onan-i*] *ka-i*.
 We-ABS=PRT song learn-SS go-IPFV
 ‘We are going (to school) to learn the song.’

We detect the same negative correlation between nominalization and SR in many other American languages. For example, Choctaw clauses can be in complement position and are reference marked, but they show no evidence of being nominal, hence case marked. Thus, (8a) has SS marking on the complement clause, which is cognate with nominative marking; it cannot bear accusative case instead (there is a contrast here with internally headed relative clauses which can be marked with either SR or case, although not overtly with both, see Broadwell 2006). In addition, nominalized clauses are clearly not reference marked in Seri (Marlett 1981: 355), or in Mojave (Munro 1976: 40, 220-222), nor is there any hint of nominalization in SR clauses in the Pomoan languages, judging by McLendon (1975: 89-93) and Mithun (1993). McKenzie (2015a: 63) mentions Ute as having SR with nominalized verbs, but in fact most embedded clauses in Ute do not show an SS-DS distinction (Givón 2011: Chapters 9, 17). The only clauses which have SS forms distinct from DS are *-chi* marked clauses used as purposive adjuncts and as complements of verbs like ‘want’, and these clauses are less unambiguously nominal than other clauses in Ute, in that they do not bear accusative case marking or have genitive-case marked subjects, as other nominalized clauses do (the subject in *-chi* marked clauses is usually null). It seems, then, that the generalization that SR proper cannot apply to nominalized clauses is quite robust in the Americas.

⁵ The matrix subject is not ergative in (14b) because the infinitive complement is marked for oblique case.

One exception that proves the rule is Hopi, another Uto-Aztecan language. Jeanne (1978) and Hale (1992) show that what looks like a DS/SS contrast is seen on complement clauses with the nominal head *-qa* (also an ingredient in reference-marked relative clauses). However, Hopi is also special in that it marks ordinary NPs like ‘dog’ differently if the possessor of the noun is the same as the local subject (*-y*) or if it is different from that subject (*-y-at*). This is not SR per se, although it may be part of some more general theory of “obviation”, as Jeanne and Hale suggest. It is thus reasonable to conjecture that Hopi’s putative use of SR on nominalized complements is formally an instance of marking anaphoric possessors (=subjects) of NPs, not an instance of true SR marking on clauses (see also Greenlandic, below). Indeed reference marking on complement clauses in Hopi is cognate with the markers seen on nouns (SS/proximate *-y*, DS/obviative *-t*), and not with the canonical SR markers used on unnominalized adjunct clauses (SS *-t*, DS *-q*).⁶

3.4. SR as control of an operator?

What is the theoretical significance of the observation that SR is largely incompatible with nominalization? We think it suggests that there is a syntactic operator at the edge of the reference-marked clause that is crucially involved in the SR phenomenon. The matrix subject then controls this operator (in some sense), and the C-T morphology in the embedded clause forces the operator to be the same as the subject of the clause in a way akin to what Finer said. This is illustrated in Figure 4, in the context of an adjunction structure.

⁶ In addition, the obviation affixes found on nouns are also used to mark SR on relative clauses in Hopi, presumably for the same reason. Another interesting case is Washo (Jacobsen 1964; 1967). Although the DS marker *-š* appears on nominalized complement clauses (and on internally headed relative clauses), Washo is somewhat unusual in that the nominal head/morpheme *-gi/ge* appears outside of the SR marker, and there are no other obvious signs of nominalization internal to the clause. This morpheme order is in marked contrast to languages like Choctaw and Hopi, where SR markers are outside of C or NOML morphemes. Following Hanink & Arregi (2017), we could say that a D head takes a full CP complement in Washo, and then there is still room for an operator in Spec CP (cf. Figure 4).

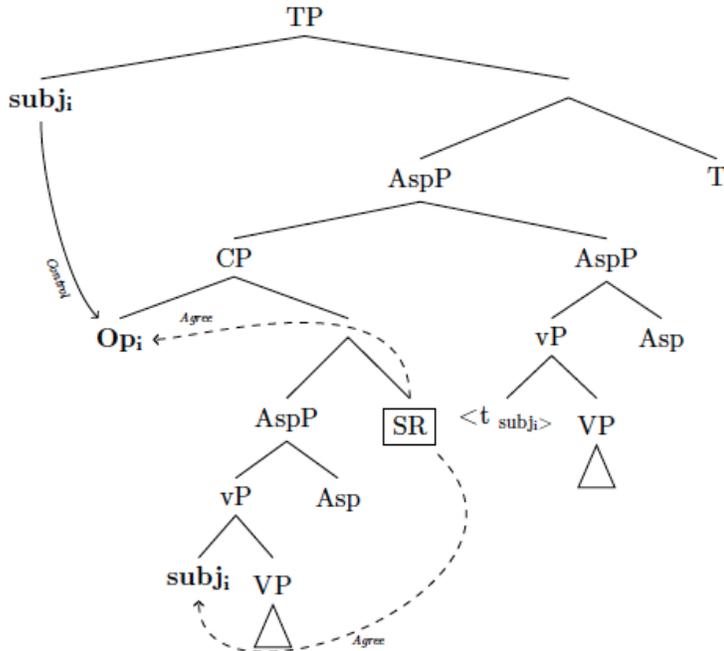


Figure 4: The structure of a neo-Finerian approach to SR

Nominalized clauses are then different from verbal clauses in that they do not allow such operators. That generalization can be independently motivated. For example, it is known that infinitival clauses allow overt *wh*-operators in English but more nominal gerund clauses with *-ing* do not, as seen in (16).

- (16) a. Mary remembered to take her medicine.
 b. Mary remembers taking her medicine
 c. Mary remembered which medicine to take.
 d. *Mary remembered which medicine taking.

This also seems to be true for more abstract (phonologically null) operators involved in licensing logophoric pronouns and indexical shift: for example, indexical shift is possible in verbal clauses but not in nominal clauses in Turkic languages such as Uyghur (Shklovsky & Sudo 2014).

Arguably this follows from a general theory of category distinctions like Baker's (2003), where verbal categories differ from nominal (and adjectival) categories precisely in having the ability to license specifiers – although there is work to be done to generalize this theory from lexical heads to a full range of functional heads. The negative interaction between nominalization and reference marking suggests that a similar infrastructure of DP operators in the left periphery of the clause is involved in SR.

Positing an operator that mediates between the matrix subject and the embedded clause could contribute to a neo-Finerian account in other respects. First, as already mentioned, an account in terms of control is compatible with the matrix subject being referentially related to SS

in a CP complement, whereas an entirely agreement-based theory may not be (see Footnote 5).⁷ Second, it opens up some new space to think about the fact that SS marking is sometimes possible when the subject of the main clause and the subject of the embedded clause overlap in reference, but one is plural and the other singular. (17) is an example from Mojave (Langdon & Munro 1979: 325); this is also allowed in Maricopa, Kashaya, Washo, and in Panoan languages, although not in Muskogean languages, Seri, or Quechua.

- (17) Mojave (Yuman, Langdon & Munro 1979: 325)
Town ə-tayəm-k Allen-č i:mattək^wəha:v tu:raw-m.
 town 1-go.PL-SS Allen-NOM shirt buy-TNS
 ‘We (=Allen and I) went to town and Allen bought a shirt.’

This seems problematic for Finer’s literal project of explaining SR in terms of Binding theory, since anaphors cannot generally overlap in reference with their antecedents (**John annoyed ourselves on the family vacation*, trying to mean ‘John annoyed a group [e.g. his family] that includes himself and the speaker’). This is also problematic for an unmediated agreement theory, where some head agrees directly with both the matrix subject and the embedded subject, inducing SS (e.g. Camacho 2010), since the two subjects do not agree in person-number-gender features in cases like these.⁸ However, control is one linguistic relationship that does sometimes tolerate number mismatches, as in “partial control” examples like (18), studied by Landau (2000, and much subsequent work).

- (18) Mary prefers [PRO to meet at 5:00pm]
 (Mary and others—possibly including the speaker— meet)

4. What counts as the subject for reference marking?

Another important issue is what exactly counts as the “subject” for same-subject and different-subject marking, and what that implies about the constructions. This is an empirically rich area, with an interesting array of facts in different languages, discovered in part by Relational Grammarians constructing arguments that different nominals can be subjects at different levels of representation (see, for example, Marlett 1981 and Farrell et al. 1991 on Seri, Jake 1985 on IQ, Davies 1986 on Choctaw). It is also theoretically very important for our understanding of what SR is. We mentioned above controversies about whether SR is really sensitive to subjects (Finer’s view), or topics, or Stirling’s discourse-based notion of protagonist. A fair question, then, is whether the syntactic notion of subject is really any better defined than a semantic-pragmatic notion like protagonist, once one looks at the details. More narrowly, within

⁷ Still pending, however, is the question of why the operator is always controlled by the matrix subject, never by the matrix object, as noted in connection with (10). Although this is not a property of canonical control, it is apparently a property of the control of logophoric operators and of complementizer agreement in Bantu languages like Lubukusu (see Diercks 2013). Thus, the principles of control may be somewhat different for subject PROs and for null operators in CP, for reasons that remain to be understood.

⁸ Note that in (17) the two subjects disagree in person features as well as in number features. Therefore, splitting T into separate person and number probes along the lines of Béjar & Rezac (2009) and Preminger (2014: Chapter 4) and saying that SR is mediated by the person probe only (as suggested by an anonymous reviewer) does not help to explain this example. Not all languages that allow SS marking in cases of referential overlap allow it in cases where the subjects do not match in person (Stirling 1993: 38, 82-83), but some do, including Mojave.

generative terms, it is known that different aspects of grammar operate with overlapping but different senses of subject. For example, dative subjects in Icelandic famously act just like ordinary nominative case subjects for purposes of controlling and being controlled, and for purposes of binding anaphors, but not for purposes of case assignment and agreement (Zaenen et al. 1985). What exactly counts as a subject for SR, then, could provide valuable hints as to what grammatical mechanisms are involved: for example, whether they are mechanisms of Binding, or Control, or agreement, or a combination.

4.1 Thematic role and grammatical function

First of all, it seems clear that SR is never determined exclusively or even primarily by thematic role, like agent or patient, rather than by grammatical function, such as subject and object. Thus, the theme subjects of unaccusative verbs are generally treated as equivalent to the agent subjects of transitive or unergative verbs for purposes of SS marking. For example, there is SS marking in examples like (19) from Choctaw, where the type of agreement on the verb shows that the first verb is unaccusative (glossed II) whereas the second is unergative (glossed I) (see also Davies 1986).

- (19) Choctaw (Muskogean, Broadwell 2006: 294)
Ik-si-abiik-ahila-h-makoo-sh, iya-l-aachi-h.
 N-1SG.II-sick-POT-TNS-CONCESS-SS go-1SG.I-IRR-TNS
 ‘Even if I get sick, I’ll go.’

Clear examples of this type are also found in Panoan languages, among others.

One might think that passive clauses should behave like unaccusative clauses in this respect, and sometimes they do. For example, the promoted theme of a passive clause counts as the subject for reference marking in (20) from IQ (Jake 1985: 62; see also Hermon 1985: 124-125), just as the theme of ‘get sick’ does in (19).

- (20) Imbabura Quechua (Quechuan, Jake 1985: 62)
*Wajcha [jari ayuda-shca ca-ngapaj/*chun] caya-rca.*
 Poor.person man help-PASS be-SS/*DS call-3SG.PST
 ‘The poor person called so as to be helped by the man.’

But subjecthood is a bit more complex with passives than with unaccusatives, because passives have covert agents. These are arguably still present in the syntactic representation, and hence they could also have an influence on reference marking. Indeed, in Seri it seems to be the covert agent that counts for SR, not the theme. Hence, (21a), which is formally similar to (20) in IQ, must be marked DS, whereas (21b) can be marked SS because the covert agents are coreferential, even though the theme “subjects” are not (Seri; Marlett 1981: 357; Farrell et al. 1991: 434; Keine 2013: 780).

- (21) Seri (Isolate, Marlett 1981: 357; Farrell et al. 1991: 434; Keine 2013: 780)
 a. *?p-po-a:ʔ-kašni ta-X ?p-si-o:ʔa ʔa=ʔa.*
 1SG.S-IRR-PASS-bite DS-UT 1SG.S-IRR-cry AUX=DECL
 ‘If I am bitten, I will cry.’

- b. *ʔa:t kiʔ p-a:ʔ-ka: Ø-X ʔe:poʔ kiʔ mos s-a:ʔ-ka:*
 limberbush the IRR-PASS-look.for SS-UT ratany the also IRR-PASS-look.for
ʔa=ʔa.
 AUX=DECL
 ‘If limberbush is looked for, white ratany should also be looked for.’

In fact, this difference between IQ and Seri seems to be explicable given details about the so-called passive constructions in the two languages. IQ has no so-called “impersonal passive” in which the thematic object fails to become the syntactic subject (Cole 1982: 133), whereas Seri clearly does (Marlett 1981: 314-328): theme arguments of passives in Seri trigger object agreement rather than subject agreement when they are plural, or when an oblique argument is also present. With this in mind, we can conjecture that Seri does not have a real personal passive construction at all, but rather an “unspecified subject” construction with a featurally defective but present subject. The theme argument then remains an object grammatically, even though T may agree with it in that position under some circumstances (as is possible in oblique subject constructions in Icelandic and Hindi, for example). Then (21b) has SS because the two unspecified subjects corefer, and (21a) has DS because the unspecified subject of the first clause does not corefer with the subject ‘I’ of the second clause.⁹ Another language similar to Seri in this respect is Central Pomo (Mithun 1993: 123).

Another sort of clause that has a mismatch between the grammatical function of subject and the thematic role of agent is possessor raising clauses, in which the thematic possessor of the subject moves out of the subject DP, perhaps into Spec TP, with the result that it becomes case marked and/or agreed with as if it were itself the subject. This sort of possessor raising is known to feed reference marking, so that SS is used if the subject of one clause is coreferential with the raised possessor of the subject of the other clause. This happens in Choctaw (Broadwell 2006: 308-309), Chickasaw, and Maricopa. (22) gives Maricopa examples.

(22) Maricopa (Yuman, Gordon 1983: 85).

a. DS with no Possessor Raising

M-e’e-ny-sh nyiily-m m-shhot m-lyvii-k.
 2.POSS-hair-DEM-NOM black-DS 2SG-pretty 2SG-be.like-ASP
 ‘You are pretty because your hair is black.’

b. SS with Possessor Raising

Man-sh m-e’e m-nyiily-k m-shhot m-lyvii-k.
 You-NOM 2.POSS-hair 2SG-black-SS 2SG-pretty 2SG-be.like-ASP
 ‘You are pretty because your hair is black (because you are black-haired).’

Broadwell (1997) uses this as an argument against Stirling’s semantic view, correctly, we believe. However, more thorough analyses of the syntax and semantics of possessor raising in the relevant languages would be helpful in confirming this.¹⁰

⁹ This account also explains the fact that a passive clause linked to an intransitive clause with the “unspecified subject” marker *ka* can also be marked SS in Seri (Marlett 1981: 357). See Keine (2013) for a somewhat different but related interpretation of these facts.

¹⁰ One sometimes sees SS marking if the subject of one clause is coreferent with the possessor of the subject of the other clause, even when there is no independent evidence of possessor raising. Seri (Marlett 1981: 362-363) has one

4.2. The impact of case marking

One group of languages in which the thematic distinction between agent and patient does seem to affect SR is the Pomoan languages. For example, in Eastern Pomo, according to Stirling (1993: 99-105), two coreferential agents trigger SS, and two coreferential patients trigger SS, but a patient paired with an agent triggers DS, as in the following data (originally from McLendon 1978; see Mithun 1993 for similar data from Central Pomo).

- (23) Eastern Pomo (Pomoan, McLendon 1978)
- a. *Háa káluhu-y, Ø siimáa mérqakiihi.*
1SG.AG went.home-SS 1SG.AG sleep lay.down
'I went home and then went to bed.'
- b. *qaalalma-y wí mípal diiLaqmaya.*
get.sick-SS 1SG.P 3SG.P think.about
'When I get sick, I think about him.'
- c. *Háa xaaqaki-qan, wí q'aalálmaya.*
1SG.AG take.bath-DS 1SG.P get.sick
'Just because I took a bath, I got sick.'

But this is yet another exception that proves the rule. First, as Stirling herself discusses, one cannot refer *only* to thematic role even in Pomo, since having a patient object in one clause and a patient subject in the other does not license SS marking; for example, (23b) cannot mean 'When *he* gets sick, I think about *him*', with patient subject equated to direct object using SS marking. So it must be a combination of grammatical function and thematic role that determines SR in Pomo. Moreover, it is surely no coincidence that the one family of languages in which agenthood and patienthood seem to be relevant for SR is the very family in which agenthood and patienthood seem to be relevant for case marking and (number) agreement. Thus, the patient nominal bears a different case marking from the agent nominal in (23c) as well (for the full paradigm of Eastern Pomo, see McLendon 1975; for Central Pomo, see Mithun 1993: 121-122). So we would not take Pomo as evidence that semantic distinctions like thematic role can determine reference marking directly; rather we would take it that morphosyntactic distinctions like case marking can influence reference marking—and case is, rather unusually, influenced by thematic role in Pomoan languages, for reasons to be determined. In other words, our interpretation of (23) is that SS is used in Pomo only if the subjects of the two clauses are coreferential and they bear the same case.¹¹

clearly described instance of this. Since all of the examples involve inalienable possession (I = my limbs, my heart, my spirit), it may simply be that an NP that denotes a person can count as coreferential with an NP that denotes a part of the person, as happens with discontinuous constituents in Australian languages like Warlpiri.

¹¹ Case is relevant to SR in Panoan languages too, but in a different way: the form of the SS marker varies depending on whether the matrix subject is ergative or not (Valenzuela 2003; Camacho 2010; Baker 2014). So case features can be picked up by SR markers, and Pomo is presumably a variant of this. See Camacho (2010) for the stronger claim that case is central to the agreement relation that establishes interclausal dependencies in SR constructions. More generally, the relationship of SR to case marking is an important topic that we are unable to discuss systematically here.

Also interesting are experiencer subjects of verbs like ‘be thirsty’ or ‘be hurting’ when those bear a case distinct from that of ordinary agentive subjects in a language. IQ presents relevant examples, where certain experiencer subjects are marked with accusative case and do not trigger subject agreement on the verb. These are perhaps the closest analogs of Icelandic quirky case subject constructions to be found in American languages with SR. The question, then, is whether these experiencers count as subjects for SR, as they do for binding and control in IQ (as in Icelandic, Zaenen et al. 1985), or whether they do not, as they do not for case and agreement (as in Icelandic). Interestingly, Hermon (1985) reports an asymmetry in this respect: accusative experiencers in the matrix clause can count as subjects for SS marking (24a), but accusative experiencers in the embedded clause do not, as seen in (24b) (see also Cole 1982: 112).

(24) Imbabura Quechua (Quechuan, Hermon 1985: 125, 115)

a. [-- *yaku-pi ka-shpa-ka*] *chiri-wa-rka-mi*.
 water-in be-SS-TOP be.cold-1SG.O-PST.3SG-VAL
 ‘When I was in the water, I(ACC) was cold.’ (also OK: *ka-jpi-ka*, with DS)

b. *[-- *nana-shpa*] *doktur-pag-man ri-rka-ni*
 hurt-SS doctor-POSS-to go-PST-1SG.S
 (‘When I(ACC) hurt, I went to the doctor.’) (OK with *nana-jpi*, DS, see Cole 1982: 112)

This potentially surprising asymmetry makes some sense in light of the possibility that SR is mediated by a null operator in Spec CP of the embedded clause, as we proposed in Figure 4. Then the relationship of the matrix subject to the operator is one of control, and its special case-agreement properties are not relevant to that. However, the relationship between the operator and the embedded subject is different: it is arguably coreference enforced by two nominals agreeing with the same head C. Therefore, whether the downstairs subject is active for agreement or not is relevant for that aspect of the construction, and case-marked experiencers are not active. The IQ asymmetry could thus be very instructive for teasing out the various primitive syntactic relationships that SR is built out of. It remains to be seen, however, how general this asymmetry will prove to be.¹²

4.3 An interaction

Finally, IQ also shows a potentially very instructive interaction between the topic of this section, subject choice, and the topic of the last section, types of embedding. Recall that IQ has innovated SR marking on subjunctive clauses in addition to temporal adjuncts. Unlike the temporal clauses, subjunctive clauses can appear in complement (or low-adjunct) positions. Significantly, the two clauses also differ in what counts as a subject in the matrix clause, according to Cole (1983): the covert experiencer of a predicate like ‘be good’ or ‘be heavy’ counts for subjunctive clauses, but not for temporal clauses. Hence SS marking is possible in (25a) in contrast to DS marking in (25b), but the temporal clause in (25c) can only have DS marking.

(25) Imbabura Quechua (Quechuan, Cole 1983: 7-8)

¹² There is also good evidence that what counts as the object of the embedded clause for O=S reference marking in Panoan is an agreement-theoretic sense of object. See Baker & Camargo-Souza (in preparation) for discussion.

- a. *Chay kipi llashaj-mi ka-rka* [(*ñuka*) *apa-ngapaj*].
 that bag heavy-VAL be-3SG.PST I take-SS.SBJV
 'That bag was too heavy (for one/me) to carry.'
- b. *Chay kipi llashaj-mi ka-rka* [*pay/ñuka* *apa-chun*].
 that bag heavy-VAL be-3SG.PST he / *me take-DS.SBJV
 'That bag was too heavy for him to carry.'
- c. [*Ñuka ñan-pi puri-ju-jpi/*shpa*] *chay kipi llashaj-mi ka-rka*.
 I road-in walk-PROG-DS/*SS that bag heavy-VAL be-3SG.PST
 'When I was walking in the road, that bag was heavy (for me).'

We interpret this as follows: predicates like ‘be heavy’ have an (often) null experiencer argument, in a position like Spec ApplP that is lower than the syntactic subject but higher than a complement, which can control something in its c-command domain (as in English *That bag is heavy for John [PRO to carry]*). The subjunctive clause is a complement, so it is inside the c-command domain of the experiencer and its operator can be controlled by it in (25a). In contrast, the temporal clause is adjoined higher, tentatively to AspP (see Figure 4), so it is outside the c-command domain of the experiencer in Spec ApplP and cannot be controlled by it, but only by a true subject in Spec TP. This supports the idea that it is control theory—and certainly not agreement theory, since there is no agreement with the covert experiencer—that determines what counts as the “subject” in the matrix clause. (This however deepens the mystery of why SS marking never shows that the subject of a complement clause is coreferent with the object of the matrix clause in examples like (10b), even when the embedded clause does seem to be a complement. Perhaps the object never in fact c-commands the embedded clause, but it remains to be understood exactly why that is so.)

5. On the boundaries of switch-reference

With switch-reference, as with other linguistic phenomena, there are many borderline or less canonical cases. Whether they should be included in the fold depends partly on semi-arbitrary definitions and partly on the results of close analysis of the phenomenon in question. As an illustrative case in point, consider Kalaallisut (Greenlandic) and the other Inuit languages. McKenzie’s (2015a) survey does not count these as having SR, but most linguists who work on languages from this family claim that they do have SR.¹³ This is based on contrasts like the one in (26a, b) from Kalaallisut. (26a) versus (26b) looks like a canonical SS/DS pair, very similar to (1) from Mojave. This certainly counts as SR according to our preliminary definition: “one clause is morphologically marked to show whether or not one of its nominal arguments refers to the same entity or entities as a nominal argument of a structurally nearby clause.” (26c) shows that Kalaallisut also has a kind of object=subject form, a phenomenon otherwise attested only in Panoan (see (7b) from Shipibo).

- (26) Kalaallisut (Greenlandic, Bittner 1994: 153)
- a. *Juuna-p Kaali tatigi-ga-mi-uk tuqqissima-vu-q*.
 Juuna-ERG Kaali.ABS trust-PST-3SG.S.SS-3SG.O stay.calm-IND-3SG.S

¹³ We thank a reviewer for pointing this out to us. To keep the discussion manageable, we consider only the Greenlandic variety here, based on Fortescue (1984), Bok-Bennema (1991), and Bittner (1994).

‘Because Juuna_i trusted Kaali_k, he_i stayed calm.’

b. *Juuna-p Kaali tatigi-mm-a-gu tuqqissima-vu-q.*
 Juuna-ERG Kaali.ABS trust-PST-3SG.S-3SG.O stay.calm-IND-3SG.S
 ‘Because Juuna_i trusted Kaali_k, he_{n,*i,*k} stayed calm.’

c. *Juuna-p Kaali tatigi-mm-a-ni tuqqissima-vu-q*
 Juuna-ERG Kaali.ABS trust-PST-3SG.S-3SG.O.O=S stay.calm-IND-3SG.S
 ‘Because Juuna_i trusted Kaali_k, he_k stayed calm.’

Although this is undeniably SR in a descriptive sense, there are also significant differences. Perhaps the most important theoretically has to do with what counts as a subject for SS marking. All sources agree that in Kalaallisut the putative SS form can show that the subject of the reference marked clause is the same as the subject of *any* higher clause, not necessarily the immediately superordinate one. (27) is a carefully constructed example of Bittner’s (1994: 180) which shows this clearly; see also Fortescue (1984: 147-148) and Bok-Bennema (1991: 157).

(27) Kalaallisut (Greenlandic, Bittner 1994: 180)
Kaali-p Tuuma uqarfigi-v-a-a [Juuna-p [-- isir-a-mi]
 Kaali-ERG Tuuma tell-IND-3SG.S-3SG.O Juuna-ERG enter-PST-3SG.S.SS

urnim-m-a-ni]].
 approach-PST-3SG.S-3SG.O.O=S
 ‘Kaali_i told Tuuma_k [that Juuna_n approached him_i [when he_{i,n} entered]]].’

The embedded temporal clause ‘when *pro* entered’ is clearly contained inside the CP complement of ‘tell’ on both semantic and syntactic grounds: semantically, it modifies the time of the approaching, not the time of the telling, and syntactically it comes between the subject of the clausal complement ‘Juuna-ERG’ and the verb of the complement ‘approach’ (*Juuna* cannot be parsed as the subject of the intransitive verb ‘enter’ because it has ergative case). The verb ‘entered’ is marked with the SS form *-mi*, showing that its subject is the same as a higher subject. But, surprisingly, it does not have to be interpreted as *Juuna*, the subject of the immediate containing clause; it can instead be interpreted as *Kaali*, the subject of the highest clause. So although this is a kind of SS marking, it is doubtful that our generic neo-Finarian analysis in Figure 4 applies here: the subject *Kaali* is too far away from the C associated with ‘enter’ for C to agree with it directly, or for *Kaali* to control an operator inside this CP. The latter point is driven home by the fact that Bittner contrasts (27) with a similar sentence in which the most deeply embedded verb is an infinitival form of ‘enter’ (*isir-lu-ni*), and in this case the subject of ‘enter’—presumably PRO—can only be understood as referring to the immediately superordinate subject *Juuna*, as one would expect. So control is strictly local in Kalaallisut, as is reference marking in most languages (e.g., see Camargo-Souza 2016 for Panoan) — but reference marking in Kalaallisut is not local.

Indeed Kalaallisut is different from the “standard average SR” of Western North American languages in more superficial ways as well. Putative SR marking in Kalaallisut is thoroughly integrated into the language’s rich agreement system: SS marking in (26a) is a special form of agreement (*mi*) with the ergative subject; O=S marking in (26c) is a special form of

agreement (-*ni*) with the absolutive argument; there is a parallel form (also -*ni*) in the possessive paradigm for nouns, which indicates a reflexive possessor. In traditional Inuit grammatical terminology, these forms are called “4th person” agreement, and this is found side by side with agreement with the usual three persons in inflectional paradigms. These 4th person markers also register the number features (singular/plural) of the agreed-with argument, and they can only take a third person antecedent. In contrast, in the other SR languages we have considered, reference marking is either in addition to and independent of ordinary subject-verb agreement (e.g., Yuman, Muskogean), or the language has no subject-verb agreement to speak of (e.g., Panoan), and canonical SR is often insensitive to the person of the subjects involved (e.g., see (1) and (2) from Mojave).

An important hint as to the nature of fourth person inflection in Kalaallisut, we claim, is the fact that the language also has a reflexive overt nominal *immi*. This is used in positions which are not agreed with, such as verbal arguments with oblique case, including the ablative comparison phrase in the comparative construction in (28).

- (28) Kalaallisut (Greenlandic, Bittner 1994: 147)
Kaali uqar-pu-q [Pavia *immi-nit angi-nir-u-sinnaa-nngi-tsu-q*].
 Kaali say-IND-3SG.S Pavia self-ABL big-CMP-be-can-NEG-PTCP-3SG.S
 ‘Kaali_i said that Pavia_k couldn’t be taller than self_{i,k}.’

This overt NP anaphor is like 4th person agreement marking in that its antecedent must be a subject but it does not necessarily need to be local: (28) has two different meanings much as (27) does. These properties are not at all surprising for *immi*–: they are typical properties for a morphologically simple, SE-type long distance anaphor. Moreover, *immi*– is morphologically related to the 4th person agreement markers (usually -*mi* or -*ni*), as Bittner mentions. Therefore along the lines of Bok-Bennema (1991: 154-158) (also in the spirit of Bittner (1994), although with differences in detail), we assume that 4th person agreement in Kalaallisut is a special form of agreement that licenses a null third person anaphor, whereas 3rd person agreement licenses a null third person pronoun. More particularly, 4th person agreement licenses a SE-type anaphor, which has to be bound by a subject, but not necessarily locally. The major properties of these constructions then follow.¹⁴

At the end of the day, then, how does this compare to the “Standard Average SR” of other American languages? There are simply similarities and differences. Functionally and pragmatically there are probably many similarities: the three-way paradigm in (26) for Kalaallisut will be used in discourse in much the same way as the three-way paradigm in (7) is in Shipibo. Structurally, there is an important similarity as well, in that the relationship between the tracked nominal in the lower clause and a local functional head is established by Agree in both (see Figure 4). But structurally there is also an important difference: in standard average SR, the lower tracked argument is linked to the higher one by some combination of agreement (of C with Op) and obligatory control (of Op by the matrix subject), two strictly local relationships; whereas

¹⁴ One important wrinkle here, which Bok-Bennema (1991: 157-158) wrestles with and Bittner sidesteps, is how the 4th person agreement markers can license a SE-anaphor in contexts in which there is an overt NP in the agreed-with position, which is not intrinsically anaphoric—like *Juunap* in (26a). One possibility might be to say that the true subject argument is really a null anaphor even here, and *Juunap* is an adjunct in a clitic-doubling relationship to it (cf. Baker’s 1996 analysis of overt NPs in Mohawk and other agreement-rich polysynthetic languages, of which Kalaallisut may be one).

in Kalaallisut the lower argument is linked to an antecedent by principles of nominal anaphora—not necessarily local.

More generally, American languages have a rich array of reference tracking devices, of which SR (canonical or not) is only one. For example, Algonquian languages famously distinguish two types of third person, proximate and obviative — terminology that is sometimes extended into the domain of SR, especially by Uto-Aztecanists (see Hale 1992: 55 for the history of this usage). Two arguments in the same domain that are marked proximate must be coreferential, whereas one marked obviative must be disjoint from one marked proximate. This can give an effect somewhat analogous to SR in some contexts. However, even arguments in matrix clauses are marked proximate and obviative in these languages, so the phenomenon is not intrinsically about interclausal relationships the way that SR is (even in Kalaallisut) (although note that an Algonquian language may have SR marking too: Muehlbauer (2012) claims that the morpheme *-yi* in Plains Cree is a DS marker, even though it has been considered as part of the obviation system in previous work¹⁵). Similarly, Athapaskan languages like Slave have three different clitic/agreement markers for third person objects or obliques, depending on whether the subject of the clause is first or second person, a third person coreferential with the object (i.e., a reflexive), or a third person disjoint in reference from the object (see Rice 1989: Chapter 28 on Slave). Like SR, this seems to be some kind of extension of the pronoun-anaphor distinction into the domain of functional heads, but again it is not an interclausal relationship per se, as SR is. Overall, then, the topic of switch-reference may be only one important subtopic within the wider topic of anaphora and reference tracking in American languages (and beyond). But mapping out this larger domain and reflecting on what overarching principles might unite it (if any) goes far beyond what we can do here.

6. Conclusion

In this chapter, we have surveyed some of the highlights from the literature on switch-reference in American languages over the last 50 years. We have concentrated on three issues of lasting interest and importance: is switch-reference determined syntactically or semantically, what range of clause types does it happen in, and what counts as a subject for marking same subject versus different subject. Our review of these issues suggests that a syntactic approach along the general lines of *Finer* (1984; 1985) is appropriate for an important subset of SR phenomena, but possibly worked out in terms of control theory (for identifying the matrix subject) and Agree theory (for identifying the embedded subject) rather than Binding theory per se. This approach would not necessarily apply in its entirety to everything that might rightly be called SR, however, such as the phenomenon of 4th person marking in Inuit languages, or the same-situation marking that is found on conjunctions in Kiowa and other languages.

Abbreviations

1/2/3 – 1st, 2nd, 3rd person; AN – animate; ABL – ablative; ABS – absolutive; ACC – accusative; AG – agent; ASP – aspect; AUX – auxiliary; CMP – comparative; COMP – complementizer; COMPL – completive; CONCESS – concessive; COND – conditional; D – dual; DECL – declarative; DEF – definite; DEM – demonstrative; DS – different subject; ERG – ergative; EXCL – exclusive; I – agreement class I; II – agreement class II; IPFV – imperfective;

¹⁵ We thank a reviewer for pointing out this reference to us.

IND – indicative; INF – infinitive; INV– inverse number; IRR – irrealis; LOC – locative; N – negative agreement class; NEG – negative; NOM – nominative; O – object agreement; OBL – oblique; O=S – embedded object is the same as matrix subject; P – patient; PL – plural; PTCP – participle; PASS – passive; PST – past tense; POSS – possessive; POT – potential; PREV – previous mention; PRV – perfective; PROG – progressive; PRT– second position particle (evidential); RECIP – reciprocal; SG – singular; S – subject agreement; SR – switch-reference; SS – same subject; s.t. – something (unspecified argument); SBJV – subjunctive; T – temporal; TNS – default tense; TOP – topic; UT – unspecified time; VAL – validator (evidential).

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