1 Introduction

- Descriptions and analyses of switch-reference (SR) have often assumed (either implicitly or explicitly) that it is a subject-oriented phenomenon
  - SR markers indicate whether the subjects of two clauses are coreferential or disjoint in reference
- Languages of the Panoan family have been described as allowing objects to be tracked by SR (Sparing-Chávez, 1998, 2012; Fleck, 2003; Valenzuela, 2003; Zariquiey, 2018, a.o.)
- However, even within Panoan, the status of object-tracking SR morphology has been a source of disagreement due to the surface similarity between SR clauses (SRCs) and relative clauses (RCs)
  - In Shipibo, Valenzuela (2003) assumes that the marker -a functions as both an object-tracking SR marker and an RC participle marker
  - Camacho (2010) rejects the classification of -a as an SR marker and assumes it only has an RC use
- The lack of clarity about the status of RCs and SRCs has led to conflicting claims about what contrasts can be encoded by SR systems
  - If we take existing descriptions of Panoan languages at face value, SR can track all arguments of the verb
  - If we assume that purported object-tracking SR actually involves relativization, we may be able to maintain that SR is subject-oriented

➤ A reliable method for distinguishing RCs and SRCs is therefore useful in understanding the typology of SR systems

- In this talk, I provide six morphosyntactic diagnostics for distinguishing RCs from SRCs in the Panoan language Amahuaca

➤ These diagnostics support the conclusion that both matrix and dependent clause objects can be tracked by Amahuaca’s SR system

2 Background on Amahuaca SRCs and RCs

- Amahuaca is an endangered Panoan language spoken in the Peruvian and Brazilian Amazon
- Data for this project come from my fieldwork with native speakers
  - Data were collected over the course of four field trips in 2015-2018
  - A total of 14 Amahuaca community members were involved as language consultants, with most data coming from 4 primary consultants
  - All speakers live in the town of Sepahua in Atalaya Province, Ucayali, Peru

- Amahuaca is mostly head final
  - Aspect clitics in matrix clauses often appear in a clause-medial position, suggesting that aspect is head initial (Clem, 2018)
  - Matrix clauses involve a second position clitic that can be analyzed as a head initial complementizer and can be used to diagnose syntactic constituency (Clem, 2019a)\(^1\)

\(^1\)The following abbreviations are used: 3 = third person, AM = associated motion, C = complementizer, DECL = declarative, DEM = demonstrative, DS = different subject, ERG = ergative, INT = interrogative, IPFV = imperfective, LG = long form, NOM = nominative, OS = object coreferential with intransitive subject, PFV = perfective, PRES = present, PST = past, SA = subject coreferential with transitive subject, SG = singular, SIM = simultaneous, SQ = subject coreferential with object, SQ seq = sequential, SS = subject coreferential with intransitive subject, TAM = tense/aspect/mood.

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While the man cooked corn, the woman sang.

The man looked for food in the woods.

While the man cooked corn, the woman sang.

Case marking exhibits a tripartite alignment with ergative (=n), nominative (=x), and accusative (Ø) case.

The child was afraid.

'The woman is washing clothes.'

Amahuaca has a series of SR markers that appear in adjunct clauses.

SR markers indicate coreference or disjoint reference of a dependent clause pivot and matrix pivot.

While she sang, the woman danced.

While she sang, the woman danced.

While she sang, the woman cooked corn.

Amahuaca also has a system of RCs, which can be internally or externally headed (IHRC vs. EHRC).

'The alligator that the man quickly found bit Maria.'

a. [koshi joni=n kapuu vuchi=hato]=mun Maria quickly man=ERG alligator find=PFV.LG=ERG=C Maria pi=xo=nu bite=3.PST=DECL

b. [koshi joni=n vuchi=ha] kaputo=n=mun Maria quickly man=ERG find=PFV alligator.LG=ERG=C Maria pi=xo=nu bite=3.PST=DECL

3Evidence from the behavior of indirect objects and applied objects, which also participate in SR, suggests that this sensitivity to grammatical function should be treated as sensitivity to the abstract case of the matrix pivot (Clem, 2019a,b).
• RCs show a perfective/imperfective aspect distinction

(13) [xano=n xuki jova=ha=mun joni=n xutu=xo=nu
woman=ERG corn cook=PFV=Č man=ERG smell=3.PST=DECL
‘The man smelled the corn that the woman had cooked.’

(14) [xano=n xuki jova=hai=mun joni=n xutu=xo=nu
woman=ERG corn cook=IPFV=Č man=ERG smell=3.PST=DECL
‘The man smelled the corn that the woman was cooking.’

• RCs are nominal and therefore are case-marked like other matrix nominals

(15) [joni=n kapuu vuchi=hato=x=mun na=xo=nu
man=ERG alligator find=PFV.LG=NOM=C die=3.PST=DECL
‘The alligator that the man found died.’

(16) [joni=n kapuu vuchi=hato=n=mun Maria pi=xo=nu
man=ERG alligator find=PFV.LG=ERG=C Maria bite=3.PST=DECL
‘The alligator that the man found bit Maria.’

• On the surface, RCs and same subject SRCs show several similarities
  – The clause-final morphology of both clause types encodes temporal
    information
  – The clause-final morphology of both clause types encodes informa-
    tion about the case of a matrix argument
  – In both types of clauses, an overt pivot can appear internal to the
    clause or external to it

• These surface similarities make it difficult to distinguish RCs and SRCs in
  Amahuaca

• Sparing-Chávez (1998, 2012) breaks “interclausal reference” markers into
  Set A and Set B
  – Set A markers “primarily relate events to one another” (Sparing-
    Chávez, 1998: 464)
  – Set B markers relate “participants (subjects or objects) to events”
    (Sparing-Chávez, 1998: 464)

3 Diagnostics for SR and relativization

• I present six diagnostics in Amahuaca that distinguish RCs from SRCs
  based on their morphosyntactic properties

• To develop these diagnostics, I identified various clause-final morphemes
  that occurred in non-matrix clauses

• I then searched for and elicited clauses with each of these morphemes in
  various morphosyntactic environments
  – In some environments, all clauses behaved identically
  – In other environments, a divide emerged between two types of
    clauses with distinct behavior
    – In the latter case, it was assumed that one group consisted of RCs
      and the other of SRCs

• The six diagnostics presented here yielded the same division of clauses
  – The group of clauses with properties that more closely matched nom-
    inals was identified as the RC group
  – The other group of clauses was identified as the SRC group

3.1 Position of the clause

• The first diagnostic divides clauses based on what positions they can oc-
  cupy within the matrix clause

• Matrix argument nominals can appear to the right of the verb between
  aspect and tense

(17) kuntii=mun choka=hi xano=ki=nu
pot=C wash=IPFV woman=3.PRES=DECL
‘The woman is washing a pot.’

Sparing-Chávez (1998) notes that many Set B markers “function as relative
clause markers” (464)
  – Sparing-Chávez provides no morphosyntactic diagnostics to identify
    RCs or to distinguish Set A from Set B
  – The morphosyntactic diagnostics provided here suggest that the Set
    A/Set B divide largely, but not entirely, reflects the SRC/RC split
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- RCs, as nominalizations, can appear in this nominal argument position.

(18) ‘The man who always sleeps is singing quickly.’
   a. [joni hoxa=hai]=mun koshi vua=hi=ki=nu
   man sleep=IPFV=Č quickly sing=IPFV=3.PRES=DECL
   b. koshi=mun vua=hi [joni hoxa=hai]=ki=nu
   quickly=Č sing=IPFV man sleep=IPFV=3.PRES=DECL

- SRCs cannot appear in this position.

(19) ‘After the woman, sang, she, is washing manioc.’
   a. [xano vua=[xon]]=mun hatza choka=hi=ki=nu
   woman sing=SA.SQ=Č manioc wash=IPFV=3.PRES=DECL
   b. * hatza=mun choka=hi [xano vua=[xon]]=ki=nu
   manioc=Č wash=IPFV woman sing=SA.SQ=3.PRES=DECL

Diagnostic 1
RCs may appear in a position reserved for argument nominals. SRCs may not.

3.2 Position of the pivot
- RCs can be internally or externally headed.
  - An EHRC pivot (head) can appear to the right of clause-final morphology
    - The pivot forms a constituent with the clause
    - The pivot itself is marked with matrix case and the clause is not

(20) ‘The alligator that the man quickly found bit Maria.’
   a. [koshi jonî=n kapuu vuchi=hato]=n=mun Maria
   quickly man=ERG alligator find=PFV.LG=ERG=Č Maria
   pi=xo=nu bite=3.PST=DECL
   b. [koshi jonî=n vuchi=ha] kaputo=n=mun Maria
   quickly man=ERG find=PFV alligator.LG=ERG=Č Maria
   pi=xo=nu bite=3.PST=DECL

Diagnostic 2
RCs may have an external pivot that forms a constituent with the RC. SRCs may not.

3.3 Case of the pivot
- In SRCs, the pivot may not appear after the clause-final morphology.
  - We might assume that markers such as =xon can be decomposed into =xo plus the ergative =n
  - Removing the =n and case marking the “external” pivot, does not result in grammaticality.

(21) ‘After the woman, washed clothes, she, cooked manioc.’
   a. [xano=n chopa patza=[xon]]=mun hatza
   woman=ERG clothes wash=SA.SQ=Č manioc
   jova=hi=ki=nu cook=IPFV=3.PRES=DECL
   b. * [chopa patza=[xo(n)]] xano=n=mun hatza
   clothes wash=SA.SQ woman=ERG=Č manioc
   jova=hi=ki=nu cook=IPFV=3.PRES=DECL

Diagnostic 4
RCs may appear in a position reserved for argument nominals. SRCs may not.

4 Some roots occur in a long form with an additional syllable in presence of an overt case marker. This extra syllable is truncated in the absence of case marking.

5 The string in (22) is also compatible with a bracketing where the unmarked agent is an external head that surfaces to the left of the RC. The structure of such examples is the subject of ongoing investigation.
The restricted nature of relativization on the ergative argument can be analyzed as syntactic ergativity.

In SRCs when the pivot is a transitive subject, it must be marked with ergative case.

(24) [joni*(=n) rohohowler.monkey find=SA.SQ=C meat pi=hi=ki=nu bite=IPFV=3.PRES=DECL ‘After the man, found a howler monkey, he is eating meat.’

3.4 Choice of pivot

In RCs, the same clause-final morphology can occur with a subject or object pivot.

(25) [joni=n rohohowler.monkey find=PFV.LG=ERG=C meat pi=hi=ki=nu bite=IPFV=3.PRES=DECL ‘The howler monkey that the man found is eating meat.’

For each SR marker, the choice of pivot is fixed as subject or object.

(26) [joni=n rohohowler.monkey find=PFV.LG=ERG=C meat pi=hi=ki=nu bite=IPFV=3.PRES=DECL ‘The man who found a howler monkey is eating meat.’

3.5 Differential case marking

Both intransitive and transitive subjects in Amahuaca show differential case marking.

RCs show differential case marking for both nominative and ergative case.

– When marked for case, the clauses appear with the typical nominative and ergative case markers

– Otherwise, the clauses appear in the unmarked form that can also be used when they are matrix objects

(28) ‘The man who had washed yams fell.’

a. [joni kari yam wash=PFV.LG=ERG=C man fall=3.PST=DECL

b. [joni kari yam wash=PFV=C man fall=3.PST=DECL

(29) ‘The peccary that he found is chasing Juan.’

a. [jan peccary find=PFV.LG=ERG=C Juan

Juan chase=AM=IPFV=3.PRES=DECL

b. Juan chase=AM=IPFV=3.SG peccary find=PFV.LG=ERG=C Juan

Juan=ipfv=3.SG peccary find=PFV=3.PRES=DECL

SRCs do not exhibit differential case marking.

– In the sequential paradigm, the marker used for a matrix object pivot is =xo

– We might assume that =xo is therefore the “unmarked” form of the SR morphology

– This “unmarked” form cannot appear in place of the SR morphemes that are reserved for matrix intransitive and transitive subject pivots
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(30) \[jaa=x_i \ \text{vua}=\{xo\}=\text{mun} \ \text{hinan} \ \text{xano}; \ \text{chivan-vo}=\text{xo}=\text{nu} \ 3SG=\text{NOM} \ \text{sing}=\text{SO.SQ}=\text{C} \ \text{dog.ERG} \ \text{woman} \ \text{chase}=\text{AM}=3.PST=\text{DECL} \]

‘After she, sang, the dog chased the woman.’

(31) ‘After the woman, planted corn, she is singing quickly.’

a. \[\text{koshi}=\text{mun} \ [\text{xano}=\text{n} \ \text{xuki vana}=\{\text{hax}\}] \ \text{quickly}=\text{C} \ [\text{woman}=\text{ERG} \ \text{corn plant}=\text{SS.SQ}] \ \text{vua}=\text{hi}=\text{ki}=\text{nu} \ \text{sing}=\text{IPFV}=3.PRES=\text{DECL} \]

b. * \[\text{koshi}=\text{mun} \ [\text{xano}=\text{n} \ \text{xuki vana}=\{\text{xo}\}] \ \text{quickly}=\text{C} \ [\text{woman}=\text{ERG} \ \text{corn plant}=\text{SO.SQ}] \ \text{vua}=\text{hi}=\text{ki}=\text{nu} \ \text{sing}=\text{IPFV}=3.PRES=\text{DECL} \]

(32) ‘After the woman, sang, she is washing manioc.’

a. \[\text{xano} \ \text{vua}=\{\text{xon}\}=\text{mun} \ \text{hatza} \ \text{choka}=\text{hi}=\text{ki}=\text{nu} \ \text{woman}=\text{ERG} \ \text{meat cook}=\text{SA.SQ}=\text{C} \ \text{manioc wash}=\text{IPFV}=3.PRES=\text{DECL} \]

b. * \[\text{nami}=\text{mun} \ [\text{xano}=\text{n} \ \underline{\text{vua}}=\{\text{xo}\}] \ \text{hatza} \ \text{choka}=\text{hiwash}=\text{3.PRES}=\text{DECL} \]

Diagnostic 5
RCs are subject to differential case marking. SRCs are not.

3.6 Extraction

- For RCs, no constituent other than the pivot can be extracted from the clause in wh-questions or under focus

(33) ‘The man who found a howler monkey is eating meat.’

a. \[\text{[joni roho vuchi=hato]}=\text{n}=\text{mun} \ \text{nami} \ \text{man howler.monkey find}=\text{PFV.LG}=\text{ERG}=\text{C} \ \text{meat} \ \text{pi}=\text{hi}=\text{ki}=\text{nu} \ \text{bite}=\text{IPFV}=3.PRES=\text{DECL} \]

b. * \[\text{roho}=\text{mun} \ \underline{[\text{joni vuchi=hato]}=\text{n} \ \text{nami} \ \text{howler.monkey=C man find}=\text{PFV.LG}=\text{ERG} \ \text{meat} \ \text{pi}=\text{hi}=\text{ki}=\text{nu} \ \text{bite}=\text{IPFV}=3.PRES=\text{DECL} \]

- SRCs allow extraction in questions and focus contexts

(34) ‘After the woman, cooked meat, she washed manioc.’

a. \[\text{[xano=\underline{n} nami jova=\{xon\}]}=\text{mun} \ \text{hatza} \ \text{choka}=\text{xo}=\text{nu} \ \text{woman}=\text{ERG} \ \text{meat cook}=\text{SA.SQ}=\text{C} \ \text{manioc wash}=3.\text{PST}=\text{DECL} \]

b. * \[\underline{\text{nami}}=\text{mun} \ [\text{xano}=\text{n} \ \underline{\text{vua}}=\{\text{xo}\}] \ \text{hatza} \ \text{choka}=\text{hiwash}=\text{3.PRES}=\text{DECL} \]

Diagnostic 6
RCs do not allow extraction of a non-pivot. SRCs do.

4 Implications for accounts of SR

- The status of “object-tracking” SR has been debated in the literature
  - Stirling (1993) notes that the subject orientation of SR has been taken to be one of its canonical qualities
  - Very few languages have been claimed to allow objects to be tracked by SR morphology

- Languages of the Panoan family are outliers in purportedly allowing matrix and dependent clause objects to be tracked in SR (though not necessarily both in the same language)

- Even within Panoan, object tracking has been disputed, with Camacho (2010) assuming that purported object-tracking SRCs are actually RCs

- The diagnostics developed here can be used to distinguish whether clauses that would show object tracking are truly SRCs or simply RCs
  - These diagnostics indicate that both matrix and dependent clause objects can be tracked by the SR system of Amahuaca

4.1 Dependent clause subject coreferential with matrix object

- The morpheme \(=xo\) has been claimed by Sparing-Chávez (1998, 2012) to be a Set A SR marker indicating coreference of the dependent clause subject and matrix object
Applying diagnostic 2, concerning clause-external pivots, we can see that clauses marked with \(=\text{xo}\) pattern with SRCs

- \(=\text{xo}\) clauses do not allow pivots to appear to the right of SR marking

(35) ‘After the dog bit the chicken, the man is watching the dog.’

a. [hinan hatapa natux=\(=\text{xo}\)=mun joni=n dog.ERG chicken bite=SO.SQ=C man=ERG hiin=hi=ki=nu see=IPFV=3.PRES=DECL

b. * [hatapa natux=\(=\text{xo}\) hino=mun joni=n chicken bite=SO.SQ dog=C man=ERG hiin=hi=ki=nu see=IPFV=3.PRES=DECL

• The other applicable diagnostics yield similar results, grouping \(=\text{xo}\) clauses with other SRCs

• The same pattern is found with the marker \(=\text{haito}\), which Sparing-Chávez (1998, 2012) also classified as a Set A SR marker indicating coreference of the dependent clause subject and matrix object

➤ The SR status of \(=\text{xo}\) and \(=\text{haito}\) suggests that SR systems can be sensitive to the reference of matrix clause objects

4.2 Dependent clause object coreferential with matrix intransitive subject

• The marker \(=\text{ha}\), which can appear when the dependent clause object is coreferential with the matrix intransitive subject (as well as in other contexts), has a somewhat unclear status

  - Sparing-Chávez (1998, 2012) classifies it as a Set B marker, with Set B being the set containing RC morphology

  - Hyde (1980) groups this marker with other SR morphemes that Sparing-Chávez (1998, 2012) classifies as Set A

• Valenzuela (2003) assumes that the cognate -a in Shipibo has two functions

  - -a forms completive participles in RCs

  - -a indicates coreference of the dependent clause object and matrix subject in SRCs

• The diagnostics developed here suggest that there are also two \(=\text{ha}\) markers in Amahuaca

• \(=\text{ha}\) clauses often pattern with RCs, as can be shown by the fact that they allow external pivots (diagnostic 2)

(36) ‘The man grabbed the dog that the woman had seen.’

a. [xano=n hino hiin=ha=mun joni=n hachi=xo=nu woman=ERG dog see=PFV=C man=ERG grab=3.PST=DECL

b. [xano=n hiin=ha=mun joni=n hachi=xo=nu woman=ERG see=PFV dog=C man=ERG grab=3.PST=DECL

• Applying diagnostic 6, concerning extraction, we see a split in \(=\text{ha}\) clauses

  - Most \(=\text{ha}\) clauses do not allow extraction in \(wh\)-questions, patterning with RCs

  - Only when the object of an \(=\text{ha}\) clause is coreferential with the intransitive subject of the matrix clause is extraction possible, as in SRCs

(37) ‘Who saw the man that the alligator bit?’ (Literally ‘The alligator bit the man that who saw?’)

a. [tzova=n joni hiin=ha]=ra kaputo=n pi=hax who=ERG man see=PFV=INT alligator.LG=ERG bite=TAM

b. * tzova=n=ra [joni hiin=ha] kaputo=n pi=hax who=ERG=INT man see=PFV alligator.LG=ERG bite=TAM

(38) ‘Who cooked the manioc that fell?’ (Literally ‘After who cooked the manioc, it fell?’)

a. [tzova=n hatza, jova=\(=\text{ha}\)=ra pro1 pakuu=hax who=ERG manioc cook=OS.SQ=INT fall=TAM

b. tzova=n=ra [hatza, jova=\(=\text{ha}\)] pro1 pakuu=hax who=ERG=INT manioc cook=OS.SQ fall=TAM

• This split suggests that there are two \(=\text{ha}\) markers in Amahuaca

  - \(=\text{ha1}\), seen in (37), is the perfective aspect marker of an RC

  - \(=\text{ha2}\), seen in (38), is an SR marker indicating that the object of the SRC is coreferential with the matrix intransitive subject

➤ The existence of an SR marker like \(=\text{ha2}\) supports the conclusion that SR systems can be sensitive to the reference of dependent clause objects
5 Conclusion

- I have provided six diagnostics that distinguish Amahuaca SRCs from RCs on morphosyntactic grounds
  - The specific details of these diagnostics were developed with Amahuaca in mind
  - The general logic of many of these diagnostics should be able to be extended to other Panoan languages with similar clause types

► Distinguishing these clause types and understanding the differences in their distributions is important for documentation efforts
  - In the grammars of semi-speakers of Amahuaca, the extensive systems of SRCs and RCs are beginning to be conflated
  - Future learners who learn from descriptive materials rather than intergenerational transmission will benefit from accurate documentation of the subtle differences between the two clause types

► Reliable morphosyntactic diagnostics for distinguishing these clause types is also important in understanding the typology of SR systems
  - SR has often been assumed to be a subject-oriented phenomenon
  - The diagnostics presented here demonstrate that Amahuaca SR allows both dependent and matrix clause objects to be tracked by SR

References