Linear phenomena in switch-reference marking[*]

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Structure of this presentation

- What switch-reference is
    - In English the coordination of clauses with 3rd person singular masculine pronominal subjects is terrifyingly ambiguous
    - Such sentences' literal translation to Kĩsêdjê isn't ambiguous, because Kĩsêdjê makes obligatory use of switch-reference markers in clausal coordination

- The Finer-type kind of theory of switch-reference computation
    - I'm presenting data that can't be explained by any theory of this kind.
    - Show the kind of structure Finer-type theory work with
    - Show the syntactic form of the of data I'm going to discuss

- Pave the way to an understanding of the structure of clausal embedding by intransitive verbs
    - Introduce morphological indices of embedding in clausal embedding by regular transitive verbs
        * Morphological reflexes of embedding on embedded verb form
        * Case reflexes of embedding on embedded clause arguments
        * Morphological reflexes are present in every verb in a coordinate clause
    - Show that clauses embedded by intransitive verbs have the same syntactic properties.

- Opacity for switch-reference
    - The subject of a clause embedded by a transitive verb *isn't* visible for external switch-reference
    - The subject of a clause embedded by an intransitive verb *is* visible for external switch-reference

- Show that the subjects of the first and last clauses of a coordinate clause embedded by an intransitive verb are visible for external switch-reference computation.

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[*]The gloses used here are: & = coordinating conjunction, 1 = first person, 2 = second person, 3 = third person, DS = different subject, ERG = ergative, FOC = focus, HAB = habitual, NFUT = non-future, NMLZ = nominalizer, NOM = nominative, PL = plural, SG = singular, SS = same subject.

1 Introduction

1.1 Switch-reference in a pinch

In languages that don't mark *switch-reference*, sequences of pronominal subjects create ambiguity.

(1) He brought them to him, he took them, he looked at them and he lay down eating them.

Kĩsêdjê (Jêan, Brazil)[1] marks switch-reference[2]. Switch-reference markers are morphemes (which in Kĩsêdjê and in most languages are found between clauses) that indicate whether the subjects of the related clauses are correferent or disjoint in reference.

(2) [$_1$ ∅   khwã tho   thẽ $_1$] =**nhy** [$_2$ ∅   ∅-ndât $_2$] =**ne**
    3.NOM 3.to 3.with go.SG   =&.DS   3.NOM 3-get.PL =&.SS

   [$_3$ ∅   s-õmu $_3$] =**n**   [$_4$ ∅   khu-ru   ro   no. $_4$]
    3.NOM 3-see   =&.SS   3.NOM 3.eat.SG-NMLZ with lay.SG

   'He$_i$ brought them to him$_j$, he$_j$ took them, he$_j$ looked at them and he$_j$ lay down eating them.'

This first example can be a little misguiding in its neatness. The examples featured in the rest of this presentation will show us that:

- Switch-reference is not a disambiguation device. It is obligatory even when the referential expressions themselves aren't ambiguous.

- The different-subject marker has other forms besides *=nhy*, depending on the case and person of the subject that follows it.

- The same-subject marker, however, is always *=ne/=n*

1.2 Finer-type theories and where they fail

Collins (1988), Hale (1992), Nichols (2000), Camacho (2010), Watanabe (2000), Assmann (2012), and Nonato (2014) are among the theories that follow Finer (1984, 1985) in assuming that the relationship between switch-reference markers and tracked subjects is established in specific syntactic configurations.

Finer (1984, 1985) proposed that switch-reference markers agree with one of the tracked subjects— becoming coindexed with it—and establish an indirect relation with the other tracked subject. That indirect relation is mediated by a head that 1) c-commands the switch-reference marker and 2) has agreed and become coindexed with the other relevant subject. This other head can be another switch-reference marker or a funcional category in the main clause.

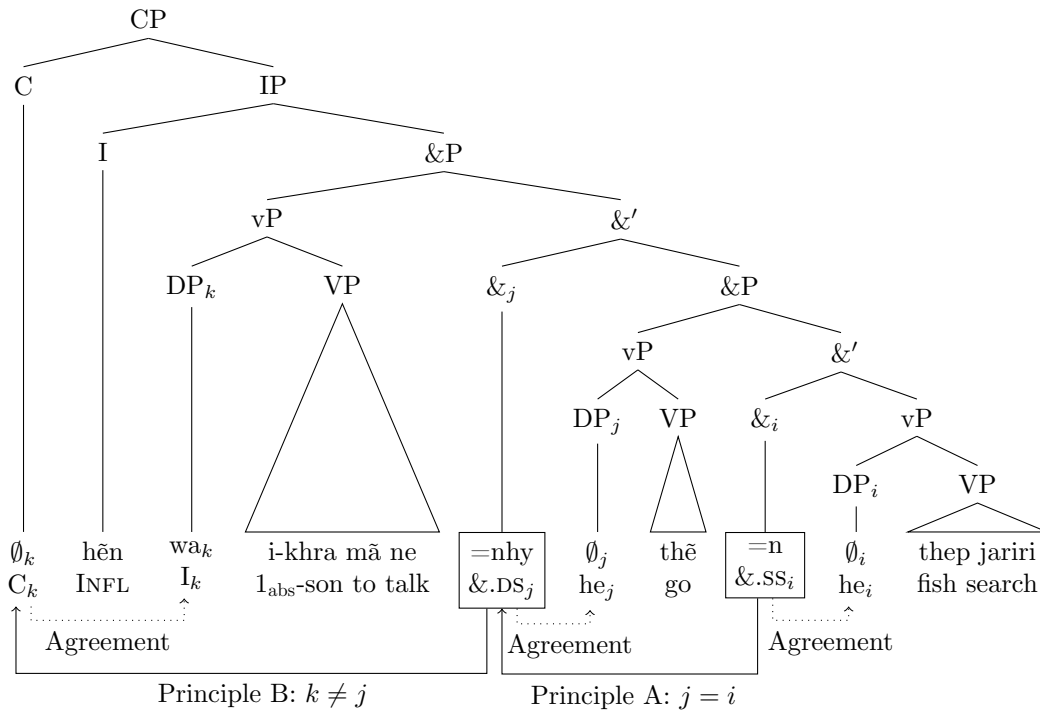The relation between one switch-reference marker and its mediating head is A′-binding.

- Same-subject markers are A′-anaphors

- Different-subject markers are A′-pronouns

(3) Hẽn [$_1$ wa   i-khra mã ne $_1$] =**nhy** [$_2$ ∅   thẽ $_2$] =**n** [$_3$ ∅   thep jariri $_3$]
    NFUT   1.NOM 1-son to talk   =&.DS   3.NOM go.SG   =&.SS   3.NOM fish search.

   'I talked with my son and he went and looked for fish.'

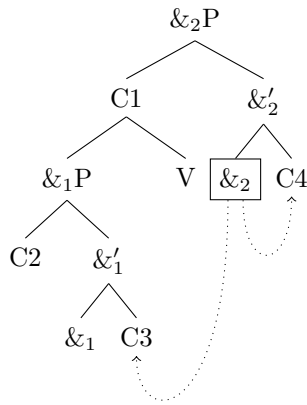[1] I collected the data presented in this paper in 7 fieldtrips I took since 2008.
[2] The term "switch-reference" was coined by Jacobsen (1967)

(4)   Computation of switch-reference

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                                      CP
                        ┌──────────────┴──────────────┐
                        C                              IP
                                          ┌────────────┴────────────┐
                                          I                        &P
                                               ┌───────────────────┴───────────┐
                                              vP                               &'
                                        ┌──────┴──────┐              ┌──────────┴──────────┐
                                       DP_k           VP            &_j                    &P
                                                      △                        ┌────────────┴────────────┐
                                                                              vP                         &'
                                                                        ┌──────┴──────┐        ┌──────────┴──────────┐
                                                                       DP_j           VP      &_i                    vP
                                                                                      △                    ┌──────────┴──────────┐
                                                                                                          DP_i                    VP
                                                                                                                                  △

 ∅_k      hẽn     wa_k    i-khra mã ne     =nhy      ∅_j    thẽ     =n      ∅_i      thep jariri
 C_k      INFL     I_k     1_abs-son to talk  &.DS_j   he_j    go    &.SS_i   he_i     fish search
  ⌃                 ⌃                         ⌃         ⌃              ⌃        ⌃
  └····· Agreement ·┘                        └·· Agreement ··┘        └·· Agreement ··┘
  └─────────────────────────────────────────┘
        Principle B: k ≠ j                        Principle A: j = i
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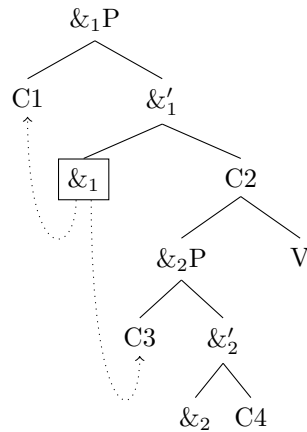
I've found examples of switch-reference marked sentences where the relative syntactic configuration between switch-reference markers and tracked subjects is wildly different from the one instantiated above. If such theories were right, such configurations should bleed switch-reference computation. The rest of this presentation will present details that are relevant for arguing that such is indeed the structure of the relevant examples:

(5)   a.
```
                &_2P
         ┌───────┴───────┐
        C1              &'_2
      ┌──┴──┐         ┌───┴───┐
    &_1P    V       &_2     C4
   ┌──┴──┐
  C2    &'_1
      ┌──┴──┐
     &_1   C3
```

b.
```
                &_1P
         ┌───────┴───────┐
        C1              &'_1
               ┌─────────┴─────────┐
             &_1                   C2
                              ┌─────┴─────┐
                            &_2P          V
                          ┌───┴───┐
                         C3      &'_2
                               ┌──┴──┐
                              &_2   C4
```

2   Clausal embedding

Table 1: Morphological differences between embedded and unembedded clauses

	Unembedded	Embedded
Case of arguments	Nom-Acc	Erg-Abs
Form of verb	Underived	Derived

2.1 Embedding of non-coordinate clauses

2.1.1 Non-coordinate clause embedded by transitive verb

In the problematic configuration shown above, a clause is embedded by an intransitive verb. I will first describe a more familiar kind of clausal embedding, namely, embedding by a transitive verb.

(6) Hẽn wa a-hrõ mã [kare mã Awâjtxi ni-n] jarẽ.
    NFUT 1.NOM 2-wife to 2.ERG HAB A. date-NMLZ say.
    'I told your wife you used to date A.'

(7) Thetô =ra [nda rwâ-k] mba.
    T. =NOM rain fall-NMLZ know
    'T. knows it rained.'

2.1.2 Non-coordinate clause embedded by intransitive verb

(8) [₁ Ire khwã [₂ ∅-thẽ-m ₂] mba-j ₁] mã.
    1.ERG 3.to 3-go.SG-NMLZ know-NMLZ be.forthcoming
    'I am going to learn from her about her trip.'
    (lit. My learning from her about her going (ie. her trip) is forthcoming)

2.2 Embedding of coordinate clauses

The morphological reflexes described above are found in every individual conjunct in an embedded coordinate clause.

2.2.1 Coordinate clause embedded by transitive verb

(9) a. Hẽn wa i-mã [₁ [₂ i-hrõ ty-k ₂] =nhy [₃ athe i-mbra-j ₃] ₁] wymba.
      NFUT 1.NOM 1-to 1-wife die-NMLZ =&.DS alone 1-walk-NMLZ fear.
      'I am afraid that my wife might die and I would stay alone.'

   b. [₁ I-mã [₂ [₃ ire rop mu-n ₃] =nhy [₄ i-wynde-n ₄] ₂] wymba-∅ ₁] kumeni.
      1-to 1.ERG jaguar see-NMLZ =&.DS 1-hurt-NMLZ fear-NMLZ be.intense
      'I am very afraid that I might see a jaguar and it might hurt me.'

   c. [₁ I-mã [₂ [₃ khomdu mu-n ₃] =ne [₄ i-mã i-ty-k ₄] ₂] wymba-∅ ₁]
      1-to water.spirit see-NMLZ =&.SS 1-to 1-die-NMLZ fear-NMLZ
      kumeni.
      be.intense
      'I am very afraid that I might see a water spirit and die.'

2.2.2 Coordinate clause embedded by intransitive verb

(10) [₁ [₂ khatho-ro ₂] =nhy [₃ ire khwã [∅-thẽ-m] mba-j ₃] =nhy
    3.come.out-NMLZ =&.DS 1.ERG 3.to 3-go-SG know-NMLZ =&.DS

    [₄ ∅-thẽ-m ₄] ₁] mã.
    3-go-NMLZ be.forthcoming
    'She was going to come out and I would learn from her about her trip and she would go.'
    (lit. Her coming out and my learning from her about her going and her going was forthcoming.)

3 Embedding and switch-reference computation

3.1 Embedding of simple clauses and switch-reference computation

These examples show that the subject of a clause embedded by a transitive verb doesn't participate in switch-reference computation

(11) Hẽn [₁ wa a-katôt me aj [₂ a-mbârâ-∅ ₂] mba-j to ta ₁] =ka
NFUT 1.NOM 2-daughter with PL 2-cry-NMLZ hear-NMLZ with stand =&.DS.2

[₃ a-mbârâ ra! ₃]
2-cry indeed

'Me and your daughter were listening you crying and you were crying indeed!'

(12) [₁ [₂ khatho-ro ₂] =nhy [₃ ire khwã [₄ ∅-thẽ-m ₄] mba-j ₃] =nhy
3.come.out-NMLZ =&.DS 1.ERG 3.to 3-go-SG know-NMLZ =&.DS

[₅ ∅-thẽ-m ₅] ₁] mã.
3-go-NMLZ be.forthcoming

'She was going to come out and I would learn from her about her trip and she would go.'
(lit. Her coming out and my learning from her about her going and her going was forthcoming.)

The examples below show that the subject of a clause embedded by an intransitive verb participates in switch-reference computation.

(13) Akatxi khôt =na [₁ wa thât [₂ i-hrõn-∅ ₂] wit ₁] =ne
day in.PL =FOC.NFUT 1.NOM uselessly 1-run-NMLZ be.always =&.SS

[₃ i-tũm ₃] =ne [₄ [₅ i-hrõn-∅ ₅] khêrê. ₄]
1-be.old =&.SS 1-run-NMLZ not.be

'I uselessly used to run every day and I got old and I don't run (anymore).'
(lit. My running daily happened always and I got old and it's not the case that I run.)

3.2 Embedding of coordinate clauses and switch-reference computation

The switch-reference markers in the following examples are found in significantly different structural positions relative to the subjects each tracks. I assume that switch-reference markers are $\&^0$ (heads of &Ps). Whereas for the first switch-reference marker the subjects being tracked are simply 1) the subject of its first conjunct and 2) the subject of its second conjunct, for the second switch-reference marker the subjects being tracked are 1) the subject of *the final conjunct in the coordinate clause embedded by the main verb of its first conjunct* and 2) the subject of its second conjunct.

(14) The structure of the examples to be presented
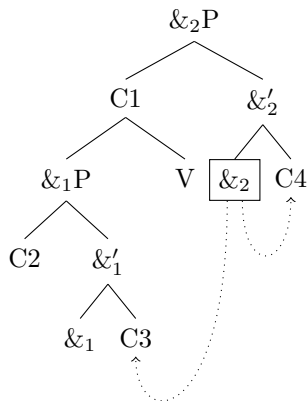
a. Structure of (15), (16) and (17)   b. Structure of (18), (19) and (20)
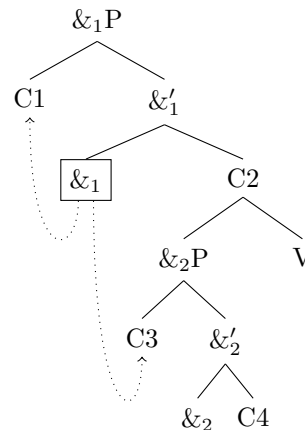
(15) $[_1$ $[_2$ $[_3$ Pãm =nda kh-wã hỹ nhy-rỹ $_3]$ =nhy $[_4$ ∅-thẽ-m $_4]$ $_2]$ khêt $_1]$ =nhy
father =ERG 3-to yes say-NMLZ =&.DS 3-go-NMLZ not.be =&.DS

$[_5$ ∅ mbârâ-∅ ro nhy. $_5]$
3.NOM cry-NMLZ with sit

'Her father didn't allow her to go and someone sat crying (not her).'
(lit. it was not the case that he said yes to her and she went ...)

(16) $[_1$ $[_2$ $[_3$ Pãm =nda kh-wã hỹ nhy-rỹ $_3]$ =nhy $[_4$ ∅-thẽ-m $_4]$ $_2]$ khêt $_1]$ =ne
father =ERG 3-to yes say-NMLZ =&.DS 3-go-NMLZ not.be =&.SS

$[_5$ ∅ mbârâ-∅ ro nhy. $_5]$
3.NOM cry-NMLZ with sit

'Her father didn't allow her to go and she sat crying.'
(lit. it was not the case that he said yes to her and she went ...)

The example below provides an extra and interesting detail. There is a single nominative position in sentence 1, and that position is taken by the subject raised from sentence 2. On the other side of sentence 1 there is a switch-reference marker that needs to access to one subject in order to perform its reference computation, and the subject it accesses is a different one, namely, that of sentence 3.

(17) Hẽn $[_1$ wa $[_2$ $[_3$ i-khra kajtu-ru $_3]$ =nhy $[_4$ khrytrẽ-n mã ∅-thẽ-m $_4]$ $_2]$ khêt $_1]$
NFUT 1.NOM 1-son order-NMLZ =&.DS fish-NMLZ to 3-go-NMLZ not.be

=ne $[_5$ arak khamã s-õn ndo no. $_5]$
=&.SS still only 3-sleep.NMLZ with lie

'I didn't tell my son to go fishing and he stayed sleeping.'
(lit. It was not the case that I ordered my son and he went fishing, and (then) he stayed sleeping.)

The examples above feature an intransitive verb that takes a coordinate clause for syntactic argument, this verb by its turn heading the predicate of a clausal conjunct in a higher coordinate structure. In particular, the intransitive verb in the examples above heads the predicate of the *left-hand side* conjunct in the higher coordinate structure. The next examples instantiate the mirror-image possibility, namely, the one in which the intransitive verb heads the predicate of the *right-hand side* conjunct in the higher coordinate structure.

As in the previous examples, we observe the same puzzling pattern: one of the the switch-reference markers—previously, the leftmost and now, the rightmost one—simply tracks the reference of the subjects of its conjuncts whereas the other switch-reference marker—previously, the rightmost and now, the rightmost one—tracks 1) the subject of its left-hand side conjunct and 2) the subject of *the leftmost conjunct in the coordinate clause embedded by the main verb of its right-hand side conjunct.*

(18) Hẽn $[_1$ wa i-sīre-∅ khãm mẽkarõ mu $_1]$ =n
NFUT 1.NOM 1-be.small-NMLZ in spirit see =&.SS

$[_2$ $[_3$ $[_4$ akambát khôt akatwaj i-rit-∅ $_4]$ =ne $[_5$ i-nhikhwã $_5]$ $_3]$
night in.PL at.midnight 1-wake.up-NMLZ =&.SS 1-sit.PL

wiri. $_2]$
be.always

'When I was a child I saw a ghost and every night I wake up and stay awake.'
(lit. ... I saw a ghost and my waking up at night and staying awake happens always.)

(19) Hẽn $[_1$ ∅ i-sīre-∅ khãm aj i-mã mẽkarõ jarẽ $_1]$ =wa
NFUT 3.NOM 1-be.small-NMLZ in PL 1-to spirit say =&.DS.1

$[_2$ $[_3$ $[_4$ akambát khôt akatwaj i-rit∅ $_4]$ =ne $[_5$ i-nhikhwã-∅ $_5]$ $_3]$
night in.PL at.midnight 1-wake.up-NMLZ =&.SS 1-sit.PL-NMLZ

wiri. $_2]$
be.always

'When I was a child they told me ghost stories and every night I wake up and stay awake.'
(lit. ... they told me ghost stories and my waking up and staying awake happens always.)

A problem with the examples above is the fact that the coordinate clause embedded by the right-hand side verb is a same-subject construction. It could be possible that the structure is saved by ATB movement of the common subject to a position where it becomes visible for external switch-reference computation. The example below features an embedded coordinate clause whose conjuncts don't share the same subject.
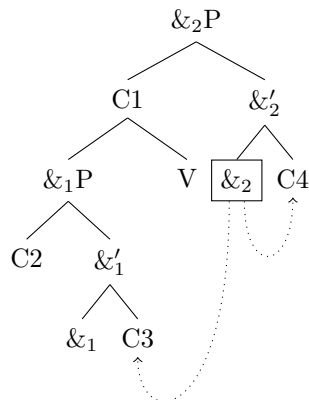
(20)   ... $[_1$ wa   thât   khuthep   ta $_1]$ =nhy
         1.NOM uselessly 3.waiting.for stay.SG   =&.DS

       $[_2$ $[_3$ $[_4$ khatho-ro $_4]$ =nhy $[_5$ ire   khwã ∅-thẽ-m mba-j $_5]$ =nhy
              3.come.out-NMLZ   =&.DS   1.ERG 3.to 3-go-SG know-NMLZ   =&.DS

       $[_6$ ∅-thẽ-m $_6]$ $_3]$ mã. $_2]$
             3-go-NMLZ   be.forthcoming

       'I was uselessly waiting for her and she was going to come out and I would learn from her about her trip and she would go.'
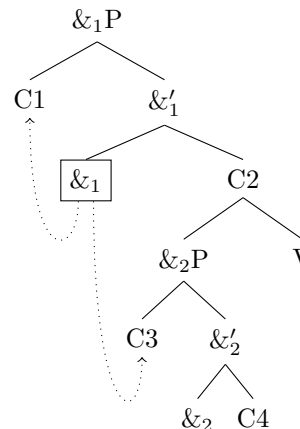   (lit. I was uselessly waiting for her her coming out, my learning from her about her going and her going was forthcoming.)

(21)   The structure of the examples just presented
       a.   Structure of (15), (16) and (17)   b.   Structure of (18), (19) and (20)

References

Assmann, Anke (2012). "Switch-reference as interclausal tense agreement". In: *Linguistische Arbeitsberichte*. Vol. 89. Institut für Linguistik, Universität Leipzig.

Camacho, José (2010). "On case concord: the syntax of switch-reference clauses". In: *Natural Language & Linguistic Theory* 28.2, pp. 239–274.

Collins, Chris (1988). "X-Bar theory and switch-reference". MIT, ms.

Finer, Daniel L. (1984). "The Formal Grammar of Switch-Reference". PhD thesis. UMass Amherst.

— (1985). "The Syntax of Switch-Reference". English. In: *Linguistic Inquiry* 16.1, pp. 35–55. ISSN: 00243892. URL: http://www.jstor.org/stable/4178419.

Hale, Ken (1992). "Subject obviation, switch reference, and control". In: *Control and grammar*. Ed. by Richard K. Larson et al. Vol. 48. Studies in Linguistics and Philosophy. Springer, pp. 51–77.

Jacobsen, William (1967). "Switch-Reference in Hokan-Coahuiltec". In: *Studies in Southwestern Ethnolinguistics*. Ed. by Dell H. Hymes and William E. Bittle. Mouton, The Hague, pp. 238–263.

Nichols, Lynn (2000). "Rethinking switch reference". In: *Papers in Honor of Ken Hale: Working Papers on Endangered and Less Familiar Languages*. Ed. by Andrew Carnie, Eloise Jelinek, and Mary Ann Willie.

Nonato, Rafael (2014). "Clause chaining, switch reference and coordination". PhD thesis. MIT. URL: http://rafaeln.github.io/papers/thesis.pdf.

Watanabe, Akira (2000). "Feature copying and binding: evidence from complementizer agreement and switch reference'". In: *Syntax* 3.3, pp. 159–181.