Scalar cross-domain plurality in Seri is recursive plurality

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Cmiique iitom / Seri (isolate)

- Seri is spoken in Sonora, Mexico in two villages: *Haxöl Iihom / El Desemboque* and *Socaaix / Punta Chueca*

- It is spoken by approximately 900 speakers (Ethnologue 2007)
- It has a rich system of number distinctions in verbs, with morphological and functional parallels in nouns

Roadmap

We show that pluractionality is found in both verbs and nouns.

1. Puzzle 1 in the number system of nouns: first step in the interpretation of plural forms

2. Detour via number system of verbs

3. Analysis: pluractionality across nouns and verbs

4. Puzzles 2 and 3 in the number system of nouns: final step in the interpretation of plural forms

5. Conclusion

PUZZLE IN NOMINAL PLURALITY

Seri nouns

- Most nouns formally express a singular – plural distinction

SINGULAR		PLURAL	
hehe	'plant'	**hehet**	'plants'
noosi	'mourning dove'	**noosilc**	'mourning doves'
hapxa	'cottontail rabbit'	**hapxalc**	'cottontail rabbits'
haaho	'road'	**haaholcam**	'roads'

Seri nouns

- Some nouns---inalienable ones---always appear with possessive morphology (prefixally-marked)
- Possessed nouns also express a singular – plural distinction

SINGULAR		PLURAL	
yaaco	'her house'	**yaacöt**	'her houses; their house(s)'
itrooqui	'her car'	**itrooquij**	'her cars; their car(s)'
azaac	'her older sister'	**azaacla**	'her older sisters; their older sister(s)'
isla	'her ear'	**isloj**	'her ears; their ear(s)'

- The plural form of possessed nouns has a somewhat different meaning---it indicates plurality of something:
  - the possessor, and/or   (Marlett 2016: 317—321)
  - the possessum

Seri nouns: puzzle 1

But plural marking on possessed nouns can also be used where both possessor and possessum are singular

Ihyam-coj   **quih**   **xojizi.**
1POSS.oesophagus-PL   DEF   EMPH.ache
'My oesophagus hurts all over.'

Question: what is really the meaning of "plural" with possessed nouns?

Our proposal: this plural marking is actually a manifestation of (a type of) pluractionality, also found in Seri verbs

DETOUR VIA VERBAL NUMBER

Seri verbs

- Number distinctions in verbs; see Marlett (1988, 2016) and Moser & Marlett (2010)

  - Subject number
    - Singular
    - Plural

  - Event number
    - Neutral
    - Pluractional
      - Multiple; see Cabredo Hofherr, Pasquereau, O'Meara (2018)
      - Distributional; see Pasquereau and Cabredo Hofherr (2020)

> **Pluractionality** (Newman 1980, 2012; Cabredo Hofherr & Laca 2012)
> The marking on verbs of event/state plurality.
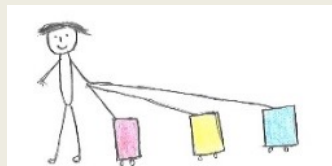
Seri verbs: distributional event number

- Distributional form requires multiple events which are distributed over time or spaces

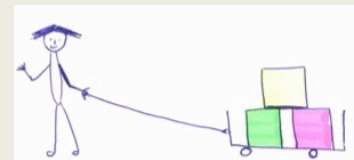| **Juan**	**quih**	**xiica an iqueaacalca**	**coi**	**hant**	**iyootyax.**
Juan	DEF	suitcases	DEF.PL	down	3>3.RLYO.extend.DIST

'Juan dragged the suitcases.'

Context 1: true
Distribution over times: ✓
Distribution over spaces: ✗

Context 2: true
Distribution over times: ✗
Distribution over spaces: ✓

Context 3: false
Distribution over times: ✗
Distribution over spaces: ✗

Seri verbs: neutral event number

- Neutral form is underspecified

Juan	**quih**	**xiica an iqueaacalca**	**coi**	**hant**	**iyootox.**
Juan	DEF	suitcases	DEF.PL	down	3>3.RLYO.extend

'Juan dragged the suitcases.'

Context 1: true
Distribution over times: ✓
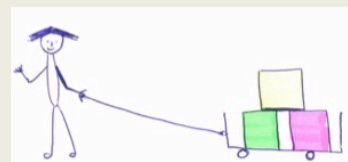Distribution over spaces: ✗

14:00
15:00
16:00

Context 2: true
Distribution over times: ✗
Distribution over spaces: ✓
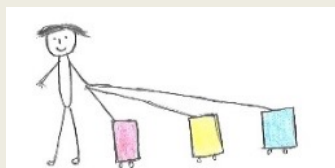
Context 3: true
Distribution over times: ✗
Distribution over spaces: ✗

TRANSCATEGORIAL PLURACTIONALITY

Analytic proposal

Claims

- pluractionality is not limited to verbs

- plural possessed forms are in fact **pluractional possessed forms**

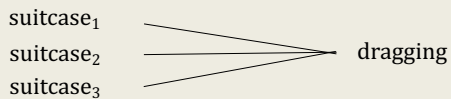|	NEUTRAL	PLURACTIONAL
'burn'	**quitaj**	**quitalc**
'3POSS.older_sister'	**azaac**	**azaacla**

Analytic proposal

Intuitively, pluractionality requires a plurality of pairings :

- between eventualities of V-ing and times, spaces, participants, etc

Singular subject pluractional verb form

Juan   quih   xiica an iqueaacalca   coi   hant   iyootyax.
Juan   DEF   suitcases   DEF.PL   down   3>3.RLYO.extend.DIST
'Juan dragged the suitcases.'

Various events of dragging are individuated via being paired with different suitcases.

suitcase_1
suitcase_2 ———————— dragging
suitcase_3

Analytic proposal

So-called "plural possessed forms" are in fact **pluractional forms**

Intuitively, pluractionality requires a plurality of pairings :

- between possessum and possessor (more technically: between states of having a possessum, and possessor)

Singular possessor: my uncles

Himaha-lc	**coi**	**cacöla**	**iha.**
1POSS.uncle-PLUR	DEF.PL	SBJ.NMLZ.be_tall.PL	DCL

'My uncles are tall.'

If possessor is singular, the only way to have more than one pairing is to have more than one possessum

$uncle_1$
$uncle_2$ ——— me
$uncle_3$
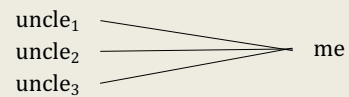
Argument 1

So-called "singular possessor plural possessum" forms of possessed nouns can be used in cases where the possessum is not plural, but is conceptualized as being constituted of parts to which the predicate applies distributively

This is not what we expect from nominal plurality

Singular possessor: my oesophagus

Ihyam-coj	**quih**	**xojizi.**
1POSS.oesophagus-PLUR	DEF	EMPH.ache

'My oesophagus hurts all over.'

If possessor is singular, the only way to have more than one pairing is to have more than one possessum

$part_a$ of $oesophagus_1$
$part_b$ of $oesophagus_1$ ——— me
$part_c$ of $oesophagus_1$
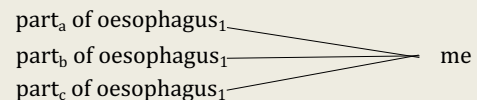
Argument 1

This is similar to "singular subjet pluractional" verb forms, where the singular subject is conceptualized as being constituted of parts to which the predicate applies distributively

Singular subject pluractional verb form

Siimet   quih   tazo   yita-lc.
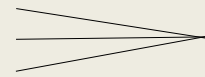
bread   DET   one   burn-PLUR

'One bread is cooked (has burnt spots all over).'

Various states of being burnt are individuated via being paired with parts of the bread.

$part_a$ of $bread_1$

$part_b$ of $bread_1$ ——————— burning

$part_c$ of $bread_1$

Argument 2

So-called "plural possessum" stems correspond to pluractional forms via verbalization.

Possessum #	noun	verb	event #
singular	**azaac** 'her older sister'	**iyizaac-at** 'has X as older sister'	NEUT
plural	**azaacla** 'her older sisters; their older sister(s)'	**iyizaacla** 'has Xs as older sisters; have X(s) as older sister(s)'	PLUR

Compositionality: pluractionality

Based on previous work on pluractionality (Kuhn and Aristodemo 2017), we assume the pluractional morpheme below.

$[[\text{PLUR}]]=\lambda e \exists e' \exists e''[e'< e \ \& \ e''< e]$ (also abbreviated as $\lambda e \exists e',e''< e$)

The pluractional morpheme denotes a set of plural eventualities, i.e. eventualities (states, events) that have at least two subeventualies.

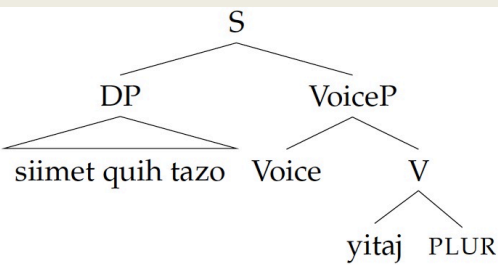When it combines with a set of eventualities, it has the effect of filtering out non-plural eventualities.

Compositionality: pluractionality + verbs

We assume that pluractional verb forms are the realization of a verb plus the morpheme PLUR.

Example

Siimet quih tazo yital-c.
bread   DET   one   burn-PLUR
'One bread is cooked (has burnt here and there).'

Structure of example

Meaning of example

- Verbs denote sets of events (atomic and non-atomic)
  $[[\text{yitaj}]]=\lambda e.\text{burn}(e)$

- It combines with PLUR thereby eliminating atomic events
  $[[\text{yitaj-PLUR}]]=\lambda e. \ \exists e',e''< e \ \& \ \text{burn}(e)$

- Verbs combine with their subject via Voice
  $[[\text{Voice}]]=\lambda x \lambda e.\text{Theme}(e)=x$

- Truth-conditions of the sentence
  $[[S]]= \exists e[\text{burn}(e) \ \& \ \exists e', e''< e \ \& \ \exists x[\text{bread}(x) \ \& \ |x|=1] \ \& \ {}^*\text{Theme}(e)=x]$

The truth-conditions are satisfied by their being at least two events of burning which are identified by/paired with parts of the bread.
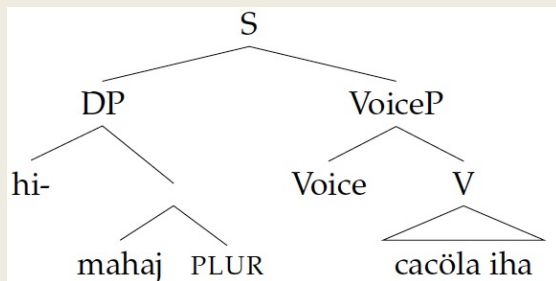
Compositionality: pluractionality + possessed nouns 1/2

Pluractional forms are the realization of a neutral form plus PLUR.

Example

Hi-mahal-c   **quih**   **cacöla**   **iha.**
1POSS-uncle-plur   DEF   SBJ.NMLZ.be_tall.PL   DCL
'My uncles are tall.'

Structure of example

Meaning of DP

- Following Myler (2016), possessed noun roots denote a possession relation between two individuals (possessor and possessum) and an eventuality (a state)

  $[[\text{mahaj}]]=\lambda x\lambda y\lambda e.\text{have}(e)\ \&\ \text{uncle}(y)\ \&\ \text{Theme}(e)=y\ \&\ \text{Holder}(e)=x$

- Possessed noun roots combine with PLUR via (generalized) Event Identification

  $[[\text{mahaj-PLUR}]]=\lambda x\lambda y\lambda e.\text{have}(e)\ \&\ \text{uncle}(y)\ \&\ \text{Theme}(e)=y\ \&\ \text{Holder}(e)=x\ \&\ \exists e',\ e''< e$

Event Identification makes it possible to chain together various conditions for the event described by the sentence (Kratzer 1996)
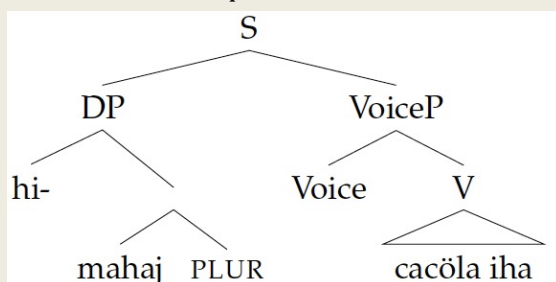

Compositionality: pluractionality + possessed nouns 2/2

Pluractional forms are the realization of a neutral form plus PLUR.

Example

Hi-mahal-c   **quih**   **cacöla**   **iha.**
1POSS-uncle-PLUR   DEF   SBJ.NMLZ.be_tall.PL   DCL
'My uncles are tall.'

Structure of example

Meaning of DP

- The possessor argument (the prefix) saturates the thematic role "Holder of the state of having"

- Truth-conditions of the possessed noun

  $[[\text{DP}]]=\iota y\exists e.\ \text{have}(e)\ \&\ \text{uncle}(y)\ \&\ \text{Theme}(e)=y\ \&\ \text{Holder}(e)=\text{speaker}\ \&\ \exists e',e''< e$

The truth-conditions are satisfied by their being at least two states of my having uncle(s).

Such a situation obtains if there are at least two individuals to which I bear the relation "have as uncle"
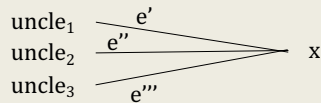
Taking stock of the meaning of the derived meaning of pluractional nouns

### Predictions of our analysis

$[[DP]] = \iota y \exists x \exists e.$ have(e) & uncle(y) & Theme(e)=y & Holder(e)=x & $\exists e', e'' < e$

In the case where the possessor (i.e. the holder of the state of having uncle) of a pluractional form is not restricted for number (with absolute morphology *ha-*), subevents of "having uncle" are free to be individuated by subreferents of the theme only (situation 1), the holder only (situation 2), or both the holder AND the theme (situation 3).
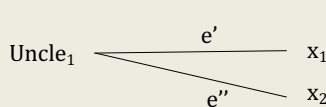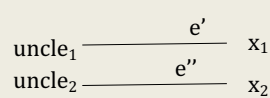
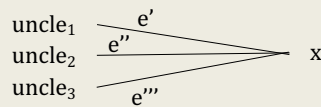Situation 1: true   Situation 2: true (prediction)   Situation 3: true (prediction)

Taking stock of the meaning of the derived meaning of possessed nouns

$[[DP]] = \iota y \exists x \exists e.$ have(e) & uncle(y) & Theme(e)=y & Holder(e)=x & $\exists e', e'' < e$
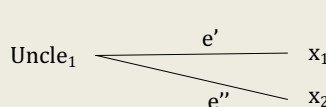
Situation 1: true   Situation 2: true (prediction)   Situation 3: true (prediction)
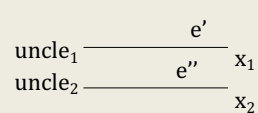
This is exactly what happens for inalienably possessed nouns and verbs which only make one plurality distinction, which we analyze as a pluractionality distinction

		PLURACTIONAL	
yaaco	'her house'	**yaacöt**	'her houses; their house(s)'
quitaj	'it burns'	**quitalc**	'it burns all over; they burn'

RECURSIVE PLURALITY

Seri nouns and verbs: two plural forms

- Some possessed nouns have two plural forms
  - one indicates plurality of the possessed item with a singular possessor
  - one indicates plurality of the possessor

			PLURACTIONAL		PL POSSESSOR/SUBJECT
isc	'her louse'	**isjc**	'her lice'	**isjoj**	'their louse/lice'
cahoiij	'it makes tubular	**cahoiilc**	'it makes them tubular'	**cahoiilcoj**	'they make tubular'

For a more detailed description see Moser & Moser (1976), Marlett (1981, 1990), Marlett (2016, p. 319)

Question 2: how can we understand subject/possessor number specification with these verbs/nouns?

Claims: -these second plural forms are specified for plural subject/possessor
-so-called "singular subject/possessor" forms are in fact not specified for singular subject/possessor, rather their singular interpretation is obtained pragmatically (perhaps via a scalar implicature)---more research needed

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For a more detailed description see Moser & Moser (1976), Marlett (1981, 1990), Marlett (2016, p. 319)

Question 3: why is it that plural subject/possessor forms in verbs/possessed nouns fail to distinguish between pluractional and non-pluractional?

Claim: Because, in Seri plural subject/possessor forms are built off of the pluractional form and are therefore inherently pluractional.
= there is no such thing as a plural subject/possessor non-pluractional form in Seri

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Possessum number/pluractionality is not distinguished when the possessor/subject is plural

Analysis

Plural subject/possessor and pluractionality are analyzed as the type flexible operator PLUR (redefined):

$[[\text{PLUR}]]=\lambda x \exists x' \exists x''[x'< x \ \& \ x''< x]$

Amaha-lcoj	quih	cacoj/cacöla	iha.
3POSS.uncle-PL$_{PSR}$	DEF	SBJ.NMLZ.be_tall/SBJ.NMLZ.be_tall.PL	DCL

'Their uncle is tall OR uncles are tall.'
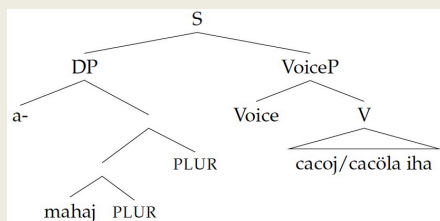
- Possessed noun roots combine with PLUR via (generalized) Event Identification (Kratzer 1996)
$[[\text{mahaj-PLUR}]]=\lambda x \lambda y \lambda e.\text{have}(e) \ \& \ \text{uncle}(y) \ \& \ \text{Theme}(e)=y \ \& \ \text{Holder}(e)=x \ \& \ \exists e', e''< e$

- Second layer of PLUR composes via Restrict (Chung & Ladusaw 2004)
$[[\text{mahaj-PLUR-PLUR}]]=\lambda x \lambda y \lambda e.\text{have}(e) \ \& \ \text{uncle}(y) \ \& \ \text{Theme}(e)=y \ \& \ \text{Holder}(e)=x \ \& \ \exists e', e''< e \ \& \ \exists x',x''< x$

Possessum number/pluractionality is not distinguished when the possessor/subject is plural

Analysis

Amaha-lcoj	quih	cacoj/cacöla	iha.
3POSS.uncle-PL~PSR~	DEF	SBJ.NMLZ.be_tall/SBJ.NMLZ.be_tall.PL	DCL

'Their uncle is tall OR uncles are tall.'

- Possessor prefix composes via Restrict
  [[a-mahaj-PLUR-PLUR]]= $\lambda x \lambda y \lambda e$.have(e) & uncle(y) & Theme(e)=y & Holder(e)=x & they(x) & $\exists e'$, $e'' < e$ & $\exists x'$,$x'' < x$

- Since possessor must be non-atomic, the requirement that at least two eventualities of having uncle be individuated is necessarily met (by distribution over possessor/holder referent)

CONCLUSION

Summary

Claim 1: pluractionality occurs on verbs and possessed nouns in Seri

      Why just on possessed nouns? Because only inalienable nouns have an eventuality argument

Claim 2: plural subject/possessor forms are marked for plural (participant), the sg subject/possessor interpretation of non-plural subject/possessor forms is derived pragmatically

Claim 3: plural subject/possessor forms are derived from pluractional forms; they are thus inherently pluractional

Ongoing research:
- The stacking of plural morphemes reflects the finding in (Baerman 2016) that Seri verbal forms obey a scale of plurality (from singular to plural)
- If this stacking is unbounded/recursive, it predicts that new forms/meanings can be created (Baerman, Pasquereau, Sims-Williams In Prep)

¡Haa xah tiipe!