Filling in the Gaps: Animacy and Resumption in San Martín Peras Mixtec (Tù’un Ntá’abi)

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In many languages, resumptive pronouns (RPs) appear in positions where we sometimes find a gap

(1)  
\begin{enumerate}
    \item \textit{an fear a bhuail tú} \underline{___}
        \begin{tabular}{l}
            the man C struck you \\
            \textquoteleft the man that you struck\textquoteright
        \end{tabular}
    
    \item \textit{an fear ar bhuail tú é}
        \begin{tabular}{l}
            the man C struck you him \\
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        \end{tabular}
\end{enumerate}

(Irish; McCloskey, 2017)
In many languages, **resumptive pronouns (RPs)** appear in positions where we sometimes find a gap

(1) a. *an fear a bhuaill tú*  __

   the man C struck you
   ‘the man that you struck’

b. *an fear ar bhuaill tú*  [é]

   the man C struck you him
   ‘the man that you struck (him)’ (Irish; McCloskey, 2017)

But, **RPs are relatively rare**, even in languages where they are fully grammatical (McCloskey, 2017).
Introduction

Animacy may play a role in whether a gap or RP is used.
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- **Irish**: Optional RPs tend to correspond to an animate argument (McCloskey, 2017).
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- **Hebrew**:
  1. Though usually optional, **RPs are obligatory for the object of an experiencer verb**. (e.g. *annoy*) (Landau, 2009; Sichel, 2014).

Asante Twi: Extraction of animate DPs triggers obligatory resumption (Korsah & Murphy, 2019).
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  2. Significantly **more resumption of objects when they are animate** in production experiments (Meltzer-Asscher, 2018; Fadlon et al., 2019).
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- It is an inherent property of animates that they are more likely to be resumed (Direct effect).
- Animacy interacts with other factors, leading to increased resumption of animates (Indirect effect).
Introduction

These possibilities cannot be completely disentangled in Irish and Hebrew because of the **Highest Subject Restriction:**

- RPs are banned from being the highest subject of a RC.

\[
(2) \quad \text{an } \textit{fear} \ a \ raibh \ (\ast \textit{féin}) \ breoite \\
\text{the man } C \ \text{be-PAST} \ \text{he} \ \text{ill} \\
\text{‘The man that (he) was ill’} \quad \text{(Irish; McCloskey, 1990:210)}
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\[
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- **Direct**: Resumption of animates due to inherent properties.
- **Indirect**: Resumption is more likely because they are animates in **object position**.
  - Animate objects with inanimate subjects are marked (Aissen, 1999; McCloskey, 2017).
In this presentation, we investigate the interaction between resumption and animacy in San Martín Peras Mixtec (SMPM).
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Unlike Irish and Hebrew, SMPM allows RPs in both subject and object position.

(3)  

a. \textit{Shini rà tsyàha kàni rà Pebro}  
\textit{saw.1SG he man hit he P.}  
"I saw the man that (he) hit Pedro."

b. \textit{Shini rà tsyàha kàni Pebro rà}  
\textit{saw.1SG he man hit P. he}  
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    "I saw the man that Pedro hit (him)."

- Allows us to test whether animacy has a direct or indirect effect on resumption.
Additionally, the rich noun class system of SMPM gives a clear morphological indication of animacy.

**Table 1: Noun classes in SMPM**

<table>
<thead>
<tr>
<th>Animates</th>
<th>Inanimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feminine</td>
<td>Wood</td>
</tr>
<tr>
<td>Masculine</td>
<td>Liquid</td>
</tr>
<tr>
<td>Animal</td>
<td>Neutral</td>
</tr>
<tr>
<td>ñá</td>
<td>tun</td>
</tr>
<tr>
<td>rà</td>
<td>rá</td>
</tr>
<tr>
<td>rí</td>
<td>nà</td>
</tr>
</tbody>
</table>
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This survey revealed 3 main generalizations that may help us understand the relationship between animacy and resumption.

1. Resumption is very common in SMPM.
2. Resumption is not significantly more common for animate heads than inanimate heads.
3. There are significantly higher rates of resumption when arguments are matched in animacy than when they are not matched in animacy.
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**Generalizations:**
1. Resumption is very common in SMPM.
2. Resumption is *not significantly more common* for animate heads than inanimate heads.
3. There are *significantly higher rates of resumption when arguments are matched in animacy* than when they are not matched in animacy.
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Main takeaways:

▶ The animacy of arguments seems to play an indirect role in the choice between a RP and a gap in SMPM.
▶ There is not a greater preference for resumptives if the head is animate.
▶ Resumption does not seem to repair a marked alignment (pace McCloskey 2017).
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- Resumption does not seem to repair a marked alignment (*pace* McCloskey 2017).
Today’s talk:
- Background on SMPM
- Resumptive Survey
- (In)direct effect?
- Conclusions and Future Directions
Background: San Martín Peras Mixtec

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- Spoken by roughly 10,000 people.
- The data here comes from residents of Ahuejutla, a town roughly 10 miles from the city of San Martín Peras.
Background: San Martín Peras Mixtec
SMPM is a VSO language with no $\phi$-agreement morphology and no overt case-marking.

Relative clause (RC) heads occur pre-verbally, resulting in ambiguity:

(4) $Shini \quad rà \ tsyàha \ kàni \quad ____ \ Pebro \quad ____$
    saw.1SG he man hit P.
    "I saw the man that hit Pedro" or
    "I saw the man that Pedro hit."
However, **RCs with resumptive pronouns are not ambiguous.**

(5) a. *Shini rà tsyàha kàni rà Pebro*
    saw.1SG he man hit he P.
    "I saw the man that hit Pebro."

b. *Shini rà tsyàha kàni Pebro rà*
    saw.1SG he man hit P. he
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"I saw the man that hit Pebro."

\[\text{b. } Shini \quad \text{ra} \quad \text{tsyàha} \quad \text{kàni} \quad \text{Pebro} \quad \text{ra} \\
\text{saw.1SG he man hit P. he}
\]

"I saw the man that Pebro hit."

Early elicitation with one speaker in California suggested that animacy may play a role in the choice of whether a RP or gap is used.
Resumptive Survey

Informal forced-choice task asking which of a pair of sentences sounded more natural.
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- **Four** participants
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- Four participants
- Each saw a picture and listened to two descriptions of the event, differing only in presence or absence of a RP.
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- **Four** participants

- Each saw a picture and listened to two descriptions of the event, differing only in presence or absence of a RP.

- Recordings of a native speaker of SMPM from the town of Ahuejutla who lives in Watsonville, California.
(6) Shìnì lánchi ntsíso (rí) rà lo’o
saw.I sheep carry it.AML he small
‘I saw the sheep that (it) is carrying the boy.’

(7) Shìnì rà lo’o ntsíso lánchi (rà)
saw.I he small carry sheep he
‘I saw the boy that the sheep is carrying (him).’
(8) Shìnì rè lo’o ntsíso (rà) lánchi
saw.I he small carry he sheep
‘I saw the boy that (he) is carrying the sheep.’

(9) Shìnì lánchi ntsíso rè lo’o (rí)
saw.I sheep carry he small it.AML
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Participants judged 40 sentence pairs — 20 subject RCs and 20 object RCs.
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- There were no filler items, and every participant was aware of the difference between items.

- For three out of four participants, the task was interspersed with other elicitation activities.
Generalization one: RPs were highly preferred over gaps across all noun classes tested (Human, Animal, Neutral).

Table 2: Proportion of RPs by animacy

<table>
<thead>
<tr>
<th></th>
<th>Human (n=64)</th>
<th>Animal (n=64)</th>
<th>Inanimate (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RP</td>
<td>87.5%</td>
<td>86%</td>
<td>78%</td>
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<tr>
<td>Gap</td>
<td>12.5%</td>
<td>14%</td>
<td>22%</td>
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The high preference for RPs may be a task effect.

- There were no fillers, and every participant was aware of the difference between items by the end of the task.
- Some participants noted that RPs made the sentences ‘clearer’ (i.e., unambiguous).
- Predicates were reversible, and each version of each predicate was shown.
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- Predicates were reversible, and each version of each predicate was shown.

However, RPs are found in spontaneous speech.

- A precursory overview of a spontaneous narrative shows four restrictive RCs, two of which contain an RP.
Generalization two: The difference between Animate (Human and Animal) and Inanimate noun classes is relatively small and statistically insignificant.

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Resumptive Survey: Results and Discussion

- This result might be affected by the smaller number of inanimate RC heads.

- If it is replicable, it provides evidence **against the hypothesis that animacy directly triggers resumption**.
  - If this were the case, we would expect animates to be resumed much more than inanimates.
Generalization three: When the arguments within the RC matched in animacy, resumption was highly preferred. When they did not match in animacy, this preference was lessened.

▶ A chi-squared test found this result significant \( (p < 0.01) \)

**Table 3:** Proportion of RPs by matched and unmatched animacy

<table>
<thead>
<tr>
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<th>Match ((n=112))</th>
<th>Mismatch ((n=48))</th>
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<tr>
<td>RP</td>
<td>90%</td>
<td>69%</td>
</tr>
<tr>
<td>Gap</td>
<td>10%</td>
<td>31%</td>
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Resumptive Survey: Results and Discussion

- This is an indirect effect of animacy.
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- It is not whether an argument is animate or inanimate, but rather whether it has the *same animacy as another argument*. 
Resumptive Survey: Results and Discussion

- This is an **indirect effect of animacy**.
  - It is not whether an argument is animate or inanimate, but rather whether it has the **same animacy as another argument**.
  - Rates of resumption are just as high for RCs with two **inanimate** arguments.
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- It is not whether an argument is animate or inanimate, but rather whether it has the same animacy as another argument.
- Rates of resumption are just as high for RCs with two inanimate arguments.

It appears that animacy does not directly affect rates of resumption, but rather it does so indirectly by interacting with some other factor.
(In)direct Effect?

Another possible indirect effect: McCloskey (2017) suggests that in Irish, resumption may be a strategy to avoid marked alignment (inanimate subject > animate object).

- Several studies (Prat-Sala and Branigan, 2000; Gennari et al., 2012) show that speakers use language specific mechanisms (e.g., passivization, topic fronting) to avoid it.
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- Several studies (Prat-Sala and Branigan, 2000; Gennari et al., 2012) show that speakers use language specific mechanisms (e.g., passivization, topic fronting) to avoid it.

There is no evidence from this survey to support resumption as a strategy to repair for marked alignment.
We found many examples of subject resumption in cases with unmarked alignment:
- 75% of the time in Human > Neutral clauses.
- 87.5% of the time in Animal > Neutral clauses.

Instead of being affected by relative position in a clause, likelihood of resumption is affected by the RC head’s similarity to its co-argument.
Conclusions and Future Directions

What we hope you take away from today’s talk:

- Evidence from several unrelated languages suggests that argument animacy may influence whether resumption is used.
- Animacy does not directly trigger resumption in San Martín Peras Mixtec.
- Animates and inanimates are not resumed at significantly different rates.
- Animacy does have an indirect effect on resumption.
- Resumption rates are significantly higher when both arguments match in animacy.
- No evidence that resumption is used to repair marked alignment.
- Resumption is just as frequent in cases of unmarked alignment.
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Conclusions and Future Directions

Two possible explanations for matched animacy effect:

1. Ambiguity Avoidance
   - Though all our test sentences were ambiguous, it is possible that in cases of unmatched animacy one argument alignment is more plausible, so resumption is less "necessary."
   - It is more plausible that the man cut the paper than that the paper cut the man.
   - Rejected by McCloskey (2017) as primary motivation for resumption in Irish
   - Resumption often used in unambiguous sentences.
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2. Similarity-based competition effect (cf. Gennari et al., 2012)
   - Activation of an argument that is ‘too similar’ to another in the clause causes processing difficulty.
   - Speakers use language-specific mechanisms to ameliorate processing difficulty (Prat-Sala and Branigan, 2000; Gennari et al., 2012; Fadlon et al., 2019), in this case RPs.
Conclusions and Future Directions

We plan to investigate these possibilities in future work.
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Next step: Carefully controlled experiment with a sufficiently large number of speakers in Ahuejutla.

If replicable, the results discussed here might provide insight into the nature the relationship between animacy and resumption.
Thanks! / Tashà’à bíndò!

We are very grateful to Agustina Caballero, Margarita Cruz Salazar, Eraclio Gracida Cruz, Juan Gracida Ortiz, Irma López Basurto, one anonymous consultant, and most especially Natalia Gracida Cruz for teaching us about their language.

Thanks as well to Maziar Toosarvandani, Matt Wagers and the Workshop on the Languages of Mesoamerica at UCSC for helpful suggestions.

This research was partially supported by a Jacob’s Foundation Research Fellowship Grant


Selected References


Selected References


Complete Results

Table 4: Summary of data

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>OBJECT</th>
<th>Human</th>
<th>Animal</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Subj RP</td>
<td>Obj RP</td>
<td>Subj RP</td>
<td>Obj RP</td>
</tr>
<tr>
<td>Human</td>
<td>14/16 (87.5%)</td>
<td>13/16 (81.25%)</td>
<td>7/8 (87.5%)</td>
<td>7/8 (87.5%)</td>
</tr>
<tr>
<td>Animal</td>
<td>8/8 (100%)</td>
<td>8/8 (100%)</td>
<td>14/16 (87.5%)</td>
<td>16/16 (100%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>3/8 (37.5%)</td>
<td>8/8 (100%)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>6/8 (75%)</td>
<td>7/8 (87.5%)</td>
<td>7/8 (87.5%)</td>
<td>2/8 (25%)</td>
</tr>
<tr>
<td></td>
<td>7/8 (87.5%)</td>
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</table>
Resumption is obligatory to ameliorate WCO.

(10) a. Rà yó’o mí  rà lo’o  kônì nána  rà *(rà)
    he here SPEC he small love mother his he
    ‘This is the boy that his mother loves *(him).’

b. Rí  yó’o mí  tsìnà  shìnì mí  rà shí’ì  sànà
    it.AML here SPEC dog saw SPEC he owner POSS.AML
    rí  *(rí)
    it.AML it.AML
    ‘This is the dog that its owner saw *(it).’
Whence Resumption?

Resumption is obligatory when extracting out of islands.

(11) a. \textit{Rí yó’o mí chútu kusihi ini Pedro \{chi it.AML here SPEC cat happy inside P. because shìshi *(rí)\} ate it.AML}

‘This is the cat that Pedro is happy because it ate.’

b. \textit{Rí yó’o mí tsìnà shǐni \{yó kànì *(rí)\} it.AML here SPEC dog NEG.know who hit it.AML}

‘This is the dog that I don’t know who hit it.’
Initial Experiment Thoughts

- Collaborate with psycholinguist(s) in the department.
- Production experiment based loosely off Gennari et al. (2012).

Figure 1: Model photo from Gennari et al. (2012)
### Initial Experiment Thoughts

**Table 5: Experimental conditions**

<table>
<thead>
<tr>
<th></th>
<th>Subject RC</th>
<th>Object RC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Animate co-argument</td>
<td>Inanimate co-argument</td>
</tr>
<tr>
<td>Animate head</td>
<td>AA</td>
<td>AI</td>
</tr>
<tr>
<td>Inanimate head</td>
<td>IA</td>
<td>II</td>
</tr>
</tbody>
</table>