1 Introduction

- Semantic accounts of binding have traditionally relied on individual variables and operators that bind them (Heim, 1998; Heim and Kratzer, 1998)
- More recent proposals motivated by e-type anaphora have analyzed pronouns as containing situation pronouns which are bound by a class of sigma operators (Büring, 2004; Elbourne, 2001, 2005, 2013)
- There has also been an effort to develop our understanding of the typology of pronouns, especially with respect to their internal structure (Déchaine and Wiltschko, 2002; Patel-Grosz and Grosz, to appear)

➤ Question: With a diversity of pronouns crosslinguistically and a wide range of binding phenomena even within a single language, can we account for all instances of binding via only one mechanism?

➤ Claim: Some pronouns require situation binding, while others require individual binding

• I demonstrate this with the Bantoid language Tswefap, where:
  - There are two third person pronouns
  - These pronouns have different internal structures
  - Only one of the pronouns can be a bound variable
  - Only one of the pronouns can bind reflexives

• With both situation binding and individual binding we can account for the distribution of Tswefap pronouns

1 Data in this talk come from elicitation conducted with a native speaker over a 14 month period in 2015–2016 in Berkeley, CA.

2 The following abbreviations are used in this paper: 1=first person, 2=second person, 3=third person, COMP=complementizer, FACT=factative, PL=plural, POSS=possessive, INF=infinitive, SG=singular, TAM=tense/aspect/mood

2 Tswefap pronouns and binding conditions

- Tswefap is a Narrow Grassfields Bantoid language spoken in Cameroon
- The pronoun inventory of Tswefap includes:
  - Free subject pronouns
  - Object pronouns that surface as enclitics on the verb
  - Free possessive pronouns
  - Enclitics that attach to ni ‘self’ and encode φ-features

Consequence: At least for some languages, individual binding must be more restricted at LF than what has been previously claimed

Roadmap:

- §1: Introduction
- §2: Tswefap pronouns and binding conditions
- §3: Two 3SG pronouns: zhig vs. yi
- §4: The analysis: Situation binding and individual binding
  * §4.1: Sigma operators and situation binding
  * §4.2: β operators and individual binding
- §5: Conclusion

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Emily Clem  
Two types of binding: Evidence from Tswefap pronouns  
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2.1 Condition A

- A reflexive must be locally bound (Chomsky, 1986)

(2) Chimi, a kwOg ni=e_{i/j}  
Chimi FACT like self=3.SG  
‘Chimi, likes himself_{i/j}.’

(3) zhig, n-rop nqo f=q a cab ni=e_{i/j}  
3.SG TAM-say COMP chief FACT hit self=3.SG  
‘He_{i} said that the chief_{j} hit himself_{i/j}.’

- The locality condition on reflexive binding holds even if there is no animate intervener (Pollard and Sag, 1992)

(4) zhig, n-kwOg nqo laq ao khO’ {=}e_{i} / *ni=e_{i}  
3.SG TAM-think COMP rock INF cut =3.SG / self=3.SG  
‘He_{i} thinks that the rock cut him_{i}.’

2.2 Condition B

- A pronominal must be locally free (Chomsky, 1986)
- A pronominal cannot be bound by a DP within the same clause

2.3 Condition C

- An R-expression must be free (Chomsky, 1986)
- R-expressions cannot be bound by other R-expressions

(7) * Chimi, a kwOg Chimi,  
Chimi FACT like Chimi  
Intended: ‘Chimi, likes Chimi_{i}.’

- R-expressions cannot be bound by pronouns

(8) * {zhig / yi} n-rop nqo Chimi, a khO  
3.SG TAM-say COMP Chimi FACT cough  
Intended: ‘He_{i} said that Chimi_{i} coughed.’

3 Two 3SG pronouns: zhig vs. yi

- Tsweefap has two third person singular subject pronouns, zhig and yi
- These two pronouns differ in their distribution
- Only zhig is acceptable with an NP complement

(9) {zhig / *yi} f=q n-kwOg mb=  
3.SG chief TAM-like meat  
‘He chief likes meat.’
Two types of binding: Evidence from Tswefap pronouns

(10) Chimi pu {zhig / *yi} fɔ n-kwɔŋ mbr
Chimi and 3.SG chief TAM-like meat
‘Chimi and he chief like meat.’

- Neither pronoun can be used without an overt linguistic antecedent when the referent has only been made available by the linguistic context

(11) mɔŋ wig tsib, mɔ {zhig / *yi / nwo} n-ru’
I fall pregnant then 3.SG / 3.SG / child TAM-be.big
‘If I get pregnant, the child (it) will be big.’

- zhig can be used when a referent has been made salient by the physical context (i.e. can be used deictically), while *yi cannot

(12) Context: A man walks into the room and you point to him and say:
{zhig / *yi} a se
3.SG FACT be.tall
‘He is tall.’

- *yi can only be used with topical referents, while zhig can be used with topical or anti-topical referents, with a preference for anti-topics

(13) a. ta’ fɔi rɔ ta’ nwoj mɔ *yi / j/3 n-kwɔŋ=eçı
a chief have a child then he TAM-love=3.SG
‘If a chief, i has a child, then he j/3 loves him ci/j.’

b. ta’ fɔi rɔ ta’ nwoj mɔ zhig / j/3 n-kwɔŋ=eçi
a chief have a child then he TAM-love=3.SG
‘If a chief, i has a child, then he j/3 loves him ci/j.’

- *yi can be bound by a quantifier, but zhig cannot

(14) [nbe wɔa]j, n-roh nga {zhig / j/3 / *yi / j/3} a khɔ every one TAM-say COMP 3.SG FACT cough
‘[Every person], said that he j/3 coughed.’

- zhig can bind a reflexive, but *yi cannot

- The differences between the distributions of the two pronouns are summarized in

(15) {zhig, / *yi} a kwɔŋ ni=cɨ
3.SG FACT like self=3.SG
‘He, likes himself.’

- The differences between the distributions of the two pronouns are summarized in

(16) Distribution of 3.SG pronouns

<table>
<thead>
<tr>
<th></th>
<th>yi</th>
<th>zhig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overt NP complement</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>Deictic uses</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Topical referent</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Anti-topical referent</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Binding by quantifiers</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>Able to bind a reflexive</td>
<td>X</td>
<td>✓</td>
</tr>
</tbody>
</table>

4 The analysis: Situation binding and individual binding

➤ Proposal: zhig and *yi have different binding behaviors because they have different internal structures

(17) a. *yi = [[the si] NP]
   b. zhig = [1 [[the si] NP]]

- These internal differences affect both their ability to be bound and their ability to bind
  – Both pronouns participate in situation binding
  – Only zhig participates in individual binding

- The combination of different internal structures and the availability of two binding mechanisms results in the distributional differences we see

4.1 Sigma operators and situation binding

- Pronouns in Tswefap are definite descriptions consisting of a definite determiner, a situation pronoun, and an NP, following Elbourne (2005, 2013)
4.1.1 Interpretation of yi

- yi’s referent is established via the binding of its situation pronoun by sigma operators (Schwarz, 2012; Elbourne, 2013)
- A situation pronoun may be bound to combine with a topic situation, as shown in (20) for the sentence in (19)

(19) Context: ‘A man arrived at my house...
yi a khɔ
3.SG FACT cough
‘He coughed.’

(20) a. [ςι1 [[[the s1] man] coughed]]

4.1.2 Interpretation of zhig

- zhig’s referent is established through the binding of its situation pronoun and the mapping of its index to an individual via an assignment function
- zhig picks out the unique individual in the situation (s1) that:
  - Meets the descriptive content of the NP contained within the pronominal (either overt or deleted), and
  - Is the same individual denoted by the assignment function applied to its index
- The presence of an index rules out covarying interpretations of zhig since the index is mapped to only one individual in the world

(23) [mbe wɔbɔ, n-rob ŋò zhigₜ₁ₙ₂ a khɔ
every one TAM-say COMP 3.SG FACT cough]
‘[Every person] said that he coughed.’

(24) \[\{([\text{every } s_1] \text{ person}) [\sigma_3 \{ [2 \{ [\text{the } s_3] \text{ person}] \text{ coughed} \} ]\}]]

- The LF in (24) does not result in a bound reading for zhig due to its index
- Instead it picks out every individual who is a person in s’ (the set of situations introduced by s_1) and who said that he coughed in s” (the set of situations introduced by s_3) only if that individual is also equal to the individual denoted by the assignment function applied to the index 2
- If our assignment function includes the mapping [2 \[\text{Chimi}\]], zhig in (23) will only refer to Chimi rather than covarying

- The index on zhig and lack of index on yi also accounts for the topic/anti-topic asymmetry between the pronouns
  - If there is not another sigma operator in the sentence, yi will be bound by the topic situation
  - zhig can pick out any antecedent, either a topic or anti-topic, due to its index, and the preference for anti-topics will arise due to pragmatic competition with yi

4.2 \(\beta\) operators and individual binding

- The lack of an index does not yet account for the inability of yi to bind a reflexive
- If binding by quantifiers is achieved through situation binding, we can use quantifiers to test whether reflexives are sigma bound
- Quantifiers cannot bind reflexives, suggesting that reflexives are not bound via situation binding

(25) \[\{\text{mbe wəlo}\}, a \{ yə ni=\text{e}_i \text{ every one FACT see self=}3.\text{SG}\]

‘[Every person], saw himself,.’

- Reflexives must participate in local A-binding
- Following Büring (2004), I argue that binding through a-command can be achieved via a \(\beta\) operator

- A \(\beta\) operator is adjoined at LF directly below a DP in an A-position and serves to bind any individual variables that DP a-commands
- Reflexives contain an index (an individual variable) that must be locally bound by a \(\beta\) operator
- I depart from Büring (2004) in arguing that the LF adjunction of \(\beta\) operators is not freely licensed by all DPs in A-positions
- I argue that Tswefap zhig and bare definites can license \(\beta\) operators, allowing them to bind reflexives

(26) \[zhig, a \{ kwə ni=\text{e}_i \text{ 3.SG FACT like self=}3.\text{SG}\]

‘He, likes himself,’

(27) \[fo, a \{ yo ni=\text{e}_i \text{ chief FACT see self=}3.\text{SG}\]

‘[The chief], saw himself,’

- Tswefap yi cannot license \(\beta\) operator adjunction, accounting for its inability to bind reflexives

(28) \[*yi, a \{ kwə ni=\text{e}_i \text{ 3.SG FACT like self=}3.\text{SG}\]

‘He, likes himself,’

- Tswefap quantificational DPs (QDPs) cannot license \(\beta\) operators
  - They cannot bind reflexives
  - They cannot bind the index on zhig to achieve a covarying interpretation
- To express reflexive meaning with a QDP, an intensifier zhə ntswə ni ‘he himself’ is used instead of a true reflexive

(29) \[ta’ fo, a \{ yo \{ ni=\text{e}_i / zhə, n-tswə ni \text{ chief FACT see } \{ self=}3.\text{SG / 3.SG.POSS PL-head body} \}

‘[A chief], saw himself,’

(30) \[\{\text{mbe wəlo}\}, a \{ yə \{ ni=\text{e}_i / zhə, n-tswə ni \text{ every one FACT see } \{ self=}3.\text{SG / 3.SG.POSS PL-head body} \}

‘[Every person], saw himself,’
Two types of binding: Evidence from Tswefap pronominals

5 Conclusion

- Tswefap contains two 3SG subject pronouns that differ in their distribution, internal structure, and binding behavior

<table>
<thead>
<tr>
<th>Summary of 3SG pronouns</th>
<th>yi</th>
<th>zhig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contains a situation pronoun</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Contains an index</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Licenses β operators</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Can be bound by quantifiers</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>Can bind reflexives</td>
<td>✗</td>
<td>✓</td>
</tr>
</tbody>
</table>

- Both pronouns consists of a definite determiner, a covert NP, and a situation pronoun

- zhig contains an index and can license β operators to bind reflexives, but cannot act as a bound variable under a quantifier
- yi does not contain an index and cannot license β operators to bind reflexives, but it can behave as a bound variable under the scope of a quantifier

- These data provide evidence for two distinct types of binding in Tswefap
  - Individual binding is achieved through β operators, which are only licensed by zhig and bare definites
  - Situation binding is achieved through a class of sigma operators, which are optionally licensed at specific positions in the structure

- We need both types of binding to account for the distribution of Tswefap pronouns and reflexives, suggesting that crosslinguistically both binding mechanisms are available

References