Binding Complexity and the Status of Pronouns in English and American Sign Language

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Introduction: Known Exceptions to Principle B

The distribution of pronouns is less restricted than predicted by Principle B as formulated in Chomsky (1981).

(1)   John lost a picture of him(self).

Research Questions:

1. Can we formulate an empirically adequate restriction on syntactic binding?
2. Does the distribution of pronouns across signed and spoken languages exhibit modality effects?

Technical Assumptions and Computational Restrictions

- **Technical Assumption**
  Binding constraints only determine if some grammatical bound pronoun reading exists (cf. Chomsky 1995; Rogers 1998).
- **Computational Restrictions**
  Only so-called finite-state constraints are computable with the resources already available (Graf 2011; Kobele 2011).

Conjecture: Limited Obviation

- **Limited Obviation**
  For every pronoun, the number of syntactically bound pronouns from which it is mandatorily disjoint in reference is finitely bounded.
- **Empirical Prediction**
  Principle B should break down in all constructions that have the potential to add an unbounded number of pronouns to the same binding domain.
- Here we focus on **Limited Obviation** with coordinated pronouns (see Abner and Graf 2012 for other domains).

Adherence to Limited Obviation in English

Coordination of syntactically bound pronominals exhibits the effects of **Limited Obviation** in English. Coordination is illicit if the coordinated pronouns are homophonous.

(2)   a.   Every football player told some cheerleader that the coach wants to see (both) him and her in his office.

   b.   * Every football player told his friend that the coach wants to see (both) him and him in his office.

As a result, only a limited number of bound pronouns can be coordinated.

Violation of Limited Obviation in ASL

Pronouns with quantified antecedents exhibit apparent violations of **Limited Obviation** in ASL. Coordination is licit in spite of the manual homophony of the coordinated pronouns.

(3)   ALL-CIRCLE$_i$ BOY$_i$ TELL$_j$ SOMEONE$_j$ FRIEND$_j$ TEACHER WANT SEE **IX$_i$ IX$_j$** AFTER CLASS
Every boy told some friend of his that the teacher wanted to see him and him after class.

(4)   ALL$_i$ WRESTLER$_i$ INFORM$_j$ SOMEONE$_j$ SWIMMER$_j$ THAT **IX$_j$ IX$_i$** WILL RIDE-VEHICLE LIMO GO-TO DANCE
Every wrestler$_i$ told some swimmer$_j$ that him$_j$ and him$_i$ would ride in a limo to the dance.

Thus, the grammar appears to impose no principled limit on the number of syntactically bound pronouns that can be coordinated.

(5)   EACH$_i$ WRESTLER$_i$ TELL$_j$ SOMEONE$_j$ SWIMMER$_j$ THAT SOMEONE$_k$ FOOTBALL$_k$ PLAYER$_k$ ASK CAN **IX$_i$ IX$_j$ IX$_k$** THREE-HUMANS-GO-TO DANCE (TOGETHER)
Each wrestler$_i$ told some swimmer$_j$ that some football player$_k$ asked if him$_i$ and him$_j$ and him$_k$ could go to the dance together.

Alternative Explanation: Discourse Binding

In ASL, **spatial deixis** is used for reference:
- Nominals are assigned to a locus in space.
- Pronominals are realized by pointing at the established locus.

WRESTLER$_i$ SWIMMER$_j$ FOOTBALL$_k$ IX$_i$

Figure: Use of body shift in spatial deixis.

Deictic systems are mediated by discourse.
- Discourse binding is not syntactic binding (Reinhart 1983; Reuland 2001; Safir 2004).
- Discourse binding need not be subject to the computational restrictions that motivate **Limited Obviation**.

Deictic pronouns admit coordination in English.

(6)   Every football player told his friend that the coach wants to see (both) him$_{deictic}$ and him$_{deictic}$ in his office.

Converging Evidence for Discourse Binding

Pronominal reference with IX in ASL exhibits additional patterns that are characteristic of discourse binding phenomena.

- Bound IX pronominals do not appear to be subject to structural constraints such as c-command.

   (7)   EACH$_i$ BOY$_i$ POSS$_i$ SISTER LOVE/KISS-FIST$_i$ IX$_i$
   Every boy$_i$'s sister loves him$_i$.

- Unlike null arguments, overt IX pronominals are resistant to antecedence by quantified DPs with empty domains.

   (8)   NO$_i$ POLITICIAN$_i$ SAY (*IX$_i$) WANT WIN
   No politician said he$_{politician}$ wants to win.

- Pronominal IX receives a strict interpretation under ellipsis, unlike both null arguments and anaphoric SELF.

   (9)   Bruno and Craig have both said that they want to win their own (different) elections, but Bruno, who hates Craig, also let it slip that he wants Craig to lose.
   $_i$CRAIG SAY WANT (SELF$_i$/#IX$_i$) WIN, BRUNO$_j$ $_i$SAME-AS$_j$
   Craig$_i$ said he wants (himself$_i$/#him$_{Craig}$) to win, and Bruno did too.

Together with other recent findings (Rudnev and Kimmelman 2011; Schlenker 2011, 2012), these patterns show that the spatial reference system in sign language affects binding.

Conclusion

- Computational considerations suggest that something along the lines of **Limited Obviation** must hold for syntactic binding.
- Empirical observations reveal that syntactic binding in English exhibits expected **Limited Obviation** effects.
- Apparent counter-examples in ASL receive an alternative, independently supported, analysis as discourse binding.

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