A bidirectional explanation of the pronoun interpretation problem

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Outline

Children's comprehension of reflexives and pronouns

- Principle A: A reflexive must be bound locally

(1) Bert saw himself

  - 85% correct interpretation from the age of 3;0
- Principle B: A pronoun must be free locally

(2) Bert saw him.

  - only 50% correct interpretation even as late as 6;6
  - looks like chance

  - (Jakubowicz, 1984; Koster & Koster, 1986, Wexler & Chien, 1990; McDaniel, et al. 1990; McDaniel & Maxfield, 1992; McKee, 1992; see also Grimshaw & Rosen, 1990, for a review)

Children's production of reflexives and pronouns

- Bloom et al. (1994)

(3) I hit myself.

(4) Give it to me.

- 2,834 **me** tokens and 75 **myself** tokens in direct object position
- 93.5 percent correct production of myself at 2;3 -3;1 years old
- 99.8 percent correct production of me at 2;3-3;

Anecdotal evidence

Grimshaw and Rosen (1990): 188-9

"It is remarkable (...) that production errors have not been reported, with the exception of the use of emphatic or contrastive pronouns (...)".

- Chien and Wexler (1990), Manzini and Wexler (1987), similar comments

Several strategies

1. Reject comprehension data
   - Bloom et al. (1994) do this
2. Revise Principle B so that it doesn't cover problematic cases
   - Argue that previous experiments didn't really test Principle B
   - children's errors are pragmatic
3. Specific third person delay
4. Distinguish between production and comprehension grammar
5. Accept the existence of a pronoun comprehension delay

Referential expressions

- Function of referential expressions is delimited in part by what other referential devices are present in a given language
  - Difficult to describe the properties of referential expressions in terms of morphological classes
  - Instead Burzio (1998) suggests using implicational hierarchies
- Descriptions based on implicational hierarchies translate easily into soft constraints

Soft constraint alternative to binding

- Soft constraints are violable
- Soft constraints in optimality theory are potentially conflicting
- Burzio proposes two constraints to account for the distribution of reflexives and pronouns cross-linguistically

(5) PRINCIPLE A: a reflexive must be bound locally

(6) REFERENTIAL ECONOMY: Avoid R-expressions >> Avoid pronouns >> Avoid reflexives

(7) REFERENTIAL ECONOMY: Avoid pronouns >> Avoid reflexives

Speaker's perspective: coreferential meaning

- Tableau for producing a coreferential meaning

Input: coreferential meaning	PRINCIPLE A	REF ECONOMY
☞ reflexive form		
pronominal form		*!

Speaker's perspective:disjoint meaning

- Tableau for producing disjoint meaning

Input: disjoint meaning	PRINCIPLE A	REF ECONOMY
reflexive form	*!	
☞ pronominal form		*

Hearer's perspective: reflexive form

- Tableau for interpreting reflexive form

Input: reflexive form	PRINCIPLE A	REF ECONOMYREF ECO
☞ coreferential meaning		
disjoint meaning	*!	

Hearer's perspective: pronominal form

- Tableau for interpreting pronominal form

Input: pronominal form	PRINCIPLE A	REF ECONOMY
☞ corefential meaning		
☞ disjoint meaning		

Bidirectional optimization

- Bi-OT evaluates form-meaning pairs

Bidirectional Optimality (Jäger's version)

A form-meaning pair <f,m> is super-optimal iff:
a. there is no super-optimal pair <f',m> such that <f',m> is more harmonic than <f,m>.
b. there is no super-optimal pair <f,m'> such that <f,m'> is more harmonic than <f,m>.

Bi-OT tableau

- Bidirectional tableau for the production and interpretation of reflexives and pronouns in simplex transitive clauses

		PRINCIPLE A	REF ECONOMY
☞	<reflexive, coreferential>		
	~~<reflexive, disjoint>~~	*	
	~~<pronoun,coreferential>~~		*
✌	<pronoun, disjoint>		*

Proposal

- Children begin with unidirectional optimization
- To acquire the right interpretation of the pronoun they must **reason about production alternatives** when they are **interpreting**
- This type of bi-directional reasoning is acquired late

Rule I

- This explanation is compatible with ideas in Grodzinsky and Reinhart (1993)

Rule I: Intrasentential Coreference

NP A cannot corefer with NP B if replacing A with C, where C is a variable A-bound by B, yields and indistinguishable interpretation.

(8) Bert saw him.

Advantages to our proposal

- Rule I is specific for coreference relationships
  - we articulate this instead in terms of a more general process of bidirectional optimization
- No need for an additional pragmatic rule (i.e. Rule I)
  - we derive the same effects from Principle A alone combined with bidirectional optimization
- Our analysis also more clearly distinguishes the task of the hearer and the task of the speaker

Predictions of this account

- Correct production of third person form **him** and **her** will precede correct interpretation of this form
- there may not be a pronoun interpretation delay for first person forms **me** because there is no similar ambiguity in reference as with the third person forms

Predictions II

- there may be a Third Person Delay but this delay will not explain the entire gap of 4 years between production and comprehension
  - Diary studies have generally found that children employ the first person pronoun **I/me** earlier than other personal pronouns, with the second-person form following closely
  - Researchers report simultaneous usage of both forms or a delay from 10 weeks to 3 months (Chiat 1978, Huxley, 1970; Girouard, Ricard and Gouin Decarie (1997))

Summary

- Delay of Principle B is an effect of children's inability to put themselves in the perspective of the speaker when interpreting, i.e.
  - they are unable to reason about interpretation alternatives in production
  - they are unable to reason about production alternatives in comprehension

  i.e. they lack the ability to bi-directionally optimize