Week 6.
The Trouble With Principle B

**Binding Theory**

- **Principle A**
  A reflexive (*herself*) must be bound in its governing category.

- **Principle B**
  A pronoun (*her*) must be free (not bound) in its governing category.

- **Principle C**
  An r-expression (*Sarah*) must be free.

**Bindind Theory**

- The principles of Binding Theory seem to be universal, represented in all languages.
- They *prohibit* certain interpretations (that is, are unlearnable from positive evidence)
- The principles of Binding Theory are part of Universal Grammar, not learned.

Yet… Sentences which are ruled out in the adult grammar by principles of Binding Theory often seem to be uttered by kids.

- Do kids take a while to learn Binding Theory (even supposing it is learnable)?
- When do they know it?

C. Chomsky (1969)

- Tested Principle C with kids and proposed that kids go through three stages:
  - **Stage 1.**
    - Coreference is unconstrained.
  - **Stage 2.**
    - Linear order strategy for pronominalization (linear order; antecedent must precede pronoun)
  - **Stage 3.**
    - Principle C is obeyed.

Linear order strategy

- Do kids go through a stage where they have a strategy for pronouns instead of Binding Theory?
- Lust (1981): When asked to repeat, kids repeated forward pronominalizations much more accurately than redundant (*name…name*) sequences or backwards pronominalizations.
Linear order strategy

- But this doesn’t tell us that there aren’t grammatical principles governing their use of pronouns and/or reflexives—it only tells us that, of the grammatical options, forward pronominalization is preferred.

Onset of Binding Theory

- If Binding Theory is part of UG, not learned, we’d expect that kids start out already knowing it.
- Caveat: Of course, the kids need to know what is a pronoun and what is a reflexive before they can use Binding Theory.
- However: We expect to find that the first available evidence should show that kids know Binding Theory.

Onset of Binding Theory

- But it doesn’t seem to work that way…
- Several experiments seem to show that while kids show early evidence of knowing Principle A, they consistently fail to observe Principle B—even up to (and beyond) 6 years old.

Chien & Wexler (1990)

- Explored the question of whether kids know Principles A and B from the outset or not.
- First three experiments show:
  - Kids correctly require local antecedents for reflexives (Principle A) early on
  - Kids are significantly delayed in requiring non-local antecedents for pronouns (Principle B).

Chien & Wexler (1990)

- Kids do know the difference between pronouns and reflexives (they aren’t treating them all as reflexives).
- E.g., I saw him, *I saw himself. Kids say sentences like I saw him often enough, but they do seem to know that reflexives need a local antecedent.

So what’s wrong with Principle B?

- Consider what adults can do:
  - That must be John—or at least he looks an awful lot like him.
- So do adults violate Principle B?
Coindexation

- Principle B says that coindexation between a pronoun and an antecedent is prohibited if the antecedent is too close.
- Assuming adults obey this, that previous sentence must have been:
  - *That must be John—or at least he looks an awful lot like him*.
- ...where *i* and *j* are accidentally coreferent.

Coindexation

- If two noun phrases share the same index, they necessarily share the same referent. Coindexation implies coreference.
- If two noun phrases do not share the same index, does this mean they can’t share the same referent? Does contraindexation imply non-coreference?

Coindexation

- The idea behind the Chien & Wexler account of the Principle B “delay” is that adults know the pragmatic Principle P, but kids are unable to use it right away.

  - **Principle P**
    Contraindexed NPs are non-coreferential unless the context explicitly forces coreference.

How could we ever tell?

- But how can we tell if it’s Principle P that kids don’t obey and not Principle B, given that they both seem to allow *Mama bear is pointing to her* ‘…herself’?

  - **Answer:** Principle B also governs the use of bound pronouns, which Principle P has nothing to say about.

Bound pronouns

- A bound pronoun is like *his* in:
  - Every boy is looking for his keys.
- …and these are subject to Principle B, but they do not have a fixed referent, so accidental coreference is not an option here.
  - *Every boy admires him*.
Prediction

• So, if found that kids accept
  – Mama bear points to her  \( (\text{her} = \text{Mama Bear}) \)

• …but refused to accept
  – Every bear i points to her,  \( (\text{her} = \text{each bear in turn}) \)

• …then kids know Principle B (and what they lack is probably Principle P).

Chien & Wexler (1990)

• Three experiments establish that Principle B appears to be delayed with respect to Principle A.

• Fourth experiment establishes that kids obey Principle B when coindexation would be forced by a bound variable interpretation.

Chien & Wexler (1990)

• C&W adopt the following hypotheses:

  • Lexical Learning Hypothesis (LLH): The only thing the kid needs to learn are the items in the lexicon—in particular, not the principles of grammar.

  • UG-Constrained Maturation: At every point in the process, principles of UG constrain the child’s grammar.

C&W90: Experiment I

• Tests Principle A (reflexives require a local antecedent) by providing sentences with two possible antecedents (one local, one not).

  • Kitty says that Sarah should point to herself.
  • Kitty says that Sarah should point to her.
  • Kitty says that Adam should point to her.

C&W90: Experiment I result

• Kids from 2.5 to 6 showed a steady increase (from about 13% to about 90%) in requiring herself to take a local antecedent.

• Kids showed no significant development in requiring her to take a non-local antecedent (about 75% across the board)

• Gender cues for non-local pronoun brought kids’ performance up to near-perfect.

C&W90: Experiment II

• Checking the effects of finiteness and gender control on reflexives.

  • Kitty wants Sarah to point to herself.
  • Kitty wants Sarah to point to her.
  • Kitty wants Adam to point to her.
  • Snoopy wants Sarah to point to herself.
C&W90: Experiment II results

• Kids did seem to obey Principle A slightly sooner in non-finite clauses
  – (C&W give no real explanation for this)

• Gender cues did *not* seem to affect kids’ performance with respect to Principle A.

• The “delay of Principle B” was replicated.

C&W90: Experiment III

• Increased the number of conditions to test for pragmatic strategies and to replicate the results with a different task.
  – (Previous task was “Simon [Snoopy/Kitty] says…”, this task was “Party game” which involved giving objects to people/puppets sitting at a table).

C&W90: Experiment III results

• Previous results replicated.

• Young kids operated at chance for Principle A (meaning that they don’t have a systematic non-local coreference principle they are following—cf. Experiment I result showing them at 13% correct)

C&W90: Possibilities so far…

• LLH is wrong, kids have to learn Principle B, and it takes a while.
  – But how on positive evidence alone?
• *Her* is harder to learn than *herself*.
  – But kids use pronouns first (*I saw him* sentences indicate that they’re pronouns).

• Principle B matures (constraints enforcing coreference before those prohibiting coreference?)
  – *UG-constrained maturation
• “Principle B errors” aren’t Principle B problems.

C&W90: Experiment IV

• Principle B (but not Principle P) applies also to bound pronouns—if the kids know Principle B and not Principle P, we expect to see kids getting *bound pronouns* right (unlike *referring pronouns*, as previous three experiments showed).

C&W90: Experiment IV items

• Name-reflexive
  – Is Mama Bear pointing to herself?

• Name-pronoun
  – Is Mama Bear pointing to her?

• Quantifier-reflexive
  – Is every bear pointing to herself?

• Quantifier-pronoun
  – Is every bear pointing to her?
C&W90: Experiment IV controls

- **Name-name**
  - Is Mama Bear pointing to Goldilocks?
- **Every-name**
  - Is every bear pointing to Goldilocks?
- **All-name**
  - Are all of the bears pointing to Goldilocks?

C&W90: Experiment IV control results

- Kids under 5 did poorly on the mismatch condition for *every* and *all*; they did less poorly on the mismatch condition for names.
- Conclusion: Kids under 5 haven’t quite mastered quantifiers

C&W90: Experiment IV main results

- Kids over 5 did near-perfect with respect to Principle A (name-reflexive and quantifier-reflexive match/mismatch).
- Principle B effect replicated; kids did badly on the name-pronoun mismatch cases, steadily rising from about 70% wrong to about 25% wrong between 4 and 7.

C&W90: Experiment IV main results

- Quantifier-pronoun (the important case):
  - Under 5;0, kids were operating around chance (explanation: they don’t understand how quantifiers work yet)
  - Over 5;0, they were at 80% correct and above—in particular, better than on the name-pronoun condition; they seem to know Principle B.

C&W90: Appendix I reflexives

C&W90: Appendix I pronouns
Thornton & Wexler (1999)

- What pragmatic knowledge do children lack? Broadly speaking, children appear to have difficulty evaluating other speakers’ intentions… As speakers, children fail to distinguish between their knowledge and that of listeners… [c]hildren use pronouns without first ensuring that a referent has been introduced into the conversational context… As listeners, children appear to assign interpretations to other speakers’ utterances that require special contextual support to be felicitous for adults… (pp. 14-15)

Thornton & Wexler (1999)

- Replicated Chien & Wexler (1990) and also tested VP ellipsis cases.

- Papa Bear wiped his face and Brother Bear did [wiped his face] too.
  - *His* = Papa Bear’s (strict—coreference)
  - *His* = Brother Bear’s (sloppy—bound)

Thornton & Wexler (1999)

- Experiment; 19 kids from 4;0 to 5;1.
- Among the findings:
  - Kids who do allow *Papa Bear washed him* to mean …himself robustly don’t allow self-brushing scenarios for *Every reindeer brushed him* or in *Batman cleaned him and every turtle did too.* (and, kids obey structural parallelism)
Preparatory comments for next week’s readings

• Borer & Wexler (1987): They are out to challenge the idea that kids start off with the entire grammatical system, in favor of a maturational view of syntactic development.
• One of their proposals is that children cannot initially construct A-chains, and they use evidence primarily from passives.

Passives

• John kicked the ball (active)
• The ball was kicked (by John) (passive)

• Standard analysis: the ball starts off as complement of V in both; in the passive, the agent is suppressed and the verb is deprived of its ability to assign Case. Thus, the ball moves into SpecIP to get Case.

• The ball i was kicked t i.

Intransitives

• There are two kinds of intransitive verbs:
  – Unergative
  – Unaccusative (or sometimes “ergative”)

• The unergative verbs have an external argument—just like a transitive verb.

• The unaccusative/ergative verbs have only an internal argument, which moves to subject position—just like in a passive.

Unaccusatives ≈ passives

• An unaccusative is structurally like a passive:
  – The train, arrived t i.

• An unergative is not.
  – The baby giggled.
Verbal and adjectival passives

- In English at least, it seems like there are two kinds of words with passive morphology:
  - Verbal: The doll was seen.
  - Adjectival: The wig seems combed.

Borer & Wexler adopt an analysis under which adjectival passives do not involve syntactic movement (their argument structure is adjusted in the lexicon prior to syntax).

Verbal and adjectival passives

- Generally, non-action verbs make poor adjectival passives (while action verbs are fine):
  - *The doll seems seen. The seen doll. Seen though the movie was, John went to see it again.
  - The cloth appears torn. The torn cloth. Torn though the cloth was, John used it anyway.

B&W87 and the VPISH

- **Note:** Borer & Wexler (1987) are not assuming the VP-Internal Subject Hypothesis (at the time the paper was written, it was assumed that the subject was base-generated outside of the VP).

  - Keep this in the back of your mind; what effect would adopting the VP-Internal Subject Hypothesis have on their account? (Babyonyshev et al. discuss this a bit in a footnote).

Babyonyshev et al. (1998)


  - They consider two possible reasons why A-chains in passives would not be allowed:
    - Kids can’t build A-chains.
    - Kids can’t “dethematize” the external argument.

UTAH

- The **Uniformity of Theta Assignment Hypothesis** (UTAH) essentially says that the syntactic position in the structure to which any given \( \theta \)-role is assigned does not vary within or across languages.

  - So, the patient \( \theta \)-role is always assigned to the complement of V position, for example.

Pesetsky and movement

- Languages can differ in whether they perform overt movement (before SS) or covert movement (after SS, on the way to LF).
  - Usual example: Wh-movement (Bulgarian: all wh-movements overt; English: one overt wh-movement, the rest covert; Japanese: all wh-movements covert).
Pesetsky and movement

- If we assume that all languages move all of their wh-words to (Spec)CP by LF (only some languages save some/all of these movements until after SS), then at LF there is always a chain like:
  - Wh-word, ...i.

- One way to think of “covert movement” is as “pronouncing the bottom of the chain” (in a model in which you both interpret and pronounce LF).

Babyonyshev et al. (1998)

- Babyonyshev et al. conduct an experiment with Russian kids to determine whether kids who cannot represent adult unaccusatives (due to the inability to represent A-chains) instead parse them as unergatives.
- “S-homophone”: A different syntactic structure (e.g. an unergative) which sounds like another (e.g. an unaccusative).

Russian genitive of negation

- There is a fairly elaborate discussion of the “genitive of negation” construction in Russian. Basically, a non-specific noun phrase in the same clause as negation will be pronounced with genitive (instead of accusative) case. Some verbs (e.g., existential be) in fact require genitive.

- Evidence for covert movement of the genitive argument
- Negative constituents (e.g., any kind of boy) need to co-occur with negation in the same clause.
- Where negative constituents participate in A-chains we can see (e.g., raising), the top of the A-chain has to be in the same clause as negation.
- Genitive negative constituents with raising verbs appear in the lower clause at SS but require negation in the higher clause.
- Conclusion: Genitive arguments move too, creating an A-chain, and the negation requirement is verified at LF.
For next time:

- Read O’Grady, ch. 10, Borer & Wexler (1987), and Babyonyshev et al. (1998).

- Write up a 2-3 page summary of Borer & Wexler (1987):
  - What are the most primary points?
  - What are the hypotheses?
  - What evidence is given in support of these hypotheses?
  - Did you find the evidence convincing (assuming it is accurately represented)? If not, why not?