24.904
Language Acquisition
Class 14: Syntax: *Wh*-questions, continued
Relatedness of structures

• Part of knowing a grammar is to know which type of grammatical structures are related and in what way

(1)  a. Mommy will kiss the baby.
     b. The baby will be kissed by Mommy.
     c. Will Mommy kiss the baby?
     d. Who will kiss the baby?
     e. Who will Mommy kiss?
Movement

- Although a constituent may appear only in one place in the structure, it may have been merged elsewhere in the structure, and re-merged in the final position.

  ➡ This re-merge operation: movement

- Hypothesis: structures in (b)-(e) are related to (a) via movement
Movement

Head Movement

A-Movement

Wh-Movement

Diagram showing different types of movement in language: Head Movement, A-Movement, and Wh-Movement.
Today

• Acquisition of *wh*-movement: question formation
Question formation

• interesting place to look to assess the state of children’s knowledge of syntax
  ▶ Often involves pretty dramatic word order changes.
  ▶ Word order changes vary from language to language.
  ▶ Subtle restrictions on what is and isn’t a possible question
English wh-questions

- Two components to forming a (main clause) wh-question:
  - Move one wh-word to SpecCP
  - Move Aux to C (Subject-Aux Inversion)

- Language-specific stuff the child has to learn
  - What is an auxiliary (which inverts) vs. a main verb (which does not)
  - What are the wh-words?
Space of variation in simplex questions

• in-situ vs. fronting (English vs. Japanese, Malayalam)

• if yes to fronting…
  ▶ front all vs. front one? (English, Spanish vs. Bulgarian)
  ▶ invert auxiliary or no? (English vs. Finnish)
Space of variation in long-distance questions

- **Long-Distance Movement:** matrix-scope-taking wh-phrase move all the way to the stop, stopping off at the intermediate spec-CP on the way. only highest one is pronounced. e.g. English.

  - [CP who [C’ did Maria say [CP who [C’ Mommy will kiss who? ]]]
Space of variation in long-distance questions

- **Partial movement:** matrix-scope-taking wh-phrase moves only to the spec-CP of the embedded clause. A “scope marker” inserted in the matrix spec-CP, e.g. Hindi, German.

  - [CP What [C’ did Maria say [CP who [C’ Mommy will kiss who? ]]]
Space of variation in long-distance questions

- **Wh-copying:** When a wh-phrase moves through an intermediate spec-CP on the way to the matrix spec-CP and leaves an overt trace, e.g. Afrikaans, Passamaquoddy, also German.

  - [CP Who [C’ did Maria say [CP who [C’ Mommy will kiss who? ]]]
    
    ![Diagram of wh-copying]
• Much of the focus on English
  ▶ Kids get a lot of things right, even those things for which evidence is sparse [today]
  ▶ Kids get some things wrong in interesting ways [Thurs]
What kids get right
Wh-qs in naturalistic production

• Early acquisition of fronting
  

  › Together, these children asked 2,809 wh-questions, only 41 of which (1%) had a \(\text{wh}\)-element in situ

  › similar findings in Stromswold 1990
Subject-object asymmetries?

• Is there a difference in the timing of emergence between subject wh-questions and object wh-questions?

  ▶ In English, there is an apparent difference in complexity (“distance” of movement, Subj-Aux Inversion).

  ▶ Possibility that subject wh-questions do not involve movement at all

  ▶ If so, a subject-object asymmetry in acquisition might be taken as evidence for wh-in-situ being easier/having priority
Subject-object asymmetries?

- Stromswold 1995: no real evidence for such an asymmetry in naturalistic production

<table>
<thead>
<tr>
<th>Child</th>
<th>Subject Questions</th>
<th>Object Questions</th>
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<tbody>
<tr>
<td>Adam</td>
<td>2;4.5</td>
<td>2;4.5</td>
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<tr>
<td>Allison</td>
<td>2;4.2</td>
<td>2;4.2</td>
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<td>April</td>
<td>2;9.6</td>
<td>2;1.6</td>
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<tr>
<td>Eve</td>
<td>1;8.5</td>
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<td>Mark</td>
<td>3;8.2</td>
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<td>2;6.7</td>
<td>2;8.8</td>
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<tr>
<td>Shem</td>
<td>2;2.5</td>
<td>2;2.5</td>
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</table>
Subject-object asymmetries?

• Early *early* wh-questions (before production begins)

• Seidl, Hollich & Jusczyk, 2003
  • 13-, 15- and 20-month-olds
  • Use looking preferences to “answer” of wh-questions.
    - Subject: What hit the apple?
    - Object: What did the apple hit?
    - Baseline: Where is the apple?
  • Infants were shown brief animated clips where, e.g., a book hit some keys.
  • Then, two screens were presented side by side, one with a book displayed, one with keys displayed.
  • Expectations, if adult-like:
    - What hit the keys? Look longer at book
    - What did the book hit? Look longer at keys
    - Where is the book? Look longer at book
Seidl et al.

- 20-month-olds seemed quite capable of comprehending all three kinds.
- 15-month-olds couldn’t do objects;
- 13-month-olds couldn’t do any

<table>
<thead>
<tr>
<th>Age</th>
<th>Question Type</th>
<th>Target</th>
<th>Non-Target</th>
<th>Diff</th>
<th>Means to Target</th>
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<tbody>
<tr>
<td>13</td>
<td>Subject</td>
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<td>1.61 (.16)</td>
<td>.31</td>
<td>n = 11</td>
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<td>Object</td>
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<td>1.67 (.15)</td>
<td>−.03</td>
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<td>Where</td>
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<td>.126*</td>
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<td>Where</td>
<td>2.45 (.12)</td>
<td>1.23 (.09)</td>
<td>1.22*</td>
<td>n = 18</td>
</tr>
</tbody>
</table>

Note. *indicates p < .05.
Early knowledge

• At least by 20mos, children seem to have some command of *wh*-movement in questions

• But are kid *wh*-constructions the same as adult structures? If not, how are they different?
  
  ▶ Are these in fact movement constructions? Are there copies of movement?

  ▶ Do they obey the same constraints (e.g., *wh*-island, …)?
Copies of movement

• How can we tell if children analyze fronted *wh*-words as having *moved* from somewhere lower down?

  • Roeper et al. 1985, de Villiers 1991: early *wh*-questions may involve *wh*-words base-generated in an initial position, perhaps analogous to:

(1) How come you didn’t show up?
Wanna-contraction

1. a. I want to invite Malia to my party  
   b. I wanna invite Malia to my party

2. a. You want to invite Malia to your party  
   b. You wanna invite Malia to your party

3. a. She wants to invite Malia to her party  
   b. *She wan?sa??? Invite Malia to her party

- **Generalization v1:** if *want* is followed by *to* and there is no overt intervening material, *want*+*to* —> *wanna*
Wanna-contraction

1. a. We cannot expect that want to be satisfied
   b. *We cannot expect that wanna be satisfied.

2. a. The want to be loved is felt by all.
   b. *The wanna be loved is felt by

• **Generalization v2:** if want is a verb, followed by to and there is no overt intervening material, want+to $\rightarrow$ wanna
Wanna-contraction

1. a. I don't want to flagellate oneself to become standard practice in this workplace.
   b. *I don't wanna flagellate oneself to become standard practice in this workplace.

2. a. I don't want anyone who continues to want to stop wanting.
   b. *I don't want anyone who continues to wanna stop wanting.

3. a. One must want (in order) to become an over-effective consumer.
   b. *One must wanna become an over-effective consumer.

- **Generalization v3:** if *want* is a verb followed by *to*, *to* heads the infinitival **complement** to that verb, and there is no overt intervening material, *want+to* $\rightarrow$ *wanna*

  for more on this: Postal & Pullum 1982, Goodall 1991
Wanna-contraction in questions

• proceeds as usual…

(1) Q: Who do you wanna invite who to your party?  
(A: I wanna invite Malia to my party.)
Wanna-contraction in questions

• But what’s wrong with this?

(1) Q: *Who do you wanna have the most fun at your party?
Wanna-contraction in questions

(1) Q: *Who do you wan-who-na have the most fun at your party
   (A: I want Malia to have the most fun)

• Generalization v4: if want is a verb followed by to, to heads the infinitival complement to that verb, and there is no overt intervening material, want+to —> wanna
Thornton 1990

- Participants: 2;10 to 5 yos
- Task: Elicited Production
  - Context-scenarios carefully designed to extract certain types of constructions from the child
• Set up as a game that revolved around a puppet character, a rat named Ratty, who had come to live with the grown-up experimenter, but was shy of grown-ups. Because of this, the experimenter didn’t know anything about him, what he needed/liked/etc. The child’s help is therefore solicited.

(1) Wanna-contraction allowed


(2) Wanna-contraction disallowed

- Experimenter: I bet the rat wants someone to brush his teeth for him. Ask him who.
Thornton 1990

- 68 elicited questions where contraction is allowed = 88% used wanna

- 74 questions where contraction is disallowed = 8% used wanna

- **Upshot:** By 3 years of age, children know when they can and cannot carry out the contraction, which, if our analysis is right, entails knowledge of copies of movement
Even earlier?

- Perkins and Lidz 2021
  - Do infants know that wh-questions require a gap?
  - e.g. that fronting of an object wh-phrase is in complementary distribution with an NP in object position?

(1) a. What did the chef burn ____ ?
   b. *What did the chef burn the pizza ?
   c. *What did the chef burn it ?
Perkins and Lidz 2021

• Visual fixation task with 32 18-month-olds

• Two groups: object-wh-questions vs. transitive declaratives
  - both groups heard sentences with an overt direct object pronoun
  - the direct object sentences were grammatical for the declarative group and ungrammatical for the interrogative group

(1) a. Which dog should the cat hug ___?
   b. *Which dog should the cat hug him?

(2) a. *A dog! The cat should hug ___.
   b. A dog! The cat should hug him.
Perkins and Lidz 2021

LT to object pronoun sentences — LT to no pronoun sentences

A grammaticality preference!

<table>
<thead>
<tr>
<th>Condition</th>
<th>Declarative</th>
<th>Wh-question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looking Time Difference (sec)</td>
<td></td>
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</tr>
</tbody>
</table>

| V + NP | A dog! The cat should hug him. | *Which dog should the cat hug him? |
| V + Ø  | *A dog! The cat should hug.    | Which dog should the cat hug?      |
• “18-mo-olds represent the nonlocal predicate-argument dependency inherent in a wh-question abstractly, as equivalent to the grammatical relation between a verb and its local direct object”
Constraints on question-formation

• Wh-phrases cannot take scope across an intervening wh-phrase (“wh-island”)

(1) When did Mommy say she will kiss the baby?
   a. When did Mommy say [she will kiss the baby when]
   b. When did Mommy say when [she will kiss the baby]

(2) When did Mommy say how she will kiss the baby?
   a. *When did Mommy say [how she will kiss the baby when]
   b. When did Mommy say when [how she will kiss the baby]
Do 3-5-year-olds children know this?

**Method:** questions after carefully constructed stories (usually accompanied by visual support)

**Example story:** Girl takes a shortcut home in the afternoon on way from school. She climbed over a fence and ripped her dress. Later that night, girl tells parent about dress.

**Questions:**
(a) When did she say [she ripped her dress]?
   **OK answers:** afternoon, night
(b) When did she say [how she ripped her dress]?
   **OK answers:** night
Results:

• Children allowed short and long distance answers for complement clauses like (a)

  (a) When did she say [she ripped her dress]?

   **OK answers:** afternoon, night

• Never allowed long distance answers for questions like (b)

  (b) When did she say [how she ripped her dress]?

   **OK answers:** night
Medial wh

However...

- Children made unexpected mistakes.
- Sometimes, children answered a question like (b) with an answer like (c):

  (b) When did she say how she ripped her dress?
  (c) Climbing over the fence.

more on this next time...
A note about the homework...

Superiority:

(1) a. Who do you think ___ will bring what to the potluck?
   b. What do you think who will bring ___ to the potluck?

(2) a. Who brought what?
   b. *What did who bring?