24.904
Language Acquisition

Class 13: Syntax: *Wh*-questions

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?

- **Question for syntacticians:** How do we account for the relatedness of these structures?

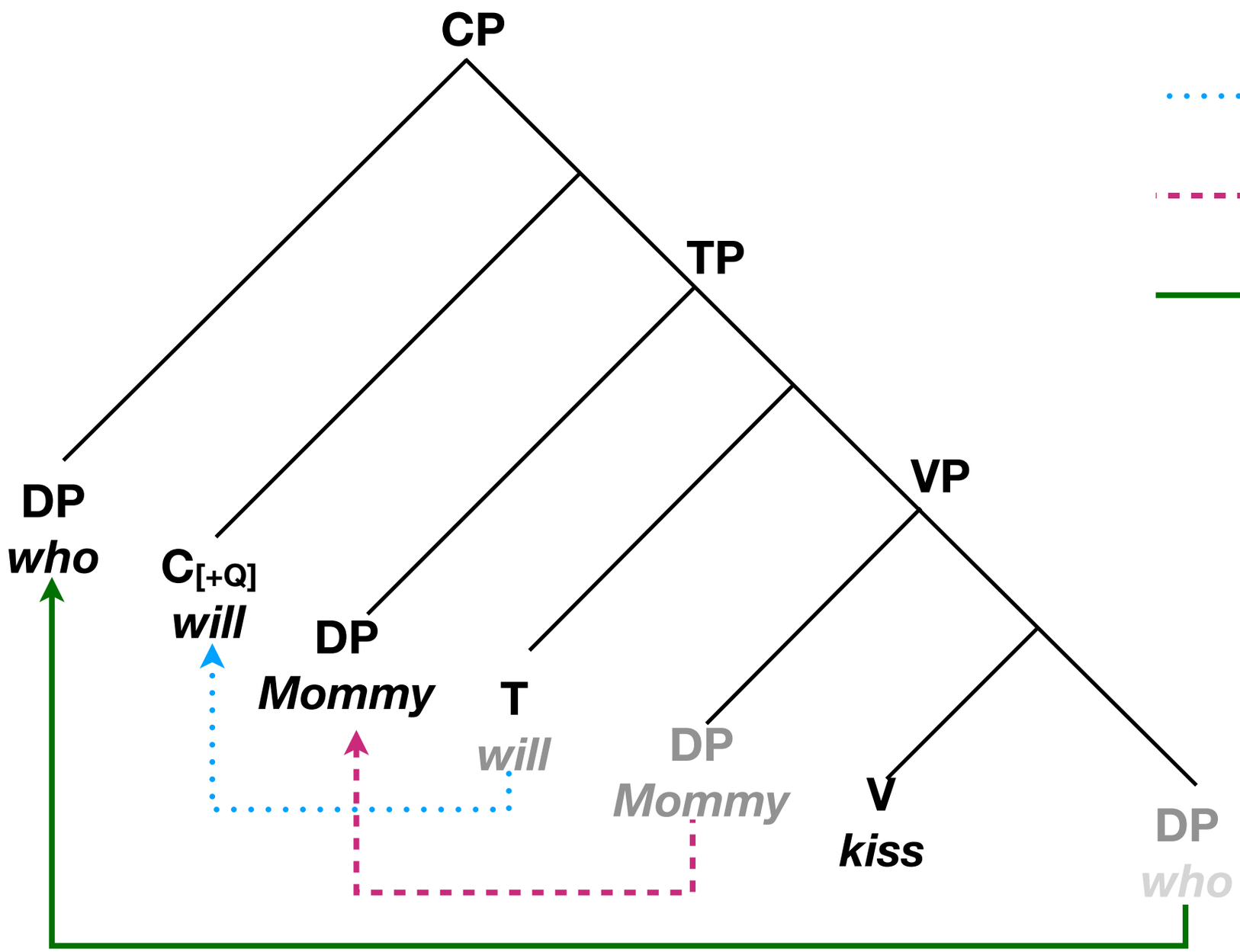
Movement

- 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


CP
DP
who
C[+Q]
will
DP
Mommy
TP
T
will
VP
DP
Mommy
V
kiss
DP
who
Head Movement
A-Movement
Wh-Movement

Relatedness of structures

- **One hypothesis:** all of the structures we saw above are related via movement
  - **Head Movement:**

(1) [CP [C’ will [TP Mommy [T’ ~~will~~ [VP kiss the baby]]]?

  - **A-Movement:**

(2) [CP [C’ [TP Mommy [T -ed [VP ~~Mommy~~ kissed the baby]]]

  - **Ā-Movement:**

(3) [CP who [C’ [TP ~~who~~ [T’ will [VP kiss the baby]]]?

Acquisition questions

- Do children know how these various movement operations work? If not, when and how do they become adult-like?
- Do they know how these movement operations are constrained? If not, when and how do they become adult-like?

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- **Today's case study:** passives

Passives

(1) Mommy will kiss the baby. [active]

(2) The baby will be kissed by Mommy. [passive]

- Do they mean the same thing? What's the difference?

Passives

- In actives, the **external argument** of the verb ends up in the **subject** position

- In passives, what's usually an **internal argument** ends up in the **subject** position

Terminology refresher

- Argument: an entity about which a predication is made

(1) [$_{ARG}$The book] [$_{PRED}$ is on the table]

- Verbs project predicative structures with some number of arguments

(2) [$_{VP}$ *External Arg* [V *Internal Arg*]

Terminology refresher

- Verb classification based on argument structure

(1) [$_{VP}$ *External Arg* [V *Internal Arg*] —> Transitive

(2) [$_{VP}$ *External Arg* [V ∅] —> Unergative

(3) [$_{VP}$ ∅ [V *Internal Arg*] —> Unaccusative

Intransitive

Terminology refresher

- Syntax vs. semantics
- Internal/external argument = semantic notions
- Subject/object = syntactic/structural notions (e.g. the DP occupying Spec, TP)

Passives

- Functionally (Keenan and Dryer 2007)
  - Foregrounding constructions
  - Background the agent argument
- Yet basically same event structure and participants

Special morphology

- Doesn’t come for free
  - Dedicated passive morphology is marked on the predicate
  - English: Auxiliary *be* + and *-ed/-en* on the verb (participial form)
    e.g. *kiss —> be kissed, eat —> be eaten*

Movement in passives

- **Conjecture:** in passive constructions, the surface subject (the baby) was base-generated as the direct object of the verb, just as in the active, and then moved to Spec, TP.

(1) a. The baby will be kissed.
b. [$_{TP}$ The baby will be [$_{VP}$ kissed ~~the baby~~.]]

Movement in passives

- The role of the passive morpheme is to preclude the normal course of merging the external argument. Consequence: something else has to occupy Spec, TP

(1) a. The baby will be kissed.
b. [$_{TP}$ The baby will be [$_{VP}$ kissed ~~the baby~~.]]

(2) a. Mary gave John the book.
b. Mary gave the book to John.
c. [$_{TP}$ John was [$_{VP}$ given ~~John~~ the book.]]
d. [$_{TP}$ The book was [$_{VP}$ given ~~the book~~ to John.]]

Movement in passives

- Why? Why not say that there is a passive verb *kiss*, identical to the active verb *kiss* but with reversed participant roles?

(1) a. Mary expected [John to win].
b. John was expected [~~John~~ to win].

Movement in passives

- When you look beyond English, it's more transparent that passivization is a structural, not a lexical, phenomenon

(1) a. kunju paalu kuDi-chu
baby milk drink-PST
b. (kunj-aal) paalu kuDikka-peTT-u
baby-by milk drink-PASS-PST

(2) a. kunju kara-nju
baby cry-PST
b. *karanj-peTT-u
cry-PASS-PST

(3) a. amma kunjine kara-yi-chu
mom baby cry-TRNS-PST
'Mom made baby cry.'
b. (amma-aal) kunju kara-yikka-peTT-u
mom-by baby cry-TRNS-PASS-PST
'The baby was made cry by mom.'

External argument

- In passives, external argument is “demoted”: it is no longer a subject but an adjunct, which can be dropped.

(1) Mommy will kiss the baby. [active]

(2) The baby will be kissed. [passive]

External argument

- But some “implicit” external argument is interpreted…

(1) Es wurde einander gedankt [German]
It was each.other thanked.

- What is the antecedent of the anaphor *each other*?

(2) The woman is being carefully dressed.

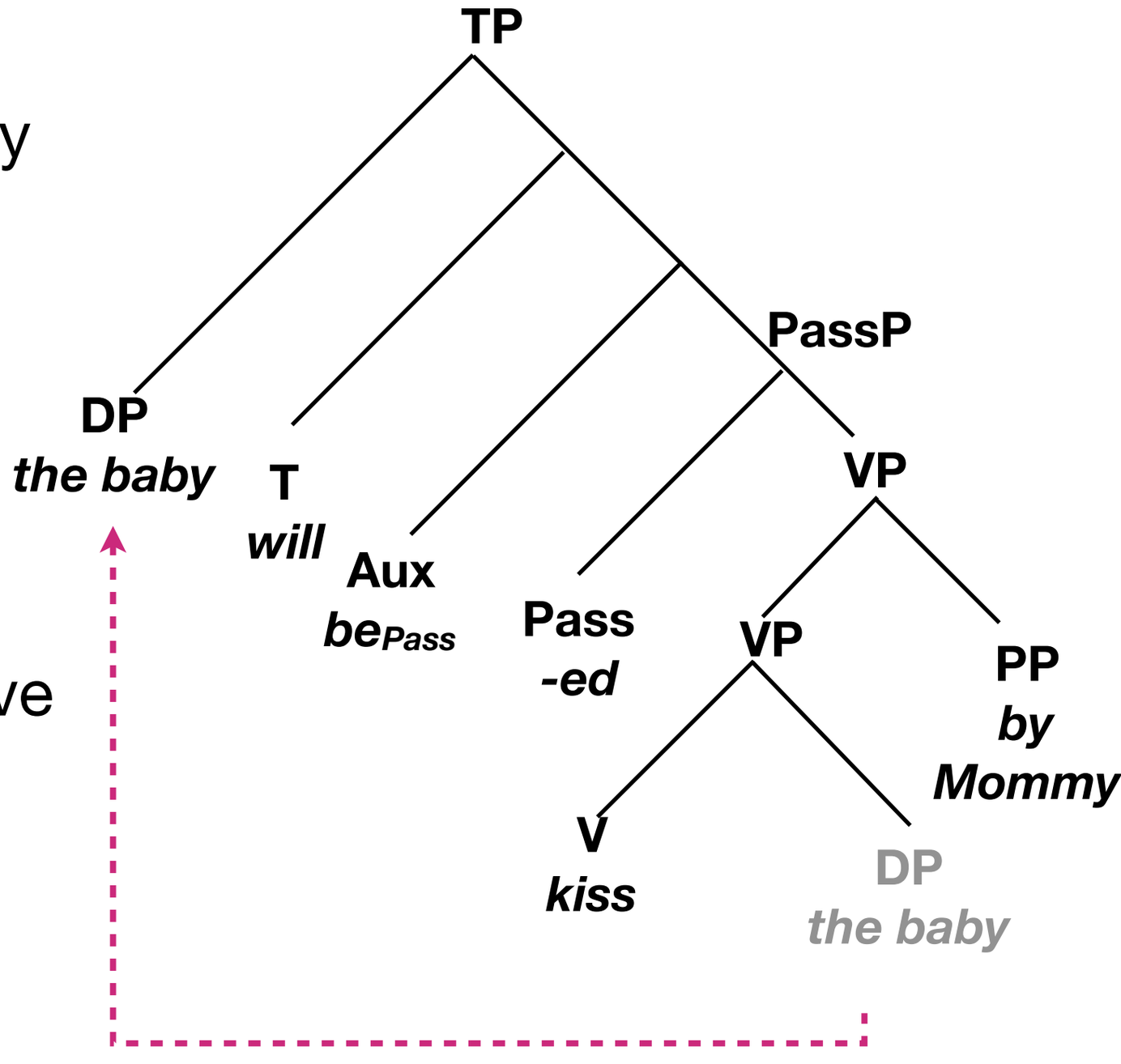
- Who is being careful?

Summary

- Passive Morphology: Auxiliary + passive participle

- Passive Syntax: Internal argument appears in subject position

- Agent argument does not have to be overt, but is always interpreted.



Potential acquisition challenges…

- Word order is acquired remarkably early
- Moreover, work we've looked at on early syntax suggests that children map subject —> agent
- What does this mean for passive acquisition, where this correspondence breaks down?

Passive delay

- Bever (1970) was among the first to empirically document children's difficulties in the comprehension of passive sentences
  - Children at least as young as 2;6 comprehend active sentences like (1)

    (1) Alex kissed Jesse

  - But they seem to have difficulty comprehending semantically equivalent, but syntactically distinct passive sentences like (2)

    (2) Jesse was kissed by Alex

Passive delay

- Replication in de Villiers and de Villiers (1973):
- Method: Act-out
  - children given toys and asked to act-out test sentences like: “Make the boy hit the girl”(active), and “Make the boy be hit by the girl”.

Table 2 Results from de Villiers and de Villiers

		Active		Passive	
Stage	# of children, ages (MLU)	% correct	% reversed	% correct	% reversed
1	8, 19–23 months (1.06–2.99)	45.8	10.4	25.4	30
2	10, 24–27 months (1.06–3.94)	65.8	16.9	39	37.3
3	9, 28–31 months (2.24–4.16)	78.9	15.5	31.8	50.4
4	6, 32–37.5 months (2.86–4.25)	87.8	12.2	34.4	65.6

Passive delay

- Bever's proposal: Difficulty due to Agent-V-Patient strategy for non-canonical word orders
- Too simplistic: Children do not have issues with other structures that mess with the Agent-V-Patient order, e.g. object *wh*-questions:
  - Stromswold (1995), Hirsch, Hartman, & Wexler (2005): no difference in production or comprehension of subject vs. object questions

Verb type effect

- Maratsos et al. (1985)
  - asymmetry between “actional” and “non-actional” verbs
  - where “actional” = kick, kiss, chase, etc. and “non-actional” = see, hear, forget, like, etc.

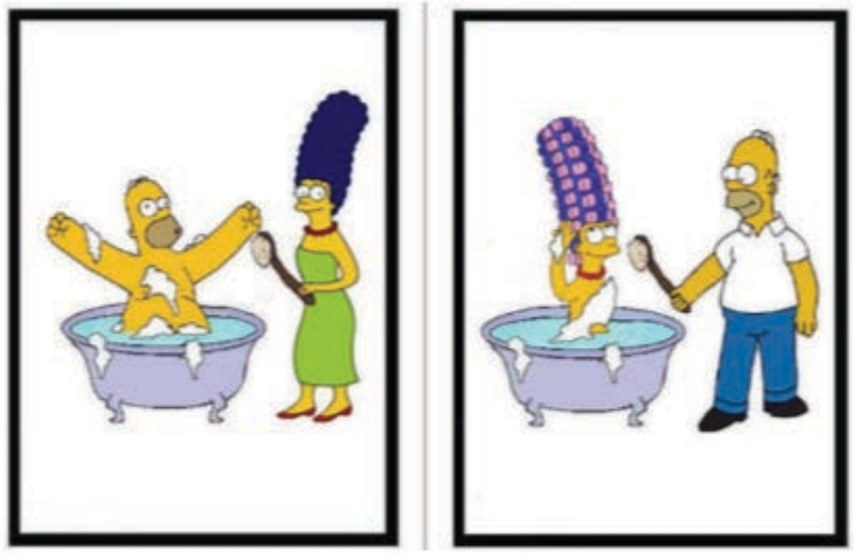
Table 3 Percent correct responses to a picture selection task testing active and passive sentences with actional and non-actional verbs (Maratsos et al. 1985)

	Actional		Non-actional	
Age	Active	Passive	Active	Passive
4	97	85	92	34
5	99	91	96	65
7	99	92	97	62
9	100	96	99	87
11	100	99	100	99

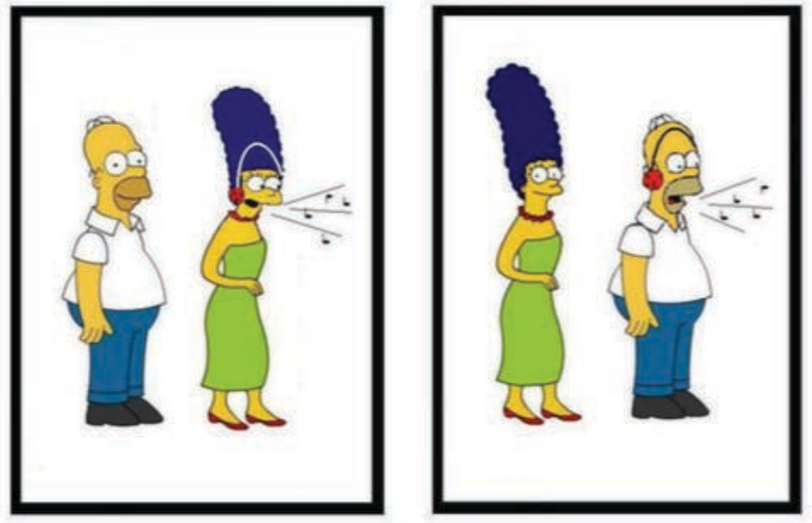
Verb type effect

- Replication (Hirsch & Wexler 2004):

Point to the picture in which Homer is washed



Point to the picture in which Homer is heard



Verb type effect

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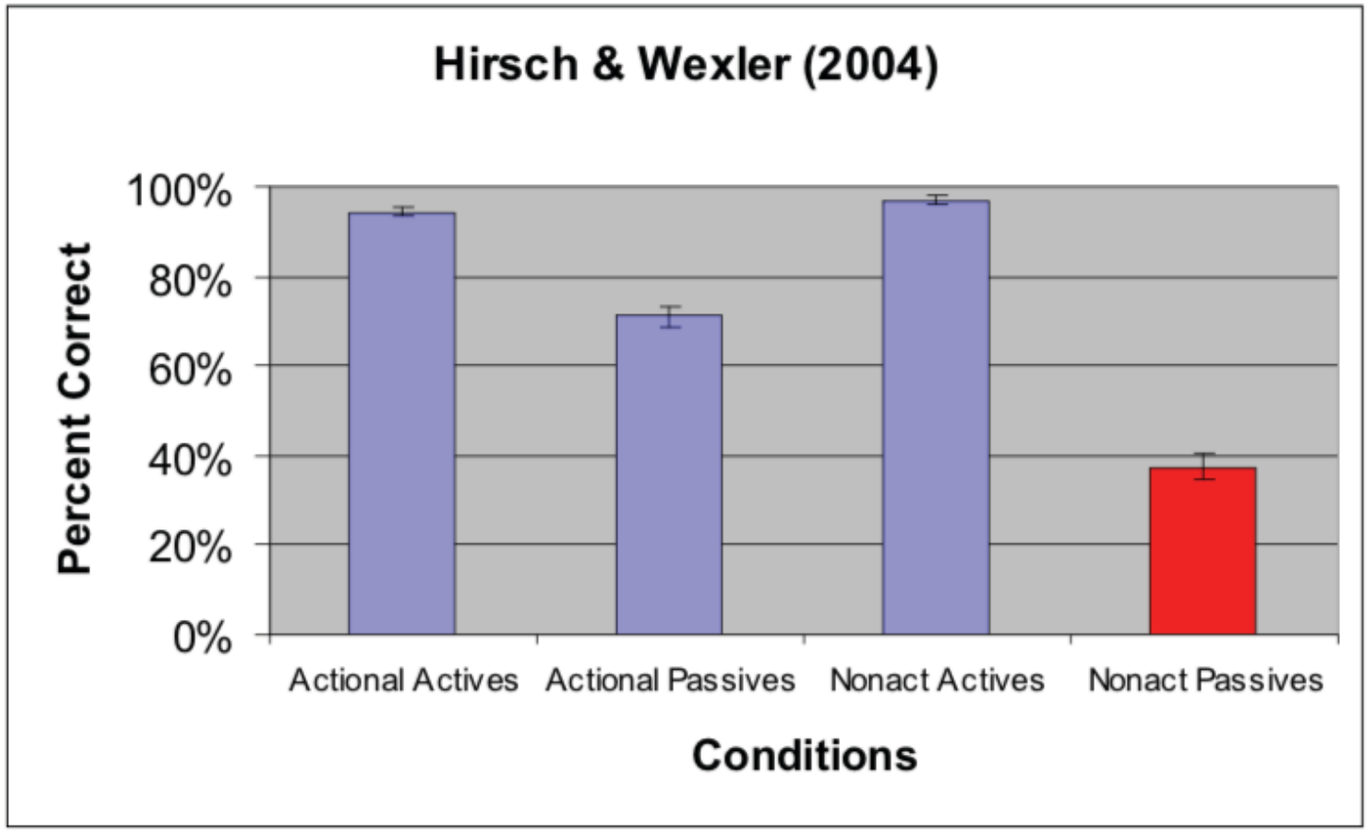


Summary

- Children have difficulty with passive sentences (comprehension and production) when they do not have difficulty with the counterpart active sentences.
- Children have even more difficulty with non-actional passives.
  - Children seem to comprehend actional passives in adult-like ways at ~4ya
  - Children seem to comprehend non-actional passives in adult-like ways at ~6ya

Questions

- What is behind children’s difficulty with passives?

- What is the nature of the verb-type effect? (“non-actional” is not a grammatical category)

- Do English data generalize?

Frequency effects

- Passives are very infrequent in English children's input (0.5%), and even rarer for non-actional passives (Gordon & Chafetz 1990)
    - 92% of the passives produced by caregivers are actional

- Extreme rarity means that children have less exposure to this noncanonical sentence type, and by common sense, the passive would be learned later than other more common sentence types

Frequency effects

- Not all languages
- Demuth (1989), Demuth, Moloi and Machobane (2010):
  - In Sesotho (Southern Bantu, spoken in Lesotho), independent structural requirements of the language ensures that the passive occurs fairly commonly, even in child-directed speech
  - Sesotho acquiring children produce adult-like passives from 2;6 onwards
  - Sesotho acquiring 3-year-olds comprehend actional and non-actional passives at rates above 70%
- Similar patterns for Inuktitut (Allen and Crago 1996); K'iche' Mayan (Pye and Quixtan Poz 1988)

Frequency effects

- However, even in Sesotho, an actional/non-actional distinction in the input: 99% of the passives were actional

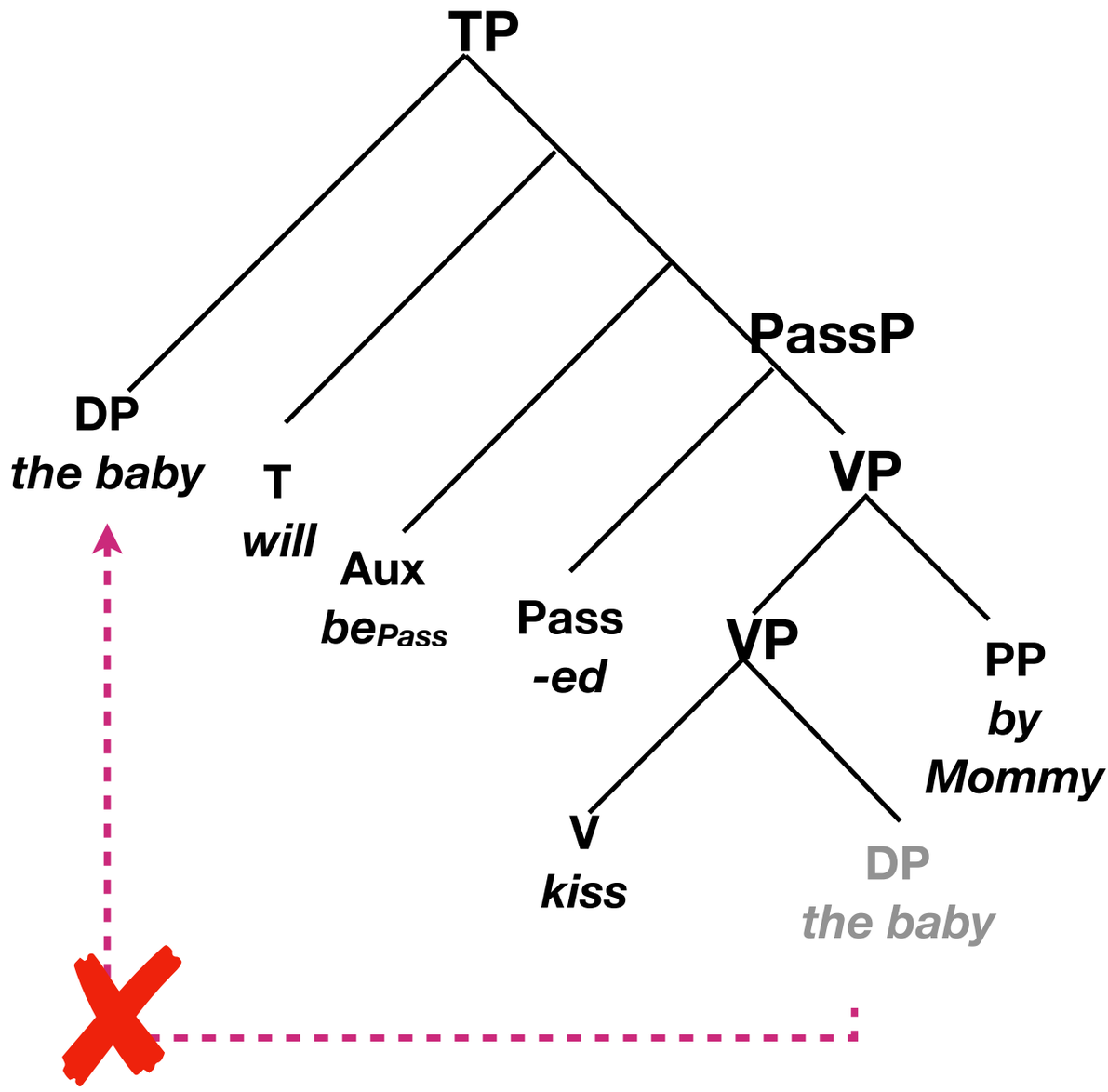
- Why do the frequency profiles look the way they are?

Frequency effects

- Complex interaction between frequency and passive acquisition:
  - In English, passives of all sorts are missing from child's input, and non-actionals are even rarer, but asymmetric delay with non-actionals
  - In Sesotho, passives of actionals are frequent in child's input, non-actionals missing, but success with all passives

A-Chain Deficit Hypothesis (ACDH)

- Borer & Wexler (1987):
  - Children under ~6 cannot carry out the type of A-movement required in passives



A-Chain Deficit Hypothesis (ACDH)

- This straightforwardly accounts for children’s problems with non-actional passives, but what about actional passives?

Adjectival passives

- The English passive has a syntactic synonym:

(1) The door was opened.
  a. [$_{TP}$The door [$_{AUX}$was [$_{PASSP}$-ed [$_{VP}$open [~~the door~~]]]]]
  b. [$_{TP}$The door[$_{AUX}$was [$_{ADJP}$ opened]]]

- Interpretive difference: (1b) is a description of the state of the door, whereas (1a) is a description of a breaking event

- Syntactic difference: adjectival passives do not take *by*-phrases (there is no external argument), cf.

(2) The door was unopened (*by my roommate).

Crucially: adjectival passives do not involve A-movement of the sort found in verbal passives

Adjectival strategy

- Actional verbs tend to allow good (better?) adjectival passives

(1) a. The doll seems combed. (≈ is combed)
b. *The doll seems seen. (≈ is seen)

(2) a. The combed doll
b. *The seen doll

- Borer & Wexler: Children analyze verbal passives as (homophonous) adjectival passives (which lack the difficult type of A-movement).

- Consequence: superficial success on action passives, but no means of interpreting non-actional ones.

Summary

- Delayed syntactic knowledge of the passive is attributed to children lacking the necessary syntactic means to represent such structures

- Nonactional Passive Comprehension:
  - Poor comprehension due to inability to derive a meaning using adult syntactic means.

- Actional Passive Comprehension:
  - Involves deducing and applying a strategy that derives representation for actional passives but not nonactional passives.

Criticisms

- Children's failures may be task-specific:
  - Confusability factors in picture-selection
  - Imageability of certain eventualities compared to others
- Bencini & Valian (2008), Messenger et al. (2012): better success using other methods

Criticisms

- Children's failures may be construction-specific:
  - so-called *get*-passives also involve A-movement from the direct object position, but children are fine with these

(1) The baby got kissed by Mommy.

Criticisms

- Makes the wrong cut wrt actional/non-actional asymmetry…

Nguyen & Pearl (2020)

- A closer examination of the actional/non-actional asymmetry
- Meta-analysis and a comprehension experiment
    - Results of both indicate that the problem is localized to a specific sub-type of “non-actionals”

Nguyen & Pearl (2020)

- 23 4-year-olds in a Truth-Value Judgment Task
- 5 predicates:
  - 1 actional (*walk)*
  - 4 non-actionals, including object-experiencer verbs (2) & subject-experiencer verbs (2)

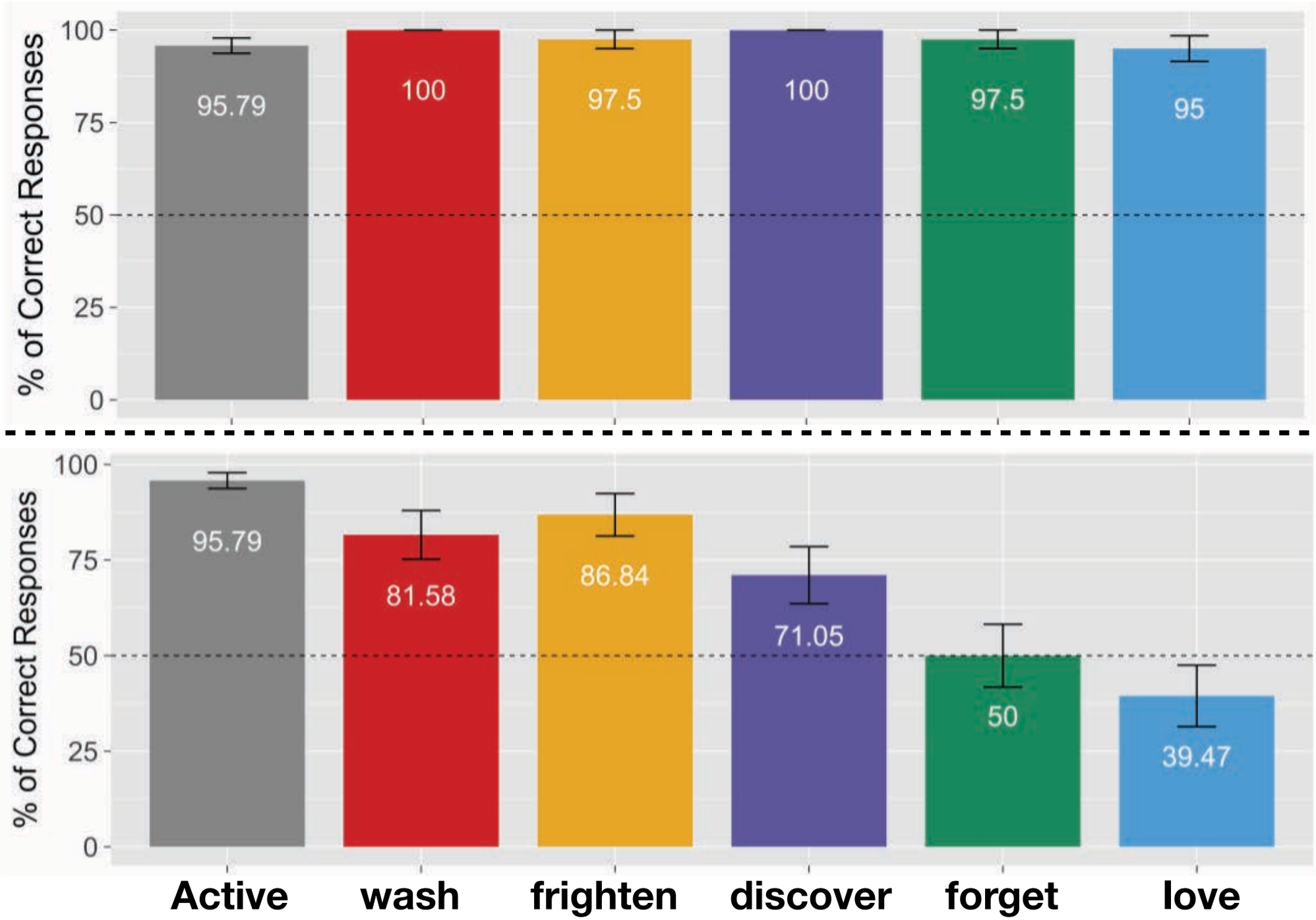
Nguyen & Pearl (2020)

Object Experiencer Story

Narrator: Owen and Jackie are at a costume party. Ladybugs frighten Owen but Jackie loves ladybugs and that's why she's dressed as one for the party.
Jackie: Owen, do you see my ladybug costume? Do I frighten you?
Owen [*frowning*]: Yes, Jackie, you frighten me. You know that I don't like ladybugs!
Test Sentence: Jackie was frightened by Owen. (False)

Subject Experiencer Story

Narrator: Jake and Isabelle are neighbors. They play with each other every day.
Isabelle: Jake, I don't love you because I'm jealous of your new clothes.
Jake: But I love you because you're my only friend, Isabelle!
Test Sentence: Isabelle was loved by Jake. (True)



Delay of subject-experiencer passives

- On ACDH…
  - both subject and object experiencers involve promotion of some VP-internal argument, so the asymmetry not predicted
  - of the verbs tested, *forget* is compatible with adjectival passives, *discover* is not, so the “adjectival strategy” idea makes the wrong predictions…

(1) a. The forgotten history…
b. ??The dicovered fact…

An alternative hypothesis

- Syntax of passivization is in place; syntax of experiencers less stably so

Syntax of experiencers

- 3 classes[1]
  - Class 1/NOM-experiencer: *love, fear, remember, see*

    (1) The baby loves broccoli.
  - Class 2/ ACC-experiencer: *amuse, worry, frighten*

    (2) The show amused the woman.

    (3) The doctor worried the patient
  - Class 3/Oblique experiencer: *appeal, depress*

    (4) The neighborhood appeals to the woman.

    (5) This issue matters to Bill.

[1]Belletti & Rizzi 1988, Pesetsky 1995, Landau 2010

Syntax of experiencers

- 3 classes
  - Class 1/NOM-experiencer: *love, fear, remember, see*
    - [*v*P EXPERIENCER [*v* [VP ….]
  - Class 2/ ACC-experiencer: *amuse, worry, frighten*
    - [*v*P CAUSE [*v* [VP …[EXPERIENCER]…]
  - Class 3/Oblique-experiencer: *appeal, depress*
    - [v_{unacc} [VP …[PP to EXPERIENCER]…[THEME]…]
- Syntactic consequences
  - Class I/Class II passivize, but Class III doesn't

Internally vs. externally generated experiencer subjects

- In many languages, Class III predicates surface with the experiencer in subject position ("quirky" subjects)

(1) Mær dámar mjólkina.
1.DAT like the milk [Icelandic]

(2) A Gianni è sempre piaciuta la musica.
to Gianni is always pleased the music [Italian]

Internally vs. externally generated experiencer subjects

- In some languages, the same verb can have both Class I and Class III structures, distinguishable by subject case

(1) Kunju paava-ye ishTappeDunnu
Baby.NOM doll-ACC likes

(2) Kunj-inu paava-ye ishTappeDunnu
Baby-DAT doll-ACC likes [Malayalam]

A possibility

- For young English-acquiring children, subject-experiencer predicates are unaccusatives, which cannot passivize (pursued in Aravind and Koring 2022)