



Three- and four-year-olds' comprehension of tense/aspect in finite and non-finite embedded clauses

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Background

Big Question:

How do children learn the meanings of attitude verbs?

Children may use linguistic properties of the *embedded clause*^[1]: → Harold *zimbs* that Rob washed the dishes.

Tense/aspect markers in embedded clauses can be clues to verb learning.

Desire verbs (e.g., *want*) tend to be future oriented, unlike belief verbs (e.g., *think*).

In finite clauses:

- Comprehension of *did* and *will* found as early as 2y^[2]
- By 3, children comprehend *is V-ing*, *was V-ing*, *is gonna*^[3]

Our work investigates finite and **non-finite clauses**.

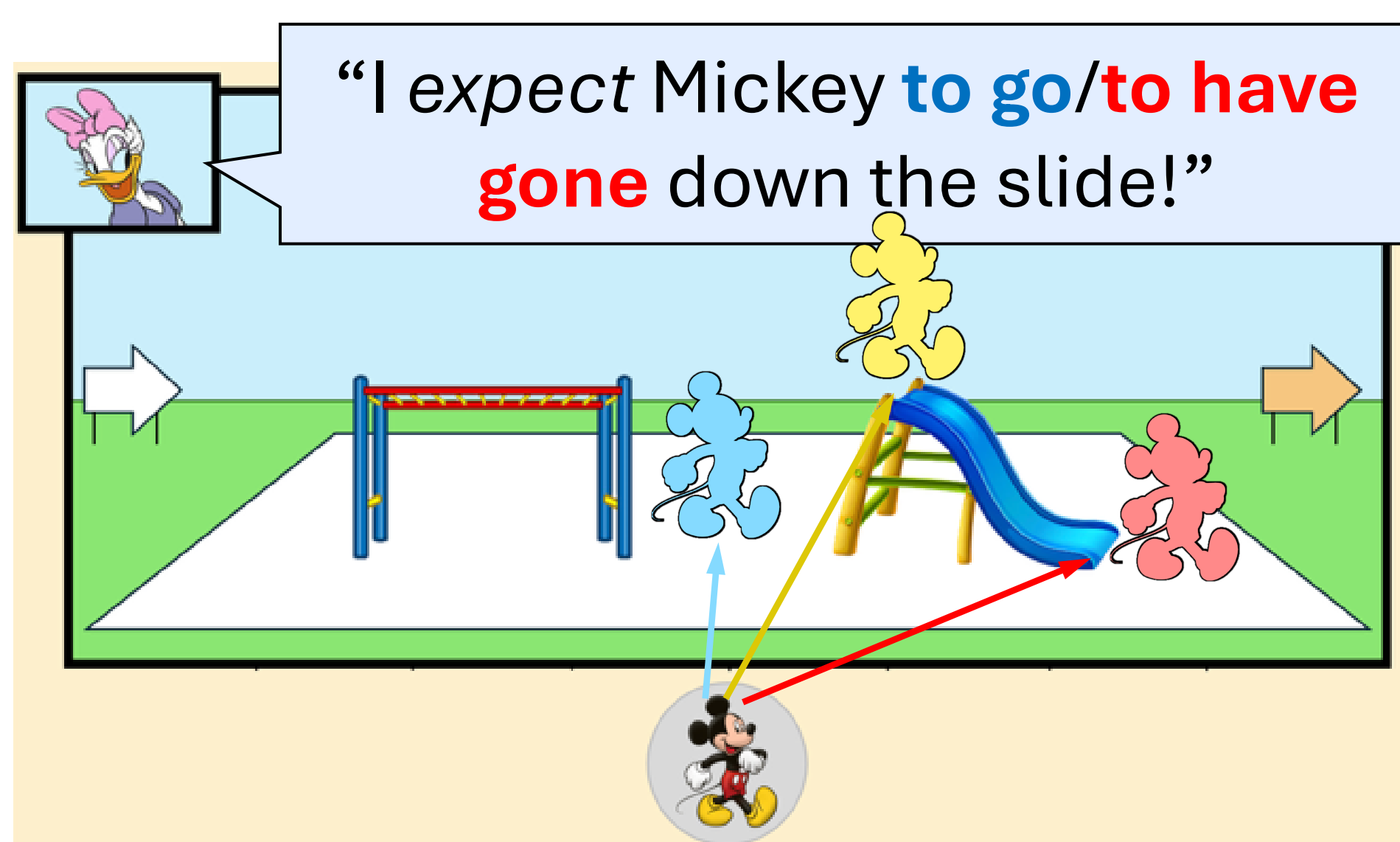
Non-finite clauses don't mark tense.

Embedded clause type	Finite	Non-finite
Past orientation	"I expect that Bobby has gone down the slide."	"I expect Bobby to have gone down the slide."
Future orientation	"I expect that Bobby is gonna go down the slide."	"I expect Bobby to go down the slide."

Can children comprehend tense/aspect markers across finite and **non-finite clauses**?

Previous

- Child places Mickey based on Daisy's clues
- Preliminary results showed 4-year-olds succeeding

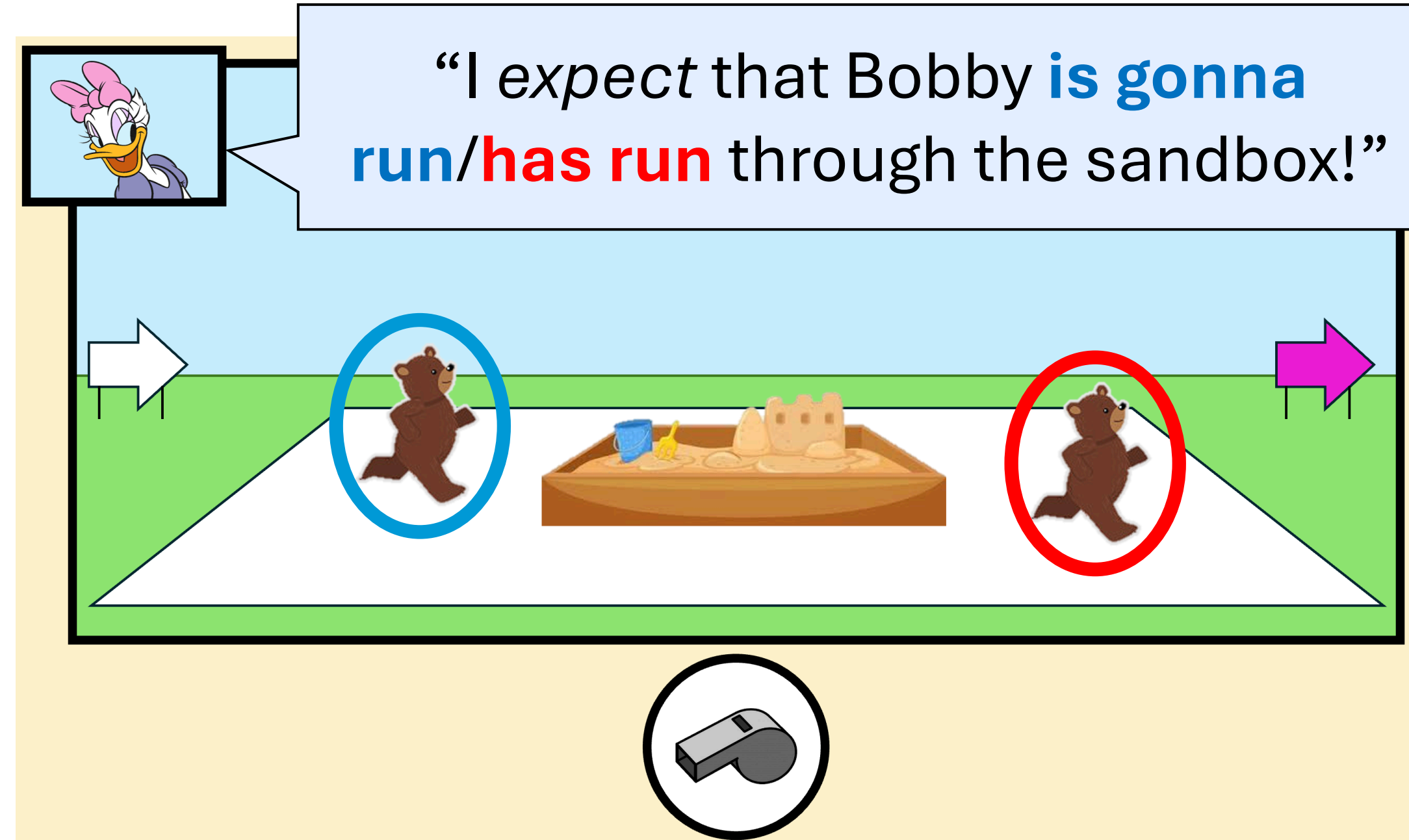


"Where is Mickey now?"

- 4-year-olds only
- 2 obstacles per scene

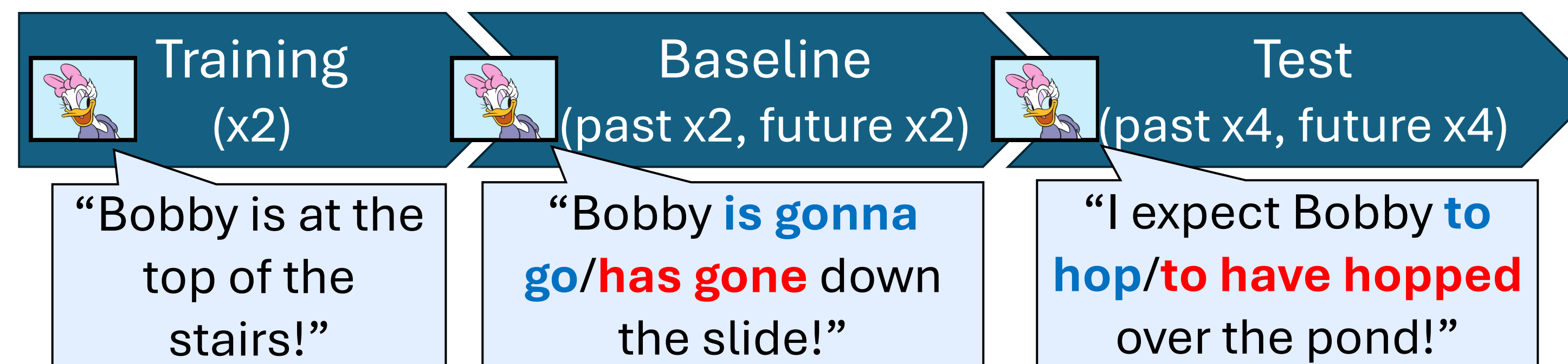
Current

Identical twin bears go through obstacle course. Daisy gives a clue about which is Bobby. Using Daisy's clue, the child **chooses** the bear they believe to be Bobby.



"Where's Bobby?"

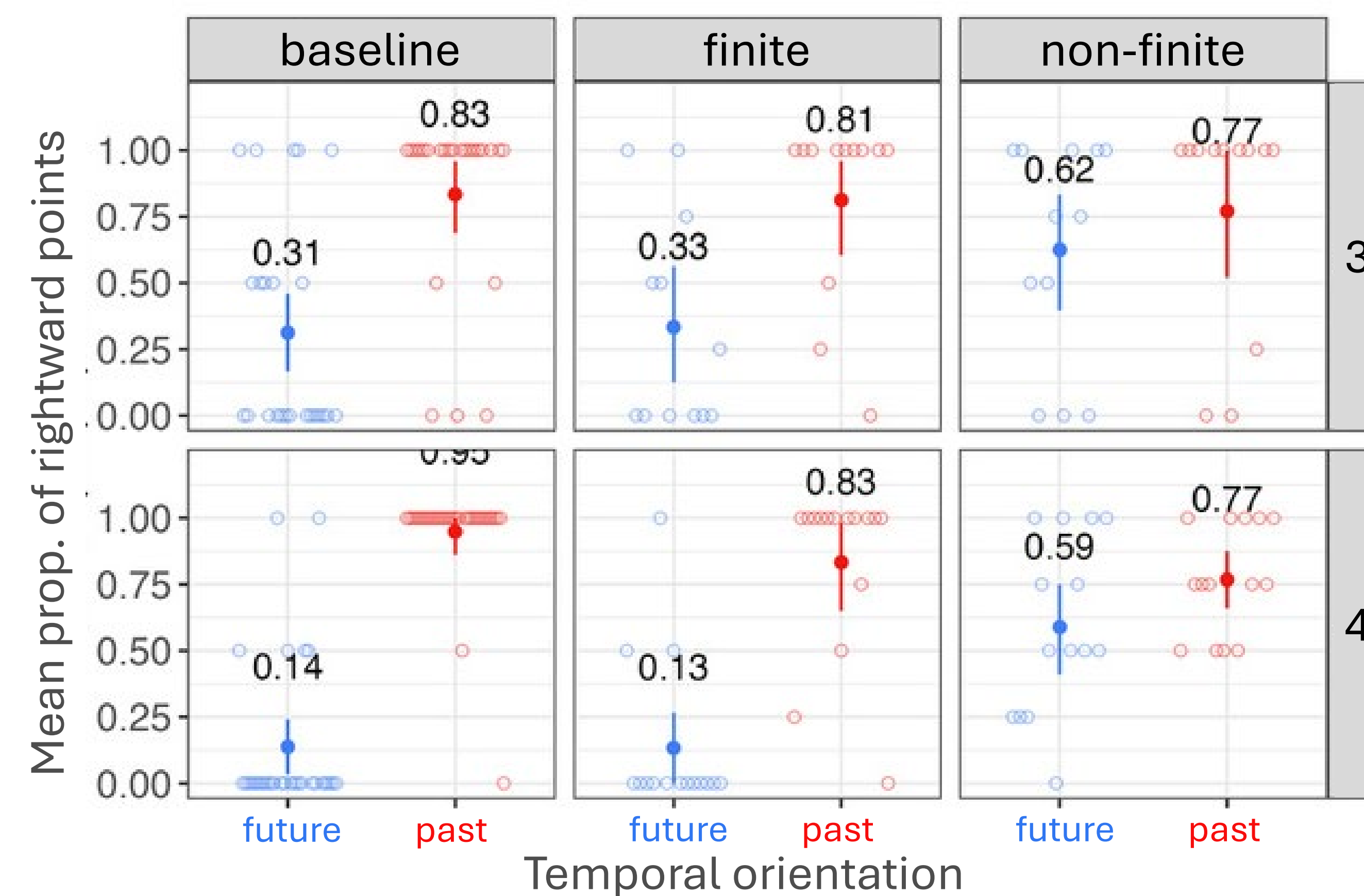
- Identical twin bears
- Forced choice
- 3-to-4-year-olds



'**expect**' was chosen for its rarity in input and flexibility of valid complement clause types.

Between-subjects design. Each participant is assigned to the *finite* or *non-finite* conditions.

Results



Both groups succeed when given overt tense/aspect marking.

→ Finite past & future, non-finite past

With only the bare infinitive, both age groups failed to point before the obstacle above chance.

→ Non-finite future

Discussion

Why might children fail to recognize future TO of bare infinitive?

→ Temporal properties do depend on embedding verb:

I **want** to get boba. → **future**

I **like** to get boba. → **habitual/generic**

→ Children may link TO with attitude verb meaning:

If children expect '**expect**' to express Daisy's belief, they can't assume then that the complement is **necessarily future-oriented**.

How do children learn to differentiate:

belief verbs (*think, know*) and **desire** verbs (*want, need*)?

- 1 Belief verbs can be **past, present, or future** oriented; desire verbs are mostly **future** oriented^[4]

	Past	Present	Future
Belief	24%	45%	23%
Desire	<1%	2%	98%

→ I think Steven {**has slept/is sleeping/will sleep**}.

→ I want Steven {**? to have slept/to be sleeping/to sleep**}.

- 2 Belief complements resemble *declarative* clauses; desire complements resemble *imperative* clauses^[5]

	Declarative	Belief	Desire
English Finite tense		✓ Finite	✗ Finite
French Indicative mood		✓ Indicative	✗ Indicative
German Verb 2 nd		✓ V2	✗ V2

Both options involve knowing something tense/aspect in embedded clauses. More knowledge supports 1's plausibility

If children can't get TO of bare infinitives, they can't use it to **bootstrap** the meaning of attitude verbs.

Future

Make situation less belief-oriented

- Make Daisy an authority figure

Try different embedding verbs

- '**expect**' could be seen most often in belief contexts.



References

- [1] Harrigan, K., Hacquard, V., & Lidz, J. (2019). Hope for syntactic bootstrapping. *Language*, 95(4).
- [2] Valian, V. (2006). Young children's understanding of present and past tense. *Lang Learning & Dev*, 2.
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- [4] van Dooren, A., et al. (2022). Figuring out root and epistemic uses of modals: The role of the input. *J Semantics*, 39(4).
- [5] Hacquard, V., & Lidz, J. (2019). Children's attitude problems: Bootstrapping verb meaning from syntax and pragmatics. *Mind & Language*, 34(1), 73-96.

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