

Three- and four-year-olds' understanding of tense/aspect marking in finite and nonfinite embedded clauses

Tense/aspect systems vary widely across the world's languages, and they express temporal information that does not map to the physical world at the utterance time. It is therefore an interesting puzzle when and how children acquire tense/aspect marking. While previous work has found early understanding of certain tense/aspect morphemes in finite clauses, it has not examined nonfinite clauses (which lack overt tense, e.g., "I want to run"). Here, we present preliminary results demonstrating that while children comprehend past and future tense/aspect markers in finite clauses from age 3, they do not have full adult-like comprehension of the temporal properties of nonfinite clauses even at age 4.

Prior studies have reported that tense/aspect markers appear in children's naturalistic productions around 18 months [1,2], and children appropriately produce past and future tense in elicited tasks from age 3 [3,4]. Similarly, comprehension tasks have found early knowledge of tense/aspect markers in finite clauses: past and present progressive at age 2, and *did*, *will*, and *is gonna* at age 3 [5,6]. Nonfinite clauses, however, have not been studied apart from the observation that cross-linguistically, 2- to 3-year-olds frequently produce nonfinite forms in unlicensed positions (root infinitives: e.g., "She have a box") [7,8]. This is often taken to show that children have a non-adult-like syntactic representation of tense. Yet questions remain about children's understanding of the structure and meaning of nonfinite clauses.

Our study turned to comprehension to examine English-speaking children's interpretation of past and future tense/aspect markers in finite and nonfinite embedded clauses. Children were introduced to two identical twins, Bobby and Freddy, who were doing an obstacle course. Although the twins could not be visually distinguished, Bobby's friend Daisy could make good guesses about Bobby's location. Children saw pictures of different zones of the obstacle course (Fig.1) and were asked to guess which twin was Bobby based on Daisy's clues, such as "I expect Bobby {to go (future), to have gone (past)} down the slide." Past orientation of the embedded clause (relative to the main clause containing *expect*) was indicated by perfect aspect, and future orientation by *is gonna* (finite clauses) or a bare infinitive (nonfinite clauses) (Table 1). Each child heard 4 past- and 4 future-oriented sentences with either finite or nonfinite embedded clauses, and 4 single-clause baseline sentences without *expect*.

Preliminary results from 26 3-year-olds and 31 4-year-olds indicate that children from both age groups selected the character on the right of the obstacle significantly more for Past trials than Future trials for both baseline sentences and those with finite embedded clauses ($p < 0.05$). For nonfinite embedded clauses, the difference was not significant, though both age groups did select the character on the right significantly above chance for Past trials.

These results suggest that by 3, children have knowledge of past and future tense/aspect marking in finite embedded clauses. With nonfinite embedded clauses, children interpret perfect aspect as marking past orientation, which is noteworthy as the perfect is very rare in nonfinite clauses in their input. In contrast, children do not consistently interpret bare infinitives as future-oriented. This could be for several reasons: in nonfinite clauses, there is not an overt future marker such as *is gonna*, which could make the future reference less transparent to children. Bare infinitives also vary in their temporal properties depending on the embedding verb (e.g., *I like to sing* has a habitual/present reading), and since *expect* is very low-frequency, children may be uncertain of its temporal properties.

Our results have implications for how children acquire propositional attitude verbs and modals. Desire verbs (e.g., *want*, *need*) and root modals (e.g., *She must do her homework*) are typically future-oriented, while belief verbs (e.g., *know*, *think*) and epistemic modals (e.g., *She might be outside*) have more variable orientation. As a result, temporal orientation has been proposed to play a role in acquiring the belief/desire and root/epistemic splits [9,10]. However, if children do not recognize embedded bare infinitives as future-oriented, temporal orientation may not be a reliable cue, at least for desire verbs and root modals. Thus, our results raise questions

about both the acquisition of tense/aspect marking and how it interacts with other areas of the grammar during language learning.

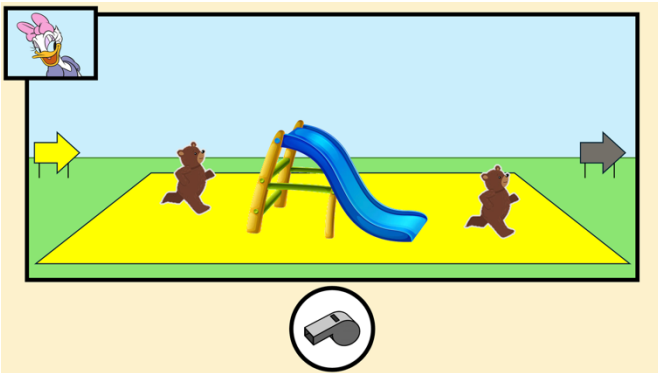


Figure 1. Scene for a typical trial. After Daisy’s clue, children were asked, “Can you point to Bobby?”

Main clause baseline

Past: Bobby **has gone** down the slide.

Future: Bobby **is gonna go** down the slide.

Embedded finite clause

Past: I expect that Bobby **has gone** down the slide.

Future: I expect that Bobby **is gonna go** down the slide.

Embedded nonfinite clause

Past: I expect Bobby **to have gone** down the slide.

Future: I expect Bobby **to go** down the slide.

Table 1. Sentence types. Past orientation was always cued by perfect aspect; future orientation by *is gonna* (baseline & finite) or a bare infinitive (nonfinite).

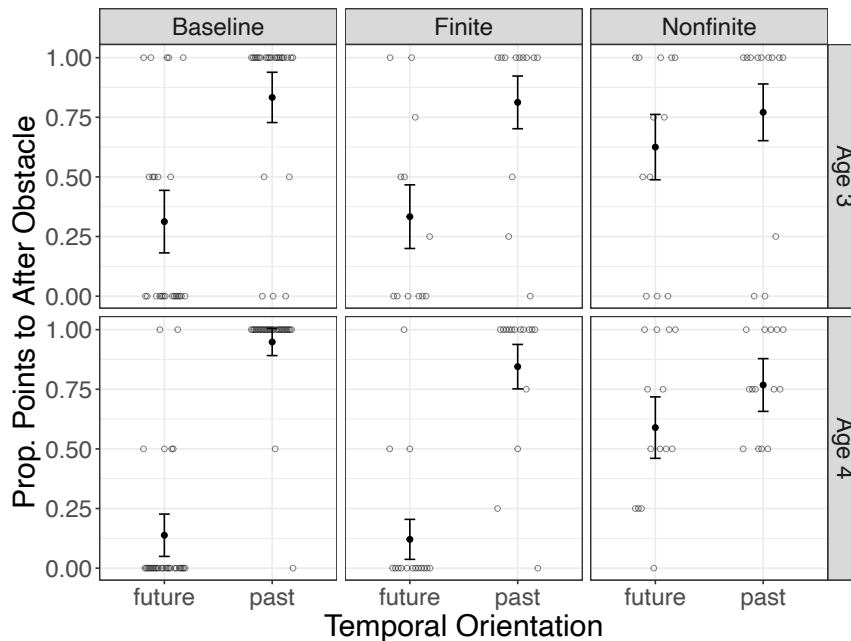


Figure 2. Mean proportion of children’s selections of the character to the right of the mentioned obstacle (vs. to the left of the obstacle). Error bars are 95% confidence intervals. Dots represent individual participant means.

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