

Distinguishing between request and permission in directives: Children’s acquisition of lexical and prosodic cues

Introduction. This study investigates how children interpret directives that convey either request (necessity) or *permission* (possibility) in directive contexts. We focus on the role of (i) **lexical modal cues** and (ii) **prosodic cues in imperatives**. The main goals are to examine the developmental stage at which children distinguish between the two directive forces and to determine whether sensitivity to lexical and prosodic cues emerges concurrently or whether one precedes the other. To date, there is no previous study investigating the distinction between request and permission by employing both lexical and prosodic cues. Past cross-linguistic research, primarily in English, shows that children under four have difficulty in distinguishing between permission and request meanings (e.g. Cournane et al., 2023) and more generally tend to assign stronger interpretations, treating necessity-like meanings as more informative (e.g. Hirst & Weil 1982; Papafragou 1998, Noveck 2001; Öztürk & Papafragou 2015).

This study. We examine Greek-speaking children’s (3-6 years) interpretation of (i) **overt modals** (*bori-can, prepi-must/should*) in directive contexts (5) and (ii) **imperatives** produced with prosodic patterns previously shown in adult Greek to signal permission vs request. Permission imperatives are realized with a nuclear accent on the verb (verum focus, **Vn_{npa}**), followed by deaccenting (2a); request imperatives bear a rightmost low nuclear pitch accent (**RM_{npa}**) on the object and a rising edge tone (2b) (Arvaniti & Baltazani 2005). Unlike overt modals, which lexically encode modal force, imperatives have a stable prioritizing flavor but their force varies with context and prosodic cues (Kaufmann 2012, Porner 2018, Jeong & Condoravdi 2018, Oikonomou 2022).

Experimental design. The experiment employed the notion of desirability (see Dieuleveut et al. 2022). We contrasted an eager character (left mouse in Fig. 1) seeking permission, with an uneager character (right mouse) required to perform an action. Participants heard a narrator introduce the scenario (e.g. *Pepa is taking care of the little mice today. One of the mice wants to taste the marmalade but does not know if it is allowed. The other mouse does not want to but must taste the marmalade. Now listen to Pepa. Which mouse is she talking to?*) and then listened to a directive produced with either a lexical modal (1) or an imperative contour (2). They were asked to select the character to whom the directive applied:

- (1) a. **Boris na dokimasis ti marmelada can**
You can taste the marmalade
b. **Prepi na dokimasis ti marmelada must**
'You must/should taste the marmalade'
- (2) a. **Dokimase ti marmelada V_{npa}**
Taste the marmalade"- V_{npa}
b. **Dokimase ti marmelada RM_{npa}**
Taste the marmalade"-RM_{npa}

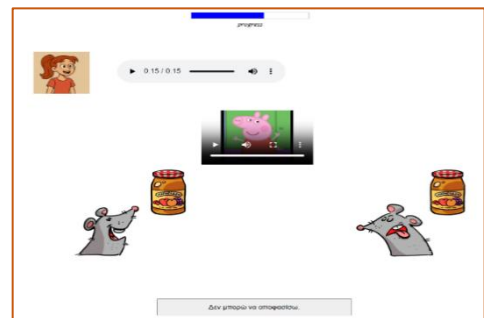


Figure 1: Screenshot from item

Seventy-five typically developing monolingual Greek children aged 3-6 (3-4: 22, 4-5: 27, 5-6:26 children) and 51 Greek-speaking adults participated. All children performed at ceiling on practice items and fillers ensuring reliable identification of the eager vs. uneager characters.

Results Figure 2 shows that children’s perception of both lexical (*boris* ‘can’ vs. *prepi* ‘must’) and prosodic force cues (V_{npa} vs. RM_{npa}) is not adult-like until 6y.o. Adults performed at ceiling on the lexical condition, associating *boris* with permission (eager character) and *prepi* with request/necessity (uneager character), as expected. They also show a clear prosodic distinction: imperatives with a NPA on the verb are predominantly interpreted as permission (84.3%), whereas imperatives with a low NPA on the object and a rising edge tone (LH%) are interpreted as requests (97%). In contrast, younger children show a robust bias toward strong, *request*-like interpretations

across conditions. Children 3-4 and 4-5 frequently interpret *boris* ('can') as necessity, consistent with previous findings reporting that children initially opt for strong modal meanings. The reverse pattern is also observed: children sometimes perceive the force of *prepi* as permission, indicating unsteadiness of the developmental stage and not a simple one-directional bias. Binomial per condition comparisons show that children's responses differ significantly from chance, suggesting systematic, though non-adult-like, strategies ($p \leq 0.005$, Cramér's $V > 0.169$ across age groups). Chi-square analysis with consecutive age group comparisons, 3-4 vs 4-5, 4-5 vs 5-6 years, and children vs. adult comparisons revealed that a clear developmental shift emerges in the 5-6 group, when children show significantly increased sensitivity to lexical force distinctions ($\chi^2 = 42.88$, $p < 0.001$), particularly in the interpretation of *boris* (eager-character selection increases from 43.8% to 79.5%). In contrast, interpretations of *prepi-must* and **RMnpa**-imperatives remain relatively stable across age groups, indicating that the primary developmental change concerns the weakening of strong interpretation of possibility rather than a reanalysis of necessity. Critically, prosodic sensitivity in imperatives emerges at the same age; Only the older group (5-6) associates Vn_{pa} with permission interpretation showing a significant shift compared to 4-5y.o. ($\chi^2 = 6.66$, $p = 0.010$ **).

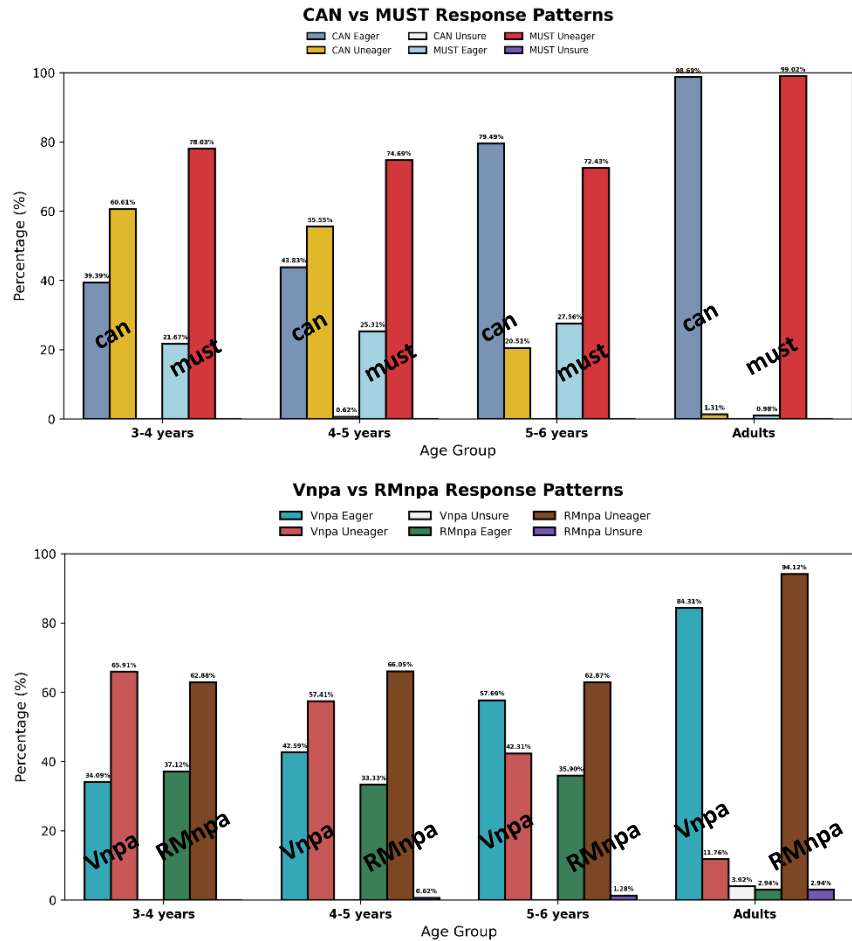


Figure 2: Selection rate for eager (left bars) and uneager character (right bars) in can-must (top) and Vn_{pa}-RMn_{pa} condition (right) per age group

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Conclusions Two key conclusions follow. First, children initially lack a clear distinction between possibility and necessity in the domain of prioritizing modality, despite fully understanding desirability. Second, **the acquisition of prosodic cues to force appears to unfold in parallel with sensitivity to lexical modal distinctions**. Once children begin to distinguish weak from strong force lexically, they also begin to exploit prosodic information to refine their interpretation of imperative constructions.

Selected References Cournane, A., Hirzel, M., & Hacquard, V. (2024). Mapping modal verbs to meanings: an elicited production study on “force” and “flavor” with young preschoolers. *Language Acquisition*, 31(1), 57–80. • Dieuleveut, A., van Dooren, A., Cournane, A., & Hacquard, V. (2022). *Finding the force: How children discern possibility and necessity modals*. *Natural Language Semantics*. • Noveck, I. A. 2001. When children are more logical than adults: Experimental investigations of scalar implicature. *Cognition* • Ozturk, O., & Papafragou, A. 2015. *The acquisition of epistemic modality: From semantic meaning to pragmatic interpretation*. *Language Learning and Development*, 11