

Introduction

- Languages vary in how they denote quantity. For instance, English distinguishes between singular and plural through the “-s” suffix.
- Some languages, including a Slovenian dialect, have suffixes to indicate singular, *dual*, and plural.
- Almoammer et al. (2013) and Marušič et al. (2016) found that children who spoke languages with dual morphology (e.g., Slovenian) learn the number word *two* faster than those who spoke languages without dual morphology (e.g., English). Using this finding as evidence, they suggest that grammatical morphology drives number word learning.
- In the present study, I analyze data collected in tandem with the data in the published works.

Methods

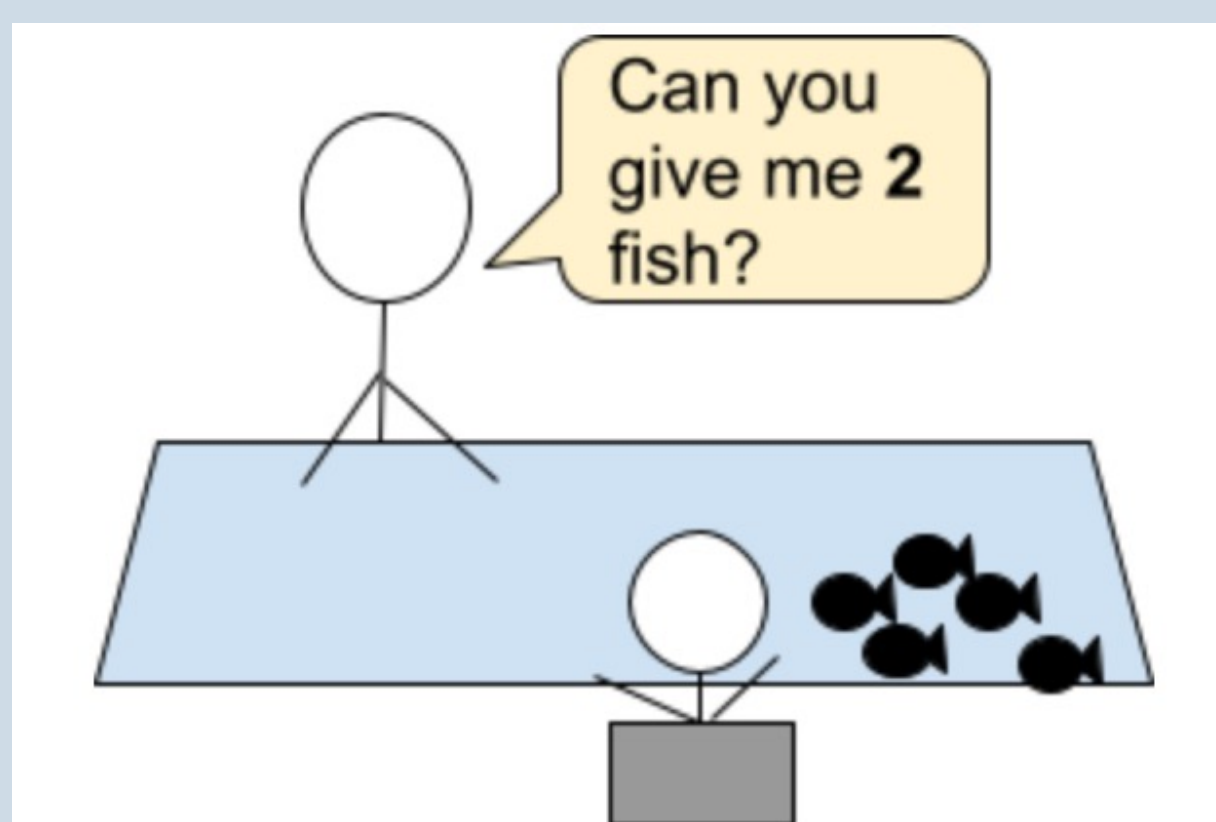
Sample: 66 Slovenian-speaking children (mean age = 2.06 years) and 59 English-speaking children (mean age = 2.06 years)

All participants were tested on Give-a-Number task (Give-N) and Give-Morphology task (Give-M). Those who did not respond to each condition at least once were excluded from analyses.

MEASURES

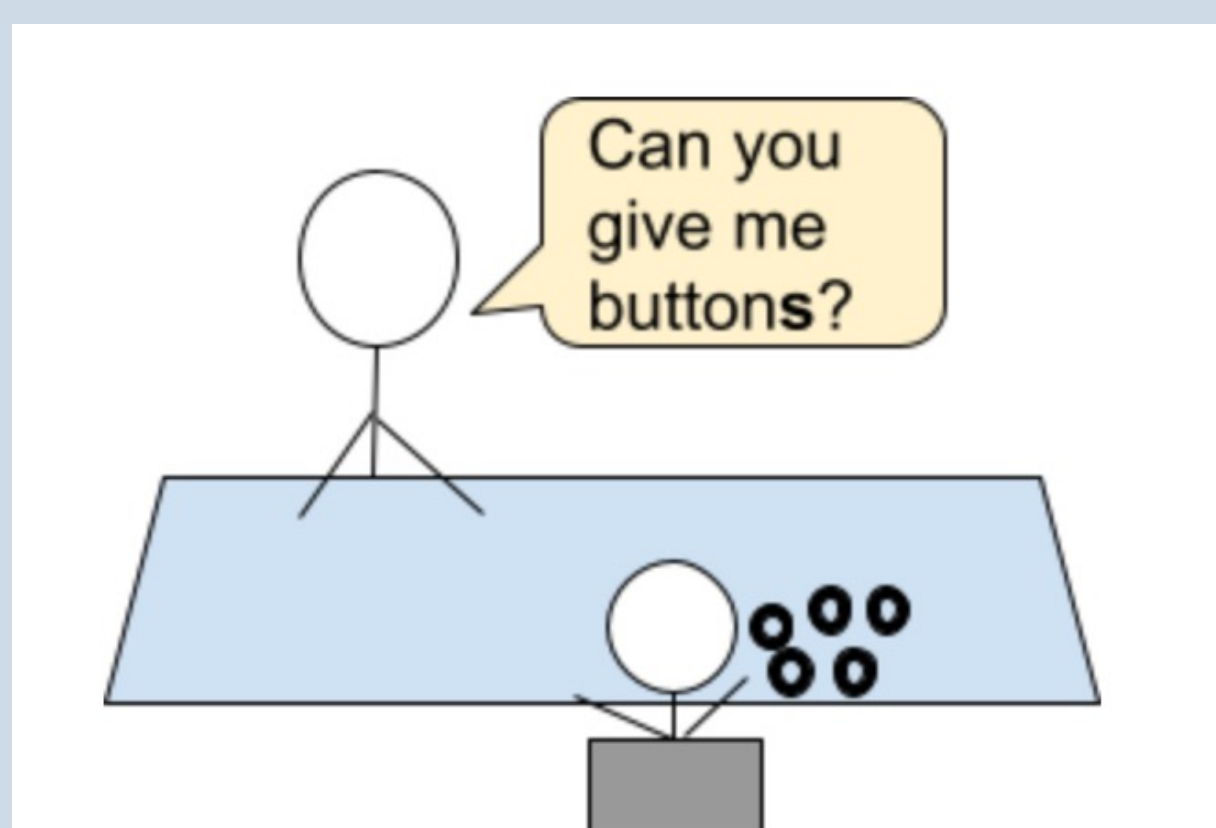
Give-N

- Experimenter prompts child to give 1, 2, and 3 objects as indicated by number words



Give-M

- English: Experimenter prompts child to give 1 or more than 1 object as indicated by morphology
- Slovenian: Experimenter prompts child to give 1, 2, or more than 3 objects as indicated by morphology



APPROACH TO ANALYSIS

Give-N

- I assigned children knower levels.
- Knower levels: preknower, 1-knower, 2-knower, 3-knower
- For both languages, I plotted N-knower level as a function of age.

Give-M

- I found the average percent correct for singular, dual, and plural trials.
 - For both languages, I plotted percent correct as a function of N knower level.
- I also developed a method to assign M knower levels.
 - English M knower levels: preknower, knower
 - Slovenian M knower levels: preknower, singular vs. else (knows only the singular), plural vs. else (knows only the plural), all knower (knows singular, dual, and plural)
- For both languages, I plotted M knower level as a function of age and of N-knower level.

Results

Figure 1.

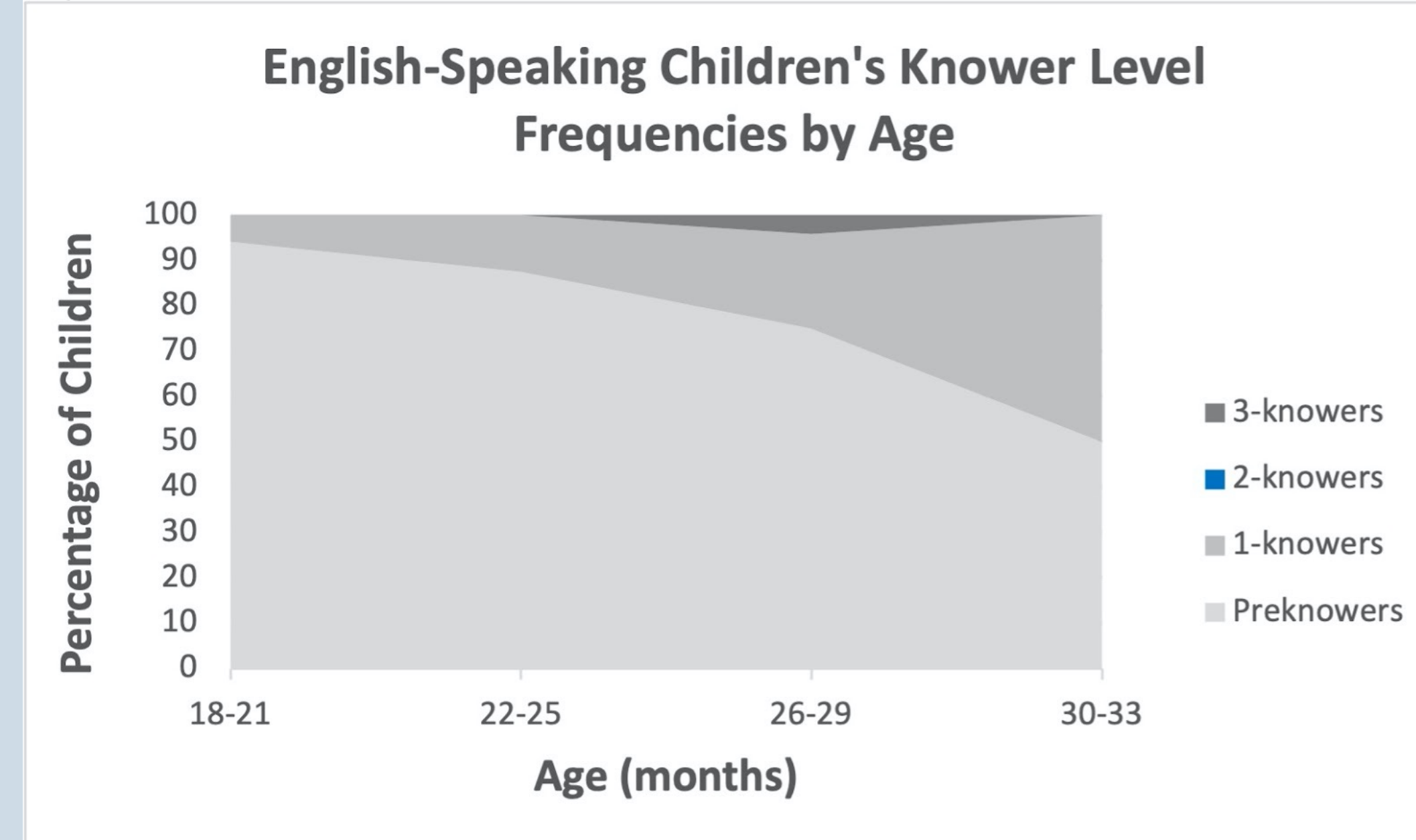


Figure 1 illustrates Give-N performance for English-speaking children.

Figure 2.

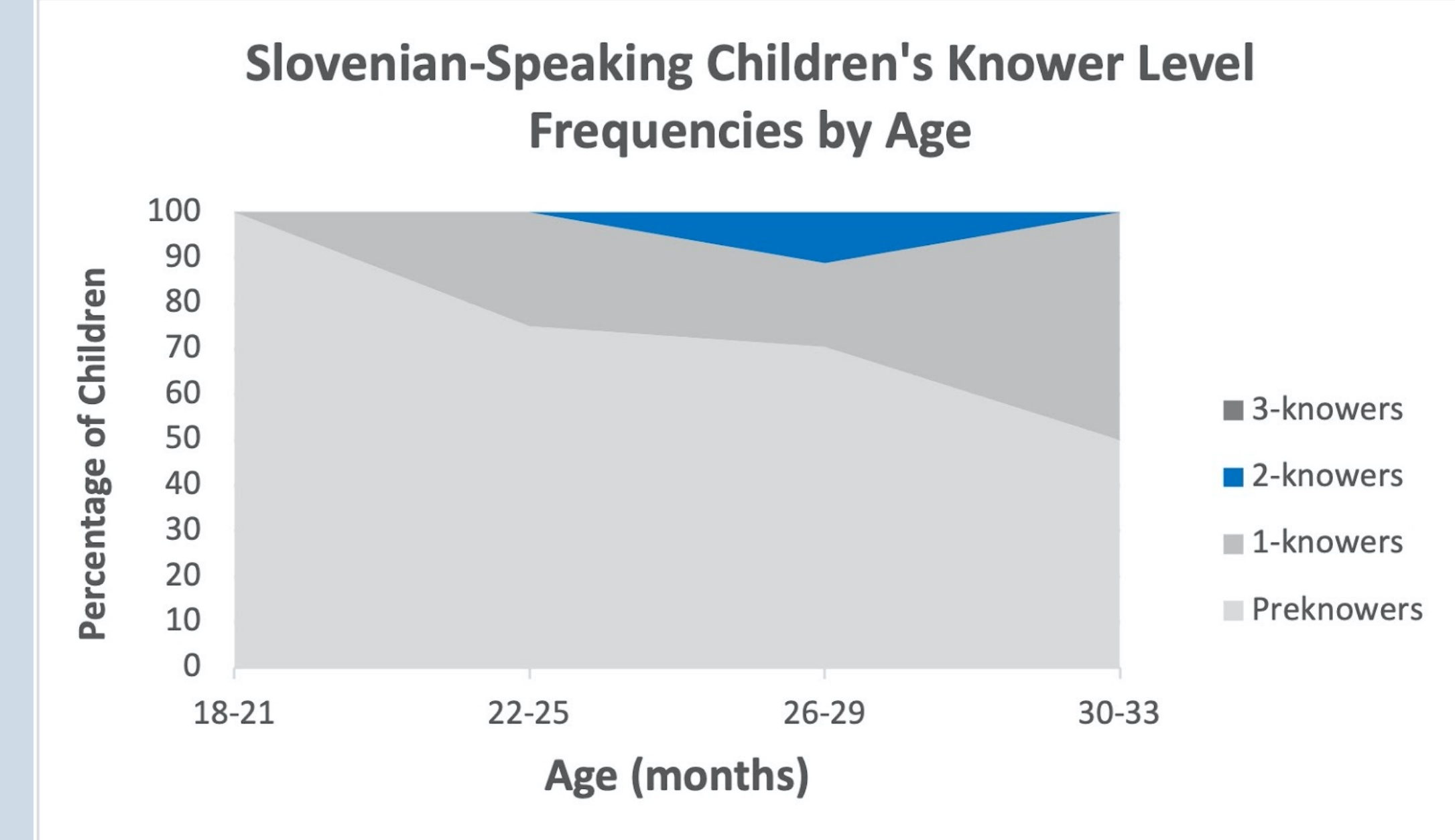


Figure 2 illustrates Give-N performance for Slovenian-speaking children.

Figure 3.

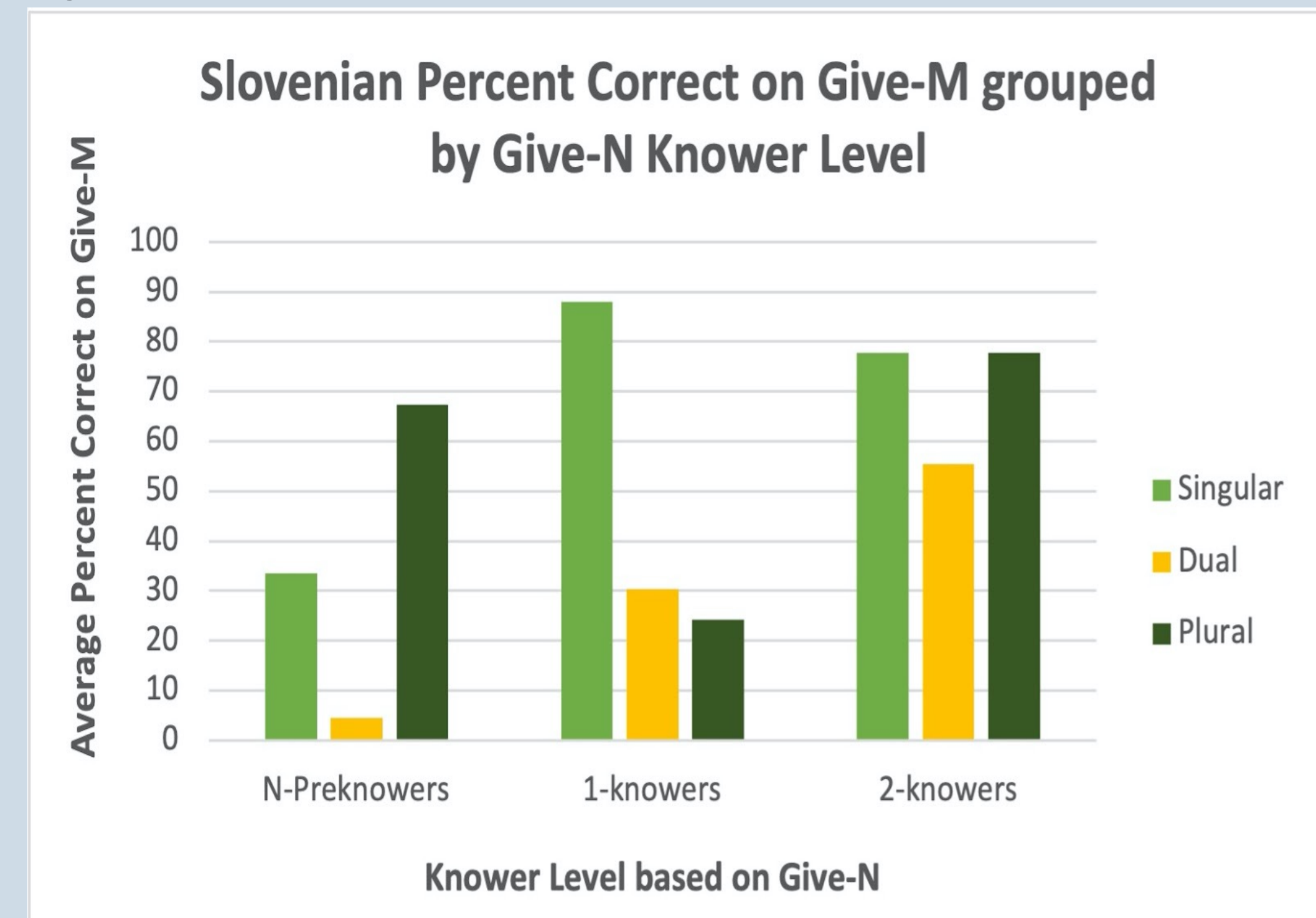


Figure 3 shows Give-M performance, as analyzed with percent correct, for each N knower level.

Figure 4.

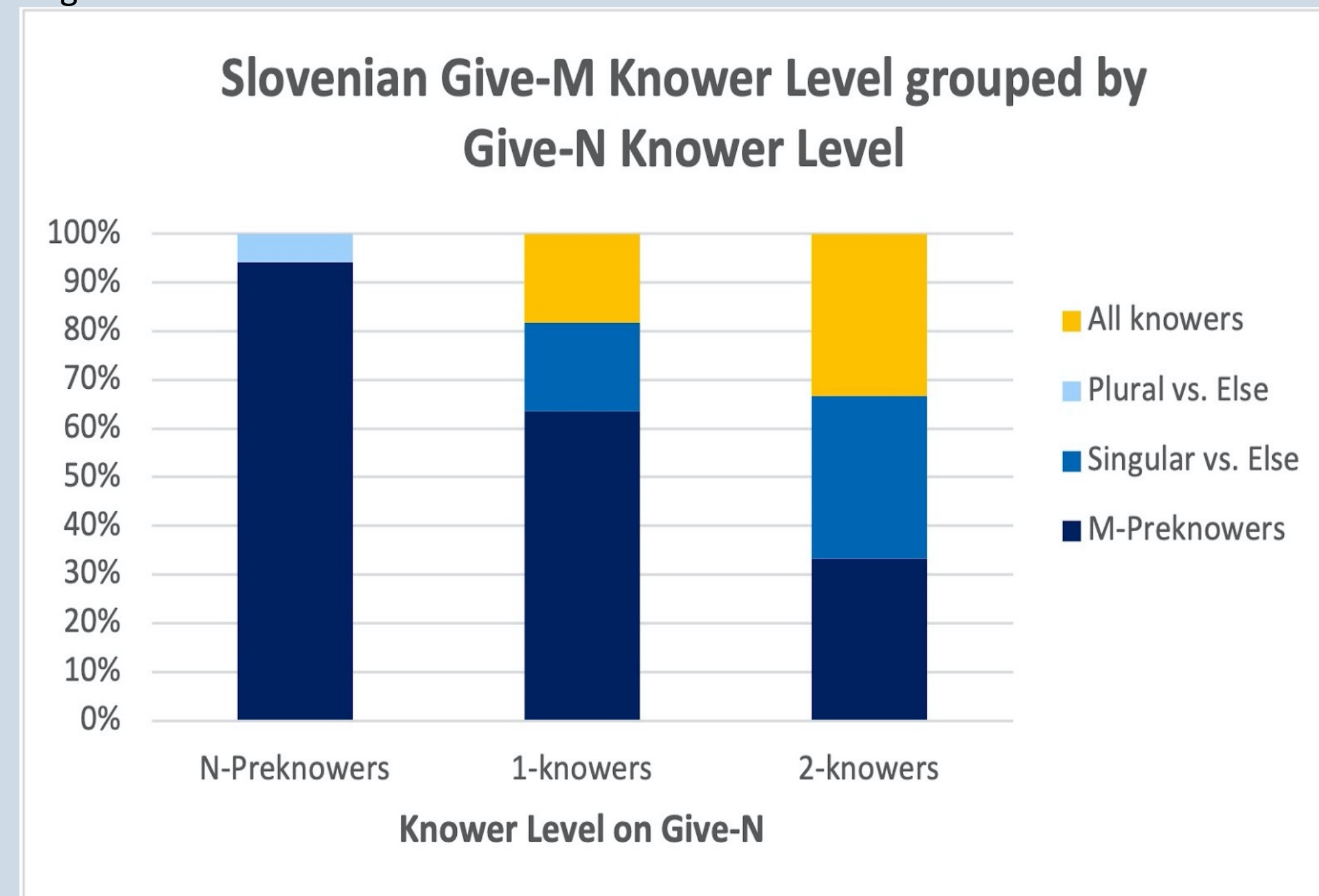


Figure 4 presents the Give-M performance, as analyzed with knower levels, for each N knower level. Note: The only M knower level that includes dual knowers is “all knower.”

Discussion

Cross-linguistic studies have supported the hypothesis that morphology facilitates early number word learning with the evidence that children speaking languages with dual morphology learn the number two earlier than those speaking languages without it. However, our data do not suggest differences in the frequency of 2-knowers between speakers of languages with and without the dual. Although I have not yet run tests for statistical significance, this finding raises questions about the claim that morphology drives number learning.

I developed an alternative way to interpret morphological knowledge as assessed by Give-M. Previous analyses have used percent correct, which can be misleading. For instance, a child who gives two items when prompted for singular, dual, and plural would be coded as 100% correct on the dual, suggesting that they have dual knowledge. To address this, I created Give-M knower levels with higher criteria to be considered a “knower.” Just as Give-M is modeled off Give-N, Give-M’s knower level coding scheme mimics that of Give-N.

The M knower level analysis reveals that majority (63.6%) of 1-knowers do not know the singular and the majority (66.6%) of 2-knowers do not know the dual. This suggests that comprehension of morphology does not always proceed learning the corresponding number words, adding to the skepticism as to whether morphology facilitates number learning.

A surprising finding from the M knower level analysis was the variation in how children learn morphology. Although children learn numbers in a chronological sequence, they appear to learn morphology in a range of patterns. While some children learn the singular first, others learn the plural first.

References

- Almoammer, A., Sullivan, J., Donlan, C., Marusic, F., Zaucer, R., O'Donnell, T., & Barner, D. (2013). Grammatical morphology as a source of early number word meanings. *Proceedings of the National Academy of Sciences*, 110(46), 18448–18453. <https://doi.org/10.1073/pnas.1313652110>
- Marušič, F., Žaucer, R., Plesničar, V., Razboršek, T., Sullivan, J., & Barner, D. (2016). Does grammatical structure Accelerate number WORD LEARNING? Evidence from learners of dual and NON-DUAL dialects of Slovenian. *PLOS ONE*, 11(8). <https://doi.org/10.1371/journal.pone.0159208>