

# Spelling function letters in Hebrew: a psycholinguistic outlook

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## THE STUDY

Goal: to examine the spelling of function letters from a developmental perspective in terms of a new model evaluating the contribution of distributional, phonological and morphological factors

Participants: 83 students in four grade levels (2nd, 4th, 7th and 10<sup>th</sup>)

All typically developing, monolingual Hebrew speakers from mid-high SES

Preliminary tests of reading levels (accuracy and speed), verbal and non-verbal intelligence indicated all participants were within their age and grade level norm.

Materials: Spelling test consisting of 244 words containing function letters in 57 morphological categories covering

- Gender, number, person, tense
- Noun, verb, adjective derivational affixes
- Syntactic prefixes (prepositions, conjunctions, definite article)

Students heard sentences containing test words and were asked to write down only these words

Test words were assessed for frequency.

Analysis: 57 morphological categories were each assigned a binary attribute (0 or 1) on

- Demarcated function envelope (clearly or less clearly demarcated)
- Letter frequency in morphological role (higher or lower frequency)
- Phonological and morphological competition (competing for the same role)
- Covert phonology (overt or covert relationship to phonology)
- Powerful orthographic generalization (following or violating a generalization)
- Word frequency

## RESULTS

Figure 1: Success scores (%) of spelling function letters by grade and demarcation type

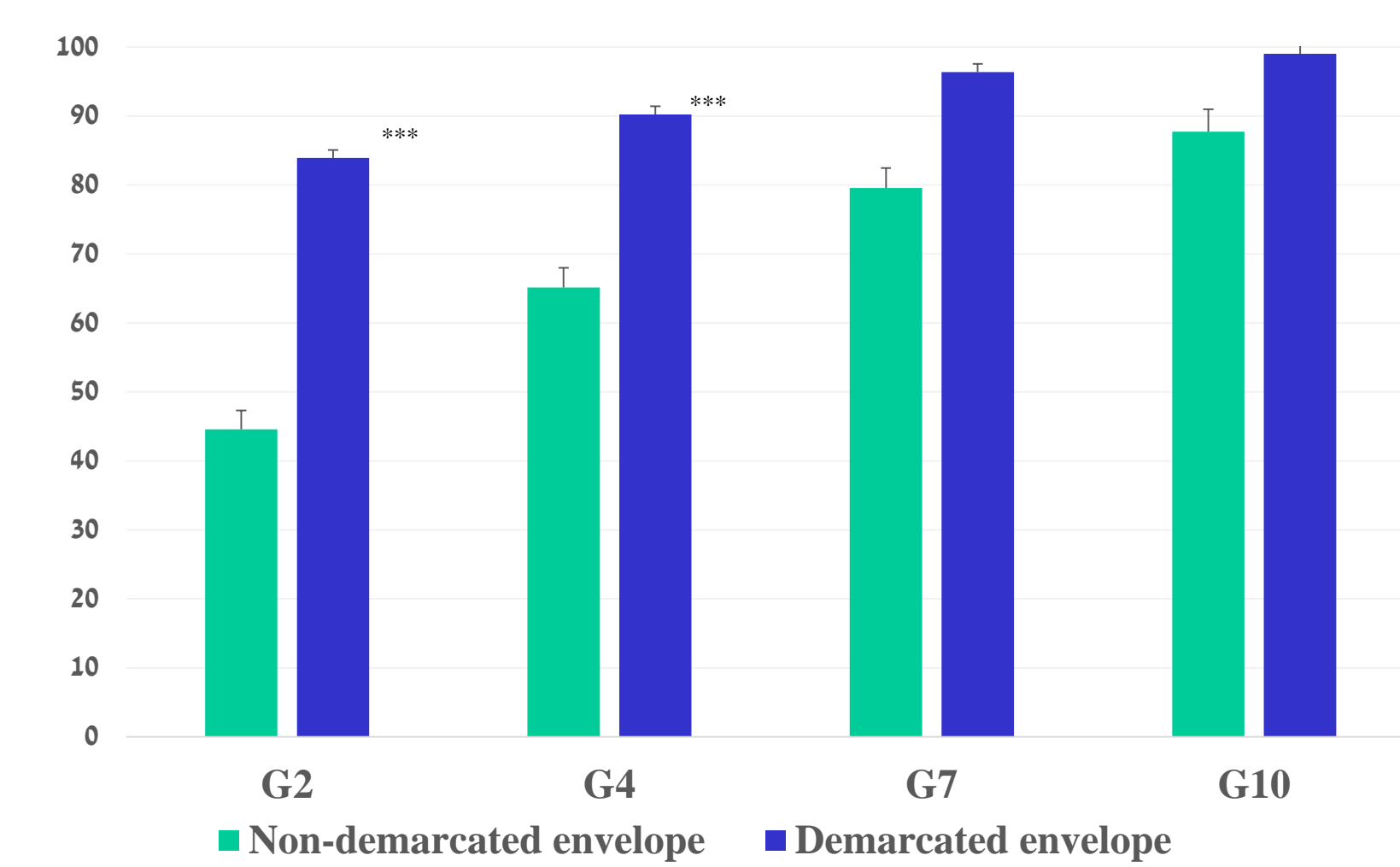


Figure 2: Interaction of word frequency and demarcation type

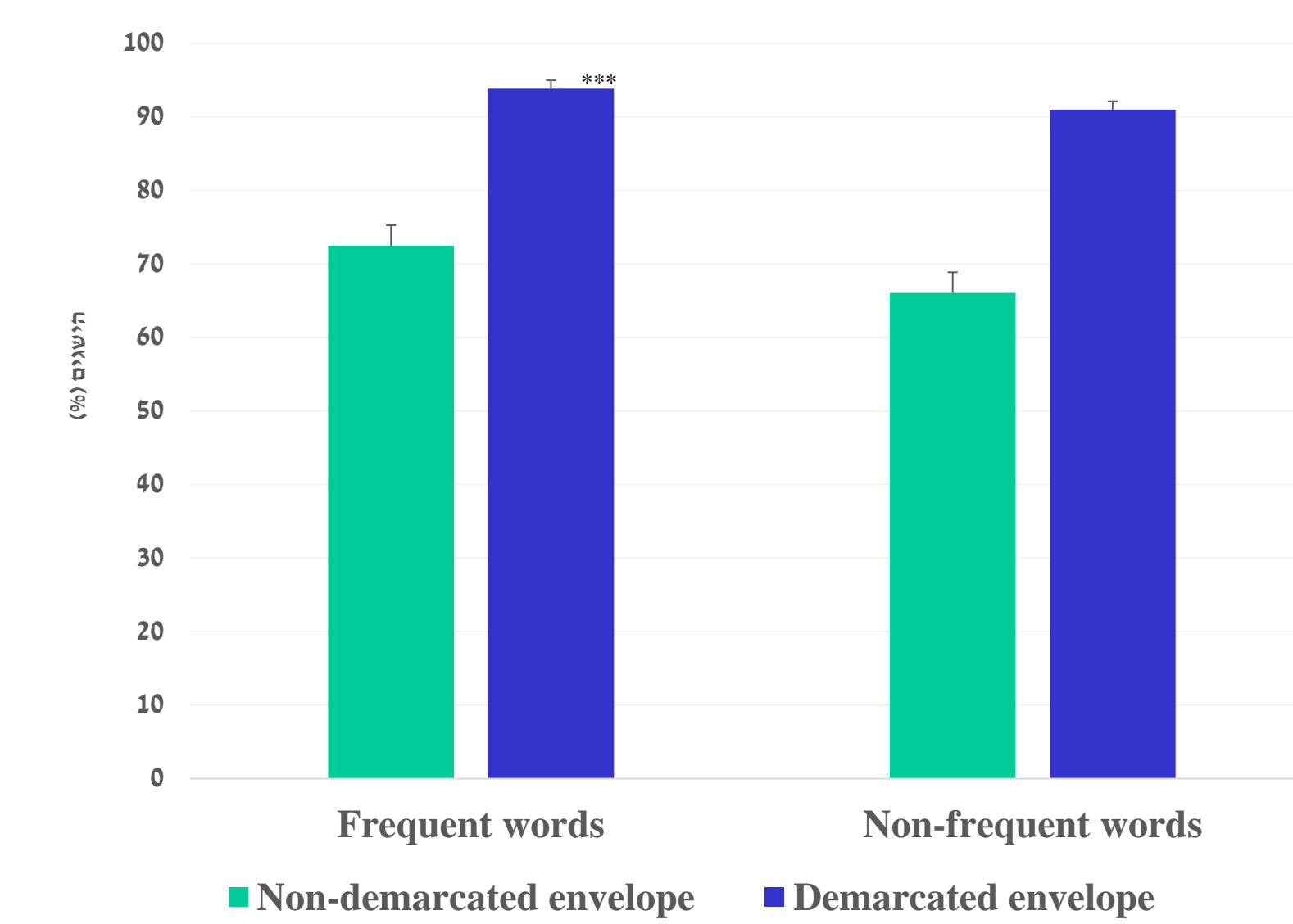


Figure 3: Interaction of grade, word frequency and letter frequency in its morphological role

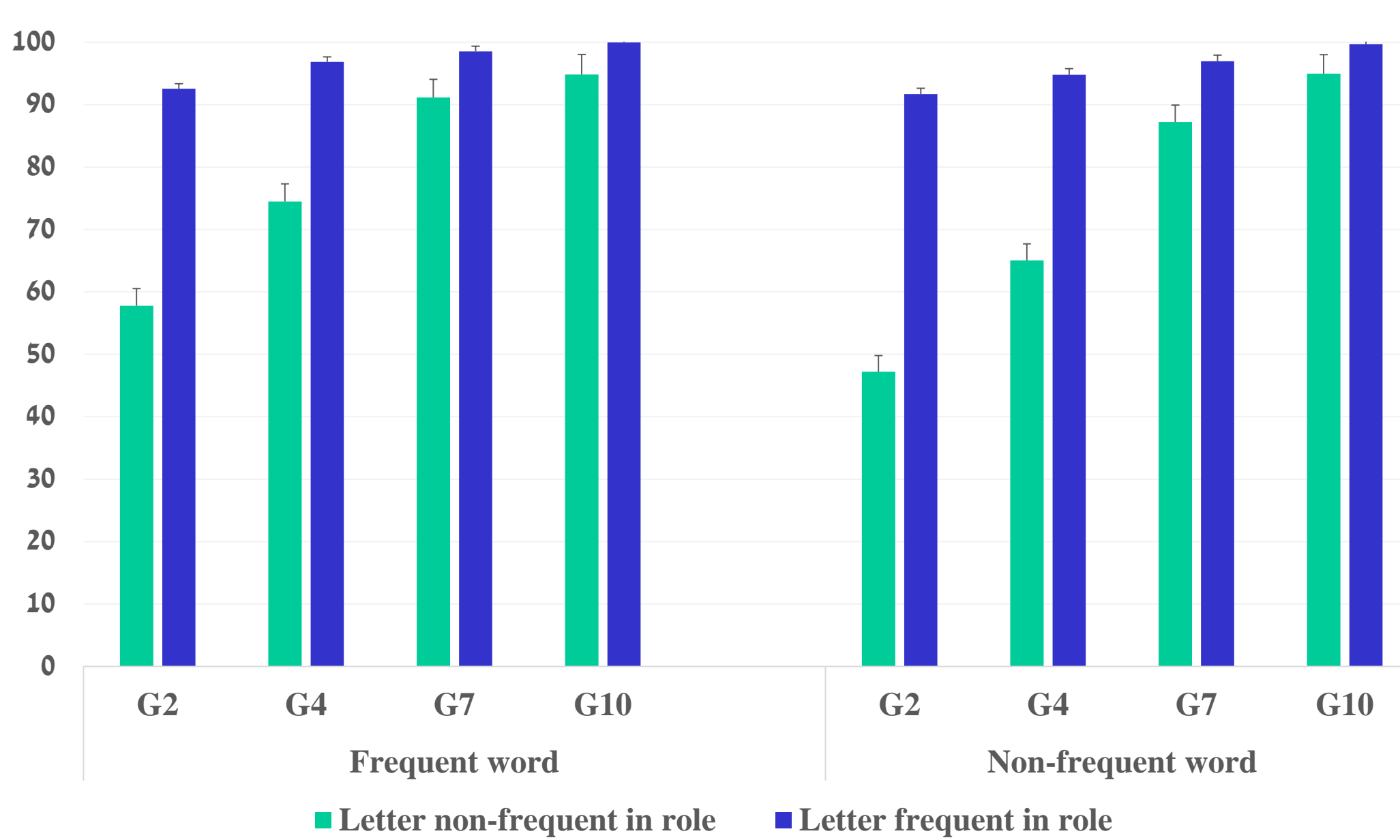


Figure 4: Grade by phono-morphological competition

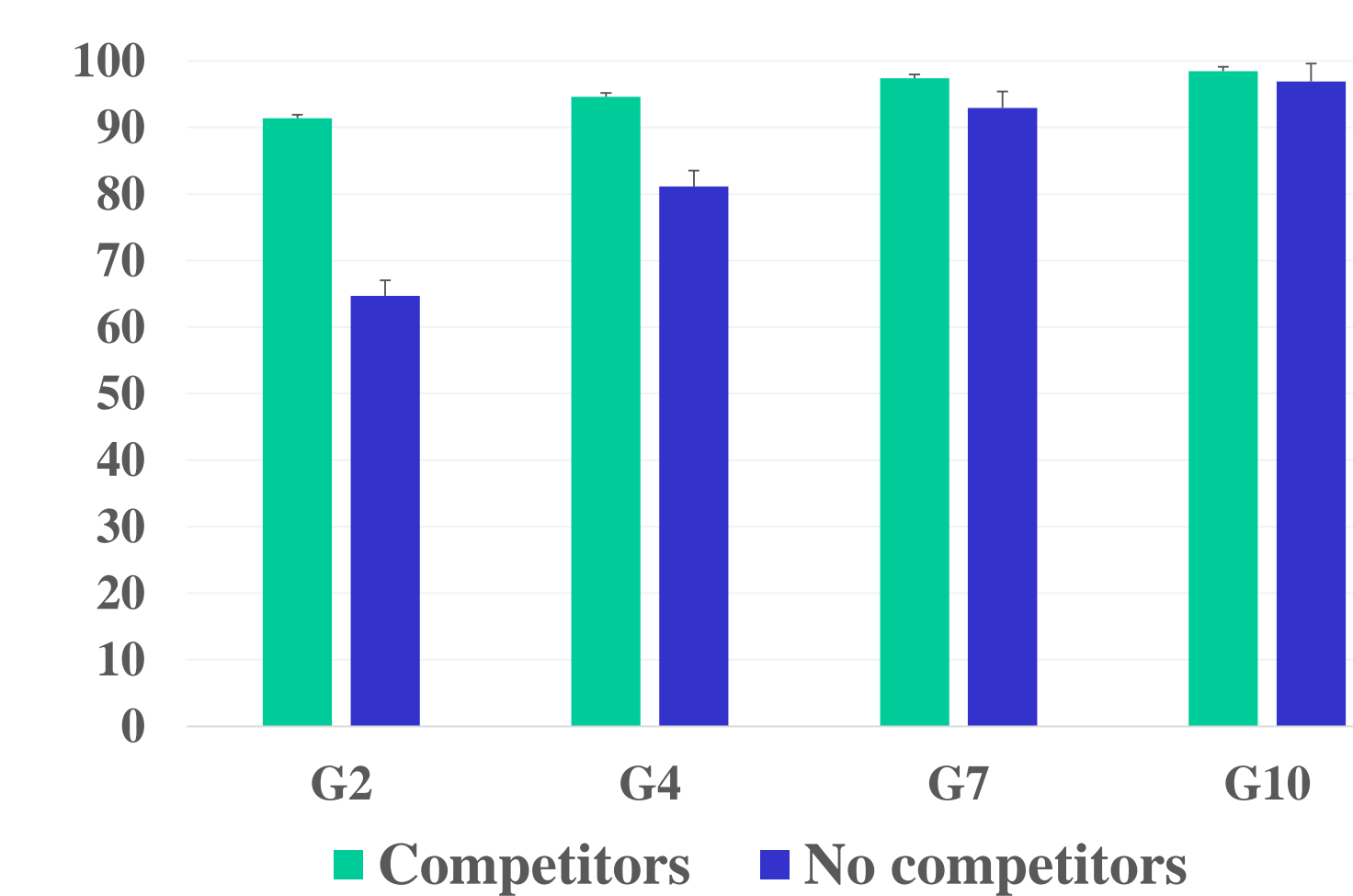


Figure 5: Success in spelling homophonous letters by covert / overt phonology and grade

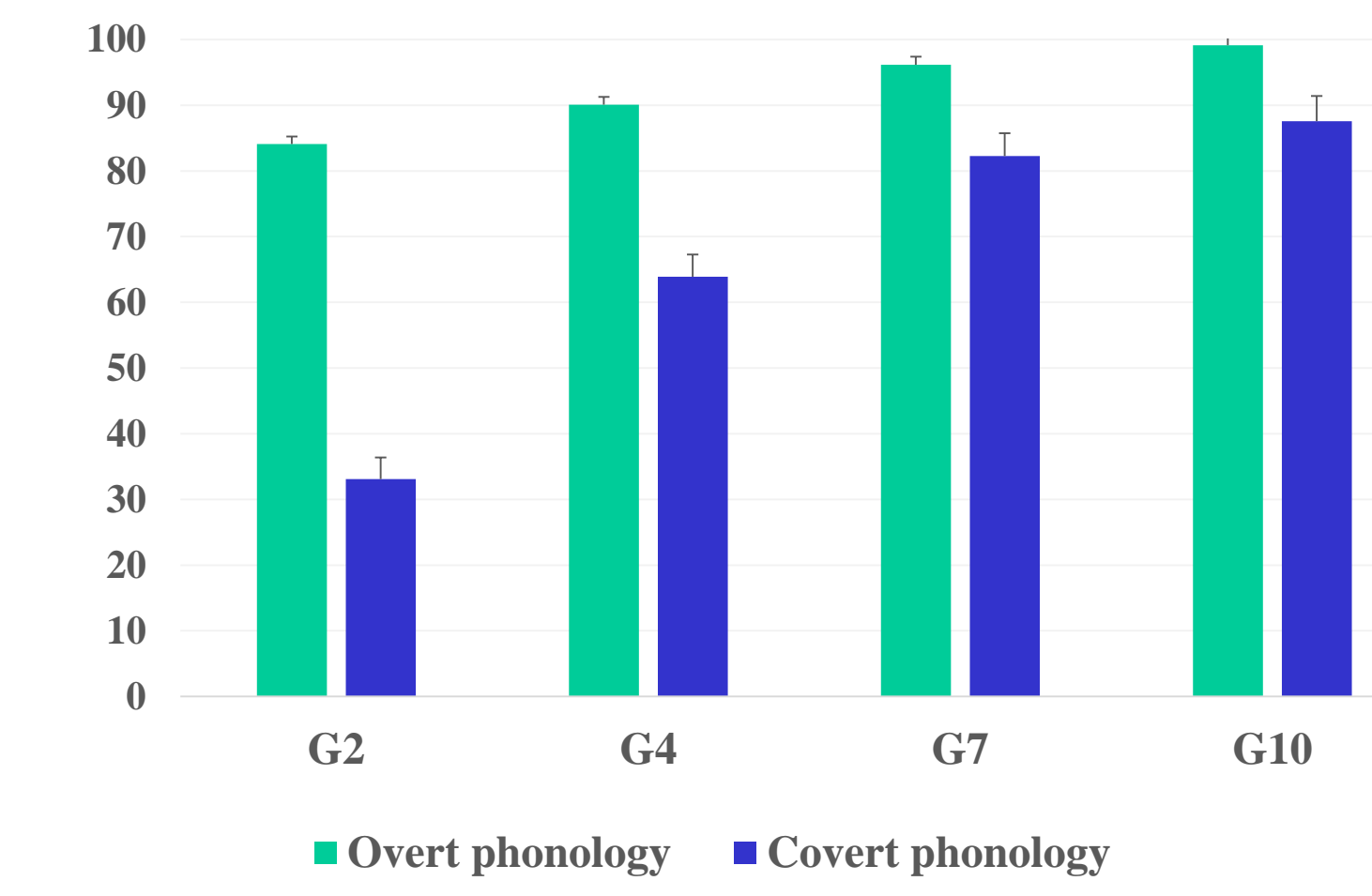
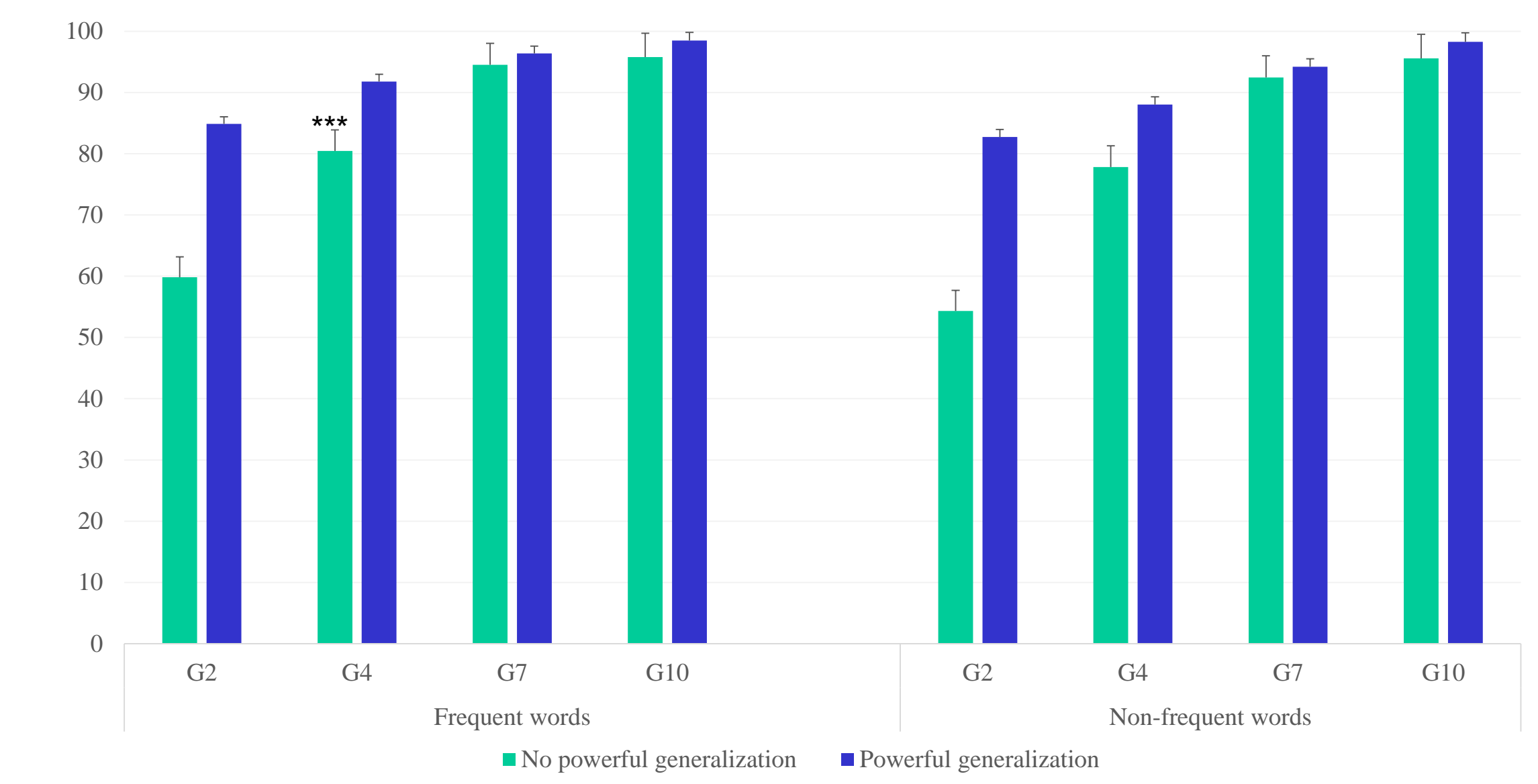


Figure 6: Interaction of grade, word frequency and the existence of a powerful orthographic generalization



### Transparency and regularity

- |   |                                    |
|---|------------------------------------|
| 1. Demarcated function envelope               | Demarcated > non-demarcated        |
| 2. Letter frequency in morphological role     | Frequent > non-frequent            |
| 3. Phonological and morphological competition | No competitors > competitors       |
| 4. Covert phonology                           | Overt > covert phonology           |
| 5. Powerful orthographic generalization       | Generalization > no generalization |
| 6. And word frequency                         | Frequent > non-frequent            |

Figure 7: The effect of transparency and regularity in frequent words

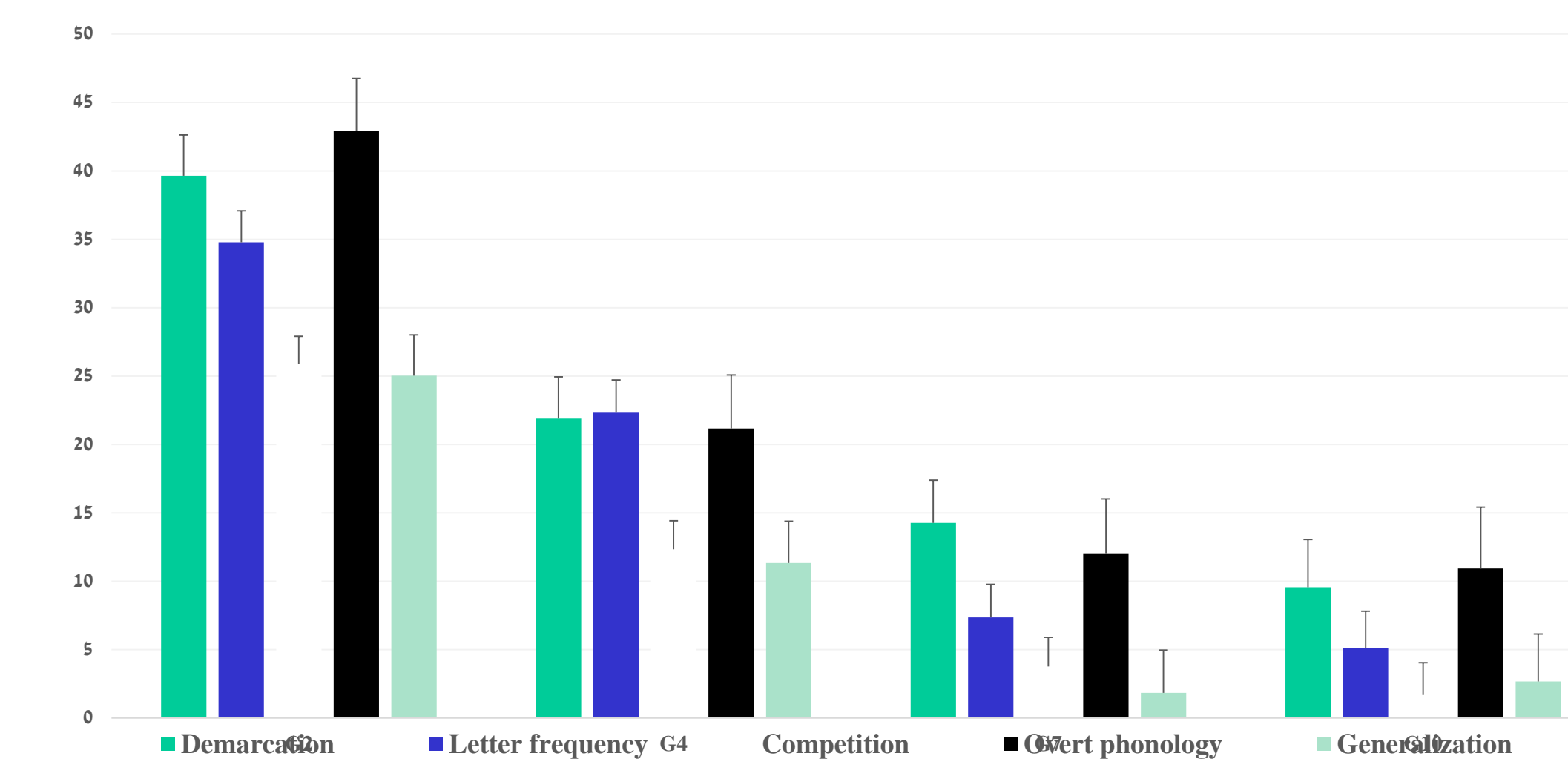
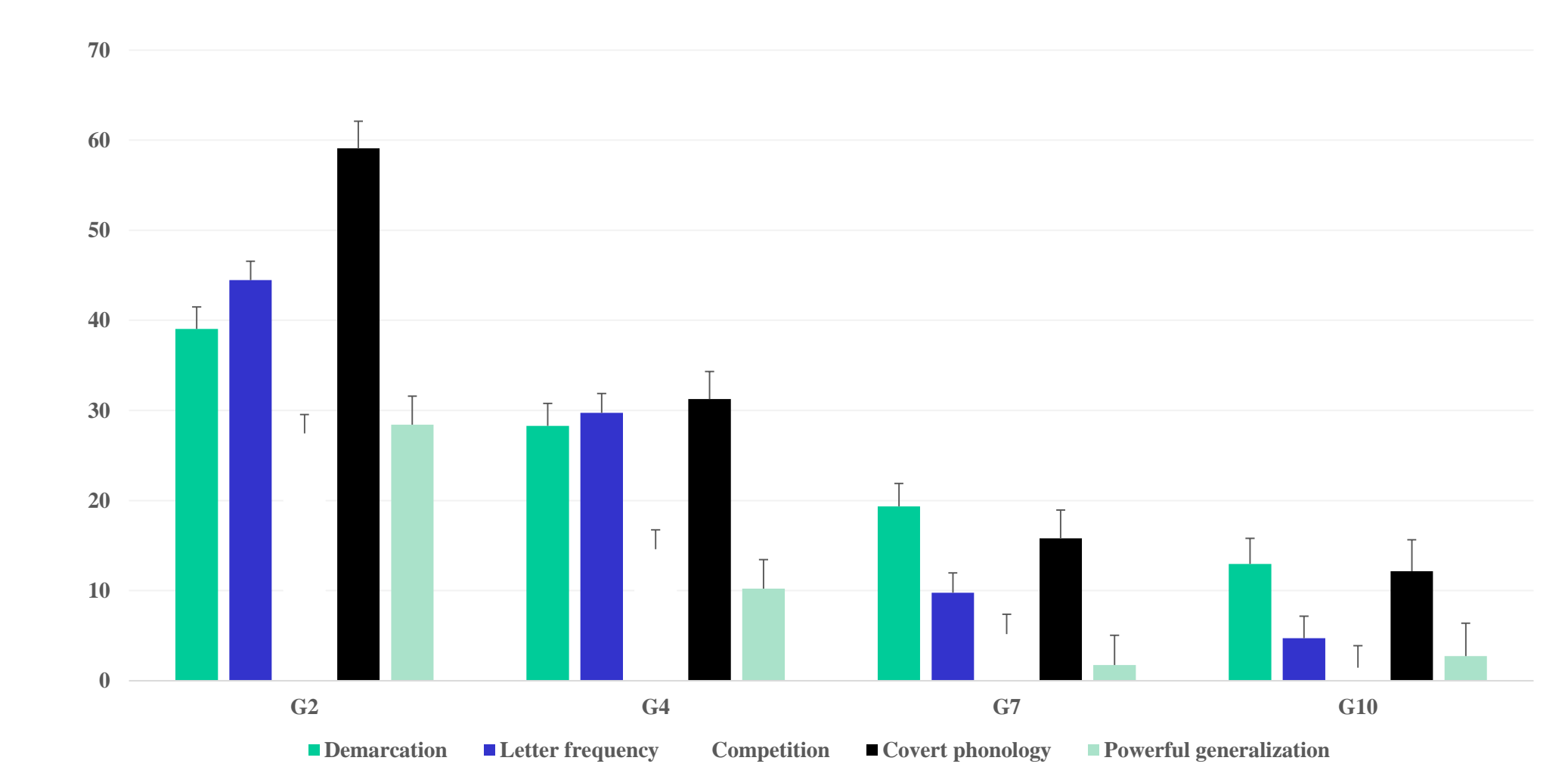


Figure 8: The effect of transparency and regularity in non-frequent words



### The effect of transparency and regularity

- Stronger in younger age groups / lower classes
- Stronger in non-frequent words
- Demarcated function envelope, Letter frequency in morphological role, and Overt phonology more diagnostic than Competition and Powerful orthographic generalization, especially in younger grades

## CONCLUSIONS

Lexical quality in spelling words with homophonous function letters:

- Is achieved as a function of the transparency and strength of the phono-morpho-orthographic link
- In younger students, word frequency compensates for this link, and it is necessary chiefly in non-frequent words
- In older students, command of even the least demarcated, morphologically infrequent and/ or competitive, phonologically opaque, and orthographically irregular categories diminishes the reliance on word frequency