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HOW SHALLOW IS MORPHEMIC PARSING IN A SHALLOW ORTHOGRAPHY? A STUDY WITH ITALIAN CHILDREN

Introduction

The role of morphology in reading acquisition has been proved in different languages (see, e.g., Verhoeven & Perfetti, 2011), but it is still unclear which features of linguistic input lead to a morphemically driven processing of complex words. According to the SOLAR (*Self-Organising Lexical Acquisition and Recognition*) model (Davis, 2010), sublexical units (including bound morphemes) are acquired because of their recurrence as orthographic chunks (and, possibly, because of their association with a consistent semantic pattern). This model is in line with the *form-then-meaning account* of visual word identification proposed by Davis & Rastle (2010). A different point of view comes from the *Naïve discriminative learning* approach proposed by Baayen *et al.* (2011), which suggests direct mapping between form and meaning, without using specific representations for either bound morphemes or complex words. In spite of the lack of these representations, the model offers reliable simulations of a wide range of morphological effects.

In order to assess morpho-orthographic and morpho-semantic processing in young readers, Quémart, Casalis & Colé (2011) presented 3rd to 7th graders with a masked primed LDT (Experiment 1) and found the classic, adult-like pattern of results, i.e., priming with both transparent (dealer-DEAL) and opaque (mother-MOTH) prime-target pairs. Testing Hebrew children, Shiff, Raveh & Fighele (2012) found that 4th graders did not show any morpho-orthographic effect, which was instead close to significance with 7th graders (morpho-semantic effects emerged in both younger and older children). Data in English present a third pattern of results, whereby morpho-orthographic effects did not emerge in either 3rd or 5th graders, despite clear morpho-semantic effects in both groups (Beyersmann, Castles & Coltheart, 2012). Clearly, new evidence is needed to shed light on the issue; we sought for it in a language that is also highly informative because, contrary to French and English, it is characterised by a quasi-perfect one-to-one orthography-to-phonology mapping, that is, Italian.

Method

Participants. 128 typically developing Italian children attending to 3rd-4th-5th grades (51% M; mean age = 112 months).

Stimuli. 120 prime-target related pairs were selected, 40 for each of the following conditions: a) morphological (e.g., *farinoso-FARINA*, mealy-meal); b) pseudoderivation (e.g., *violenza-VIOLA*, violence-violet); c) orthographic control (e.g., *costume-COSTO*, costume-cost). Each target could be preceded by either a related or an unrelated word (e.g., *timoroso-FARINA*). Target words were matched for Child word frequency, length in letters and orthographic neighbourhood size.

Procedure. Participants were asked to perform a masked primed lexical decision task. *E-Prime 2.0* was used to collect data.

Results

Mixed-effects models carried out on RTs showed first-level effects of grade, reading skill, whole-word frequency, and length. Critically, *condition* was found to interact with *prime relatedness*: morphological priming only emerged in the truly morphological condition (related: M = 1300 ms, SD = 444.4; unrelated: M = 1379, SD = 442.3), whereas no sign of facilitation was found in either

the pseudoderivation (related: $M = 1391$, $SD = 446.0$; unrelated: $M = 1379$, $SD = 412.1$) or the orthographic condition (related: $M = 1370$, $SD = 430.9$; unrelated: $M = 1399$, $SD = 431.4$). Data are consistent with the hypothesis that in the course of reading acquisition form-meaning mapping is crucial to detect morphemic units. Accordingly, there is no evidence for morpho-orthographic parsing in primary school, not even in a shallow orthography such as Italian.

References

- BAAYEN, R. H., MILIN, P., FILIPOVIC DURDJEVIC, D., HENDRIX, P., & MARELLI, M. (2011). An amorphous model for morphological processing in visual comprehension based on naive discriminative learning. *Psychological Review*, 118, 438-482.
- BEYERSMANN, E., COLTHEART, M., & CASTLES, A. (2012). Parallel processing of whole words and morphemes in visual word recognition. *The Quarterly Journal of Experimental Psychology*, 65, 1798-1819.
- DAVIS, C.J.(2010). SOLAR versus SERIOL revisited. *European Journal of Cognitive Psychology*, 22, 695-724.
- DAVIS, M.H., & RASTLE, K. (2010). Form and meaning in early morphological processing: Comment on Feldman, O'Connor, and Moscoso del Prado Martin (2009). *Psychonomic Bulletin and Review*, 17, 749-55.
- QUEMART, P., CASALIS S., & COLE P. (2011). The role of form and meaning in the processing of written morphology: A priming study in French developing readers. *Journal of Experimental Child Psychology*, 109, 478-496.
- SCHIFF, R., RAVEH, M., & FIGHEL, A. (2012). The development of the Hebrew mental lexicon: When morphological representations become devoid of their meaning. *Scientific Studies of Reading*, 16, 383-403.
- VERHOEVEN, L., & PERFETTI, C. (2011). Morphological processing in reading acquisition: A cross-linguistic perspective. *Applied Psycholinguistics*, 32, 457-466.