

# When Exactly do Dealers Deal more than Corners Corn? Incremental Masked Priming and Morpho-Orthographic Effects

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## Introduction

It is widely accepted that complex words such as “dealer” are decomposed into their constituent morphemes during visual word identification. There is also substantial evidence that the same happens to pseudo-derived words like “corner” (that would be broken down into “corn” and “er”; e.g., Rastle et al., 2004), but some contradictory results have indeed emerged in this respect (e.g., Feldman et al., 2009). In the present study, we address this issue in an incremental priming experiment, which allows us to track the temporal pattern of the effects by varying quasi-continuously the Stimulus Onset Asynchrony (SOA) between primes and targets within the same experiment.

## Materials and Methods

95 prime-target pairs of Italian words were assigned to each of 3 conditions. In the first, genuine derived words primed their stems (artista-ARTE, artist-ART; transparent condition); in the second, pseudo-derived words primed their pseudo-stems (retaggio-RETE, legacy-NET; opaque condition); in the third, simple words primed orthographically related stems (corallo-CORO, coral-CHOIR; orthographic condition). All prime-target pairs were tested in five different SOA conditions: 11.8 ms, 23.5 ms, 35.3 ms, 47.1 ms, and 58.8 ms, which correspond to one, two, three, four, and five refresh cycles of an 85-Hz computer screen.

Each trial started with a string of hash marks presented for 500 ms in the center of a computer screen, followed by the prime word, and then by the uppercase target string on which the subject had to make a lexical decision. Each target word was shown to the 208 participants only once, which was achieved through the adoption of a Latin square design with five rotations.

## Results

In a mixed-effects analysis where each SOA was compared with the immediately shorter one and the orthographic condition was set as the baseline, answers turned out to become faster between 24 and 35 ms of SOA in the opaque condition (estimated effect = 10.6 ms,  $p = .03$ ), and between 35 and 47 ms of SOA in the transparent condition (estimated effect = 14.1 ms,  $p = .001$ ). When each SOA was instead compared with the shortest one (12 ms), in order to track cumulative effects at each SOA as in classical masked priming, facilitation was shown to be equivalent in opaque and transparent pairs at 24, 35, and 47 ms of SOA, and larger in transparent pairs at 59 ms of SOA (estimated effect = 9.8 ms,  $p = .02$ ).

## Conclusions

The present study shows that, although both transparent and opaque complex words are indeed decomposed during processing, this happens with different temporal patterns. Surprisingly, there seems to be a condition (between 24 and 35 ms of SOA) where opaque words are decomposed, but genuine derived words are not. Furthermore, these data show that morpho-orthographic and morpho-semantic priming do not differ up to 59 ms of SOA, contrary to what shown in some previous studies (e.g., Feldman et al., 2009).

## References

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