

Response congruency effects in masked primed lexical decision

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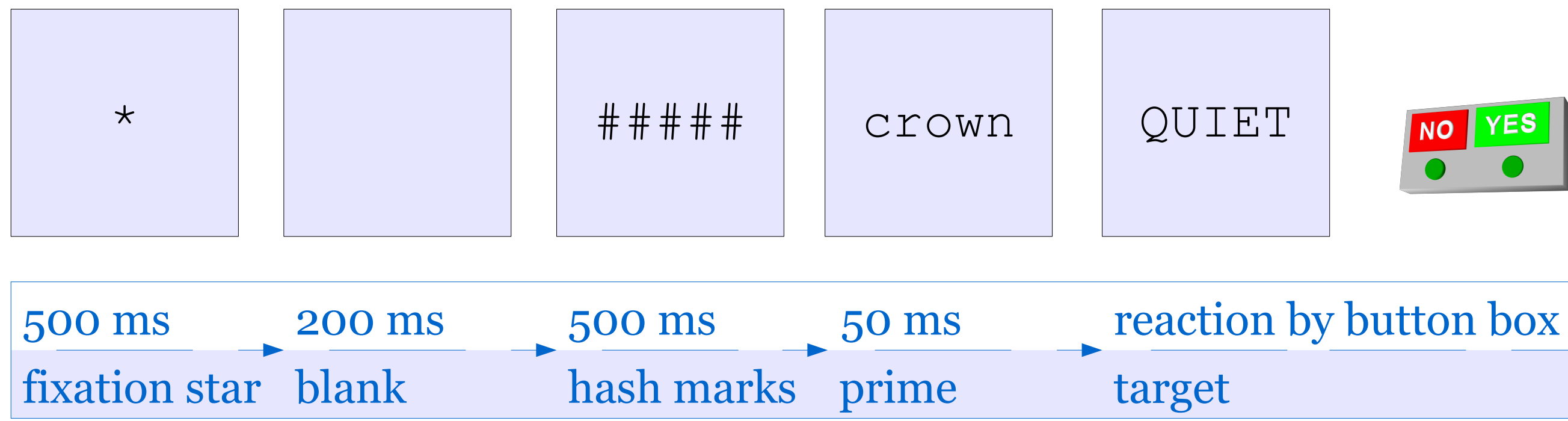
Prior research

Congruency priming effects are said to occur when categorisations of a target stimulus are faster (and/or more accurate) when the stimulus is preceded by a subliminal prime belonging to the same category (congruent) than when the prime belongs to a different category (incongruent).

Congruency priming effects have been demonstrated in a variety of tasks, including number magnitude estimation (Dehaene et al., 1998; Kinoshita & Hunt, 2008) and semantic categorisation (Damian, 2001; Quinn & Kinoshita, 2007). Small sets of well-learned items may lead to a stimulus-response mapping, where the motor response is activated and primed (Damian, 2001). This bypassing of the underlying decision process would mean that experiments are not informative about the decision process itself.

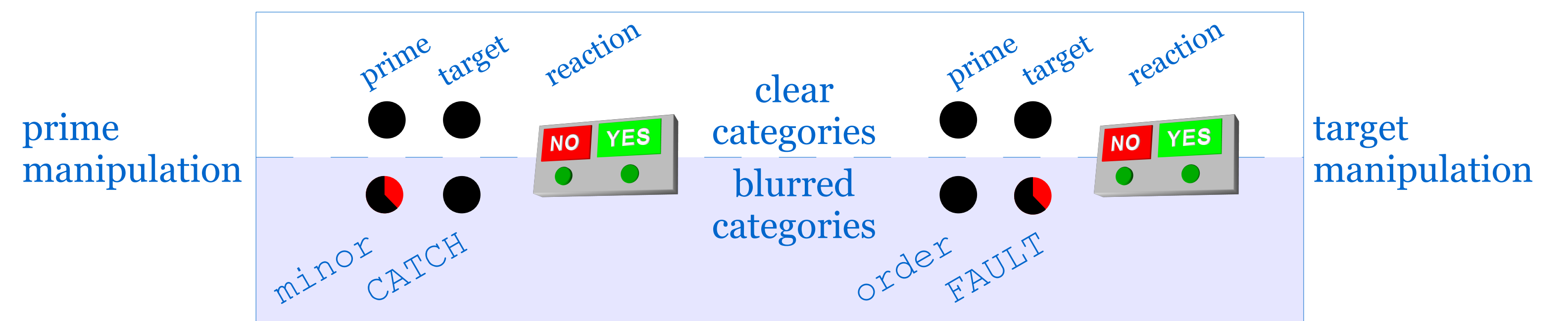
The following experiments demonstrate a response congruency priming effect in the large category of words. These results challenge prior experiments that did not report an effect in lexical decision in English (Norris & Kinoshita, 2008) and Spanish (Perea, Fernandez, & Rosa, 1998), and also challenge the dependence of congruency effects on stimulus-response mapping.

Masked primed lexical decision paradigm



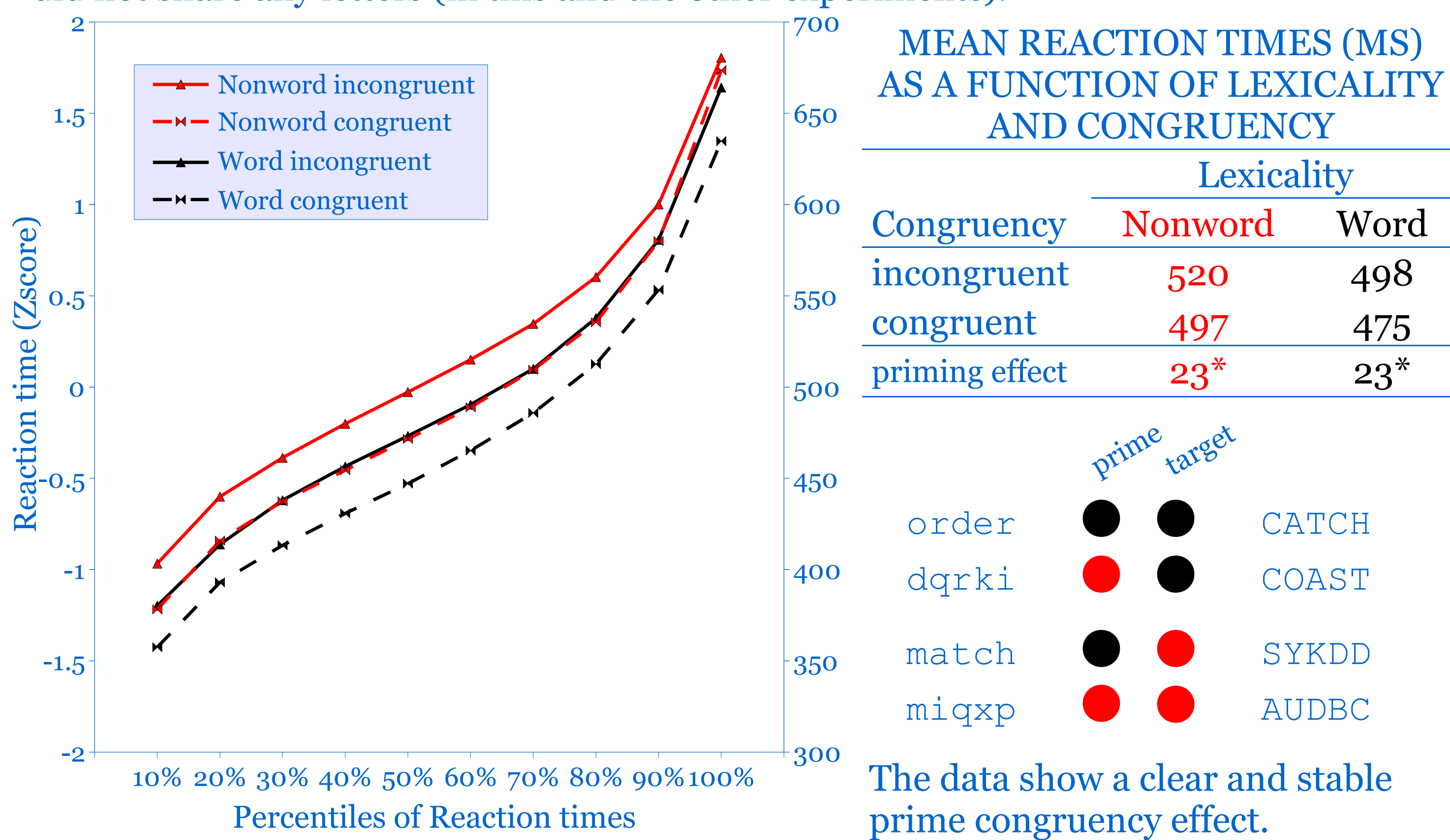
Variables

The difficulty of making lexical decisions depends on the typicality of items for their category (word or nonword). We manipulated typicality by varying the lexical frequency of words and the orthographic characteristics of the words and nonwords.



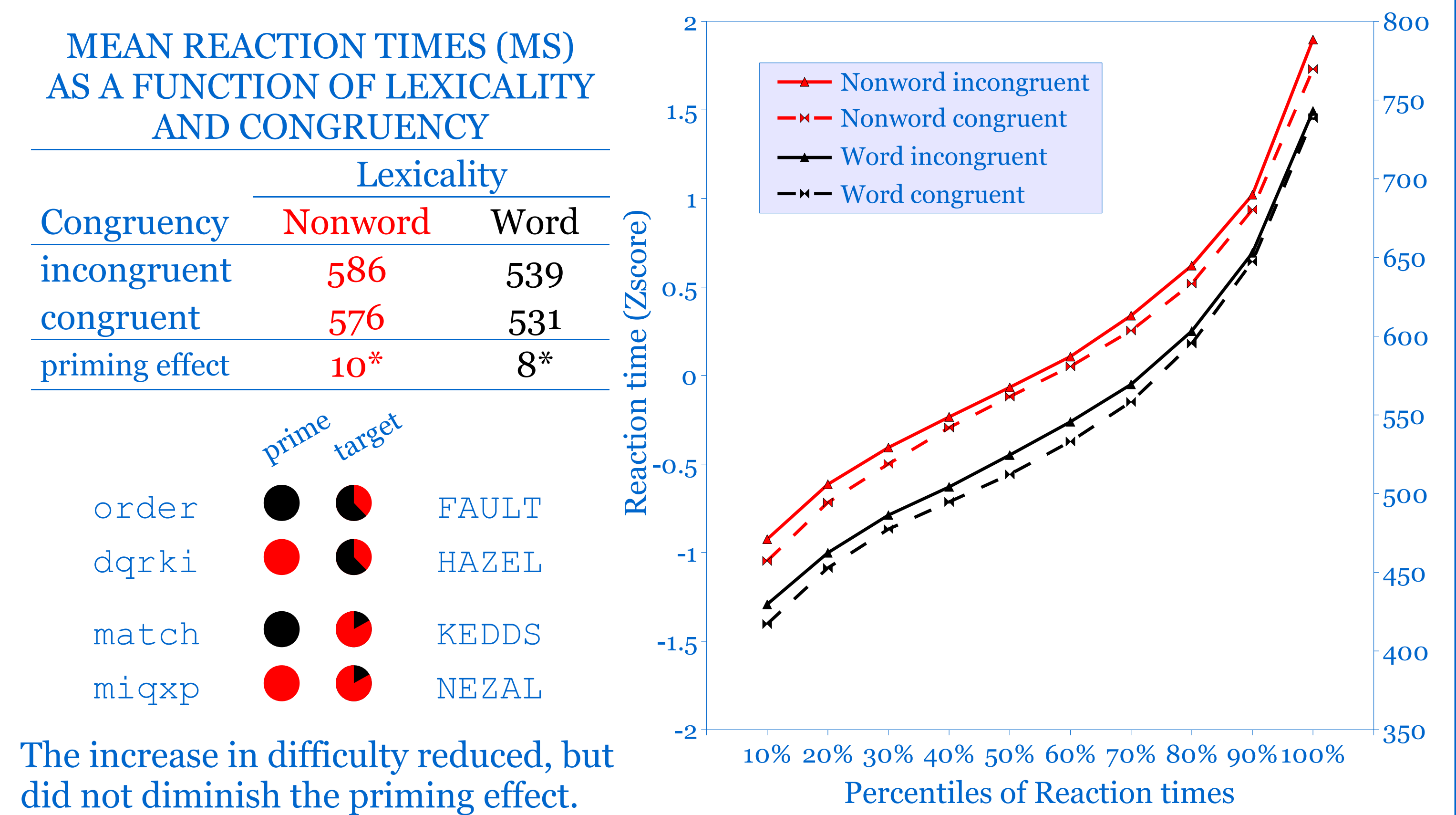
Experiment 1

Primes and targets in this experiment were very typical, high frequency words and nonwords that were not at all wordlike. Primes were paired with targets so that they did not share any letters (in this and the other experiments).



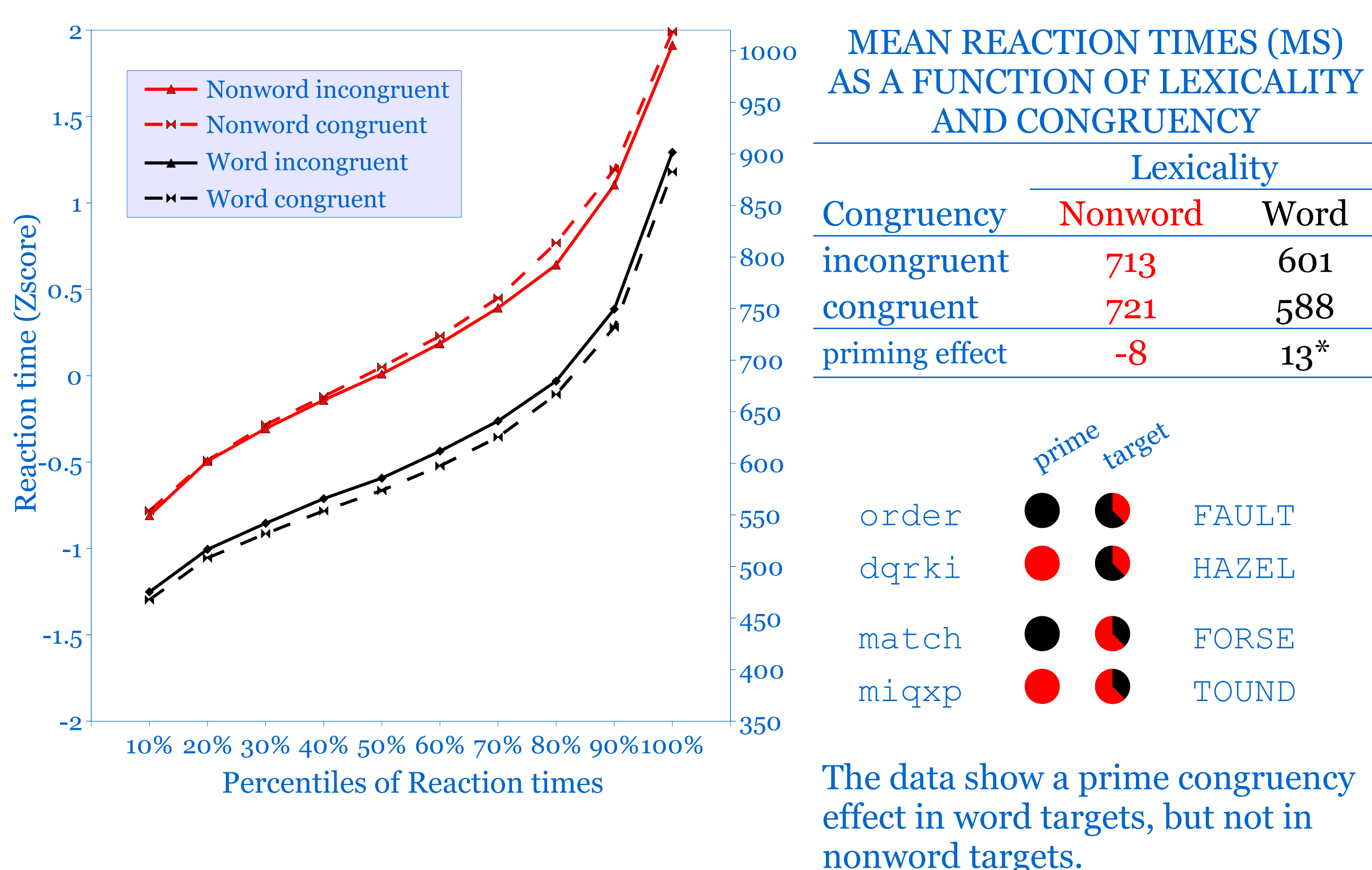
Experiment 2

In order to increase task difficulty both word and nonword targets were replaced by less typical items. The primes were identical to those in Experiment 1.



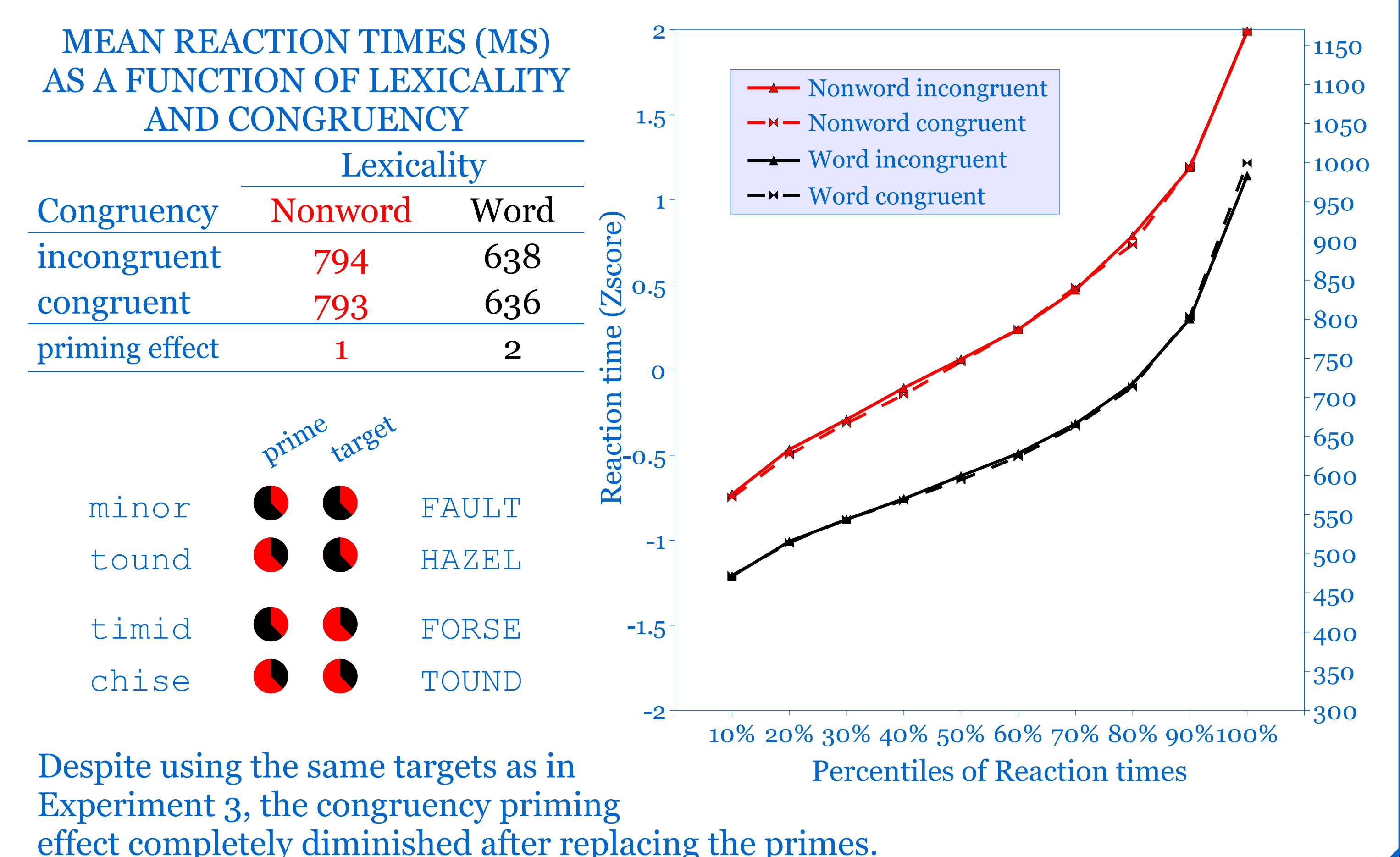
Experiment 3

The wordlikeness of the nonword targets was further increased in order to investigate the robustness of the effect with increasing task difficulty.



Experiment 4

The word and nonword targets from Experiment 3 were used, and the same items were also used as primes in order to investigate the influence of prime typicality.



Conclusion

Experiment 1 demonstrated a response congruency priming effect using a large category, where stimulus-response mappings have not been learnt by the participants. We showed furthermore that the prime congruency effect decreases when task difficulty is increased by choosing less typical word and nonword targets. The final experiment showed that the priming effect diminishes when the primes are not sufficiently exemplary for any of the two categories to push the decision process in either direction. In order to produce a prime congruency effect, primes must be very typical of their category and resemble very few properties of the opposite category (e.g., nonwords should be very unwordlike).

References

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