

**Introduction**

- Past psycholinguistic research (Caramazza 1997; Dell 1986; Levelt 1989; Levelt et al. 1999 ) on bilingual word production investigating the manner and locus of language selection has adopted various methodologies including picture –word interference, language mixing/switching and phoneme monitoring paradigms.
- Findings from previous studies led to two explanations of the process involved in language selection (manner and locus):
  - (i) The Language specific view: the target and non-target lexical nodes are active during the production process but do not compete for selection as only the target nodes are considered for selection (Costa et al. 1999; Costa and Caramazza 1999; Roelofs 1998).
  - (ii) The Language non-specific view: the target and non target lexical nodes are active and compete for selection (Green 1986 1998; Hermans et al. 1998; de Bot 1992).
- The discrepancy in these findings might be attributed to task-related flaws (Costa et al. 2006; Kroll et al. 2010).
- To test these views, the masked priming paradigm in a picture naming task was used to investigate lexical access in bilinguals with different scripts namely Arabic-English speakers. This group has not previously participated in bilingual lexical access studies.
- The overarching objective of this study was to find out whether the manner of language selection by these bilingual is language specific or non-specific.

**Experiment I**

**Objectives and Hypothesis:**

To test whether priming cognate and non-cognate pictures with related-masked primes would facilitate lexical selection during the naming process. Finding a facilitation effect when naming cognates and non-cognates would suggest a language specific manner of lexical selection.

**Participants:**

Sixty-five adult volunteers, all of whom were fluent Arabic-English bilinguals with Arabic as their native language.

**Procedures:**

Participants were asked to name cognate and non-cognate pictures in English as fast and as accurately as possible. The pictures were preceded by (i) a related prime word in L1, i.e., the cognate name of the picture in the cognate condition , and the translation of the picture name in the non-cognate condition, and (ii) an unrelated prime word in L1 (table 1).

Experiment Condition	Target picture	Prime Type	
		Related in L1	Unrelated in L1
Cognate	Lemon	ليمون / lemon	جزرة / carrot
Non-cognate	Car	سيارة / car	شعر / hair

Table 1: Examples of picture names and prime words.

**Results:**

- Facilitation effect was found when priming cognates and non-cognates with related primes (figure 1).
- Lexical items in both target and non-target languages were active at the lexical level but did not compete for selection. On the contrary, related primes induced a facilitation effect. This finding indicated that the nature of the language selection was specific.

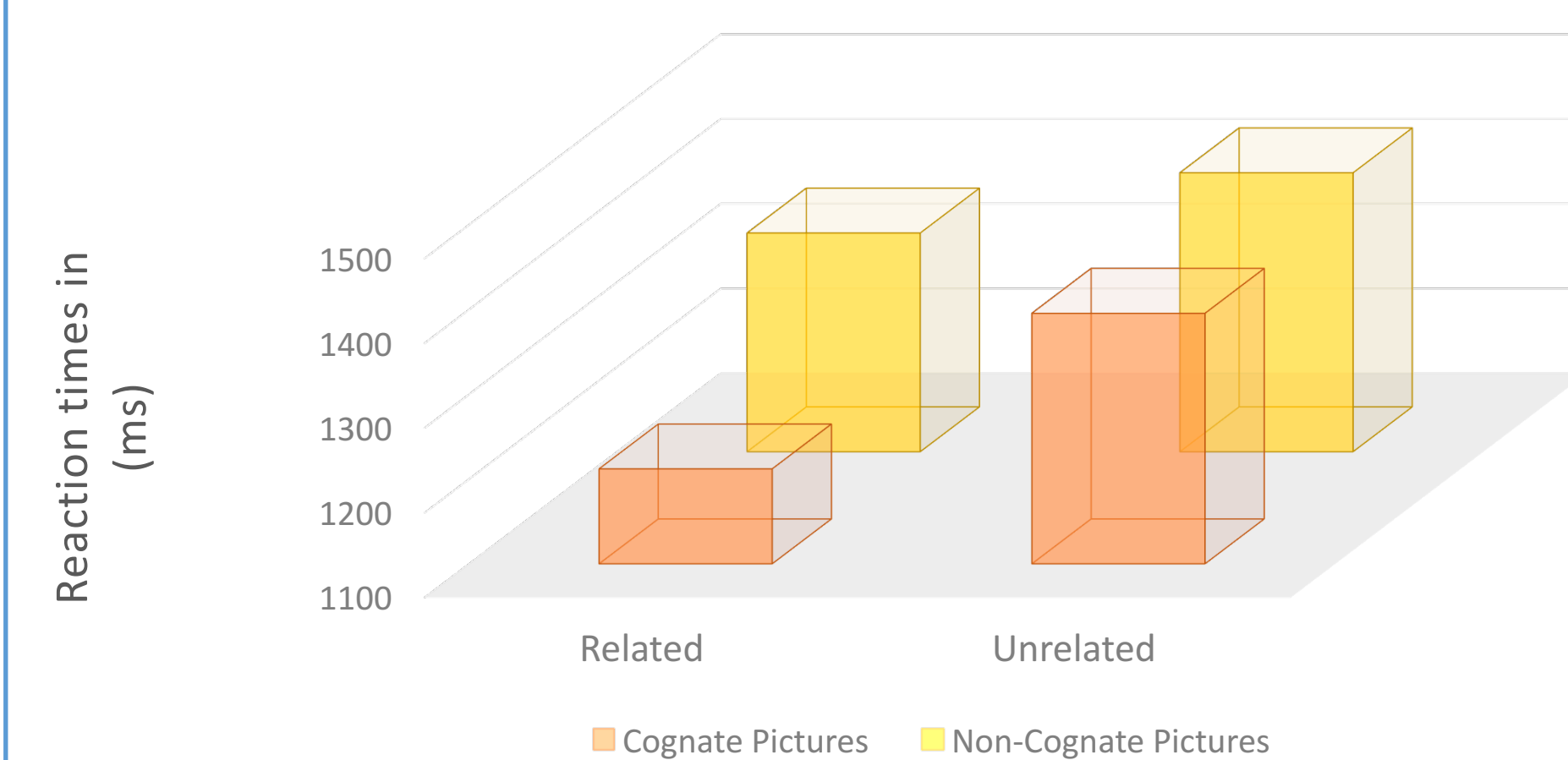


Figure 1: Reaction times in the four conditions

**Experiment II**

**Objective and Hypothesis:**

To test whether priming non-cognate pictures with semantically related-masked primes would produce an interference effect. Finding an interference effect would suggest a language non-specific manner of lexical selection. In other words, the selection process took into consideration both lexical nodes in the target and non-target language. Thus, they compete for selection and this would lead to a delay in the production process.

**Participants:**

Thirty-three adult volunteers, all of whom were fluent Arabic-English bilinguals with Arabic as their native language.

**Procedures:**

Participants were asked to name a picture in English as fast and as accurately as possible. The pictures were preceded by (i) a semantically related prime word in L1 ( e.g. a picture of a spoon was preceded by the prime ‘صحن’(plate)) (ii) an unrelated prime word in L1(e.g. a picture of a spoon was preceded by the prime ‘اسد’(lion))

**Results:**

- A semantic interference effect was found when priming pictures with semantically related primes (figure 2).
- This was interpreted as evidence of lexical competition at the lexical level. This finding indicated that the nature of language selection was non-specific contrary to the finding of the first experiment.

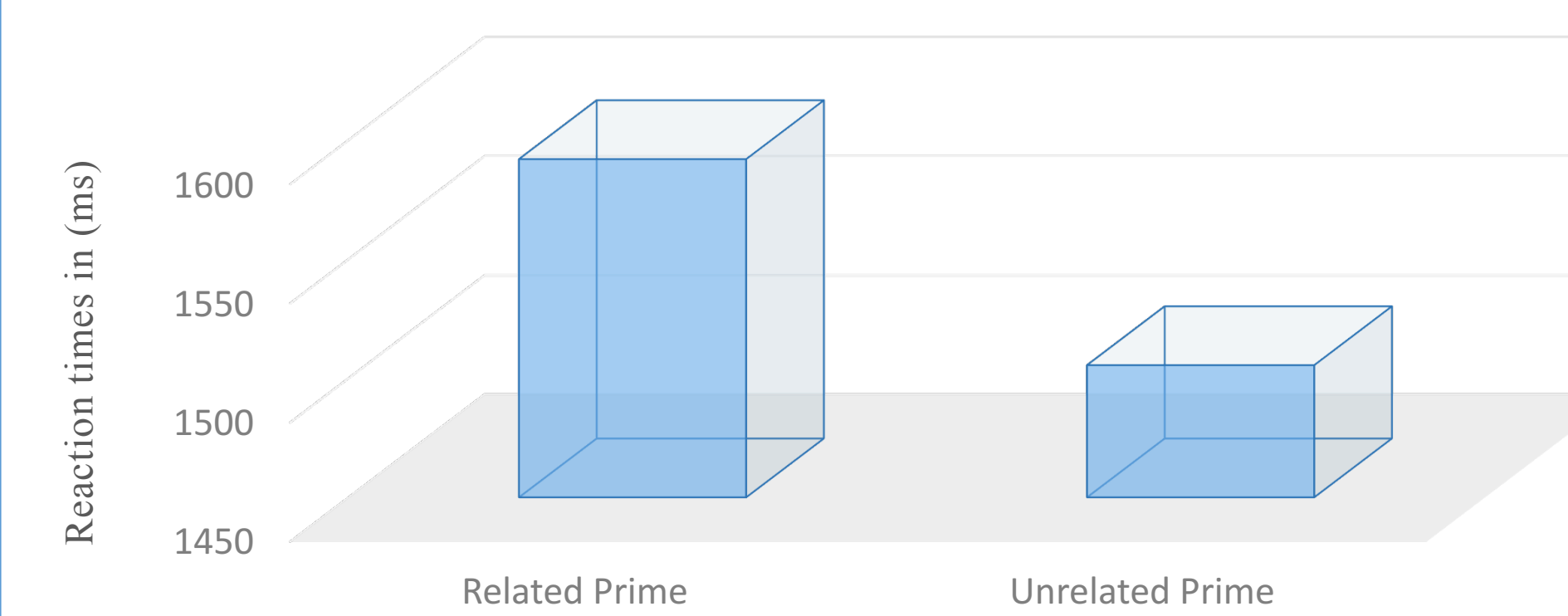


Figure 2: Reactions times in the two conditions

**Discussion**

The findings of the two experiments on the manner of lexical selection were contradictory. This is unlikely be attributed to differences in sampling techniques or experiment procedures as they were carefully matched. This led us to consider looking at these two opposite views as the two sides of the same coin. In other words, what if the non-target lexical nodes compete for selection only if there is a reason for competition such as being semantically related, and they facilitate the selection of the target lexical node if they are phonologically similar. So in this scenario, the manner of lexical selection is not completely language non-specific or specific, on the contrary, it is influenced by the type of relation that the two lexical alternatives might have during the process. This explanation is logical yet needs to be further examined and this is the research focus for the ongoing third experiment.

**References**

Caramazza, A. 1997. How Many Levels of Processing Are There in Lexical Access? *Cognitive Neuropsychology* 14(1), pp. 177-208.

Costa , A. and Caramazza, A. 1999. Is lexical selection in bilingual speech production language-specific? Further evidence from Spanish-English and English–Spanish bilinguals. *Bilingualism: Language and Cognition* 2(3), pp. 231-244.

Costa , A., Miozzo, M., and Caramazza, A.1999. Lexical selection in bilinguals: Do words in the bilingual's two lexicons compete for selection? *Journal of Memory and Language* 41, pp. 365-397.

Costa, A. et al. 2006. The dynamics of bilingual lexical access. *Bilingualism: Language and Cognition* 9(2), p. 137–151.

De Bot, K. 1992. A bilingual production model: Levelt’s speaking model adapted. *Applied Linguistics* 13, pp. 1-24.

Dell, G. S. 1986. A spreading activation theory of retrieval in sentence production. *Psychological Review* 93, pp. 283-321.

Green, D. W. 1986. Control, activation and resource: A framework and a model for the control of speech in bilinguals.. *Brain and Language* 27, pp. 210-223.

Green, D. W. 1998. Mental control of the bilingual lexico-semantic system.. *Bilingualism: Language and Cognition* 1, pp. 67-81.

Hermans , D. et al. 1998. Producing words in a foreign language: Can speakers prevent interference from their first language? *Bilingualism: Language and Cognition* 1, pp. 213-229.

Kroll , J. et al. 2010. The revised hierarchical model: a critical review and assessment. *Biling (Camb. Eng.)* 13, p. 373–381.

Levelt , J. et al. 1999. A theory of lexical access in speech production. *Behavioural and Brain Sciences* 22, pp. 1-75.

Levelt, W. 1989. *Speaking: From intention to articulation*. Cambridge: MIT Press.

Roelofs , A., Meyer , A. and Levelt, W. 1998. A case for lemma/lexeme distinction in models of speaking: Comment on Caramazza and Miozzo (1997). *Cognition* 69, pp. 219-230.