Morphological and phonological aspects of Maltese spoken word recognition

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Maltese, a Semitic language with a mixed lexicon (Borg and Azzopardi-Alexander 1997, *inter alia*), exhibits the typical Semitic hallmark of root-and-pattern morphology, whereby related words may share their consonantal root (e.g. *ktb* in *kiteb* 'he wrote', *ktieb* 'book', *miktub* 'written) of their word pattern (e.g., *mi-u* in *miktub* 'written', *misruq* 'stolen', *mitluf* 'lost'). While Semitic root-and-pattern morphology has received an enormous amount of attention in the formal literature (e.g., McCarthy 1981, Bat-El 2003, Ussishkin 2005, among many others), quantitative research into its typologically unusual word formation processes has been relatively limited. Moreover, most psycholinguistic studies on Hebrew (e.g., Frost et al. 2000) and Arabic (e.g., Boudelaa and Marslen-Wilson 2001) are confounded because Hebrew and Arabic orthographies mainly represent consonants. This talk addresses potential orthographic confounds in two ways: (i) by investigating the Semitic language Maltese, whose orthography does not favor consonants over vowels, and (ii) by solely using the auditory modality.

Here, I report results from a series of six lexical decision priming experiments designed to investigate the psycholinguistic reality of roots and patterns in Maltese, using two different but related methodologies. Experiments 1 and 2 address the consonantal root, while Experiments 3-6 address the pattern. In Experiments 1, 3, and 5, primes were fully audible. In Experiments 2, 4, and 6, primes were presented using auditory masked priming (i.e., subjects were not conscious of the prime), followed by audible targets (cf. Kouider and Dupoux (2005) and Dupoux et al. (2008) for this methodology). Creating a prime for this technique involves durationally compressing the prime to 35% of its original length, and masking it in sequenced reversed words that are also compressed.

Experiments 1 and 2 (in which primes and targets share their consonantal roots) reveal evidence that roots facilitate lexical access in Maltese, supporting models of lexical access that allow morphological parsing (e.g., Meunier and Segui 1999, Taft et al. 1986, Wurm 2000 (parsing obligatory); Meunier and Segui 1999, Taft et al. 1986, Wurm 2000 (parsing possible)). However, experiments 3-6 show no support for parsing when it comes to the pattern. In Experiments 3-4, no pattern priming was found for prime-target pairs in the same verbal word pattern, casting doubt on full morphological decomposition. In Experiments 5-6, pattern priming conditions were explored in more detail, addressing the structural properties of Maltese word patterns resulting from language change. The design followed Galea (2011) by investigating the sub-components of word patterns using several priming conditions: prime-target pairs shared either the same vowels (e.g., *kiser* 'he broke'-*libbes* 'he dressed), the same prosodic structure (e.g., *nasab* 'he entrapped'-*giref* 'he scratched'), or both (e.g., *gerrex* 'he scared away'-*xekkel* 'he impeded). These two experiments revealed an inhibitory effect, a problem for models that treat the word pattern as a morphological unit. However, if the word pattern instead has phonological status, these results are consistent with models of spoken word recognition in which phonologically similar units compete at early stages of speech processing (e.g., the Neighborhood Activation Model; Luce and Pisoni 1998).