Morphological priming of sound and broken plurals in the Standard Arabic mental lexicon

While Arabic shows two distinct systems of plural inflection, it is not clear if these distinct systems are processed in the same manner. Tucker, Idrissi and Almeida (2015) find differences in reading times at verbs followed by either sound or broken plurals, where sound human feminine plural non-subjects show greater ability to trigger incorrect agreement than broken human masculine plural non-subjects. Their results suggest that suffixing plurals are easier to recognize as plural than broken plurals in the sentential context, which is consistent with dual-route models of lexical access in which irregular forms are processed as whole unites rather than decomposed. We test this suggestion at the world level with visual masked priming. If it is true that sound plurals are recognized differently than broken plurals we expect to see a different priming effect for sound plurals than for broken plurals. If, instead, the priming effects are the same for both types of plural we can conclude the locus of difference detected by Tucker, Idrissi, and Almeida (2015) must be at a stage of processing that is later than visual word form recognition.

Plural Type	Target Noun	Related Plural	Unrelated Control
Strong Masculine	العامل	العاملون	الثوابت
Strong Feminine	الديانة	الديانات	التحيات
Broken Masculine	اللص	اللصوص	الطوارئ
Broken Feminine	التقليد	التقاليد	الحزم

72 subjects participated in a lexical decision task with 120 target nouns which were common, graphically unambiguous, definite, and unvoweled. Primes were presented masked (Forster and Davis, 1987) for 50ms before subjects saw the target word, this ensures the processing of primes is early, automatic, and lexical (Forster 2003). Four types of plurals were presented (Sound Masculine, Sound Feminine/Nonhuman, Broken Masculine/Human, Broken Feminine/Nonhuman) in one of three priming conditions where the prime was identical, the related plural form, or an unrelated control. Differences in reaction time are taken to be a measure of relatedness between the prime words and target words. In each case the identical primes produced the most facilitation when compared to the unrelated control condition (p<.05). Similarly, each plural word produced facilitation regardless of its plural type (p<.05).

In line with other priming studies of Standard Arabic (Boudelaa and Marslen-Wilson 2004, 2005, 2010, 2011, 2015), we see robust priming effects for

Plural Type	Control	Repetition (Priming)	Plural (Priming)
Broken Feminine	689 ms	614 ms (75 ms)	644 ms (45 ms)
Broken Masculine	687 ms	622 ms (65 ms)	660 ms (27 ms)
Strong Feminine	708 ms	624 ms (84 ms)	642 ms (66 ms)
Strong Masculine	689 ms	619 ms (70 ms)	650 ms (39 ms)

related forms. With only 50ms of time to process plural forms, there is no meaningful distinction between sound and broken plurals: both types facilitate reactions to their related singular forms. Unlike ablauting plurals in German (e.g. Sonnenstuhl, Eisenbeiss, and Clahsen (1999)), there is no need to resort to a dual route model for Arabic broken plurals. This may be due to the nature of Semitic morphology where word-internal changes are particularly common.

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