

Don't go breaking my sound (plural)

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Maltese speakers are faced with a dichotomy in their morphological system: Sound plurals are built *concatenatively* by adding a suffix to the singular. Broken plurals are formed *non-concatenatively* by changing the prosody of the singular stem. Both plurals show a great variety of patterns (Azzopardi-Alexander and Borg, 1997; Schembri, 2012). Even though processing of broken plurals alone has been studied (Abdalla et al., 2012; Ayyad, 2011; Benmamoun et al., 2014; Drake and Sharp, 2017; Dawdy-Hesterberg and Pierrehumbert; Mayer et al., 2013; McCarthy and Prince, 1990), a comparison between the processing of broken and sound plurals has not been made.

Our talk addresses these questions: Is the processing dependent on the type of morphology? Do native speakers spot mistakes in sound plurals in the same way as they spot mistakes in broken plurals?

We investigated processing of Maltese plurals with an eye-tracking experiment with visual world paradigm (Allopenna and Tanenhaus, 1998; Cooper, 1974; Mitterer and Reinisch, 2013, 2017). Participants heard spoken plurals with a correct or an alternative plural form (see table 1) and had to click on a matching picture.

Table 1: Items

	Correct	Incorrect
Sound	<i>lukanda</i> , pl. <i>lukandi</i>	<i>garaxx</i> , pl. <i>graxex</i>
Broken	<i>kelb</i> , pl. <i>kliëb</i>	<i>çerv</i> , pl. <i>çervi</i>

We analyzed the results with a generalized additive model. Plurals in Maltese are treated differently: Overall participants show a preference for correct sound plurals (figure 1): There are more looks to the correct sound plural (yellow line), than to the incorrect sound plural (red line). In contrast, there are as many looks to the correct broken plural (green line) as to the incorrect broken plural (blue line).

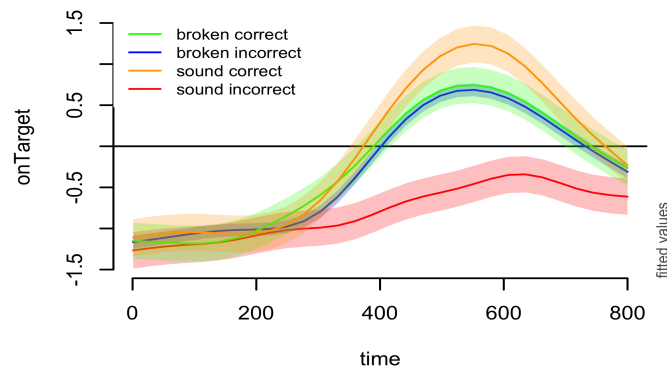


Figure 1: Proportion of fixations on targets

We conclude that Maltese speakers are more certain about sound plurals than about broken plurals. This shows that within a morphological system, there are qualitative differences (Albright and Hayes, 2003). The processing of plurals correlates with the morphological subsystem they are part of: A sound plural is an acceptable alternative to an existing broken plural, but a broken plural is not an acceptable alternative to an existing sound one.

References

- Abdalla, F., Aljenaie, K., Mahfoudhi, A., Bavin, E. L., and Naigles, L. R. (2012). Plural noun inflection in kuwaiti arabic-speaking children with and without specific language impairment. *Journal of child language*, 40(1):139–168.
- Albright, A. and Hayes, B. (2003). Rules vs. analogy in english past tenses: a computational/experimental study. *Language*, 90(2):119–161.
- Allopenna, P. D., M. J. S. and Tanenhaus, M. K. (1998). Tracking the time course of spoken word recognition using eye movements: Evidence for continuous mapping models. *Journal of Memory and Language*, 38(419–439).
- Ayyad, H. S. (2011). *Phonological development of typically developing Kuwaiti Arabic-speaking preschoolers*. PhD thesis, University of British Columbia.
- Azzopardi-Alexander, M. and Borg, A. (1997). *Maltese*. Routledge.
- Benmamoun, E., Albirini, A., Montrul, S. A., and Saadah, E. (2014). Arabic plurals and root and pattern morphology in palestinian and egyptian heritage speakers. *Linguistic Approaches to Bilingualism*, 4(1):89–123.
- Cooper, R. M. (1974). The control of eye fixation by the meaning of spoken language. *Cognitive Psychology*, 6(1):84–107.
- Dawdy-Hesterberg, L. G. and Pierrehumbert, J. B. Learnability and generalisation of arabic broken plural nouns. 29(10):1268–1282.
- Drake, S. and Sharp, R. (2017). Productivity of the broken plural in maltese. In *6th International Conference of Maltese Linguistics*.
- Mayer, T., Spagnol, M., and Schönhuber, F. (2013). Fixing the broken plural in maltese. In *Perspectives on Maltese Linguistics*, pages 129–158. De Gruyter.
- McCarthy, J. J. and Prince, A. S. (1990). Foot and word in prosodic morphology: The arabic broken plural. *Natural Language and Linguistic Theory*, 8(2):209–283.
- Mitterer, H. and Reinisch, E. (2013). No delays in application of perceptual learning in speech recognition: Evidence from eye tracking. *Journal of Memory and Language*, 69(4):527–545.
- Mitterer, H. and Reinisch, E. (2017). Visual speech influences speech perception immediately but not automatically. *Attention, Perception, and Psychophysics*, 79(2):660–678.
- Schembri, T. (2012). *The Broken Plural in Maltese: A Description*. Il-Lingwa Taghna. Univ.-Verl. Brockmeyer.