Underapplication of vowel reduction in Majorcan Catalan and in other Romance varieties. Some evidence for the left edge of the stem as a prominent position and for subparadigms

1. Data. Majorcan Catalan shows vowel reduction of [é], [ɛ́] and [á] to [ə] in unstressed position. However, productive derived words whose primitive has a stressed [é] or [ɛ́] vowel at the left edge of the stem do not undergo vowel reduction to [ə], but to [e]. There is, therefore, underapplication of vowel reduction to [ə]: *v*[é]*nt* 'wind'~ *v*[e]*ntet* 'wind *dim*.'; *c*[ɛ́]*l* 'sky'~ *c*[e]*let* 'sky *dim*.' (see [14], [1], [11], [12]). The very same patterns under similar conditions are found in inflectional verbal paradigms, although in this case underapplication of vowel reduction is not found when the alternating stressed vowel is [ɛ́] (see [1], [11]). Learned words and loanwords with unstressed *e* also show [e], especially when located at the left edge of the stem and when preceded by a labial consonant [1]: *esp*[e]*cial* 'special', *p*[e]*l·lícula* 'film', *b*[e]*nigne* 'benign', *f*[e]*liç* 'happy', etc. **2. Generalizations & analysis.** Previous descriptive and theoretical approaches to these facts have already detected that a paradigmatic effect is at play here. According to [12], cases with normal application and cases with underapplication of vowel reduction exhibit a different behavior because the latter bear a lexical mark responsible for the demotion, in the constraint hierarchy, of the M constraint favoring the schwa in unstressed position. In this paper, we provide a different interpretation of the facts framed within OT. Within derivation, there are 4 crucial conditions for the underapplication of vowel reduction within derivation, which are *not enough* independently. **2.1** The unstressed affected vowel must have a correspondent stressed vowel in the stem of the primitive word. This circumstance can be interpreted as the result of an O-OIDENT(F) transderivational F constraint ([2]), which demands that surface correspondent segments must have the same featural specification; BASE-PRIORITY, on the other hand, ensures that the direction of the pressure is from the base to the derived form and not the opposite. **2.2** The vowels in the stressed stem of the primitive form must be front and mid (*i.e.* [é] & [ɛ́]), in that the pressure does not work when the primitive has [á]. This condition, as well as the fact that the result of the process is always [e] (and never [ɛ]), can be explained by the high ranking of the M constraints *M/a and *M/ɛ, penalizing these vowels in unstressed position and which inhibit the possible effects of the constraint demanding uniformity in the stem. **2.3** The position of the vowels under surface correspondence must be at the left edge of the stem (cf. *pap*[é]*r* 'paper' ~ *pap*[ə]*ret*, *vs*. *p*[é]*ix* 'fish' *p*[e]*ixet*, *p*[e]*ixot*). This condition can be attributed to a prominence effect, in that in a prominent position (such as the left edge of the stem) a more prominent vowel than [ə] (*i.e.* [e]) is selected, whereas in a non-prominent position (such as the right edge of the stem) a non-prominent vowel (*i.e.* [ə]) is selected. **2.4** The derived form must be productive (cf. *p*[é]*ix* 'fish' ~ *p*[e]*ixet* 'fish *dim*.', *p*[e]*ixot* 'fish *augm*.' *vs*. *p*[ə]*ixater* 'fisherman', *p*[ə]*ixateria* 'fish shop'; see [1], [11]). This can be interpreted as an O-OSUBPARADIGMIDENT(F) F effect, along the lines of [13]. Within verbal inflection, where there is no BASE-PRIORITY, underapplication of vowel reduction applies because overapplication is blocked by the high ranked constraint *N/[á], penalizing a segment of low sonority as a nucleus. **3. Theoretical & empirical implications. 3.1** § 2.3 advocates the need of recognizing an additional prominent position (*i.e.* the left edge of the stem), and the subsequent prominence hierarchy for vowels according to their position within the stem *ə/L-Stem-Edge >> *i,u/L-Stem-Edge >> *e,o/L-Stem-Edge >> *ɛ,ɔ/L-Stem-Edge >> *a/L-Stem-Edge, apart from those already detected in previous studies ([10]; [5], [6]; [3], [4]; [7], [8]; [9]; additional evidence for this hierarchy based on data from other Romance languages will be provided). **3.2** § 2.4 demands an uneven and a hierarchical structure for the generated paradigm candidates, so that the members in it can be unequally be affected by the O-O F constraints ([13]; see also § 4). **3.3** The fact that labials favor [e] can be interpreted as a

coarticulation effect. **3.4** The high ranking of *N/[ɔ́] is not an *ad hoc* stipulation: it formally expresses that the phonemic character of the schwa is becoming a relic, a circumstance which is additionally corroborated by the fact that loanwords with a stressed *e* are systematically realized with [é]: *Intern*[é]*t*, and not with [ɔ́]. **3.5** Loanwords and productive derivation exhibit, as seen, [e]; this suggests that the asymmetric unstressed vowel system of MC ([i] [u]; [ ] [o]; [ə]) is progressively becoming symmetric ([i] [u]; [e] [o]; [ə]) (see [11]). **4. Further empirical evidence.** The need for an uneven and a hierarchical structure for the generated paradigm candidates finds further support in the behaviour of Brazilian Portuguese, where paradigmatic pressures in the derivational paradigm are subject to similar conditionings: underapplication of vowel reduction to [e] and to [o] due to the pressure of a base with [ɛ́] or [ɔ́] is also found just in productive derivation (cf. *caf*[ɛ́] 'cofee' ~ *caf*[ɛ]*zinho* 'cofee dim.', **caf*[e]*zinho*; *f*[ɛ́]*sta* 'party' ~ *f*[ɛ]*stinha* 'party *dim*.', **f*[e]*stinha*; *forr*[ɔ́] 'popular dance' ~ *forr*[ɔ]*zão* 'popular dance *augm*.', **forr*[o]*zão*), but not in non-productive derivation (cf. *s*[ɛ́]*la* 'chair' ~ *s*[e]*lim* 'saddle'; *abric*[ɔ́] 'apricot' ~ *abric*[o]*teiro* 'apricot tree').

REFERENCES

[1] BIBILONI, G. (1998): «La *e* àtona a Mallorca». *Estudis de llengua i literatura en honor de Joan Veny*.

[2] BENUA, L. (1997): *Transderivational Identity: Phonological Relations between Words*. Amherst: University of Massachusetts. [PhD dissertation published with the title *Phonological Relations between Words*, 1999. Garland, Nova York, 2000.]

[3] Cabré, Teresa & Prieto, Pilar. 2003. Vowel contact resolutions across word boundaries in Catalan. *Proceedings of the 15th International Congress of Phonetic Sciences*, Maria Josep Solé, Daniel Recasens, Joaquín Romero (eds.), 1687-1690. Barcelona: Causal Productions Pty Ltd.

[4] CABRÉ, T. & PRIETO, P. (2006): «Exceptional hiatuses in Spanish». In: Martínez-Gil, F. & Colina, S. (ed.) Optimality-Theoretic studies in Spanish phonology. Amsterdam / Philadelphia: John Benjamins. p. 205-238.

[5] CROSSWHITE, K. (1999): «Vowel reduction in Optimality Theory». PdD dissertation. UCLA. London: New York, Routledge.

[6] CROSSWHITE, K. (2004): «Vowel reduction». In: Hayes, B. *et al*. *Phonetically based phonology*. Cambridge University Press. p. 191-231.

[7] DE LACY, P. (2002): The formal expression of markedness. PdD dissertation. University of Massachusetts, Amherst.

[8] DE LACY, P. (2004): «Markedness conflation in Optimality Theory». *Phonology*, 21. p. 145-199.

[9] LLORET, M. R. & JIMÉNEZ, J. (2008): «Marcatge posicional i prominència en el vocalisme àton». *Caplletra. Revista Internacional de Filologia*, 45. p. 55-91.

[10] KENSTOWICZ, M. (1997): «Quality-sensitive stress». Rivista di Linguistica, 9. p. 157-187.

[11] MASCARÓ, J. (2002): «El sistema vocàlic. Reducció vocàlica». In: Solà *et. al*. (2002): *Gramàtica del català contemporani*. Barcelona: Empúries. p. 89-123.

[12] MASCARÓ, J. (2005): «Optimal Paradigms and lexical exceptions». Handout of the talk presented at the II OCP Conference, Tromso 2005.

[13] OHANNESIAN, M. & PONS, C. (2006): «Shattering paradigms. An attempt to formalize pressures within the subparadigm». Paper presented at Décembrettes 6, Bordeaux, France.

[14] VENY, J. (1962): «Notes phonétiques sur le parler de Campos (Majorque)». *Boletim de Filologia*, 20.

ABBREVIATIONS: M = MARKEDNESS; F = FAITHFULNESS; OT = OPTIMALITY THEORY