

## English stress preservation and the nature of the morphology-phonology interface

Since SPE, the phonological cycle has been a central issue in the discussion of the morphology-phonology interface in Generative Phonology. English weak stress-preservation has been seen as a showpiece cyclic phenomenon (SPE; Liberman & Prince, 1977; Kiparsky, 1979; Halle & Vergnaud, 1987; Benua, 1997; Marvin, 2002): moving outwards, every morphological constituent constitutes a phonological domain so that secondary stress misapplies, e.g. *oríginál* → *orìginálicity*, not \**òriginálicity* as in monomorphemic *àbracadábra*; *ambássador* → *ambàssadóríal*, not \**ambássadóríal* as in monomorphemic *Lùxipalílla*. I give new experimental evidence which indicates that the nature of the morphology-phonology interface must be reconceived with respect to weak stress-preservation: the cycle must be rejected.

A key problem for cyclic analyses of weak stress-preservation is that preservation sometimes fails even though it is predicted by a word's morphological structure: e.g. *miscégenate* → *mìscegenátion*, *antícipate* → *ànticipátion*. Under a cyclic analysis, these instances of preservation-failure can only be accounted for by stipulating alternative morphological structure: e.g. addition of a fused suffix to a bound root [[*miscegen*]<sub>R</sub> *ation*]<sub>N</sub>, rather than recognising each suffix as in [[[[*miscegen*]<sub>R</sub> *ate*]<sub>V</sub> *ion*]<sub>N</sub> (Ricardo Bermúdez-Otero, personal communication). It is clearly unsatisfactory to simply stipulate alternative morphological structure in order to account for stress-preservation failure, as required by the cyclic analysis, if there is an independent reason why stress preservation fails in certain words and not others.

In this paper, I show that whether stress preservation is successful or not is significantly predicted by word frequency: instances of preservation failure like *miscégenate* → *mìscegenátion*, *antícipate* → *ànticipátion* require no stipulation to account for them. I report on a new investigation into stress-preservation behaviour for a controlled subset of words where second-syllable preservation is expected taken from Jones (2003). Token frequencies for both embedding words (e.g. *ànticipátion*) and embedded words (e.g. *antícipate*) were collected from the CELEX lexical database (Baayen et al., 1995). Statistical analyses indicated that stress preservation is more likely to fail if:

- (i) The embedding word has a higher absolute frequency
- (ii) The embedding word is more frequent than the embedded word, regardless of absolute frequency

Both results are anticipated in light of psycholinguistic research: more frequent words are less likely to retain properties (here, stress) of their embedded morphemes (Bybee, 1985); Hay (2001, 2003) shows that this weakening of morphological relationships becomes more likely as the embedding word's frequency increases relative to the embedded word's frequency.

My results cannot be handled by cyclicity: the cycle is not a probabilistic mechanism, but rather it predicts that stress patterns must reflect a word's formal morphological structure one-hundred percent of the time. In contrast, the observed sensitivity of stress preservation to word frequency follows directly from Bermúdez-Otero's (in preparation) notion of 'fake cyclicity': the pattern which appears to be the result of cyclic stress-assignment is in fact the result of blocking among stored lexical entries.

Under the fake cyclicity analysis of weak stress-preservation, lexical entries are argued to include a word's stress pattern. When an embedded word like *oríginál* is sufficiently frequent, its lexical entry is activated upon lexical access of the embedding word *originality*, and the default stress pattern found in monomorphemes is blocked to give *orìginálicity*, not \**òriginálicity*. However, when the embedded word is not sufficiently frequent, e.g. *miscégenate*, the default,

monomorphemic stress pattern is not blocked and stress preservation may fail: *mìscegenátion*, not preserving *miscègenátion*. This blocking analysis is compatible with dual-route race models of lexical access (e.g. Baayen, 1992): words may either be accessed via a decomposed route, reinforcing the preserving stress pattern, or directly via a whole word route, favouring preservation failure.

My results cannot be understood in the traditional cyclic analysis: the cycle is not a probabilistic mechanism. The fake cyclicity formulation of the phonology-morphology interface is superior with respect to English weak stress-preservation: fake cyclicity can capture preservation's probabilistic reliance upon word-frequency effects.

## References

- Baayen, H. (1992). "Quantitative aspects of morphological productivity". In G. Booij and J. van Marle (eds.), *Yearbook of morphology 1991*. 109-149.
- Baayen, R.H., R. Piepenbrock & L. Gulikers (1995). *The CELEX Lexical Database* (Release 2) [CD-ROM]. English version 2.5. Philadelphia, PA: Linguistic Data Consortium, University of Pennsylvania [Distributor].
- Benua, L. (1997). *Transderivational identity: phonological relations between words*. Doctoral dissertation, University of Massachusetts, Amherst.
- Bermúdez-Otero, R. (in preparation). *Stratal optimality theory: synchronic and diachronic applications*. Cambridge: CUP.
- Bybee, J. (1985). *Morphology: a study of the relations between meaning and form*. Amsterdam: Benjamins.
- Chomsky, N. & M. Halle (1968). *The sound pattern of English*. New York: Harper & Row.
- Halle, M. & R. Vergnaud (1987). *An essay on stress*. Cambridge, MA: MIT
- Hay, J. (2001). "Lexical frequency in morphology: is everything relative?" *Linguistics* 39/6: 1041-1070.
- Hay, J. (2003). *Causes and consequences of word structure*. London: Routledge.
- Jones, D. (2003). *Cambridge English pronouncing dictionary*. 16<sup>th</sup> edition. Cambridge: CUP.
- Kiparsky, P. (1979). "Metrical structure assignment is cyclic". *Linguistic Inquiry* 10/3: 421-441.
- Lieberman, M. & A. Prince (1977). "On stress and linguistic rhythm". *Linguistic Inquiry* 8/2: 249-336.
- Marvin, T. (2002). *Topics in the stress and syntax of words*. PhD dissertation, Department of Linguistics and Philosophy, MIT, Cambridge, MA.