

## Narrow syntactic movement after Spell-Out

**Introduction:** Recent research at the syntax-phonology interface uses head movement, phases, and Spell-out to explain why minimally different constructions can trigger different phonological processes (e.g. Piggott & Newell 2008, Dobler 2008). An important question that has arisen from this research is whether narrow syntactic head movement out of a phase occurs before or after Spell-out of that phase. In this paper, we argue that the derivational architecture allows for both possibilities.

**Background:** In Ojibwa (Algonquian), the occurrence of two adjacent vowels is prevented either by deletion of one of the vowels (1a) or by insertion of a consonant (1b):

- |     |    |  |           |  |
|-----|----|--|-----------|--|
| (1) | a. | name:-ag<br>sturgeon-Pl<br>'sturgeons' | [name:g]  | V-deletion<br><br>(Newell 2008:114, ex. 7b)    |
|     | b. | ni-iza:<br>1Sg-go<br>'I go'            | [nidiza:] | C-epenthesis<br><br>(Newell 2008:144, ex. 51b) |

However, vowel hiatus is permitted after some morphemes, such as tense and modifiers (2):

- |     |  |                   |  |
|-----|--|-------------------|--|
| (2) | gi:-ini-a:gamose:<br>PAST-away-snowshoe walk<br>'He walked there in snowshoes' | [gi:inia:gamose:] | <br>(Piggott & Newell 2008:7, ex. 15a) |
|-----|--|-------------------|--|

Piggott & Newell (2008) propose that vowel hiatus must be resolved only if the two vowels are contained in the same phonological phase; V-deletion occurs when the adjacent morphemes are fed to PF on the same Spell-out cycle, whereas C-epenthesis applies when the two morphemes are spelled out on separate cycles but the higher morpheme is phonologically sub-minimal and so must adjoin to the lower phase via string-vacuous Local Dislocation (Embick & Noyer 2001). Hiatus is not resolved when the morphemes are spelled out on separate cycles and meet phonological minimality requirements; that is, they remain in separate phases. This research by Piggott & Newell has been further supported by Dobler (2008) who illustrates that similar phonological contrasts in the possessive constructions of Acholi, Akan and Nivkh can be explained if cyclic Spell-out is taken into account.

**Evidence for movement after Spell-out:** An underlying assumption in this recent work at the syntax-phonology interface has been that narrow syntactic movement out of a phase occurs before Spell-out of that phase. However, there are no theoretical reasons that would preclude movement after Spell-out. In fact, data from Timugon Murut, a language spoken in Malaysia, strongly support the availability of post-Spell-out movement (Gref 2008). As illustrated below, a prefix-final nasal can either undergo nasal assimilation or trigger nasal substitution in the root. In the context of incremental themes and obligatorily transitive verbs, nasal substitution occurs in the root when it merges with the prefix /maN-/ (4); the only feature remaining from the root-initial consonant is the place of articulation.

- |     |   |   |
|-----|---|---|
| (4) | Nasal substitution:<br>/buli/ → [mamuli]<br>/tutu/ → [manutu] | <p style="text-align: right;">‘Topic/Subject will keep <i>Referent</i>’</p> <p style="text-align: right;">‘Topic/Subject will pound <i>Object</i>’</p> <p style="text-align: right;">(Prentice 1971, cited after Gref 2008:9, ex. 13)</p> |
|-----|---|---|

By contrast, in the absence of incremental themes, the prefix undergoes nasal assimilation while the root does not undergo any changes (5).

- (5) Nasal assimilation:  
 /buli/ → [mambuli] ‘Topic/Subject will keep [Referent]’  
 /tutu/ → [mantutu] ‘Topic/Subject will pound [Object]’  
 (Prentice 1971, cited after Gref 2008:9, ex. 12)

Note that Timugon Murut is a verb-raising language, and so the verb root and prefix must necessarily form a complex syntactic object. Gref proposes that the contrast between (4) and (5) is caused by a difference in the timing of verb movement. According to Gref’s analysis, in (4) verb movement is triggered before Spell-out of the verb; as a result, the prefix and root merge before they are sent to PF and are thus within one domain at the time of Vocabulary Insertion, similar to (1a). Consequently, the prefix plus root structure is evaluated as a unit for phonological well-formedness, resulting in nasal substitution (4). This contrasts with the examples in (5) where it is argued that the verb is not targeted for movement until after the verb has been spelled out. Since the verb root is evaluated for Vocabulary Insertion before it moves higher, it may not undergo any further phonological changes on subsequent Spell-out cycles. Consequently, only the prefix is subject to further phonological processes (5).

**Proposal:** Gref’s analysis has far-reaching consequences and opens up many new questions, not only with respect to Spell-out and narrow syntactic movement but also with respect to the status of Local Dislocation. In our paper, we outline two scenarios that allow for the existence of both pre-Spell-out and post-Spell-out head movement. One involves the position of uninterpretable features. Under this model, a head that undergoes pre-Spell-out movement contains an uninterpretable feature, and so must escape the phase before Spell-out. Post-Spell-out movement occurs when only the higher probe contains an uninterpretable feature. Under the alternative scenario, the driving force behind this distinction is phrase structure. Here, pre-Spell-out movement occurs when the landing site is the head that directly selects the phase. Additionally, merger of this head triggers Spell-out of its phasal complement, but movement out of the phase to the triggering head may occur before transfer of the phase to PF. Post-Spell-out movement thus occurs when there is an additional functional category between the head at the edge of the phase and the landing site. That is, the head that constitutes the landing site is merged after Spell-out of the lower phase is complete. We will compare and contrast these two models, pointing out the consequences of each –and the possible availability of both– for an overall architecture of the syntax-phonology interface.

### **References**

- Bavin, E. 1996. Body parts in Acholi: alienable and inalienable distinctions and extended uses. In *The grammar of inalienability. A typological perspective on body part terms and the part-whole relation*, ed. by H. Chappell & W. McGregor. Berlin, New York: Mouton de Gruyter, 841-864.
- Dobler, E. 2008. One DP, two phases: evidence from phonology. Ms. McGill University.
- Embick, David, and Rolf Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32: 555–595.
- Gref, E. 2008. Biphasal and Monophasal Spellout: Evidence from Austronesian Nasal Substitution. Honours Thesis, McGill University.
- Marantz, A. 2001. Words. Ms. MIT.
- Marvin, T. 2003. Topics in the stress and syntax of words. PhD thesis. MIT.
- Newell, H. 2008. Aspects of the morphology and phonology of phases. PhD thesis. McGill University.
- Piggott, G. & H. Newell. 2006. Syllabification and the Spell-Out of Phases in Ojibwa Words. *McGill Working Papers in Linguistics* 20:2.
- Piggott, G. & H. Newell. 2008. Syllabification, stress and derivation by phase in Ojibwa. Ms. McGill University.
- Prentice, D.J. 1971. *The Murut Languages of Sabah*. Canberra: Pacific Linguistics