Piece-driven phase and one single phonology

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The talk provides a phonological contribution to the current syntactic debate of how exactly derivation by phase works. In phonology, the phenomenon that calls for an analysis along the lines of cyclic spell-out and the Phase Impenetrability Condition (PIC) are affix classes and their phonological effects. A classical case in point is stress-assignment in English: underived roots (*párent*) and roots with class 1 suffixes (*parént-al*) have regular penultimate stress, while roots with class 2 suffixes bear irregular non-penultimate stress (*párent-hood*): the "original" root stress surfaces.

The classical analysis of affix class-based phenomena is due to Lexical Phonology: PF subdivides into several mini-phonologies that assess different, morphologically defined chunks of the string: phono1 interprets class 1 strings (level 1 rules), while phono2, which contains a different set of instructions (or, in OT, the same set, but in a different ranking), computes class 2 strings (level 2 rules). That is, stress assignment will be present in phono1, but absent from phono2. [root+affix1] strings are then subjected to stress assignment (which modifies the root stress), while [root+affix2] are not, which means that the "original" root stress surfaces. Modern offspring of this line of thought is currently entertained (and actually dominant) in OT: Stratal OT (Kiparsky 2000), DOT (Rubach 1997), cophonologies (Itô & Mester 1995), indexed constraints (Itô & Mester 1999) implement multiple mini-phonologies.

I show that the PIC, which is assumed by Kaye (1995) and Distributed Morphology for phonological analysis, is the functional equivalent of multiple phonologies: it does the same job. In our example, class 1 affixes are merged above the root node, but below class 2 affixes. The node that dominates them is a phase head, which means that [root+affix1] strings are interpreted together at this phase. By contrast, the root of [root+affix2] strings is computed alone at the same phase, which makes it unmodifiable at higher phases when class 2 affixes have joined. Hence the "original" root stress surfaces.

A grammar with both multiple mini-phonologies and the PIC is thus redundant and unwarranted. Phase theory lies at the heart of the interface and hence is one of the few occasions where syntactic and phonological theories directly impact each other (unlike very broad analogies that especially phonologists have drawn in order to conform to syntactic practice: e.g. X-bar in syllable structure, Government). A situation where the mechanisms on both sides are incompatible is intolerable from the global point of view. If it is true that multiple mini-phonologies and the PIC are mutually exclusive, a strong syntactic argument can be made that referees the two options that are entertained on the phonological side: the PIC is critical for current syntactic analysis; it supposes that there is just one single computational system in phonology. Therefore multiple mini-phonologies are out of business: they would require the absence of Phase Impenetrability on the phonological as much as on the syntactic side.

Conversely, I submit piece-driven phase, the way phonology works on the above analysis, for consideration in syntax, where current debate relies on node-driven phase definition. In Chomsky's (2001) original proposal, phases are triggered when spell-out hits CP, vP and perhaps DP. Since then, a trend towards atomisation may be observed (multiple spell-out): more and more nodes are proposed to be phase heads, smaller and smaller chunks are supposed to be subjected to independent spell-out. What is constant in this evolution, however, is that phases are rigidly defined by a designated node. The PIC-based analysis of the English stress that has been discussed above follows a different strategy: the merge of certain pieces (affixes that belong to the same class, here class 1 affixes) triggers a phase. These thus carry a lexical specification for class membership and phase triggering, to which the spell-out mechanism is sensitive. On this count, the actual node that ends up hosting this or that affix is irrelevant for the definition of when interpretation happens. This is what I call piece-driven phase.

The equivalent of atomised multiple spell-out in phonology is Marvin's (2002) system where a phase occurs at every xP (vP, nP, aP), that is at every morpheme boundary. In order for this system to work, Marvin is forced to empty the PIC of its empirical content: it may apply "à la carte", i.e. marshal certain processes, but not others. For example, the PIC must be said not to apply to English stress.

In sum, thus, the talk makes a syntactic argument against current phonological practice that allows for several computational systems, and proposes piece-driven phase for syntactic consideration: both piece- and node-driven phases cannot cohabitate; either must be wrong.

References

Chomsky, Noam 2001. Derivation by Phase. Ken Hale: A Life in Language, edited by Michael Kenstowicz, 1-52. Cambridge, Mass.: MIT Press.

Itô, Junko & Armin Mester 1995. Japanese Phonology. The Handbook of Phonological Theory, edited by John Goldsmith, 816-838. Oxford: Blackwell.

Itô, Junko & Armin Mester 1999. The phonological lexicon. The Handbook of Japanese Linguistics, edited by Natsuko Tsujimura, 62-100. Oxford: Blackwell.

Kaye, Jonathan 1995. Derivations and Interfaces. Frontiers of Phonology, edited by Jacques Durand & Francis Katamba, 289-332. London & New York: Longman. Also in SOAS Working Papers in Linguistics and Phonetics 3, 1993, 90-126.

Kiparsky, Paul 2000. Opacity and cyclicity. The Linguistic Review 17, 351-365.

Marvin, Tatjana 2002. Topics in the Stress and Syntax of Words. Ph.D dissertation, MIT.

Rubach, Jerzy 1997. Extrasyllabic Consonants in Polish: Derivational Optimality Theory. Derivations and Constraints in Phonology, edited by Iggy Roca, 551-581. Oxford: Clarendon.