PF and LF opacity: predictable and unpredictable, (non)concomitance

**Problem (empirical).** The "minimal" pair *cómparable* "roughly the same" vs. *compárable* "to be able to be compared" is often used in order to illustrate the concomitance of PF and LF opacity (e.g. Marvin 2002:75): while the former is opaque on both sides (semantically non-compositional, unpredictable stress), the latter is fully transparent (compositional and regular stress). It is not the case, however, that PF and LF always go hand in hand: there are also cases of LF-only and PF-only opacity. Párent-hood for example is phonologically opaque (stress), but semantically compositional. Twinkling "a short moment" on the other hand is semantically non-compositional, but phonologically transparent (unlike twinkeling [tənkwəlɪŋ] "the act of twinkling" which has a schwa in an open syllable or, in free variation, a syllabic liquid before a vowel). All four logical possibilities thus exist.

**Problem (theoretical).** The possible simultaneous impact on LF and PF suggests that phonology-internal means of dealing with opacity do not qualify: mechanisms must be broad enough to be able to simultaneously affect PF and LF. The literature offers two ways to go about (eventually concomitant) LF-PF opacity. In Distributed Morphology (e.g. Marantz 2007), opacity is held to be a consequence of the merger of a piece directly to the root, i.e. before the first xP is formed (inner word formation, producing words from roots). By contrast, outer word formation occurs when a piece is merged to an item that contains at least one xP (producing words from existing words). This operation is always transparent. *Cómparable* is thus a case of direct merge (of -able to the root below the first xP: \[\text{[[[\text{compare}][\text{able}]]]}_\phi, \text{while } \text{compárable} \text{ is the result of the merger of } -\text{able} \text{ to an xP: } \text{[[[\text{compare}][\text{v}]]]}_\phi[\text{[able]}]_\phi\). The alternative account of LF-PF opacity is phase-based (Chomsky 2000): the PIC (Phase Impenetrability Condition) prevents previously interpreted strings from being modified (they are frozen). On this count, the contrast between párent-hood (PF-opaque) and parént-al (PF-transparent) is one of phase structure: the former identifies as the complex [[parent] hood] (class 2 affixes are phase-building), while the latter has only one phase [parent al] (class 1 affixes are phase-neutral). The opaque stress of párent-hood, then, is the result of stress assignment to [parent] in isolation, which cannot be undone on later phases.

**Neither theory can cover the entire spectrum.** A key property of DM is that all xPs are phase heads, i.e. trigger spell-out (e.g. Marantz 2007, Embick 2010). This makes DM incompatible with regular PIC-based accounts of opacity, which are crucially based on contrasting phase structures, i.e. the fact that some xPs do, while others do not trigger spell-out (like in the abovementioned párent-hood vs. parént-al). It cannot be the case either that párent-hood is the result of direct merge: we would expect semantic opacity at least for some words, since in DM direct merge is the (only) source of opacity (but does not necessarily produce opacity). Also, in gouvern-ment2-hood, and univérs-al1-ness2, -hood and -ness behave as expected, i.e. they do not shift stress and hence create an opaque non-penultimate pattern. However, due to the presence of the intervening -ment- and -al-, they cannot be the sister of the root. Therefore the opacity that they are responsible for cannot be due to direct merge. If thus DM cannot do PF-only opacity, the PIC-based analysis on the other hand is unable to handle LF-only opacity: as was mentioned, twinkling "a short moment" is phonologically transparent and therefore must represent a single phase. On the PIC-based analysis, though, its LF opacity requires the existence of an inner phase. Hence PF transparency and LP opacity issue conflicting requests for phase structure that cannot be simultaneously satisfied.

**Predictable and unpredictable opacity.** In principle there is no reason why all cases of opacity should have the same source. PF-only opacity can be done by the PIC (or purely phonology-internal mechanisms), and LF-only opacity by direct merge. It is implausible, though, that simultaneous PF/LF opacity (the two comparables) has two distinct sources. A means to find out which type of opacity we are facing may be the distinction between predictable and unpredictable opacity: *cómparable* "roughly the same" is PF-opaque because it does not have penultimate stress – but we do not know why stress falls on the first vowel. That is, once we know that the word is PF-opaque, we cannot predict *in which way* it will be opaque. By contrast, the opaque stress pattern of párent-hood is the same as the one that is found when párent is pronounced in isolation, and this is predicted by the PIC and cyclic derivation (parent is a cycle of its own). PIC-based accounts thus produce predictable opacity. Direct merge on the other hand is only said to be a source of opacity – what this opacity will look like remains unspecified. Applying this criterion, the source of the opacity for the two comparables identifies as direct merge. And a prediction is made to the end that PF-only opacity will always be of the predictable kind (because direct merge is out of business here).