The *Littera*-Rule: Inverse Compensatory Lengthening in Latin

The sporadic Latin sound change known as the '*littera*-rule' changed sequences of a long vowel followed by a short consonant (V:C) into forms with a short vowel followed by a geminate consonant (VCC), thus *li:tera* > *littera* 'letter'. This development occurred in early Latin (3rd-1st cents. B.C.) to judge from inscriptional evidence, e.g. LEITERAS in the *Lex Repetundarum* (122-123 B.C.), reflecting /ei/ before monophthongisation to /i:/, providing an input to the *littera*-rule. The change falls under the title of 'inverse compensatory lengthening' in Hayes' typology (1989).

The rule can be distilled into three phonetically-guided processes, providing further evidence for Kavitskaya's phonologisation model of compensatory lengthening (2002). A diachronic development V:C > VCC occurred in 'high vowel + voiceless consonant' (e.g. *littera*): high vowels are intrinsically the shortest, and vowels are commonly shorter before voiceless obstruents than voiced obstruents and sonorants (Keating 1985: 120). Therefore, the phonologically long vowels which were shortest by nature (high vowels), in the environment where they were phonetically shorter still (before voiceless stops), were likely candidates for shortening, by phonologisation of the short phonetic duration (relative to other vowels and in other contexts). To complete the picture, the voiceless stop after the shortened vowel concomitantly lengthened to preserve mora count, with minimal phonetic difficulty, as maintaining voiceless stops presents no aerodynamic problems.

In contrast, the sequence '/a/ + sonorant' seems conducive to synchronic variation between V:C and VCC, and the evidence bears this out, e.g. *flamma* : *fla:ma* 'flame'. Low vowels have the longest intrinsic duration and vowels are phonetically longer before sonorants than before voiceless obstruents, hence long and short /a/ were arguably perceptually confusable in this context. 'High front vowel + /l/' presents a third category: it is notoriously difficult to pinpoint the vowel-lateral boundary in high, front vowel + clear /l/ sequences (e.g. Olive, Greenwood & Coleman 1993: 207-215), and the geminate /ll/ in Latin was always clear (e.g. there is never any backing of vowels in this environment, as before Latin dark /l/).

Moraic preservation can be invoked to provide a motivation for lengthening the consonant. However, a phonetically motivated account also arises if we hypothesise that closed-syllable vowels in Latin were longer than their open-syllable counterparts, contrary to near-universal expectations, but as paralleled in Anatolian Turkish (Jannedy 1995). Several languages have also been found to have longer vowels before geminate than singleton consonants, e.g. Finnish (Lehtonen 1970), Japanese (Smith 1991, 1995; Han 1994), and Tehrani Persian (Hansen 2004). This hypothesis allows us better to understand some Latin idiosyncrasies, such as the more extreme vowel raising in open syllables in archaic times despite closed ones lacking stress at that time (as shown by syncope patterns), and degemination of V:CC to V:C and not to VCC, as more commonly found (closed-syllable vowel shortening; Maddieson 1985), thus **se:pparo:* > *se:paro:* 'I separate'. Therefore, the diachronic *littera*-rule occurred when long vowels in open syllables were most susceptible to being reanalysed as short vowels in closed syllables, suggesting that it was not only the abstract desire to retain mora-count that led to the gemination of the consonant, but also the perception of the vowel as a short one in a closed syllable: the only segment which could be causing the closure would be the following consonant which was therefore realised as a geminate.