Variations in Meinhof's Law: An Optimal-Theoretical Analysis

In many Eastern Bantu languages, there is a well-known case of dissimilation of nasal compounds variously known as Meinhof's Law/Rule or Ganda Law (henceforth, ML). As Herbert (1977, 1986) demonstrates, ML, far from being a case of dissimilation, is a process of nasal assimilation that targets oral segments flanked by nasals. ML takes a number of distinct forms. For instance, in Bantu languages such as Kikuyu and Lamba, ML takes /NC…N(C)/ as the input and yields [N…N(C)] as an output: /ko-N-rem-a/→koo-**n**em-a 'cultivate' (Kikuyu) and /i-N-Bansa/→i**m**ansa 'courtyards' (Lamba). In LuGanda, ML produces [NN…N(C)] - a geminate nasal - from the same input: /N-limi/ → **nn**imi 'tongues' and /N-bumb-a/→**mm**umba 'I mould'. In all three languages, only NC compounds serve as targets and both nasals and NC compounds can serve as triggers. Since its initial description in LuGanda by C. T. Wilson (1882), ML has attracted attention from the Bantuists and linguists in general. There are numerous accounts of ML in individual Bantu languages. These accounts range from the rule-based accounts (Myers 1974; Katamba 1974; Herbert 1977) to government phonology-based accounts (Kula 1999) to OT-based accounts (Piggott 1994; Alderete 1995; Archangeli, Moll & Ohno 1998).

ML presents a number of challenges for an optimal-theoretic account. First, ML, as manifested in Kikuyu and Lamba, involves what appears to be counter-bleeding rule ordering. It has been proposed that the account of [m… N(C)] in Kikuyu and Lamba types of languages involves two rules in counter-bleeding rule ordering: a) nasal place assimilation (i.e. /Nb…N(C)/→mb…N(C)) and b) consonant deletion (i.e. mb…N(C)→m… N(C)). If deletion were to apply first, it would bleed assimilation. Second, not all NC's participate in ML in Bantu languages with this phenomenon. A thorough account of ML has to explain why only some NC compounds are targeted, a fact ignored in some accounts of ML (i.e. Alderete 1995). Lastly, as we show through Kikuyu and Lamba and LuGanda, there are cross-linguistic variations in the surface manifestations of ML. Apart from the geminate vs. non-geminate difference, there are at least two other variations: a) whether a language allows compensatory vowel lengthening in pre-NC and pre-N(N) environments and b) whether pure nasals trigger ML, with some languages allowing only NC compounds as the triggers. Perhaps because of these challenges, we know of no comprehensive analysis of ML. For instance, Archangeli, et. al. present only an analysis of Kikuyu, while Kula (1999) is concerned only with Bemba. It is hard to see how these analyses can account for the cross-Bantu differences.

We present an optimal-theoretic analysis of ML and its cross-Bantu variations. We show that ML in Kikuyu and Lamba does not involve consonant deletion and counter-bleeding rule ordering. We propose that an output such as [m…N(C)] stems from three processes: a) nasal place assimilation (Nb…N(C)→mb…N(C)); b) nasalisation (mb…N(C)→mm…N(C)); and c) anti-gemination (mm…N(C)→m…N(C)). Nasal place assimilation and nasalisation together produce geminates prohibited by the anti-gemination constraint, resulting in what appears to be "consonant deletion". This analysis of ML, which views the loss of postnasal C as a case of antigemination, has three advantages. First, counter-bleeding rule ordering becomes superfluous under this view. There is no need to appeal to stratal OT or other opacity-related devices to explain ML. Second, this view makes it possible to explain the geminate vs. non-geminate difference between LuGanda and Kikuyu/Lamba through constraint re-rankings. Under our analysis, the anti-gemination constraint is low-ranked and can be violated at the expense of other constraints in LuGanda. In Kikuyu and Lamba, it is undominated, giving rise to the geminate vs. non-geminate difference. Lastly, this view relates ML to other requirements on surface segment sequences in these languages. There is clear evidence that LuGanda allows geminate consonants, not just geminate nasals created by ML and that Kikuyu-type languages do not allow geminates at all. Our analysis provides an account of these surface facts. In contrast, a consonant deletion view does not.