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1 Introduction

Many eastern Bantu languages have what appears to be a dissimilation of NC compounds known variously as Meinhof's Law, Meinhof's Rule or Ganda Law (henceforth, ML). Herbert (1977, 1986) argues that ML, far from a case of dissimilation, involves nasal assimilation targeting oral segments surrounded by nasals, partially because nasals trigger ML in addition to NC. For instance, in (1), ML applies to the oral targets *r* and *l* even though they appear between the prefix /N-/ and the bilabial nasal *m*, not a NC compound such as *mb*.

(1)	a.	/N-limi/	→	**nn**imi	'languages'	(LuGanda)
	b.	/N-reme/	→	**n**eme	'languages'	(Kikuyu)

ML manifests itself differently in different languages. In Bantu languages such as LuGanda, ML takes /**NC**...N(C)/ as the input and yields [NN...N(C)] as an output: i.e. a geminate nasal. In contrast, ML in Kikuyu produces [N...N(C)] instead, a single non-geminate output.

This article analyzes this variation, using LuGanda and Kikuyu as an illustration. I show that this variation stems from two different rankings of three constraints: MEINHOF'S LAW; UNIF(ORMITY)-IO; and NO-GEM(INATE). MEINHOF'S LAW prohibits an oral consonant when it is sandwiched by nasals. This constraint is responsible for nasalizing the oral targets such as *r* and *l* in (1). UNIF-IO, proposed in (McCarthy and Prince 2004:93), states that "No element of S_2 (=output) has multiple correspondents in S_1(=input)". It prevents /N-l/ and /N-r/ from fusing into one segment *n* if highly ranked, while NO-GEM (Itô and Mester 1998) restricts geminate outputs. These constraints are ranked differently for LuGanda and Kikuyu.

(2) a. LuGanda: Unif- IO » Meinhof's Law » NoGem
 b. Kikuyu: NoGem » Meinhof's Law » Unif IO

LuGanda and Kikuyu share MEINHOF'S LAW, which is sandwiched between UNIF-IO and NOGEM. What distinguishes LuGanda from Kikuyu is the ranking of UNIF-IO and NOGEM, which is responsible for the output variation in the two languages. I show that this analysis is superior to a number of previous analyses in that it captures the similarity between the two languages and relates their difference to a broader variation in whether they allow geminates.

2 Analysis

ML emerges under two conditions: a) the affixation of a prefix ending in a nasal and b) the presence of a following nasal or a NC compounds. According to Cole (1967:16–40), LuGanda has a number of prefixes ending in a nasal that trigger ML, two of which are the 1st person subject prefix and the class 10 nominal plural prefix. The forms that have undergone ML appear in the third column in (3), while the first column highlights what the stems look like without the effect of ML.

(3) LuGanda: consonant-initial stems in (a) and vowel-initial stems in (b)

a.	kù-**β**úùmbá	'to mould'	m̀-**m**úùmbá	'I mould'
	lù-**ɺ**ímì̀	'language'	ǹ-**n**ímì̀	'languages'
	kù-**y**ímìlíl-á	'stand up'	ɲ̀-**ɲ**ímìlíl-á	'I stand up'
	lù-**ɣ**éendó	'journey'	ŋ̀-**ŋ**éendó	'journeys'
b.	lw-èèndó	'ladle'	ɲ̀**ɲ**-éèndó	'ladles'

ML is triggered by nasals as well as NC's and applies to v(owel)-initial and c(onsonant)-initial stems, as shown in (3). Peng (2004, to appear) shows that v-initial stems involve the epenthesis of the palatal glide *y*, which undergoes ML exactly like the y-initial stems. For this reason, v-initial and y-initial stems both emerge with a geminate palatal nasal.

The effects of ML in Kikuyu are similar except that ML produces a single non-geminate nasal. In (4), I present the ML data, taken from Armstrong (1967).

(4) Kikuyu: consonant-initial stems in (a) and vowel-initial stems in (b)

a.	a-**β**aaŋg-a	'he has set out'	**m**aaŋg-a	'I have set out, arranged'
	a-**r**iiŋg-eet-ɛ	'he has crossed'	**n**iiŋg-eet-ɛ	'I have crossed'
	ro-**r**eme	'language'	**n**eme	'languages'
	ro-**ɣ**ɛɛndɔ	'journey'	**ŋ**ɛɛndɔ	'journeys'
b.	ro-embɔ	'song'	**ɲ**-embɔ	'songs'

As (4) shows, Kikuyu's ML is triggered by nasals and NC's like LuGanda. Moreover, ML applies to v-initial stems in Kikuyu and yields a palatal nasal as well. Peng (2004) analyzes Kikuyu v-initial stems in the same way as LuGanda. In both languages, the palatal nasal emerges from the epenthesis of the palatal glide *y* and the application of ML. What distinguishes LuGanda from Kikuyu is that LuGanda emerges from ML with a geminate nasal whereas Kikuyu does not. This article is concerned with this variation.

To understand ML, consider the conditions triggering it more closely. Mentioned earlier, ML applies to stem-initial segments under the condition that a nasal prefix is attached to stems. This condition is not sufficient in itself to trigger ML. ML's stem-initial targets must appear before a medial nasal or NC. Note in (5) that ML cannot apply if there is no nasal or NC following the stem-initial target. Under this condition, the stem-initial target surfaces as an oral consonant unlike the nasal outputs in (3) and (4).

(5) LuGanda in (a) and Kikuyu in (b)

a.	kù-**β**álá	'to count'	m̀-**b**ál̲á	'I count'
	lù-**ɣ**úudó	'highway'	ŋ̀-**g**úud̲ó	'highways'
b.	ro-**β**aru	'rib'	m-**b**ar̲u	'ribs'
	a-**r**e-et-ɛ	'he has eaten'	n-**d**e-et̲-ɛ	'I have eaten'

In addition, ML is prevented from applying if an oral consonant intervenes between the ML targets and the following nasal or NC, as (6) shows (Mugane 1997:20).

(6) LuGanda in (a) and Kikuyu in (b)

a.	kù-**β**wáámá	'to crouch'	m̀-**b**wáám̲a	*m̀-**m**wáám̲a	'I crouch'
b.	raram-a	'roar'	n-**d**aram̲-e	***n**aram̲-e	'shall I roar'

In (6a), *w* separates the target *β* and the trigger *m*; in (6b), the target *r* is separated from the trigger *m* by *r*. In both cases, ML does not apply; the stem-initial targets *β* and *r* appear as *b* and *d* due to postnasal hardening. These data show that ML applies only if the targets are preceded by a nasal and followed by a nasal or NC with no intervening oral consonant. Intervening oral vowels do not affect the application of ML. These conditions led Herbert (1977, 1986) to conclude that ML is a nasal assimilation in what he calls "the hyper-nasal environment", in the sense that ML targets must be preceded and followed by a nasal consonant.

Now that the conditions triggering ML are clear, we can express it as a markedness constraint against oral consonants in specific environments:

(7) MEINHOF'S LAW
*C a) if C is immediately preceded by a nasal consonant *and*
| b) if C is in a strict sequence with a following nasal consonant
-n

According to (7), this ban against oral consonants is applicable when two conditions are both met: a) when they appear after a nasal and b) when they appear in a strict sequence with a following nasal. Following Downing (2005) and Peng (2004, to appear), I assume that NC compounds are made up of a nasal and an oral consonant, a nasal-oral consonant cluster. Hence, no explicit reference is made to NC in (7b). I borrow the term "strict sequence" from Suzuki (1998) (cited in Archangeli, Moll and Ohno 1998:16).

(8) a. **Sequence**: In a string, any linearly ordered pair of X's is a sequence of X.
b. **Strict sequence**: In a string, any linearly ordered pair of X's which does not contain any proper sub-sequence of X is a strict sequence of X.

According to (8b), X_i and X_j are in a strict sequence if no other X, say, X_k, intervenes, that is, if they are not in configurations such as $X_i...X_k...X_j$. According to (7b), MEINHOF'S LAW is applicable only if an oral consonant appears before another nasal without any intervening consonant.

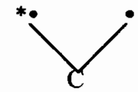
Now consider the analysis of the output variation between LuGanda and Kikuyu. Under my analysis, this variation emerges from the three steps outlined in (9).

(9) Place Assimilation Nasalisation (=ML) No anti-gemination
a. /N-β/ → mβ → mm → [mm] (LuGanda)
Place Assimilation Nasalisation (=ML) Anti-gemination
b. /N-β/ → mβ → mm → [m] (Kikuyu)

According to (9), LuGanda and Kikuyu share two processes: nasal place assimilation and nasalization triggered by MEINHOF'S LAW. Nasal place assimilation results in a homo-organic nasal-oral cluster. Nasalization creates a geminate nasal. The two languages differ in that LuGanda allows geminates whereas Kikuyu does. As a result of this difference, geminate nasals emerge in LuGanda, whereas they are degeminated in Kikuyu.

To implement the views in (9), I propose that two additional constraints are needed: a) UNIF(ORMITY)-IO (McCarthy and Prince 2004:93) and b) NOGEM(INATE) (Itô and Mester 1998).

(10) a. UNIF-IO: No element of S_2 has multiple correspondents in S_1.
b. NOGEM:



This analysis views the non-geminate output – such as [m] – of ML in Kikuyu as a segment fusing the prefix's nasality with the place specification of the stem-initial consonant. Under this view, the anti-fusion constraint – UNIF-IO – is pertinent as it bans fusion. De-gemination is triggered by a high-ranking NOGEM, which prohibits geminate consonants. These two constraints, together with MEINHOF'S LAW, are responsible for the output variation in the two languages. Specifically, I propose that LuGanda and Kikuyu rank these constraints as follows.

(11) a. LuGanda: UNIF- IO » MEINHOF'S LAW » NOGEM
b. Kikuyu: NOGEM » MEINHOF'S LAW » UNIF IO

ML does not result in a fused segment in LuGanda, which means that UNIF-IO ranks high. LuGanda tolerates geminates, which suggests that NOGEM is low-ranked. In Kikuyu, where geminates are forbidden, NOGEM ranks high. UNIF-IO is low-ranked, because ML results in a fused segment. In both languages, MEINHOF'S LAW is sandwiched in the middle. The ranking of MEINHOF'S LAW above NOGEM in LuGanda and UNIF-IO in Kikuyu is responsible for nasalizing the stem-initial oral consonant when it appears between the prefix nasal and the following nasal or NC cluster. To see how these rankings account for the output variation between LuGanda and Kikuyu, consider the tableaux for LuGanda ***ǹ-ním̲ì*** 'languages, tongues' and Kikuyu *name* 'languages, tongues' in (12A) and (12B).

(12) A. LuGanda /N-limi/ → [ǹ-**ní**m̲ì]

	/N_i-$l_j$imi/	UNIF-IO	MEINHOF'S LAW	NOGEM
	a. n_{ij}imi	*!		
	b. $n_i l_j$imi		*!	
	c. $n_i d_j$imi		*!	
☞	d. $n_i n_j$imi			*

language analyzed here. Second, it is the most recent analysis of ML. Third, this analysis presents a contrast with the view advocated here. They view ML as dissimilation rather than assimilation. In what follows, I start by considering a view of ML implied in earlier grammatical descriptions. This discussion highlights the problems arising from analyzing ML in one language without considering its variations in different languages. I will then consider Archangeli et. al.'s analysis of ML in Kikuyu. I show that by focusing on Kikuyu alone, this analysis suffers from some of the same problems as those plaguing the accounts that analyze ML in one language.

3.1 Earlier Studies of ML

I claimed in (9) that three processes result in the outputs associated with ML in LuGanda and Kikuyu: a) nasal place assimilation; b) nasalization triggered by MEINHOF'S LAW; and c) gemination/anti-gemination. LuGanda and Kikuyu share the first two processes; they differ only in whether they allow geminates. Earlier studies of ML imply what appears to be a simpler view of ML, which is presented in (13).

(13)	Place Assimilation		Nasalization (=ML)		
	a. /N-β/ →	mβ	→	[mm]	(LuGanda)
	Place Assimilation		Deletion (=ML)		
	b. /N-β/ →	mβ	→	[m]	(Kikuyu)

According to (13), LuGanda and Kikuyu are identical with respect to nasal place assimilation, which results in a homo-organic NC cluster. In LuGanda, ML triggers nasalization, turning /β/ into [m] and creating a geminate nasal [mm] as in (13a). In Kikuyu, ML causes deletion, removing /β/ and yielding a non-geminate [m] as in (13b).

These views may at first glance appear simpler than my analysis, but they are problematic for two reasons. First, they obscure the relation between LuGanda and Kikuyu. ML is characterized as nasalization in one language and as deletion in another. Under this view, ML in Kikuyu bears no resemblance to that of LuGanda and might as well be given a different name. The problem with treating Kikuyu's ML as deletion is that it is triggered by the same conditions as those triggering ML in LuGanda: in both languages, it is caused by the prefix /N-/ and the following nasal or NC. These identical conditions led Herbert (1977, 1986) to the view that ML is an assimilatory process.

The second problem with (13) is that they fail to relate the geminate vs. non-geminate outputs to a structural difference between LuGanda and Kikuyu. LuGanda allows geminate consonants, whereas geminates are forbidden in Kikuyu, which is evident from prefixing /N-/ to nasal-initial stems in (14).

(14) Prefixation of /N-/ to nasal-initial stems: (a) LuGanda, (b) Kikuyu

a.	kù-**málá**	'to complete'	m̀-**málá**	'I complete'
	kù-**nóòɲá**	'to seek'	ǹ-**nóòɲá**	'I seek'
b.	a-**mɛɲ**-ɛɛt-ɛ	'he has known'	**mɛɲ**-ɛɛt-ɛ	'I have known'
	a-**niin**-eet-ɛ	'he has finished'	**niin**-eet-ɛ	'I have finished'

By ranking NoGem differently, my analysis appeals to this difference in explaining the variation. It locates the source of the variation in whether they allow geminates.

The problem with (13) stems from viewing Kikuyu's ML in isolation, without considering its variation. Focusing on one language can result in the conclusion that ML functions as deletion rather than nasalization. Only by comparing Kikuyu with LuGanda can we see ML for what it is. I demonstrate that Archangeli et. al.'s analysis suffers from the same problems, problems stemming from focusing on one language.

3.2 Archangeli, Moll and Ohno (1998)

Archangeli et. al. view ML as a dissimilation. They express it as *N~N, a constraint that prohibits a [+nasal] segment in a strict sequence with another [+nasal] segment. This view sees ML as [+nasal] dissimilation. Analyzing ML as dissimilation has a long tradition. As early as 1913, Carl Meinhof, after whom this phenomenon is named, described ML as a NC compound dissimilation (See also Meinhof 1932). Subsequent studies (i.e. Myers 1974, Katamba 1974) followed Meinhof's lead in describing ML as dissimilation until this view was challenged by Herbert (1977, 1986). More recently, Alderete (2004:399) suggests without directly analyzing ML that dissimilation, including ML, can be formalized via local conjunction within Optimality Theory. Regardless of whether ML is characterized as a [+nasal] dissimilation or a NC compound dissimilation via local conjunction, they share one key assumption that NC's are single segments, not clusters. Archangeli et. al. further assume that NC's are nasal obstruents, characterized by the feature pair of [-sonorant] and [+nasal] as in (15a).

(15) a. [mb, nd, ɲj, ŋg]: [**-sonorant**, + nasal]
b. [m, n, ɲ, ŋ]:[**+sonorant**, +nasal]

NC's, according to Archangeli et. al., are distinguished from nasals by the feature [sonorant]; nasals are [+sonorant] whereas NC's are [-sonorant]. As NC's and nasals are both represented as [+nasal], *N~N ends up banning the sequences in (16).

(16) a. NC…NC b. NC…N c. N…NC d. N…N

As the Kikuyu data in (4) and (14b) show, the two types of surface outcomes in (16c) and (16d) are attested in Kikuyu. They can arise from ML as in (4), from the prefixation of /N-/ to nasal-initial stems as in (14b) and directly from the input. This suggests that *N~N must not only interact with other constraints but also be dominated by some of these constraints because it can be violated. In (17), I provide the other constraints they propose as pertinent to the analysis of ML in Kikuyu.

(17) Constraints relevant to the analysis of ML in Kikuyu
a. MAXNAS
b. MAXOBS
c. NASSON: [Nasal] is in a path with [+sonorant].
d. MAX-$_{v}$OBS: Every [-voice, -sonorant] segment of the input has a [-sonorant] correspondent in the output.
e. MAXOBS(X): *N~N → MAXOBS (Where nasal consonants are not in a strict sequence, MAXOBS holds)

As faithfulness constraints, MAXNAS and MAXOBS preserve the [+nasal] and [-sonorant] specifications of the input. MAXNAS is high ranking because Kikuyu does not allow the [+nasal] deletion as a means to satisfy *N~N. In contrast, MAXOBS ranks low because ML's targets - NC's - can lose their [-sonorant] specification and emerge as nasal sonorants, [m, n, ɲ, ŋ]. NASSON expresses the preference that nasals tend to be sonorants. This constraint is crucial in discriminating the two outputs for the input /N-ɣanɔ/: [ŋanɔ] and [ŋ‿ganɔ]. It prefers [ŋanɔ] with its nasal sonorant [ŋ] rather than [ŋ‿ganɔ] with its nasal obstruent [ŋ‿g], ensuring that /N-ɣanɔ/ undergoes ML. MAX-$_{v}$OBS in (17d) prevents the inputs /NC$_i$…N/ or /NC$_i$…NC/ where C$_i$ equals /t, c, k/ from undergoing ML in Kikuyu. As /N-t/, /N-c/ and /N-k/ never undergo ML, this constraint is not dominated. MAXOBS(X) in (17e) is a specific version of MAXOBS, which Archangeli et. al. characterize as

*N~N → MAXOBS. This constraint states that the input [-sonorant] specification must be preserved if nasal consonants do not appear in a strict sequence. It is crucial in choosing between the two candidates - [ŋiri] and [ŋ͜giri] - for the input /N-ɣiri/. Recall that this input - /N-ɣiri/ - does not undergo ML in Kikuyu because the stem-initial /ɣ/ does not appear before a nasal or NC. MAXOBS(X) favors [ŋ͜giri] over [ŋiri] because this [ŋ͜g] does not appear in a strict sequence with another [+nasal] segment and its [-sonorant] is preferably preserved, required by MAXOBS(X). [ŋiri] with its nasal sonorant [ŋ] does not preserve the input [-sonorant] specification; it incurs a violation of MAXOBS(X). These constraints, together with *N~N, are ranked as in (18). An illustration is in (19).

(18) MAX$_{v}$OBS, MAXNAS » *N~N » MAXOBS(X) » NASSON » MAXOBS

(19) A. Tableau for /N-ɣanɔ/ → [ŋanɔ] 'story, tale'

	/N-ɣanɔ/	MAX$_{v}$OBS	MAX NAS	*N~N	MAX OBS(X)	NAS SON	MAX OBS
	a. ŋ͜ganɔ			*		*!	
☞	b. ŋanɔ			*			*
	c. ganɔ		*!				

B. Tableau for /N-ɣiri/ → [ŋ͜giri] 'fence'

	/N-ɣiri/	MAX$_{v}$OBS	MAX NAS	*N~N	MAX OBS(X)	NAS SON	MAX OBS
☞	a. ŋ͜giri					*	
	b. ŋiri				*!		*
	c. giri		*!				

C. Tableau for /N-tɔɔŋ͜gu/ → [n͜dɔɔŋ͜gu] 'cut'

	/N-tɔɔŋ͜gu/	MAX$_{v}$OBS	MAX NAS	*N~N	MAX OBS(X)	NAS SON	MAX OBS
	a. nɔɔŋ͜gu	*!		*			*
☞	b. n͜dɔɔŋ͜gu			*		*	

The tableau in (19A) illustrates a form that undergoes ML, while (19B) and (19C) present two forms, neither of which ML can apply to. In (19A), [ŋanɔ] is selected over the two other candidates, because of the ranking of MAXNAS and NASSON. The tableau in (19B) presents a case where the stem-initial /ɣ/ does not appear before a nasal or NC. Here, the candidate in (19Ba) is preferred to [ŋiri] because of the ranking of MAXOBS(X) above NASSON. The tableau in (19C) shows that stem-initial voiceless obstruents such as /t/ cannot undergo ML because of the undominated MAX-vOBS.

The thrust of this analysis is that ML is triggered by *N~N, a constraint that prohibits not only the unattested sequences but also the attested sequences in Kikuyu. To salvage the attested sequences, Archangeli et. al. exploit the context-sensitive faithfulness constraints: MAX-vOBS and MAXOBS(X). Though this analysis provides an account of ML in Kikuyu, it is problematic. One problem concerns MAXOBS(X) and MAX-vOBS, which are problematic for three reasons. First, they duplicate MAXOBS. MAX-vOBS is a specific version of MAXOBS targeting a subclass of segments, that is, voiceless. MAXOBS(X) is MAXOBS with a condition stipulating when it is applicable. These two constraints are neither the type of faithfulness constraints targeting an entire class of segments such as ID-IO (VOICE) or MAXNAS nor are they the positional faithfulness constraints. For the theory to admit such forms of faithfulness constraints requires serious consideration of crosslinguistic data and argumentation, neither of which is provided. Second, if the theory were to allow such faithfulness constraints, it would be difficult, if not impossible, to restrict the types of faithfulness constraints allowed. Third, MAX-vOBS cannot be formalized if [voice] is assumed to be privative, because it refers to [-voice].

The more serious problem with this analysis is that it cannot be extended to LuGanda. This problem arises from the two central assumptions it makes regarding NC: a) NC's are single segments and b) NC's are nasal obstruents defined by [-sonorant] and [+nasal]. These two assumptions are critical for *N~N to work for Kikuyu, but they make *N~N irrelevant for LuGanda. In what follows, I will first consider the problems with the two assumptions before considering why *N~N is not applicable to LuGanda.

The problem with the assumption that NC's are single segments comes from LuGanda. LuGanda NC's are not single segments. The N of NC in LuGanda is not only tone-bearing, as exemplified in (5a), but also syllabic in that it can form its own syllable when appearing. In addition, Maddieson and Ladefoged (1993) show that LuGanda's NC's have the duration of consonant clusters rather than single segments. In short, LuGanda NC's are neither phonologically nor phonetically single segments (See Downing 2005, Myers 2005, and Peng 2004, to appear) for further arguments that Bantu NC's should be considered to be clusters).

The problem with the assumption that NC's are nasal obstruents comes from Bemba, another language with ML. The classification of [mb, nd, ɲj, ŋg] as nasals, albeit nasal obstruents, implies that they should pattern like [m, n, ɲ, ŋ] in triggering phonological processes such as nasal assimilation. Evidence from Bemba applicative suffix alternation suggests otherwise (Kula 1999:137):

(20)	-laand-il-a	'speak for'	-tan-**in**-a	'refuse for'
	-laaŋg-il-a	'show for sb'	-tum-**in**-a	'send for'

The data in (20) illustrates a widely attested process of nasal assimilation in Bantu, in which the suffix containing the liquid /l/ alternates with /n/. This assimilation is triggered by the nasals such as [m, n]. If NC's such as [nd, ŋg] are classified as [+nasal] on a par with [m, n], we would expect them to trigger the nasal assimilation just like [m, n]. This is clearly not the case, as shown by *-laand-il-a* and *-laaŋg-il-a*.

Let's see now why it is not possible to extend *N~N to LuGanda, because *N~N relies on the twin assumptions that NC's are single segments and nasal obstruents. If LuGanda NC's are not single segments, then they cannot be characterized by the feature combination of [-sonorant] and [+nasal]. They would have the representation in (21):

(21)	N	C.........................	N	(C)
	[+nas]	[-nas]	[+nas]	[-nas]
	[+son]	[-son]	[+son]	[-son]

When LuGanda NC's appear before a nasal or NC in (21), the two [+nas] specifications are no longer adjacent because they are separated by [-nas]. As such, they do not violate *N~N, a constraint responsible for triggering ML. As the tableau in (22) shows, if the candidate [ndimi] does not violate *N~N, it emerges as the optimal output, predicting incorrectly that ML cannot apply to the input /N-limi/in LuGanda. Note that the correct output in LuGanda is the one in (22b), with the geminate nasal.

(22)

	/N$_i$-l$_j$imi/	MAX $_v$OBS	MAX NAS	*N~N	MAX OBS(X)	NAS SON	MAX OBS
☞	a. n$_i$d$_j$imi					*	
	b. n$_i$n$_j$imi			*!			
	c. l$_j$imi		*!				

To summarize, a unified analysis of ML is not possible under the proposal laid out in Archangeli et. al., because *N~N, which triggers ML in

Kikuyu, cannot trigger ML in LuGanda. As a result, this analysis cannot capture the similarity in ML between LuGanda and Kikuyu, namely, the fact that ML is triggered by identical conditions. Nor can this analysis relate the output variation to whether the two languages allow geminates. These problems are the same as those plaguing earlier descriptions of ML. They stem from focusing on ML in one language without considering its variation in related languages.

4 Conclusion

Since its initial description in LuGanda, ML has attracted attention from the Bantuists and linguists. There are numerous accounts of ML in *individual* Bantu languages. I present an optimal-theoretic analysis of ML, with particular attention to the geminate vs. non-geminate output variation. Using LuGanda and Kikuyu as examples, I show that ML stems from three processes: a) nasal place assimilation; b) nasalization; and c) gemination in LuGanda or anti-gemination in Kikuyu. LuGanda and Kikuyu share the first two processes, but differ in whether they permit geminates. The surface difference in ML results from this difference. I propose that three constraints are involved, which are ranked as follows: UNIF-IO»MEINHOF'S LAW»NOGEM for LuGanda and NOGEM»MEINHOF'S LAW»UNIF-IO for Kikuyu. The high ranking of MEINHOF'S LAW triggers nasalization, while the different rankings of NOGEM result in the output variation in the two languages. This analysis is advantageous in that it reveals the similarity in ML in the two languages and relates the surface variation to a structural difference between LuGanda and Kikuyu. I further argue for this analysis by comparing it with previous studies of ML, in particular, with that presented in Archangeli et. al (1998). It is shown that these analyses are problematic because they, by focusing on ML in individual languages, obscure the similarity in ML, making a unified analysis of ML impossible.

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