INTERACTION OF IMBRICATION AND REDUPLICATION IN KINANDE

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From the Kinande reduplication data discussed in Mutaka and Hyman (1990), the "morpheme integrity constraint" was proposed as operating in the verb stem with respect to determining which material can be copied onto the disyllabic template of the reduplicant. In a subsequent article, Mutaka (1991) indicated that there are certain forms such as **-ambal-** in which imbrication does not occur in the reduplicated form whereas it occurs in the non-reduplicated form. This raises the question of the interaction between reduplication and imbrication in the Kinande data. More specifically, when can a form both reduplicate and imbricate and when does it reduplicate and not imbricate or can it imbricate and not reduplicate? This article, which is essentially descriptive, seeks to answer this question by examining the kind of Kinande data amenable to both reduplication and imbrication, and it shows that imbrication obtains in most cases where reduplication obtains and that the marginal cases showing a discrepancy between imbrication and reduplication can be explained away by the morpheme integrity constraint.

A partir des données sur la réduplication en kinande, Mutaka and Hyman (1990) avaient proposé "la contrainte de l'intégrité du morphème" comme étant à la base du choix du matériel pouvant être copié dans la structure dissylabique de la réduplication. Dans une étude ultérieure, Mutaka (1991) indiquait qu'il y avait certaines formes telles que **-ambal-** dans lesquelles le phénomène d'imbrication ne pouvait pas s'opérer dans la forme redoublée alors que celle-ci s'opère dans la forme non redoublée. Ceci pose la question de l'interaction entre la réduplication et l'imbrication. En d'autres termes, quelles sont les conditions qui guident le phénomène d'imbrication et de réduplication en kinande? Cette étude qui est essentiellement descriptive se propose de répondre à cette question en examinant les données du kinande qui se prêtent à la réduplication et à l'imbrication. Il est démontré notamment que l'imbrication s'applique dans les formes redoublées et que les cas marginaux qui ne se prêtent pas à cette correspondance imbrication-réduplication peuvent s'expliquer par le fait qu'ils violent la contrainte de l'intégrité du morphème.

0. INTRODUCTION

From the Kinande reduplication data discussed in Mutaka and Hyman (1990), the "morpheme integrity constraint" was proposed as operating in the verb stem with respect to determining which material can be copied onto the disyllabic template of the reduplicant. Thus, in a word like **ɛri-king-a** 'to close', since the stem **king-a** consists of two syllables, its whole string is copied, giving **ɛri-kinga.king-a** 'to close hurriedly'. In a word like **ɛri-king-ul-a** 'to open', where **king-ul-a** is the stem, the second vowel of the stem fails to be copied in the reduplicant because this would violate the morpheme integrity constraint, that is, the morpheme **-ul-** would be split. The word reduplicates as **ɛri-kinga.king-ul-a** 'to open hurriedly': the vowel **a** is inserted to form the nucleus of the second syllable. The reduplication of verb stems consisting of more than two syllables was shown to be less regular. Thus, a word like **ɛri-tibit-a** 'to run' does not reduplicate because the morpheme **tibit-** of the base could not be split: if it did, it would violate the morpheme integrity constraint (cf. ***ɛri-tiba.tibita**).

In a subsequent article on Kinande, Mutaka (1991) points out that imbrication[1] does not occur in reduplicated forms whereas it occurs in non-reduplicated forms. This raises the question of the interaction between reduplication and imbrication in the Kinande data. More specifically, when can a form both reduplicate and imbricate and when does it reduplicate and not imbricate or can it imbricate and not reduplicate? This article seeks to answer this question by examining the kind of Kinande data amenable to both reduplication and imbrication. The article is essentially descriptive as it does not aim at putting into question the results obtained in the previous articles on Kinande

[1]See Mutaka (1991) about imbrication in Kinande.

reduplication cited above. A brief analysis will however be proposed for the exceptionally causative reduplication that will be presented in section one. The three parts of the question will be examined in the following way. First, data where reduplication and imbrication clearly occur; secondly, those where reduplication and not imbrication obtains in the reduplicated affix; thirdly, forms where reduplication does not occur.

1. REDUPLICATION: YES; IMBRICATION: YES

The great bulk of this section reviews cursorily the kind of productive data on reduplication discussed in Mutaka and Hyman (1990) where reduplication occurs, and it elaborates on a type of reduplication with the causative morpheme **-is-ɨ-** that is exceptional and which was not uncovered in the Mutaka and Hyman article. Imbrication data corresponding to such reduplication forms will be presented as well.

Before addressing this first point, however, a brief explanation of the term IMBRICATION is in order here. Basically, imbrication is a cover term for various phonological processes that result in segment fusion (Bastin 1983, Hyman 1992). Bastin (1983:2) characterizes it as the syncope of the consonant **-dɔ̀** of **-id-e** (that corresponds to the Kinande **-ɨr-e**) whose vowel **-i-** undergoes metathesis with the consonant of a preceding -VC- in the stem; that is: **-VC-ide → ViCde → ViCe.**

Without entering into details, a clear example that illustrates imbrication in Kinande is what happerns in **mɔ́twámbɛrɛ** 'we dressed'. The underlying form for this word is: **mɔ-tu-a-ambal-ɨr-ɛ**. The different processes to obtain the surface form can be visualized in this schema: **mɔ-tu-a-ambal-ɨr-ɛ → mɔ-tu-a-amba-ɨr-ɛ** (i.e., deletion of **-l-** that precedes **ɨrɛ**) → **mɔ-tu-a-ambɛrɛ** (i.e., vowel coalescence of **a** + **ɨ** that results in **ɛ**). (The deletion of one of the **a**s in **mɔ́twámbɛrɛ** is not part of the imbrication process.) In order for this imbrication to occur, the liquid **-l-** that precedes **-ɨr-ɛ** has to be preceded by at least two vowels in the stem (cf. **-ambal-ɨr-ɛ**). Compare this with **mɔ́twásól̨ɨrɛ** 'we paid taxes' of which the underlying representation is **mɔ-tu-a-sɔl-ɨr-ɛ**. Here, the stem is **-sɔl-ɨr-ɛ**. As the liquid **-l-** is not preceded by two vowels in the stem, imbrication does not occur.

After clarifying the concept of imbrication in Kinande, let us now examine verb stems that consist of less than two syllables with an initial vowel stem.[2]

(1)	Root		Infinitive	'3p have just X-ed'	'we Xed'
	-ɛr-	be clean	**ɛri-ɛr-a**	**tu-kabi-ɛr-a**	**mɔ-tu-a-ɛr-ɨrɛ**
			[ɛryɛ:râ]	[tukábyɛ̂:râ]	[mótwérɨ́:rɛ]
				SM-AM-RT-FV	TM-SM-TM-RT-TM
	-ɨn-	create rain	**ɛri-ɨn-a**	**tu-kabi-ɨn-a**	**mɔ-tu-a-ɨn-ɨrɛ**
			[erɨ̂:nâ]	[tṵkábɨ̂:nâ]	[mótwɨ́nɨ́:rɛ]
	-ɨt-	kill	**ɛri-ɨt-a**	**tu-kabi-ɨt-a**	**mɔ-tu-a-ɨt-ɨrɛ**
			[erɨ̂:tâ]	[tṵkábɨ̂:tâ]	[mótwɨ́tɨ́:rɛ]
	-ɔt-	light firewood	**ɛri-ɔt-a**	**tu-kabi-ɔt-a**	**mɔ-tu-a-ɔt-ɨrɛ**
			[eryɔ̂:tâ]	[tukábyɔ̂:tâ]	[mótwótɨ́:rɛ]
	-ɛs-	play	**ɛri-ɛs-a**	**tu-kabi-ɛs-a**	**mɔ-tu-a-ɛs-irɛ**
			[ɛryɛ:sâ]	[tukábyɛ:sâ]	[mótwésɨ:rɛ]

[2]The abbreviations used in these forms as in all subsequent forms are: Rt = root, SM = subject marker, AM = aspectual marker, TM = tense marker, FV = final vowel.

In (1), the verb root is presented in the first column and the infinitive in the third column. **ɛri-** is the infinitive marker which consists of two morphemes: **ɛ-** the initial vowel and **ri-** the class 5 prefix. The phonetic realization of the form is presented in square brackets. The colon in the forms between square brackets represents penultimate length that occurs generally in Kinande surface forms. Conjugated forms of the words are given in the last two columns. In these forms as in all subsequent forms, **tu-** is the subject marker (SM) for 'we' and **-kabi-** is an aspectual marker (AM) indicating an action that was done a few minutes ago. In the last column, **-ɪrɛ** is presented as a tense marker. The reduplicated forms of these verbs are presented in (2).

(2) **tu-kabi-ɛr-a.ɛr-a.ɛr-a** [tukáby-ɛrɛrɛ:râ] we made ourselves clean on purpose
SM-AM-RT FV
tu-kabi-ɪn-a.ɪn-a.ɪn-a [tʊkáb-ínɪnɪ:nâ] we created rain hurriedly
tu-kabi-ɪt-a.ɪt-a.ɪt-a [tʊkáb-ítɪtɪ:tâ] we killed hurriedly
tu-kabi-ɔt-a.ɔt-a.ɔt-a [tukáby-ótɔtɔ:tâ] we lit hurriedly
tu-kabi-ɛs-a.ɛs-a.ɛs-a [tukáby-ɛsɛ:sâ] we played hurriedly

(3) **mɔ-tu-a-ɛr-ɪrɛ.ɛr.ɪrɛ** [mótw-erɪrerí:rɛ] we made ourselves clean hurriedly
TM-SM-TM-RT-TM
mɔ-tu-a-ɪn-ɪrɛ.ɪn.ɪrɛ [mótw-ɪnɪrenɪ́:rɛ] we created rain hurriedly
*[mótw-ɪnɪrɪnɪ:rɛ]
mɔ-tu-a-ɪt-ɪrɛ.ɪt.ɪrɛ [mótw-ɪtɪretɪ́:rɛ] we killed hurriedly
*[mótw-ɪtɪrɪtɪ́:rɛ]
mɔ-tu-a-ɔt-ɪrɛ.ɔt.ɪrɛ [mótw-otɪretɪ́:rɛ] we lit hurriedly
*[mótw-otɪrotɪ́:rɛ]
mɔ-tu-a-ɛs-ɪrɛ.ɛs-ɪrɛ [mótw-ésɪresɪ:rɛ] we played hurriedly

Whereas the forms in (2) show that the initial stem vowel appears in the reduplicant, the forms in (3) show that the initial stem vowel is left out in the reduplicant when the stem consists of two syllables. If the initial stem vowel appeared in the reduplicant, the wrong forms preceded by the asterisk in (3) would be obtained. Here, I maintain the assumption made in Mutaka and Hyman (1990) that the onset is obligatory in the syllable for the purpose of reduplication. Thus, the stem **-ɛr-a** in (1) consists of one syllable; the initial stem vowel does not count as a syllable for the purpose of reduplication.

Consider now the forms in (4).

(4) **ɛri-ɛr-ɪ-a** [eryê:ryâ] to wash
ɛri-ɔkɪ-a [eryo:kyâ] to burn
ɛri-ɔɣ-ɪ-a [eryô:yâ] to administer an enema
(cf. **ɛri-ɔɣ-a** [eryɔ́:ɣâ] to have an enema)

(5) **tu-kabi-ɛr-ɪ-a** [tukábyê:ryâ] we have just washed
tu-kabi-ɔkɪ-a [tukábyɔ:kyâ] we have just burnt
tu-kabi-ɔɣ-ɪ-a [tukábyô:yâ] we have just administered an enema

(6) **mɔ-tu-a-ɛr-ɪr-ɪ-ɛ** [mótwerɪ́:ryê] we washed
mɔ-tu-a-ɔkɪ-ɪr-ɪ-ɛ [mótwókɪ́:ryê] we burnt
mɔ-tu-a-ɔɣ-ɪr-ɪ-ɛ [mótwoyɪ́:ryê] we administered an enema

(7) **tu-kabi-ɛr-ɻ-a.ɛr-ɻ-a.ɛr-ɻ-a** [tukáby-éryerye:ryâ] we washed hurriedly
tu-kabi-ɔkɻ-a.ɔkɻ-a.ɔkɻ-a [tukáby-okyokyo:kyâ] we burned hurriedly
tu-kabi-ɔɣ-ɻ-a.ɔɣ-ɻ-a.ɔɣ-ɻ-a [tukáby-óyoyo:yâ] we administered an enema hurriedly

(8) **mɔ-tu-a-ɛr-ɻr-ɻ-ɛ.ɛr-ɻr-ɻ-ɛ.r-ɻr-ɻ-ɛ** [mótweryeryerɻ́:ryê]
*[mótw-erɻryerɻ́:ryê] we washed hurriedly
mɔ-tu-a-ɔkɻ-ɻr-ɻ-ɛ.kɻ-ɻr-ɻ-ɛ [mótw-ókɻ́ryekɻ́:ryɛ] we burned hurriedly
*[mótw-ókɻ́ryokɻ́:ryɛ]
mɔ-tu-a-ɔɣ-ɻr-ɻ-ɛ. ɣ-ɻr-ɻ-ɛ [mótw-oyɻryeyɻ́:ryê] we administered an enema hurriedly
*[mótw-oyɻryoyɻ́:ryê]

In these forms, we have added the causative morpheme **-ɻ-** to the root **-ɛr-** to form a new base **-ɛr-ɻ-** which gives the meaning of 'wash'. We have also taken the root **-ɔkɻ-** whose **-ɻ-** is probably a frozen causative morpheme that forms with the formative **-ɔk-** the root **-ɔkɻ-** 'burn'. Notice that the causative morpheme **-ɻ-** is infixed into the TM **-ɻrɛ**, which shows that this TM actually consists of two formatives **-ɻr-** and **-ɛ**. The reduplicated form in (7) supports the assumption made earlier that, in a monosyllabic verb stem, where the syllable consists of an obligatory onset and one or more vowels, the initial stem vowel is copied in the reduplicant. The stems **-ɛr-ɻ-a** and **okɻ-a** are thus considered monosyllabic.

The forms in (8) illustrate our first case of imbrication for the **ɛr-** root. Although the form is complex, we might assume that the surface representation is obtained as follows. First, the whole stem which consists of two syllables should be repeated once to obtain the reduplicated form. Assuming that the vowel **a** deletes when it occurs before another vowel and that a sequence of two vowels (here **ɛɛ**) is realized as a single vowel **ɛ** this should give: **mótwerɻrɻɛrɻrɻɛ**. After the devocalization of **ɻ** before another vowel, which is a general rule in the language, and a rule of ATR harmony the details of which are ignored here (for details on ATR harmony in Kinande, see Schlindwein (1987), Hyman (1987), Mutaka (1996), Archangeli and Pulleyblank (1993)) the following form is obtained: **mótwerɻryerirɻɛ**. But this form is wrong. To obtain the correct form, we must assume that, before devocalization, the **r** which precedes the last **ɻ** sound in both the reduplicated affix and the base have been deleted. This is in accordance with the imbrication process one of the conditions of which is that the vowel **ɻ** of **-ɻrɛ** be preceded by two vowels in the stem. The only difference here is that the **ɻ** that causes the imbrication is rather the causative **ɻ** instead of the **ɻ** of **-ɻrɛ**. This is an unavoidable assumption for this form. We must also assume that the stem is copied a second time in the reduplicated form, this time without the initial vowel. This gives the final correct form: **mótweryeryerɻ́ryê**.[3]

[3]These forms may raise problems on Kinande reduplication that require further analysis. I have added the verb **ɛri-ɔ:g-a** 'to administer an enema' to show that it patterns like **eri-okɻ-a** 'to burn' as an answer to Larry Hyman's request for further data (email communication). I am reprinting his full remark here as it rightly raises the problems yet to be addressed in the analysis of Kinande reduplication.

> Re (4b): The two verbs you give work differently. **-ok-ɻ-** is regular: you first add **ɻr-e** and then reduplicate (where the initial **o-** is marked off and hence not copied). On the other hand, **-er-ɻ-** seems to undergo DOUBLE reduplication followed by **-ɻre** suffixation. You specifically mark as ungrammatical ***-erɻrye.rɻrye** (versus grammatical **-okɻrye.kɻrye**). Can you check this? If your double reduplication is right, then can you also get: **-okyokyokɻrye**, with double reduplication?

Although we have seen two examples of the causative **-ɻ-** as an extension in a verb stem, it should be pointed out that, in the majority of cases, it co-occurs with **is-**, that is, the complete causative morpheme is **is-ɻ-**. Let us now examine the data in (9)–(11) in which this morpheme is used.

(9)	**ɻn-**	**ɛri-ɻn-is-ɻ-a** [erĺnɻ:syâ]	to make create rain
	ɻt-	**ɛri-ɻt-is-ɻ-a** [erĺtɻ:syâ]	to make (s.o.) kill
	ot-	**ɛri-ɔt-ɛs-ɻ-a** [eryóte:syâ]	to make (s.o.) light
(10)		**tu-kabi-ɻn-is-ɻ-a** [tụkábĺnɻ:syâ]	we have just created rain
		tu-kabi-ɻt-is-ɻ-a [tụkábĺtɻ:syâ]	we have just killed
		tu-kabi-ɔt-ɛs-ɻ-a [tụkábyóte:syâ]	we have just lit
(11)		**mɔ-tu-a-ɻn-is-ɻr-ɻ-ɛ** [mótwɻnɻsĺ:ryê]	we made create rain
		mɔ-tu-a-ɻt-is-ɻr-ɻ-ɛ [mótwɻtɻsĺ:ryê]	we made (s.o.) kill
		mɔ-tu-a-ɔt-ɛs-ɻr-ɻ-ɛ [mótwotesĺ:ryê]	we made (s.o.) light

As observed in these forms, with the affixation of the causative **-is-ɻ** to the monosyllabic root, the stem has now two syllables in the forms in (9) and (10) and three syllables when the TM **-ɻrɛ** is used with this causative morpheme as in (11). The usual reduplicated form that should be obtained from the forms in (9) and (10) is to simply repeat the stem. And in fact, such forms do exist and they give the meaning of an action done hurriedly. To take just the forms in (9), they give the forms in (12) when reduplicated.

(12)	**ɻn-**	**ɛri-ɻn-is-ɻ-a.n-is-ɻ-a** [erĺnɻsyanɻ:syâ]	to make (s.o.) create rain hurriedly
	ɻt-	**ɛri-ɻt-is-ɻ-a.t-is-ɻ-a** [erĺtɻsyatɻ:syâ]	to make (s.o.) kill hurriedly
	ot-	**ɛri-ɔt-ɛs-ɻ-a.t-ɛs-ɻ-a** [eryótesyate:syâ]	to make (s.o.) light hurriedly

Those in (11) whose stem consists of three syllables give the forms in (13) when reduplicated.

(13)	**mɔ-tu-a-ɻn-is-a.n-is-ɻr-ɻ-ɛ** [mótwɻnɻsanɻsì:ryê][4]	we made (s.o.) create rain hurriedly
	mɔ-tu-a-ɻt-is-a.t-is-ɻr-ɻ-ɛ [mótwɻtɻsatɻsɻ:ryê]	we made (s.o.) kill hurriedly
	mɔ-tu-a-ɔt-ɛs-a.t-ɛs-ɻr-ɻ-ɛ [mótwotesatesĺ:ryê]	we made (s.o.) light hurriedly

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[The answer is no]. Recall from Mutaka and Hyman (1990) that we assumed ALL suffixation 'precedes' reduplication. Hence you get **swɻre-swɻre, not swa-swa-swɻre**. Your example about double reduplication is thus quite shocking, since it seems to require that you first reduplicate and THEN add **-ɻrɛ**. Is it correct and, if so, are there other cases?

[4]The following forms are also acceptable:

mɔ-tu-a-ɻn-is-ɻ-a.n-is-ɻr-ɻ-ɛ [mótwɻnɻsyanɻsĺ:ryê] 'we made (s.o.) create rain rapidly'

mɔ-tu-a-ɻt-is-ɻ-a.t-is-ɻr-ɻ-ɛ [mótwɻtɻsyatɻsɻ:ryê] 'we made (s.o.) kill rapidly'

mɔ-tu-a-ɔt-ɛs-ɻ-a.t-ɛs-ɻr-ɻ-ɛ [mótwotesyatesĺ:ryê] 'we made (s.o.) light rapidly'

The question now is whether the **ɻ-** that precedes the reduplicated affix is the **ɻ** of **-ɻrɛ** or the causative **-ɻ-**. If it were the **ɻ** of **-ɻrɛ**, this would be a blatant violation of the morpheme integrity constraint (Mutaka and Hyman 1990). However, it was interesting to see how Jacky Syauswa, one of my consultants checked the form. She asked me: do you say **eryótesa** (i.e., /ɛri-ɔt-ɛs-a/ or **eryótesya** (i.e., /ɛri-ɔt-ɛs-ɻ-a/)? This shows that she intuitively considers this **ɻ** as the causative morpheme, which means that the morpheme integrity constraint is not violated in such forms. By the way, **eryótesa** does not exist. If it were to exist, the phonetic form would be [ɛryóté:sa]. But this also does not exist.

Notice that the vowel **a** is inserted as the nucleus of the second syllable of the reduplicated affix as expected (Mutaka and Hyman 1990). Imbrication does not apply in these forms because the consonant that precedes the **ɪ** of **-ɪrɛ** is neither a liquid nor a nasal.

What makes the causative morpheme interesting and exceptional with respect to reduplication is that its reduplicated form can emphasize the causative effect rather than the fact that the action is done hurriedly. In these cases, the forms in (14) and (15) are found.

(14) **tu-kabi-ɪn-is-is-ɪ-a** [tʊkábíɲɪsɪ:syâ] we have just caused (s.o.) to create rain
tu-kabi-ɪt-is-is-ɪ-a [tʊkábíʧɪsɪ:syâ] we have just caused (s.o.) to kill
tu-kabi-ɔt-ɛs-ɛs-ɪ-a [tʊkábyótese:syâ] we have just caused (s.o.) to light

(15) **mɔ-tu-a-ɪn-is-is-ɪr-ɪ-ɛ** [mótw-ɪɲɪsɪsí:ryê] we caused (s.o.) to create rain
mɔ-tu-a-ɪt-is-is-ɪr-ɪ-ɛ [mótw-ɪʧɪsɪsí:ryê] we caused (s.o.) to kill
mɔ-tu-a-ɔt-ɛs-ɛs-ɪr-ɪ-ɛ [mótwoteseɪ:ryê] we caused (s.o.) to light

As illustrated in these forms, the first half of the causative morpheme (i.e., **-is-** or **-ɛs-**) is repeated in the reduplication. A theoretical question these forms raise is whether this type of reduplication still respects the principles of reduplication that have been observed elsewhere in the language as for example proposed in Mutaka and Hyman (1990). More crucially, is it the case that this type of reduplication respects the two-syllable template that constitutes the reduplicated affix on which the copied stem is associated? Or is this a case of infixation where the causative formative **-is-** is simply inserted (Broselow and McCarthy 1984). And if so, how is this done? Is the whole stem still copied in the reduplicated affix, and how does the association to the -VC- slots zero in on **-is-** as the material to be associated to these -VC- skeletal slots?

To account for this type of reduplication, I propose that, unlike the cases of reduplication discussed in the Mutaka and Hyman article, this type of reduplication is exceptional in some of its parameters, notably with respect to the syllable template and the nature of the stem. Because it is the causative that is emphasized in this type of reduplication, the causative morpheme is re-interpreted as a causative root, and thus the string headed by **is-ɪ**, that is, **-is-ɪ-a**, is re-interpreted as a stem. Another way of saying this is that the string headed by the causative **-is-ɪ-** is considered a phonological word although it does not surface as a morphological word (see also Aronoff and Sridhar 1983 for a similar proposal of formatives like **-ic** and **-al** in the English words like supersonic and cyclical which are considered phonological words without ever being realized as morphological words.) A comparison of this causative reduplication and the normal verbal reduplication discussed in Mutaka and Hyman (1990) is presented in (16).

(16)

	Causative reduplication	Normal reduplication
One or two syllables:	one	two
Stem or Word reduplication:	stem	stem
Prefixation: Yes/no:	yes	yes
Copying of the stem: yes/no:	yes	yes
Melody copied L→R / R→L	L→R	L→R

Before giving an illustrative derivation, I would like to present more data involving other types of syllable structure in the stem.

(17) **nɛ-** **ɛri-nɛ-ɛs-ɛs-ɨ-a** [erɨnese:syâ] to cause (s.o.) to defecate
hi- **ɛri-hi-is-is-ɨ-a** [erɨ́hɨsɨ:syâ] to cause (s.o.) to burn
sɔ- **ɛri-sɔ-ɛs-ɛs-ɨ-a** [erɨswese:syâ] to cause (s.o.) to grind

(18) **mɔ-tu-a-nɛ-ɛs-ɛs-ɨr-ɨ-ɛ** [mótwánésesɨ́:ryê] we caused (s.o.) to defecate
mɔ-tu-a-hi-is-is-ɨr-ɨ-ɛ [mótwahɨsɨsɨ́:ryê] we caused (s.o.) to burn
mɔ-tu-a-sɔ-ɛs-ɛs-ɨr-ɨ-ɛ [mótwáswésesɨ́:ryê] we caused (s.o.) to grind

Like the forms in (14) and (15), these forms are from a monosyllabic root but which does not begin by a vowel. They pattern exactly like those in (14) and (15) where the first half of the causative morpheme **-is-** is repeated in the stem.

(19) **kɔhɔl-** **ɛri-kɔhɔl-ɛs-ɛs-ɨ-a** [eríkoholese:syâ] to cause (s.o.) to cough
mɔ-tu-a-kɔhɔl-ɛs-ɛs-ɨr-ɨ-ɛ [mótwakoholesesɨ́:ryê] we caused (s.o.) to cough
halul- **ɛri-halul-is-is-ɨ-a** [eríhalʉlɨsɨ:syâ] to cause (s.o.) to scrape
mɔ-tu-a-halul-is-is-ɨr-ɨ-ɛ [mótwahalʉlɨsɨsɨ́:ryê] we caused (s.o.) to scrape

These forms are from a polysyllabic root. Notice that the **-is-** is repeated in the reduplicated affix just like the forms from a monosyllabic root. In every type of this causative reduplication, only one single syllable is added. This is why, in the parameters above, only one single syllable is proposed to form the syllable template of the reduplicative affix in this causative reduplication.[5]

The derivations in (20) illustrate the way this causative reduplication operates.

(20) **ɛri-nɛ-ɛs-ɛs-ɨ-a** [erɨnese:syâ] **ɛri-kɔhɔl-ɛs-ɛs-ɨ-a** [eríkoholese:syâ]
Causative reduplication:
a. Syllabification

b. Prefixation of a single syllable template to the stem

c. Copying of the stem melody (onto a different plane)

[5]In this derivation we ignore processes that are not relevant to reduplication. Also note that **ɛs-ɨ-** in the illustrative form is underlyingly **-is-ɨ**. The **ɛ** is the result of vowel harmony, more precisely, the high vowel of the causative morpheme **-is-** harmonizes in height with the root vowel.

d. Syllabification (left to right)

(after prefixation of **ɛri-** and other phonological rules like devocalization of the high vowel before a vowel, ATR spreading, penultimate lengthening, phrasal H tone, etc.)
Output: [erɻnese:syâ] [erḭkoholese:syâ]

Notice that the single syllable template of the reduplicate has a CV (consonant vowel) structure and never a CGV (consonant glide vowel) structure as would be the case for **sya** as in **ɛri-nɛ-ɛs-ɻ-a.nɛ-ɛs-ɻ-a** [erinesyane:syâ] 'to make (s.o.) defecate hurriedly'. This could be encoded as a constraint on the structure of the single syllable template in the causative reduplication. This constraint would be restricted to the single syllable template and not to the structure of the other syllables that obtains as a result of syllabification. Thus, a verb root ending in a vowel such as **ɔ** as **ɛri-tɔ-a** 'to till' reduplicates as in (21).

(21) **tɔ-** **ɛri-tɔ-ɛs-ɛs-ɻ-a** [erɻtwese:syâ] to cause (s.o.) to till
mɔ-tu-a-tɔ-ɛs-ɛs-ɻr-ɻ-ɛ [mótwótésesḭ:ryê] we caused (s.o.) to till

Here, the sequence **tɔ-ɛ** becomes **twe**, that is a CGV syllable structure. (For further examples of the reduplicated causative forms, see the appendix.)

One consequence of viewing **-is-ɻ-a** as a phonological word makes the causative reduplication affix surface as an infix.

After this discussion of the causative reduplication, let us look at the other forms where both reduplication and imbrication occur.

Consider first the forms in (22) and (23). (In these forms as in the subsequent data, the surface H tone is marked and the high vowel from which [+ATR] spreads leftward is marked with a cedilla. The phrasal H that usually surfaces on the penultimate vowel is not marked. Penultimate lengthening is also ignored.)

(22)	**sɛng-ul-a**	unpack (trans.)	**ɛri-sɛnga.sɛngula**
	sɛng-ukal-a	unpack (intrans.)	**ɛri-sɛnga.sɛngukala**
	king-ul-a	open	**ɛri-kinga.kingula**
	twɻk-ang-al-a	stumble	**ɛrí-twɻka.twɻkangala**
(23)	**buliran-a**	disappear	**ɛrí-bula.bulirana**
	twɻkal-a	stumble	**ɛrí-twɻka.twɻkala**
	ɣambul-a	tell	**ɛri-ɣamba.ɣambula**
	ɣambul-ir-a	tell for	**ɛri-ɣamba.ɣambulira**
	ɣambul-ir-an-a	tell for e.o.	**ɛri-ɣamba.ɣambulirana**
	bɛɣɛr-a	get used	**ɛri-bɛɣa.bɛɣɛra**
	hɛrɛr-a	offer	**ɛrí-hɛra.hɛrɛra**
	kɛbɛr-a	look	**ɛrí-kɛba.kɛbɛra**
	laɣir-a [layira]	announce	**ɛri-laɣa.laɣira** [ɛrilaɣalayí:ra]
	bandan-a	meet	**ɛri-banda.bandana**
	laɣan-a	promise	**ɛri-laɣa.laɣana**
	lingan-a	resemble	**ɛri-linga.lingana**

The stem in these forms consists of more than two syllables. The verb root in (22) has a CVC structure which is followed by an extension of a -VC- type. As indicated in the right column, reduplication occurs in these forms as they do not violate the morpheme integrity constraint (henceforth, MIC) (Mutaka and Hyman 1990). Of more interest are the forms in (23). These are polysyllabic roots, which should not reduplicate because, if they do, they would violate the MIC.

Notice that they all start with a CVCVC syllable structure and the -VC- that comes after the CVC first root vowel is similar to the extension -VC- morphemes in Kinande, (cf. **-an-** = reciprocal, **-ir-** and **-er-** = applicative) Only **-al-** could be questioned as an extension.[6] In other words, these -VC- pseudo-extensions could be considered potential morphemes. When viewed as potential morphemes, they no longer constitute a threat to the MIC.

Consider also the following forms. When the **-ɪrɛ** morpheme is added to the base in the left column, imbrication occurs. A detailed segmentation of the first forms in (24) and (25) is done to show the underlying structure from which imbrication applies.

(24)	**sɛng-ul-**	**mɔ́-tu-á-sénga.sɛngwɪrɛ**	we unpacked hurriedly
		/mɔ-tu-a-sɛnga.sɛng-ul-ɪrɛ/	
	sɛng-ukal-	**mɔ́-tu-á-sénga.sɛngukɛrɛ**	we unpacked hurriedly
	king-ul-	**mɔ́-tu-á-kínga.kingwɪrɛ**	we opened hurriedly
	twɪk-ang-al-	**mɔ́-tu-a-twɪka.twɪkangérɛ**	we stumbled hurriedly
(25)	**buliran-**	**mɔ́-tu-a-bula.buliréne**	we disappeared hurriedly
		/mɔtu-a-bula.bul-ir-an-ɪrɛ/	
	twɪkal-	**mɔ́-tu-a-twɪka.twɪkérɛ**	we stumbled hurriedly
	ɣambul-ir-	**mɔ́-tu-á-ɣámba.ɣambulɪrɛ**	we conversed hurriedly
	ɣambul-ir-an-	**mɔ́-tu-á-ɣámba.:gambulɪrɛnɛ**	we told e.o. tales hurriedly
	bɛɣɛr-	**mɔ́-tu-á-béɣa.bɛɣɛrɛ**	we got used hurriedly
	hɛrɛr-	**mɔ́-tu-a-hɛra.hɛrérɛ**	we offered hurriedly
	kɛbɛr-	**mɔ́-tu-a-kɛba.kɛbérɛ**	we looked hurriedly
	layir-	**mɔ́-tu-á-láɣa.layɪrɛ**	we announced hurriedly
	bandan-	**mɔ́-tu-á-bánda.bandɛnɛ**	we met hurriedly
	laɣan-	**mɔ́-tu-á-láɣa.laɣɛnɛ**	we promised hurriedly
	lingan-	**mɔ́-tu-á-línga.lingɛnɛ**	we resembled hurriedly

Hyman (pers. comm.) referring to work by Downing (1997a, 1997b) pointed out to me that, in Siswati, such frozen morphemes can also be unfrozen, that is, be considered separate morphemes in reduplication.

2. REDUPLICATION: YES; IMBRICATION: NO

In this section, we look at the forms where reduplication occurs but where imbrication is not found in the reduplicated affix. These forms are illustrated in (26) and (27).

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[6]Only **-al-** is questionable as a Kinande verbal extension. However, it does behave as an extension in the following forms, the first of which in (a) are loan words from Swahili.

a. **ɛrí-pak-a**	'to smear'	**ɛri-pak-al-a**	'to smear'
b. **ɛrí-twɪkal-a**	'to stumble'	**ɛrí-twɪk-ang-al-a**	'to stumble'

(26)	**ambal-**	**ɛri-ambala.mbala**	to wear hurriedly
	ahul-	**ɛrí-ahula.hula**	to name hurriedly
	ɔmbɔl-	**ɛrí-ɔmbɔla.mbɔla**	to steal hurriedly
	ɔsɥl-	**ɛrí-ɔsɥla.sɥla**	to fill hurriedly
	amir-	**ɛrí-amira.mira**	to support hurriedly
	ɪman-	**ɛrí-ɪman.mana**	to stand up hurriedly

(27)	**ambal-**	**mɔ́twámbɛrɛ**	**mɔ́-tu-á-mbala.mbalɪrɛ**
		/mɔ-tu-a-ambal-ɪrɛ/	***mɔ́-tu-á-mbala.mbɛre**
		'we put on clothes'	***mɔ́-tu-á-mbɛrɛ.mbɛrɛ**
	ahul-	**mɔ́twahwɪ́rɛ**	**mɔ́-tu-a-ahula.húlɪ́rɛ**
		/mɔ-tu-a-ahulɪrɛ/	***mɔ́twahula.hwɪ́rɛ**
		'we named'	***mɔ́twahwire.hwírɛ**
	ɔmbɔl-	**mɔ́twɔmbwɛ́re**	**mɔ́-tu-a-ɔmbɔla.mbɔ́lɪ́rɛ**
		/mɔ-tu-a-ɔmbɔl-ɪrɛ/	***mɔ́twɔmbɔla.mbwɛ́rɛ**
		'we stole'	***mɔ́twɔmbwɛrɛ.mbwɛ́rɛ**
	ɔsɥl-	**mɔ́twɔswɪ́rɛ**	**mɔ́-tu-a-ɔsɥla.súplɪ́rɛ**
		/mɔ-tu-a-ɔsɥl-ɪrɛ/	***mɔ́twɔsɥla.swɪ́rɛ**
		'we filled'	***mɔ́-tu-a-swɪrɛswɪ́rɛ**
	amir-	**mɔ́twamɪ́rɛ**	**mɔ́-tu-amira.mirɪ́rɛ**
		/mɔ-tu-a-amir-ɪrɛ/	***mɔ́-tu-a-mira.mɪ́rɛ**
		'we supported'	***mɔ́twamirɛ.mɪ́rɛ**
	ɪman-	**mɔ́twɪméne**	**mɔ́-tu-a-ɪmana.mánɪ́rɛ**
		/mɔ-tu-a-ɪman-ɪrɛ/	***mɔ́twɪmana.méne**
		'we stood up'	***mɔ́twɪmɛnɛ.méne**

Given a form like **mɔ́-tu-a-ámbɛrɛ**, the stem **-ámbɛrɛ** consists of two syllables for the purpose of reduplication since a vowel without onset does not count as a syllable. In the reduplicated form, one would expect this whole stem to be repeated, because it would fill up the two-syllable template of the reduplicated affix. However, it is not. As said in Mutaka and Hyman (1990), this is due to the fact that, the reduplicated affix and the non-reduplicated base each appear on different planes. Because the initial vowel does not count as a syllable, the first two syllables that could form the first half of the reduplicant in a form like **mɔ-tu-a-ambalɪrɛ** would be **mbal-ɪ**. This would violate the MIC. Consequently, only **mbal** appears with the vowel **a** as the rime to the second syllable. As for the second half of the reduplicated form, i.e., **mbalɪrɛ**, the **ɪ** of **-ɪrɛ** is not preceded by two vowels in the stem. The form thus no longer fulfills the condition for imbrication to obtain. That is why the second half of the reduplicated form surfaces as **mbalɪrɛ**, that is, its non-imbricated form.

If the stem is long enough, that is, if **-ɪrɛ** in the base (minus the initial vowel if the stem starts with a vowel as in (28)) is preceded by two vowels, imbrication occurs in the second half of the reduplicated form as illustrated in the forms in (28) and (29).

(28)	**andaɣal-**	go down	**ɛrí-andaɣa.ndaɣala**
	twikangal-	stumble	**ɛrí-twɪka.twɪkangala**
	sɔmbɔl-	sort	**ɛri-sɔmba.sɔmbɔla**
	ɣɔsɔl-	use (tool)	**ɛrí-ɣɔsa.ɣɔsola**

(29)	**mɔ́twandaɣéɾɛ**	**mɔ́-tu-a-andaɣa.ndaɣéɾɛ**
	/mɔ-tu-a-andaɣal-ɪɾɛ/	***mɔ́-tu-a-andaɣa.ndaɣálɪ́ɾɛ**
	'we descended'	
	mɔ́twatwɪkangéɾɛ	**mɔ́-tu-a-twɪka.twɪkangéɾɛ**
	/mɔ-tu-a-twikangal-ɪɾɛ/	***mɔ́-tu-a-twɪka.twɪkangálɪ́ɾɛ**
	mɔ́twásɔ́mbwɛɾɛ	**mɔ́twásɔ́mba.sɔmbwɛɾɛ**
	/mɔ-tu-a-sɔmbɔl-ɪɾɛ	***mɔ́twásɔ́mba.sɔmbɔlɪ́ɾɛ**
	mɔ́twaɣɔswéɾɛ	**mɔ́twaɣɔsa.ɣɔswéɾɛ**
	/mɔ-tu-a-ɣɔsɔl-ɪɾɛ/	***mɔ́twaɣɔsa.ɣɔsɔ́lɪ́ɾɛ**

3. COULD IMBRICATION OCCUR IN NON-REDUPLICATED FORMS?

From the different forms examined so far, it has been seen that imbrication applies on both reduplicated and non-reduplicated forms. In this section, we examine two types of data: first, data where reduplication does not occur and secondly, exceptional forms of imbrication in Kinande.

Consider first the forms in (30) and (31).

(30)	**bindingul-**	turn	***ɛɾí-binda.bindingula**
	hɪnɔngɔl-	crush	***ɛɾi-hɪna.hɪnɔngɔla**
	kabukal-	come out	***ɛɾí-kaba.kabukala**
	kumbaɣal-	roll down	***ɛɾi-kumba.kumbaɣala**
	kumbatir-	embrace	***ɛɾí-kumba.kumbatira**
	kɥnungul-	uncover	***ɛɾí-kɥna.kɥnungula**
	sɔkɔngɔl-	peck	***ɛɾí-sɔka.sɔkɔngɔla**
	birikir-	call	***ɛɾí-bira.birikira**
	hulikirir-	listen	***ɛɾí-hula.hulikirira**
	titiman-	shake	***ɛɾi-tita.titimana**
	hɥhɥman-	sadden	***ɛɾí-hɥha.hɥhɥmana**

(31)	**mɔ́twabindingwɪ́ɾɛ**	we turned	***mɔ́twabinda.bindingwɪ́ɾɛ**
	/mɔ-tu-a-bindingul-ɪɾɛ/		
	mɔ́twáhɪ́nɔngwɛɾɛ	we crushed	***mɔ́twáhɪ́na.hɪnɔngwɛɾɛ**
	/mɔ-tu-a-hɪnɔngɔl-ɪɾɛ/		
	mɔ́twakabukéɾɛ	we came out	***mɔ́twakaba.kabukéɾɛ**
	/mɔ-tu-a-kabukal-ɪɾɛ/		
	mɔ́twákúmbagɛɾɛ	we rolled down	***mɔ́twákúmba.kumbagɛɾɛ**
	/mɔ-tu-a-kumbagal-ɪɾɛ/		
	mɔ́twakumbatɪ́ɾɛ	we embraced	***mɔ́twakumba.kumbatɪɾɛ**
	/mɔ-tu-a-kumbatir-ɪɾɛ/		
	mɔ́twakunungwɪ́ɾɛ	we uncovered	***mɔ́twakuna.kunungwɪ́ɾɛ**
	/mɔ-tu-a-kunungul-ɪɾɛ/		
	mɔ́twasɔkɔngwéɾɛ	we pecked	***mɔ́twasɔka.sɔkɔngwéɾɛ**
	/mɔ-tu-a-sɔkɔngɔl-ɪɾɛ/		
	mɔ́twabirikɪ́ɾɛ	we called	***mɔ́twabira.birikɪ́ɾɛ**
	/mɔ-tu-a-birikir-ɪɾɛ/		

mɔ́twahulikirɟrɛ /mɔ-tu-a-hulikirir-ɟrɛ/	we listened	***mɔ́twahula.hulikirɟrɛ**
mɔ́twátítimɛnɛ /mɔ-tu-a-titiman-ɟrɛ/	we shook	***mɔ́twátíta.titimɛnɛ**
mɔ́twáhʉ́hʉmɛnɛ /mɔ-tu-a-hʉhuman-ɟrɛ/	we saddened	***mɔ́twáhʉ́ha.hʉ́hʉ́mɛnɛ**

To express the non-occurring forms, one would add the word **lubaluba** meaning 'quickly', e.g., **mɔ́twabindingwɟré lubálu:ba** 'we turned hurriedly'.

As illustrated in these forms, the imbrication occurs in the non-reduplicated forms in the left column. The reason given for the lack of reduplication of these forms is that reduplication would violate the MIC. Notice that, unlike the polysyllabic forms discussed earlier and in which reduplication occurred, it was observed that the -VC- that constitutes the second vowel and third consonant in the string could be interpreted as a potential morpheme. The majority of such -VC- strings in these words do not resemble the known verbal extension morphemes in Kinande: **-ind-**, **-ong-**, **-at-**, **-ung-**, **-im-**, **-um-**. The crucial condition could then be: is the -VC- that follows the first CVC- in a verbal base a potential morpheme? If yes, then reduplication could occur, if not, it would not. In this way, the MIC will still serve as the Occam's razor for filtering the polysyllabic stems that are candidates for reduplication.

Consider also the exceptional forms in (32) and (33).

(32)	**tu-wítɛ**	we have	**?tu-yir-ɟrɛ**
	tu-ná-wítɛ	we do have	**?tu-na-yir-ɟrɛ**
(33)	**tú-mbitɛ**	we wear	**?tu-ambal-ɟrɛ**
	tu-ná-mbitɛ	we do wear	**?tu-na-ambalɟrɛ**

It is difficult to really say that these forms derive, respectively, from the roots **-yir-** 'to have' and **-ambal-** 'to wear'. For one thing, the regular forms are not conjugated with the **-ɟrɛ** ending in the two tenses where their **-itɛ** counterparts appear. On the other hand, the root in both the **-itɛ** form and the regular form is not uniform. The **-itɛ** form could be considered a case of suppletion especially for the root **-yir-** in that this root is replaced by **-w-** in the **-itɛ** form to form **witɛ**. It should also be pointed out that the **-itɛ** form does not reduplicate. One cannot say **tu-witɛ.witɛ**, **tu-mbitɛ.mbitɛ**. As pointed out to me by Hyman (pers. comm.), the **-ite** ending is sporadically found in Bantu languages as a remnant of the **-ɟrɛ** morpheme.

Finally, I would like to make a few remarks about some forms in the Mutaka and Hyman article about the roots of the form CVCVC and their extensions.

First, I would like to stress the fact that more acceptable reduplicated forms are found in the forms whose -VC- (the second vowel and the third consonant) resembles a formal verbal extension such as **-ul**, **-al-**, **-er-**, **uk-**. Among such words, there are some that are not reduplicated as pointed out in the article. Even such words sound more acceptable than those whose -VC- cannot be argued to be a frozen morpheme. Compare the forms in (34) and (35).

(34)	**?mɔ́-tu-a-buta.butúk-ɟré k'ɔbuhérɛ** we TM appear hurriedly scabies	we got scabies all over
(35)	***mɔ́-tu-á-húra.hurutɟrɛ** we TM snore hurriedly	we snored

In (34) the root **-butuk-** of the verb **ɛrí-butuk-a** 'to appear' can be further segmented into **but-uk-**: the root **-but-** is still related to **butuk-** 'to give birth'. In (35), the root **hurut-** of the verb **ɛri-hurut-a** cannot be further segmented. Sentence (34) is far more acceptable than sentence (35).

Secondly, I would like to point out that the polysyllabic forms mentioned in Mutaka and Hyman (1990) whose stems are copied in the reduplication, cannot actually be conjugated. In other words, although an infinitive form like **ɛrí-bindul-a** does reduplicate as **ɛrí-bindula.bindula**, its conjugated form is not acceptable as further illustrated by the examples in (36) taken from Mutaka and Hyman (1990).

(36)	**ɛrí-bindul-a**	to change	***mɔ́-tu-a-bindula.bindwɨ́rɛ**
	ɛri-ɣuluk-a	to fly	***mɔ́-tu-á-ɣúluka.ɣulukɨrɛ**
	ɛri-hurut-a	to snore	***mɔ́-tu-á-húruta.hurutɨrɛ**
	ɛrí-birikir-a	to call	***mɔ́-tu-a-birikira.birikɨ́rɛ**
	ɛrí-kɔrɔɣɔt-a	to scratch	***mɔ́-tu-a-kɔrɔɣɔta.kɔrɔɣɔ́tɨ́rɛ**

Consequently, this type of reduplication of the polysyllabic stems is also marginal.

Thirdly, I would like to point out that forms that derive from adjectives such as **ɛrí-nɛnɛh-a** 'to become fat' where **nɛnɛh-** derives from **nɛnɛ-** 'big' and the formative **-h-** do not behave in any special way. Consider the forms in (37)–(39) suggested to me by Larry Hyman (email communication).

(37)	**anguh-**	**ɛri-anguha.nguha**	to be fast (< **angu** 'fast')
	ubah-	**ɛrí-ubaha.baha**	to be afraid (< **uba** 'fear')
(38)	**nɛnɛh-**	**ɛrí-nɛna.nɛnɛh-a**	to become fat (< **nɛnɛ** 'big')
		??ɛri-nɛnɛ.nɛnɛh-a	
(39)	**lɨtɔh-**	**??ɛri-lɨta.lɨtɔh-a**	to become heavy (< **lɨto** 'heavy')
		***ɛri-lɨto.lɨtɔh-a**	
	kalih-	**??ɛrí-kala.kalih-a**	to become sour (< **kali** 'piquant')
		***ɛrí-kali.kalih-a**	
	pɛnɛh-	**??ɛri-pɛna.pɛnɛh-a**	to refuse
		***ɛri-pɛnɛ.pɛnɛh-a**	
	tsibuh-	***ɛri-tsiba.tsibuh-a**	to become evil (< **tsibu** 'bad, evil')
		***ɛri-tsibu.tsibuh-a**	

The forms in (37) behave as expected: they reduplicate because the stem consists of two syllables as the initial stem vowel does not count as a syllable for the purpose of reduplication. One would expect the forms in (38) and (39) to reduplicate and to have the first two syllables copied as the reduplicated affix, in case the reduplicated affix is to be considered a morphological unit such as a minimal word or a morpheme. Notice that it is only the form in (38) that reduplicates. Even when it does so, the vowel of the second syllable is **a**, not **ɛ**. This seems to indicate that the reduplicated affix is a phonological unit, not a morphological unit.

4. CONCLUSION

Given the various examples discussed in this article, imbrication occurs in most cases where reduplication is found. The marginal cases showing a discrepancy between imbrication and reduplication can be explained away by the morpheme intergrity constraint MIC

discussed in (Mutaka and Hyman 1990); thus, (a) for cases where the imbrication appears in the second part of the reduplicated form, as in **mɔ-tw-a- ndaga.ndagɛrɛ** 'we went down hurriedly', it has been shown that imbrication does not occur (i.e., **ndaga-** NOT **ndage-**) because the root morpheme **-andagal-** would be split, thus violating the MIC; (b) forms such as **bindingul-** 'turn' of which the ending is amenable to imbrication cannot also reduplicate or imbricate because, if the first two syllables were to form the reduplicated base, they would also violate the MIC.

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APPENDIX

Following Larry Hyman's suggestion, these reduplicated causative forms using the **-is-** infix can be called "intensivized alternates". Note that they can also undergo the regular reduplication as shown in examples (a) and (b).

(a)	**eri-sw-es-es-y-a**	to cause to grind
	eri-swesa.swesesyâ	to cause to grind hurriedly
	?eri-swesya.swesesyâ	
	***eri-swese.swesesyâ**	
	eri-n-es-es-y-a	to cause to defecate
	eri-nesa.nesesyâ	to cause to defecate hurriedly
	?eri-nesya.nesesyâ	
	***eri-nese.nesesyâ**	
	eri-ót-es-es-y-a	to cause to light
	eri-ótesa.tesesyâ	to cause to light hurriedly
	??eri-ótesya.tesesyâ	
	***eri-ótese.tesesyâ**	

(b)	**mó-tw-á-sw-és-es-ɟr-ɟ-ɛ**	(recent past)
	??**mótwá-swésa.swesesɟryê**	we caused to grind
	***mótwá-swése.swesesɟryê**	
	mó-tw-á-n-és-es-ɟr-ɟ-ɛ	(recent past)
	??**mótwá-nésa.nesesɟryê**	we caused to defecate
	***mótwá-nése.nesesɟryê**	
	mó-tw-ot-es-es-ɟr-ɟ-ɛ	(recent past)
	??**mótw-otesa.tesesɟryê**	we caused to burn
	***mótw-otese.tesesɟryê**	

As indicated in (a), the reduplicated forms of which the first syllable consists of the first stem vowel and the second syllable has the vowel **-a-** (not **-y-a**) are correct and are the ones which fully respect the morpheme integrity constraint in Mutaka and Hyman (1990). The forms with a question mark are fairly acceptable whereas those with an asterisk are not. As for the forms in (b), Jacky Syauswa (one of my consultants) and I find them rather marginal. My use of the asterisk and question marks is entirely based on our intuition as native speakers of the language. Thus, the forms with two question marks are still more acceptable than the ones with the asterisk. (I am indebted to Larry Hyman for drawing my attention to these forms.)