Journal of West African Languages XV, 2 (1985)

GLIDE FORMATION, ELISION, ASSIMILATION AND CONTRACTION A REASSESSMENT - EVIDENCE FROM ISOKO

Shirley Donwa-Ifode

This paper discusses the major phonological processes which apply to vowels when they are in sequence within or across a morpheme boundary in Isoko. Isoko is a southwestern Edoid language spoken in parts of the Bendel State of Nigeria. The pattern of operation of these processes is of particular interest for typological and theoretical reasons such as the interplay of syntactic relations in the application of phonological processes, and rule ordering. Most importantly, the paper argues for the necessity of separating the process of vowel contraction from elision. Both of these processes have often (particularly amongst linguists working on Nigerian languages) been either treated as alternate terms referring to the same set of segmental changes or used in some rather confusing manner.

Cet article présente les principaux processus phonologiques s'appliquant aux voyelles lorsqu 'elles se présentent à l'intérieur ou travers les limites morphématiques en langue Isoko. L'Isoko est une langue du groupe Edoid du sud ouest, parlée dans l'Etat Bendel du Nigéria. Les principes de fonctionnement de ces processus sont d'un intérêt particulier pour des raisons typologiques et théoriques, tels que l'interaction des relations syntactiques dans l'application des processus phonologiques et l'établissement des règles. Le plus important dans cet article est l'insistance sur la necessité de séparer le processus de contraction des voyelles de celui d'élision. Ces deux processus ont souvent été soit traités comme alternatifs se réfèrant aux mêmes transformations de segments (particulièrement pour les linguistes travaillant sur les langues Nigériennes) ou utilisés d'une manière confuse.

0. INTRODUCTION

Whenever two underlying vowels across a morpheme boundary (V_1 + V_2) are realized as a single short vowel on the surface, (V_2) elision, assimilation followed by elision, or assimilation followed by contraction is postulated. Hoffman (1972) postulates contraction to account for the derivation of V_2 from V_1 + V_2 where V_1 is not identical with V_2 in Kambari. Elugbe (1972) accounts for the derivation of V_2 from V_1 + V_2 by elision as in:

/ɔ dɛ ɛwé/	------->	[ɔ déwé]
'he buy goat'		'he bought (a) goat'

Maddieson (1972) asserts that no elision takes place in a sequence of two vowels unless they are identical; that is $V_1 + V_2$ ---> V_2V_2 ---> V_2 by assimilation followed by elision. Perhaps it is with this kind of assumption that Williamson (1979) accounts for the derivation like

kɛ	+	**omɛ**	---->	**koomɛ**	----->	**komɛ**
'give'		'me'				'give me'

in Isoko by assimilation followed by elision. It is not unlikely that those who prefer to account for such changes by elision alone, tacitly assume that it is more economical to do so than postulating assimilation, followed by elision or contraction which would require two steps.

Where the sequence of two vowels do not become identical before the sudden appearance of a single short vowel, such as analysis seems alright, but where they become identical first, it is necessary to reflect that stage.

In Elugbe (1972) cited above, nothing is said about an intermediate stage where $V_1 + V_2$ become identical (V_2V_2) before the said elision. My data from a large number of Urhobo dialects show that the assimilation stage where V_2V_2 are heard is an acceptable surface form in the language. This stage needs to be accounted for first before the single short vowel. In addition to reflecting this other stage, the analysis of the derivation of the surface form of vowel sequences in some of these languages should also take cognizance of what other differences there are in the application, or direction of application of some of these processes. My Urhobo data show that there are two possible derivations of $V_1 + V_2$. They are:

a) $V_1 + V_2$ ---> $V_2\ V_2$ ---> V_2
   (where V_1 is not a close vowel i or u)

b) $V_1 + V_2$ ---> $V_1\ V_1$ ---> V_1

The change in (a) applies in verb plus nominal, nominal plus nominal or numeral constructions, while (b) applies in a nominal plus qualifier construction (where V_1 is a stem vowel and V_2 is a concord prefix). It is cases like these which are also observed in Isoko, a closely related coterritorial language, that have prompted the discussion in this paper. The phenomena discussed here apply almost identically in both languages.

For some linguists the term contraction characterizes a process whereby words or phrases are shortened by the elision of one or more segments and tones in the words and phrases concerned. In Yoruba, vowel assimilation is a process unrelated to contraction (cf. Bamgbose (1965), Oyelaran (1972) and Awobuluy (1978, 1984). Assimilation is considered a morphologically conditioned process restricted to noun plus noun collocation.

In Igbo (Emenanjo 1972) with the exception of a few utterances, assimilation operates in the same way in all collocations applying to all vowels in V_1 position (provided they are not /i ɪ u ʊ/). My discussion here will show that Isoko is midway between Yoruba and Igbo. The process of assimilation (always optionally followed by contraction) applies to all constructions but the direction is determined by the construction type.

Chumbow (1982), working on Ogori, views contraction as a cover term for a number of discrete processes including assimilation and elision. Since I do not have the relevant data and facts of Yoruba, Igbo, Ghotuo, Kambari or Ogori to examine the subject further, I will show in this paper that vowel contraction is a direct consequence of vowel assimilation in Isoko, and that elision operates in a way different from assimilation and contraction.

1. VOWEL SEQUENCES

Isoko has nine phonological vowels /i ɪ e ɛ a ɔ ʊ u/. Although a spectrographic study of the vowels (Donwa 1983) shows that the vowels [e] and [ɔ] are closer or higher than [ɪ] and [ʊ] respectively, for ease of reference and because of the way they function phonologically, the vowels /i ɪ/ and /ʊ u/ are referred to as close vowels. There are no closed syllables and thus no word final consonants in the language. Each word in this language contains a stem of the structure CV, CV-V, CCV or CV-CV. Two items in our data have the stem CV-V-V with the final V being optional. Generally sequences of two vowels (V_1V_2) within stems are very common.

These sequences are of two types. The first are opening in which V_1 is a close vowel and V_2 is an open vowel.

(1)	ɔpɪa	'matchet'		izúó	'soup
	ʊvíɛ́	'cry'		ɛsʊ́ó	'to sing'
	ovie	'king'		ó vʊ́ɛ́	'message'
	esíó	'to pull'		emúó	'to catch'

The second type of vowel sequences are the closing sequences where V_1 is an open vowel and V_2 is a close vowel.

(2)	ózaɪ	'man'		araʊ	'animal' or 'meat'
	ʊhɔɪ	'hunger'		ɛrɔʊ	'tongue'
	ódóí	'mortar'		uzou	'head'
	evéí	'monkey'			

Since the language has no closed syllables and, all nouns and qualifiers begin with a vowel, it often happens that vowels are juxtaposed at morpheme boundaries. This has resulted in various types of sequences across morpheme boundaries as shown in (3) below:

(3) **ɔlɛ́ + ɔ́mɔ́** ----> **ɔlɛ́ɔ́mɔ́**
'yam 'child' '(a) child's yam'

ovie + ɛ́ɣwɑ ----> **ovieɛ́ɣwɑ**
'king' '(the) king of (a) town'

ovie + ɔnana ----> **ovieɔnana**
'king' 'this one' 'this king'

kpe + ɔ̀hʊ́ó ----> **kpeohʊ́ó**
'kill' 'person' 'kill (a) person' etc.

The processes which vowels undergo when in a sequence within stems or across boundaries are determined by the kind of sequence and the grammatical relation, between the juxtaposed morphemes.

Such juxtaposed morphemes could be verb + noun phrase or elements of a noun phrase such as the head of the noun phrase and its qualifiers. When in a noun phrase (NP) the head occurs with a qualifier, this qualifier always occurs after the head of the NP. As head of a noun phrase a noun can be qualified by another noun as in an associative construction, a numeral, a demonstrative, an article or an adjective. Every qualifier in this position is characterized by an initial vowel. Whereas the initial vowel of the noun or numeral functioning as head or qualifier is inherently a noun prefix, that of all other qualifiers is a concordial prefix.

Isoko has a vestigial noun class system with number being the only trace of concord left. These concordial prefixes take part in the number agreement with the nominal which the qualifier occurs with.

For example:

(4) **ɔlɛ́ ɔ́káka** 'small yam' **ɪlɛ́ ɪ̀káka** 'small yams'
'yam 'small'

ɔlɛ́ ɔnana 'this yam' **ɪlɛ́ ɪnana** 'these yams'

ɔlɛ́ ɔmɛ́ 'my yam' **ɪlɛ́ ɪmɛ́** 'my yams'

The main reason why it is necessary to note the distinction between a noun prefix in a qualifier position in the NP and a concordial prefix in the same position, is the effect of these concordial prefixes on the phonological process to be discussed here. When in the NP a noun is qualified by another noun or numeral, the initial vowel of the noun or numeral does not take part in the concordial agreement with the head while all other qualifiers do, hence the noun or numeral in this position is not syntactically the same as other qualifiers in the same position.

The presence of these concordial prefixes may block certain phonological processes such as glide formation or reverse the direction of the application of others such as assimilation.

In the sections that follow we shall see how the syntactic relation between the final vowel of a morpheme and the initial vowel of the following morpheme interact with these processes in the language.

In the rest of this paper, the low tone is unmarked. The following abbreviations are used:

GF	=	Glide Formation
V.El	=	Vowel Elision
V.As	=	Vowel Assimilation
V.Ct	=	Vowel Contraction

2. GLIDE FORMATION

When words are uttered in isolation, the close vowels in the opening sequences undergo a glide formation process while all vowels in the closing sequences remain unchanged. Thus while sequences of the opening type lead to glide formation, their mirror image sequences do not. The structural condition under which glide formation will apply to a close vowel is that it occurs between a consonant and an open vowel.

(5)	ɔpɪa	--> ɔpja	'matchet'	ovie	--> ovje	'king'
	edúó	--> edwó	'to pound'	ɛsɛ́ɔ́	--> ɛswɔ́	'to sing'
	ɛgɵa	--> ɛgwa	'beans'	oɾiɛ́í	--> oɾjɛ́í	'palm tree'

The glide formation process applies not only within morphemes but also across morpheme boundaries as in:

(6) úbi + ɔ́ka ---> úbjɔ́ka
'seed' 'corn' '(a) seed of corn'

si + úfi ---> sjúfi
'pull' 'rope' 'pull (a) rope'

udu + aḍa ---> údwád
'chest' 'bat' 'chest of (a) bat'

sɔ́ + ole ---> swòlè
'sing' 'song' 'sing (a) song'

The process of glide formation is blocked in a construction consisting of a nominal plus a qualifier which is neither a noun nor a numeral. What takes place here is assimilation and contraction - V_2 assmilates to and contracts with the close vowel:

(7) **úbi + ɔnana ---> úbiinana ---> úbinana**
'seed' 'this one' 'this seed'

údu + ɔmɛ́ ---> úduumɛ́ ---> údumɛ́
'chest' 'mime'

arɷ + ɪna ---> arɷɷna ---> àrɷna
'eyes' 'the' (pl)

These cases are discussed further in a later section.

3. ELISION, ASSIMILATION AND CONTRACTION

Unlike the phonological process of glide formation, the processes of elision, assimilation and contraction apply only across morpheme boundaries. Whereas assimilation, contraction and glide formation are optional, elision, when the conditions for its application are met, is obligatory. Where assimilation has taken place, contraction is an optional process that may or may not apply. The use of the terms elision, assimilation and contraction will become clear as the paper proceeds.

3.1 ELISION

This process applies only when a closing sequence of vowels occurs before a morpheme boundary followed by another word. The close vowel occurring as the second or third in a sequence of two or three vowels before a boundary is elided and the situation created by this elision is then ideal for the application of assimilation. The process of elision is thus never final in itself; it is always followed by another process. Consider the examples in (8):

(8) (a) **uzou + ɔ́mɔ́**
'head' 'child'
By V.El **uzo + ɔ́mɔ́**
V.As **uzɔ́ɔ́mɔ**
V.Ct **uzɔ́mɔ́**
'head of a child'

(b) **ɛɾɔ + aḍá**
'tongue' 'bat'
ɛɾɔ + aḍá
ɛɾááḍá
ɛɾáḍá
'tongue of a bat'

(c) **fou + ɪɾaɪ**
'blow' 'fire'
By V.El **fo + ɪɾaɪ**
V.As **fɪɪɾaɪ**
V.Ct **fɪɾaɪ**

(d) **ɔ́dɔ́í + ɛgɔ́**
'mortar' 'fufu'
ɔ́dɔ́ + ɛgɔ́
ɔ́dɛ́ɛ́gɔ́
'mortar of fufu'

In the examples in (8), we assume that the boundary between the two items in each construction is deleted before the optional contraction of the two identical vowels on either side of it. The presence of the boundary is vital for the operation of elision and assimilation since we could otherwise not explain why **ùzòù** 'head' for instance is not uzuu, nor why **àràù + òvîè** does not become **àròòòvîè**.

Where a sequence of three vowels occurs before a boundary, the final vowel, which is always a close one, is elided followed by an assimilation of the second vowel to the vowel across the boundary. Note that in such cases as in (9) below, the first of the three vowel sequence is also a close one. The glide rule will, therefore, first convert the stem - initial (close) vowel into a glide. Processes that apply within stems are ordered before those that apply across boundaries.

(9) (a) **ɛgɷa + ovie**
'beans' 'king'
By GF **ɛgwa + ovje**
By V.El **ɛgwa + ovje**
By V.As **ɛ́gwɔ́ɔvje**
By V.Ct **ɛ̀gwɔ́vje**
'king's beans'

(b) **ɔɾiɛ́ɪ́ + ɔsɛ**
'palm tree' 'father'
ɔɾjɛ́ɪ́ + ɔsɛ
ɔɾjɛ́ + ɔsɛ
ɔɾjɔɔsɛ̀
ɔɾjɔ́sɛ
'father's palm'

Whereas vowel sequences of the opening type occurring before morpheme boundaries are subject to glide formation followed by assimilation and contraction, sequences of the closing type undergo elision, assimilation and contraction. The point here is that in cases like (8) and (9) elision occurs precisely to make the open vowel in the closing sequence eligible for assimilation and contraction.

3.2 ASSIMILATION AND CONTRACTION

Where there are two vowels on either side of a boundary, there is a complete assimilation of the vowel before the boundary (V_1) to that after the boundary (V_2) if V_1 is a non-close vowel and V_2 is not identical with V_1. The process applies vacuously where V_1 and V_2 are identical. Following the assimilation of V_1 to V_2 the sequence V_2V_2 may optionally be contracted into a single V_2.

$V_1 + V_2 \longrightarrow V_2V_2$ or $V_1 + V_2 \longrightarrow V_2V_2 \longrightarrow V_2$

(10) (a) **ole + ɔ́ni**
'song' 'mothers'
By V.As **oli ɪ́ni**
By V.Ct **olɪ́ni**
'song of mothers'

(b) **ú́dɛ + ɔ́mɔ́**
'cream' 'child'
ú́dɔ́ɔ́mɔ́
ú́dɔ́mɔ́
'(a) child's cream'

(c) **dɛ + ɛ́ɣɔ́**
'buy' 'cup'
By V.As **de ɛ́ɣɔ́**
By V.Ct **dɛ́ɣɔ́**
'buy cup'

(d) **da + udi**
'drink' 'wine'
du udi
dudi
'drink wine'

(e) **ú́ɣɔ́ + aji**
'money' 'woman'
By V.As **ú́ɣááji**
By V.Ct **ú́ɣáji**
'woman's money'

(f) **bɔ + uhuo**
'build' 'house'
bu uhuo
buhuo
'build (a) house'

Where assimilation does not apply as in a slow deliberate register, for instance, V_1 and V_2 will simply be juxtaposed. Thus sequences of various types which do not necessarily occur within stems are found across morpheme boundaries.

(11) (a) éɣó + ɔmɔ ----> éɣóɔmɔ
'cup' 'child' '(a) child's cup'

(b) dɛ + aràɑ ----> dɛaɾaɑ
'buy' 'meat' 'buy meat'

(c) lɔ + ɛgɑ́ ----> lɔɛgɑ́
'swallow' 'fufu' 'swallow fufu'

Where an opening sequence of vowels occurs before a boundary, V_1 assimilates to V_2 only after the initial close vowel has been converted to a corresponding glide by the glide formation process (cf. 2.1).

(12) (a) ovie + éɣwɑ
'king' 'town'
By GF ovje + éɣwɑ
By V.As ovjɛ éɣwɑ
By V.Ct ovjéɣwɑ
'king of (a) town"

(b) ɪvíɛ́ + ɔmɔ́
'shoes' 'child'
ɪvjɛ́ + ɔmɔ́
ɪvjɔ́ ɔmɔ́
ɪvjɔ́mɔ́
'(a) child's shoes'

(c) əhúó + ɔɣɛnɛ́
'people' 'God'
By GF ahwó ɔɣɛnɛ́
By V.As ahwɔ́ɔɣɛnɛ́
By V.Ct ahwɔ̀ɣɛnɛ́
'people of God'

(d) ɓvɓɛ́ + ɔ́nì
'message' 'mother'
ɓvwɛ́ + ɔ́nì
ɓvwɔ́ɔ́ni
ɓvwɔ́ni
'mother's message'

The direction of assimilation under discussion so far is regressive and the condition under which it applies is phonological. Regressive assimilation which is phonologically conditioned applies to vowels in noun plus noun constructions, verb plus noun or verb plus any nominal constructions.

Assimilation is not, however, always regressive in Isoko. Assimilation in this direction is blocked when V_2 is not a noun or numeral qualifier prefix vowel and V_1 is a nominal stem vowel. Where V_2 is the prefix vowel of a qualifier which is not a noun or numeral and V_1 is a nominal stem vowel, V_2 assimilates and contracts with V_1.

(13) (a) ɔbɑ + ɔnana
'doctor' 'this one'
By V.As ɔbɑ ɑnana
By V.Ct ɔbɑnana
'this doctor'

(b) ɪbɑ + ɪnana
'n. doctors' 'these ones'
ɪbɑɑnana
ɪbɑnana
'these native doctors'

(c)	**oɖé + ɔmɛ́**	(d) **ɪmɔ́ + ɪmɛ́**
	'basin' 'mine'	'children' 'mine'
By V.As	**oɖé emɛ́**	**ɪmɔ́ ɔmɛ́**
By V.Ct	**oɖémɛ**	**ɪmɔ́mɛ́**
	'my basin'	'my children'
(e)	**ɔ́ka + ɔ́gága**	(f) **ɪ́ka + ɪdʒɔ**
	'maize' 'hard'	'maize (pl)' 'some'
By V.As	**ɔ́kaágága**	**ɪ́kaadʒɔ**
By V.Ct	**ɔ́kágága**	**ɪ́kadʒɔ**
	'hard maize'	'some maize'

Where we have an opening sequence of vowels before the boundary and V_2 is a qualifier prefix, as in (14) V_2 will assimilate and contract with the open vowel before the boundary only after V_1 has been converted to the corresponding glide.

(14) (a)	**ovie + ɔnana**	(b) **ivie + ɪnana**
	'king' 'this one'	'kings' 'these ones'
By GF	**ovje + ɔnana**	**ivje + ɪnana**
By V.As	**ovjeenana**	**ivjeenana**
By V.Ct	**ɔ̀vjenana**	**ivjenana**
	'this king'	'these kings'
(c)	**izɔ́ɔ́ + ɔmɛ́**	(d) **ɔrɵɛ + ɔ́gbégbe**
	'soup' 'mine'	'lunatic' 'dirty one'
By GF	**izwɔ́ + ɔmɛ́**	**ɔrwɛ + ɔ́gbégbe**
By V.As	**izwɔ́ɔmɛ́**	**ɔrwɛ́gbégbe**
By V.Ct	**izwɔ́mɛ́**	**ɔrwɛ́gbégbe**
	'my soup'	'a dirty lunatic'

Thus, glide formation and regressive assimilation across a morpheme boundary are blocked if, in a $V_1 + V_2$ situation, V_2 is a concord prefix. A concord element invariably assimilates to a preceding vowel. That is why a knowledge of the nature of this prefix is important for an understanding of morpheme boundary processes of Isoko. These processes of glide formation assimilation and contraction are either blocked or their order reversed in examples like (13) and (14). Note that the glide formation rule in the above examples applies within a morpheme and not across a boundary. Where a closing sequence precedes the concord prefix at a boundary, the close vowel is elided, after which V_2 assimilates to the open vowel.

(15) (a)	**uzou + ɔ́káka**	(b) **araɵ + ɔmɛ́**
	'head' 'a small one'	'meat' 'mine'
By V.El	**uzo + ɔ́káka**	**ara + ɔmɛ́**
By V.As	**ùzo ɔ́káka**	**araamɛ**
By V.Ct	**uzɔ́kaka**	**aramɛ**
	'a small head'	'my meat'

(c)	ɸzaɪ + ɔnana	ídóí + fkáka
	'well' 'this one'	'mortars' 'small ones'
By V.El	ɸza + ɔnana	ido + ɪkaka
By V.As	ɸzaanana	ídóókáka
By V.Ct	ɸzanana	ídókáka
	'this well'	'small mortars'

Whereas the process of glide formation will apply in a nominal plus noun/numeral qualifier construction, it is blocked by the presence of a concordial prefix (that is where the qualifier is not a noun or a numeral) even when the phonological conditions are met. What applies in the place of glide formation in that case is assimilation and contraction.

(16)	ɸbɪ + ɔnana	ovie + ɔnana
	'book' 'this one'	'king' 'this one'
By V.As	ɸbɪɪnana	By V.El ovi + ɔnana
By V.Ct	ɸbɪnana	By V.As oviinana
	'this book'	By V.Ct ovinana
		'this king'

The discussion so far shows that the direction of assimilation and contraction depends on the syntactic relations in the noun phrase. It is regressive in the nominal plus noun or numeral construction (as well as in many other cases where vowels meet at a boundary in the language) but it is progressive when there is a concordial prefix after the boundary. Assimilation is therefore both phonologically and syntactically conditioned.

4. DISCUSSION

Considering the presence of the processes of assimilation and contraction in this language, the question may arise as to why we should postulate elision at all, that is, why we should not account for the cases in (8) and (9) by assimilation and contraction. The overwhelming reason for postulating elision rather than assimilation and contraction is the fact that the derivation by elision involves a shorter and less complex process than would be demanded by assimilation and contraction. By the latter process we would need a multiple application of each of the two rules to derive the surface form of a string of three identical vowels $V_1V_2 + V_3$. In this case the first application of the assimilation and contraction processes would be obligatory while the final stage would be optional. There is so far no obligatory application of the assimilation and/or contraction rule(s) in Isoko. That assimilation and/or contraction would have to become obligatory is demonstrated by the fact that the string to which each would have to apply is non-occurring at the surface phonetic level. Thus, the output of the assimilation rule, normally a permissible surface string, is in this case not permissible and so forces us to apply an obligatory contraction rule. There is no way that an obligatory assimilation and contraction rule can be avoided if these processes are chosen in place of elision for the strings under discussion. Consider these

two possibilities of one process, both of which are unsatisfactory in (17).

A				B		
	araɒ + ɔmɔ		or		araɒ + ɔmɔ	
	'meat' 'child'				'meat' 'child'	
By As.	araɔ + ɔmɔ		By As.		arɔɔ + ɔmɔ	
V_2 to V_3:	$-CV_1V_3 + V_3$		V_1V_2 to V_3:		$CV_3V_3 + V_3$	
(obligatory)			(obligatory)			
By V.Ct	ara + ɔmɔ		By V.Ct		ar ɔmɔ	
$V_3 + V_3$			$V_3V_3 + V_3$		CV_3	
(obligatory)			(obligatory)			
By V.As	arɔ + ɔmɔ					
$V_1 + V_3$	$-CV_3 + V_3$					
(optional)						
By V.Ct	àrɔmɔ					
$V_3 + V_3$						
(optional)				'a child's meat'		

In B, we have two vowels assimilating to one at the same time and also a contraction of three vowels. Assimilation and contraction have to be obligatory in this case or we end up with either a sequence of three non-identical vowels, or a sequence of three identical vowels where only assimilation is made obligatory and contraction optional.

In addition to the issues just raised, the elimination of elision would make it difficult to make any generalization concerning the elision of boundaries. We said earlier that contraction takes place only after a boundary has been elided but that the boundary has to be present for assimilation to take place. Note that under (17A), it is absolutely impossible to follow this rule rigidly. Following the first assimilation rule, we may assume that the boundary is elided to allow contraction to take place. The question that arises is whether to re-introduce the boundary before the application of the second assimilation rule or to apply the rule without a boundary. Postulating assimilation and contraction in place of an elision rule to account for the forms under discussion would imply at some point either the application of an assimilation rule without a boundary or a contraction rule before boundary elision. The elision process therefore permits simpler and more natural rules in cases such as 8, 9 and 17.

Considering also the surface realizations of the morphemes after vowel contraction (cf examples 10, 12, 13, 14, and 15), one may ask why assimilation and contraction are postulated rather than elision, or assimilation and elision. For instance, instead of saying assimilation and contraction apply, one could say that neither of the two applies, but an elision process applies to give us all the surface forms, since the process is already in operation in the language.

(18) (a) úd**ɛ** + ɔ́ḿɔ́
By V.El úd**ɔ́**ḿɔ́ (as in 10)
'(a) child's cream'

(b) ɔb**ø** + ɔnana
ɔb**ø**nana (as in 13)
'this doctor'

(c) ɪvf́**ɛ́** + ɔ́ḿɔ́
By GF ɪvj**ɛ** + ɔ́ḿɔ́
By V.El ɪvj**ɔ́**ḿɔ́ (as in 12)
'(a) child's shoes'

(d) izú́ó + ɔḿ**ɛ́**
izwo + ɔḿ**ɛ́**
izwóḿ**ɛ́** (as in 14)
'my soup'

(e)i uzou + ɔ́káka or
By V.El uzo + ɔkaka
By V.El ùzókáka
'a small head'

ii uzou + ɔkaka
uzókáka

In example 18e (i) above, note that elision applies first to the vowel before the boundary, then to that after the boundary. As a matter of fact, in this case we may even claim to elide the vowel after the boundary first, or we may elide both vowels at the same time, as shown in (e) ii. (e) ii is rejected on the grounds that we have no case of the elision of two vowels at the same time. The main reason why this alternative cannot be accepted is the fact that the assimilation stage actually exists, where a sequence of two identical vowels is heard. That is, all forms derived by assimilation (in examples 10, 13, 14 and 15) are acceptable surface forms. If elision is chosen in place of assimilation and contraction, there will be no way of accounting for these forms.

Alternatively, in order to be able to account for the assimilation stage (where a sequence of two identical vowels is heard) as well as the second alternative surface form (where only one of the vowels is heard) rather than introduce contraction, we may say we have assimilation followed by elision. Consider, for instance;

(19) (a) úd**ɛ** + ɔ́ḿɔ́
'cream' 'child'
By V.As úd**ɔ** + ɔ́ḿɔ́
By V.El úd**ɔ́**ḿɔ́
'(a) child's cream'

(b) ɔ́b**ø** + ɔnaná
'n. doctor' 'this one'
ɔd**ø** + **ø**nana
ɔb**ø**nana
'this doctor'

(c) ɪvf́**ɛ́** + ɔ́ḿɔ́
'shoes' 'child'
By GF ɪvj**ɛ** ɔ́ḿɔ́
By V.As ɪvj**ɔ** ɔ́ḿɔ́
By V.El ɪvj**ɔ́**ḿɔ́
'(a) child's shoes'

(d) izú́ó + ɔm**ɛ**
'soup' 'mine'
izwó om**ɛ́**
izwó om**ɛ́**
izwóm**ɛ́**
'my soup'

This alternative seems to take care of the data as much as assimilation and contraction. The question that arises immediately, however, is why assimilate before eliding? If the assimilation stage does not exist, it is more economical to talk of elision, but once the assimilation stage has been accepted as a stage that one must get to, the next natural process is contraction, unless the assimilation stage is an end in itself. It is in the light of these observations that we have chosen to account for this data by assimilation and contraction.

It is, on the other hand, doubtful that the length of the vowel after contraction is the same as either of the vowels on either side of the boundary. The length of this vowel is not exactly the same as that of a single short vowel. It is something midway between that of a single short vowel and that of a sequence of two identical vowels. Thus, if elision were postulated, we would be wrongly claiming by this process that the length of the vowel here is the same as that of a single short vowel. The contraction process therefore more accurately represents the phonetic fact.

It may sound odd to say that contraction is a different process from elision, since in some cases they have often been seen as alternative terms referring to the same segmental process. The data from Isoko makes me feel that they should be separated.

By our analysis elision involves reduction by removal or direct omission of a segment, while contraction (of segments) involves reduction by shortening or merging. Phonologically a sequence of vowels, V_1 and V_2, must become identical before they can be contracted into one segment. The sequence of vowels is usually made identical by the process of assimilation.

Where V_1 and V_2 do not become identical, yet one of the two vowels is lost or no longer exists, we say we have elision. It is, of course, more general to postulate elision after assimilation since an elision process already exists in the language. Given (20)

dɛ́	+	úbì	------>	dù úbì --->	dúbì
'buy'		'seed'			'buy seed'

one has a choice of postulating elision or contraction since both will yield the same result. But whereas there are some contraction rules the result of which can be identical with those of elision, there are some elision rules which cannot have contraction as a possibility.

Since there is a case for postulating elision in Isoko where contraction cannot be postulated, there is thus evidence in the language for separating them. Contraction has to involve two identical vowels while elision involves cases where one has not less than two non-identical vowels.

5. SUMMARY

Glide formation, elision, assimilation and contraction are the phonological processes which apply to vowels when they are in sequence in Isoko. Elision, assimilation and contraction are cases different from glide formation with respect to their domain and direction of application.

Glide formation applies within and across morpheme boundaries provided the structural and syntactic conditions are right. Within stems, it applies to close vowels in an opening sequence; across morpheme boundaries, vowel preceded by a stem consonant, and followed by a non-identical vowel. The processes of elision, assimilation and contraction all serve as the opposite complement of glide formation, applying only across morpheme boundaries and in situations where the latter cannot apply. The conditions under which glide formation applies are thus mirror images of those in which assimilation and contraction apply.

Elision is also treated as a process distinct from contraction applying only where the latter cannot be substituted. Whereas assimilation and contraction apply between vowels on either side of a boundary and also to open vowels ending a sequence, elision only applies prior to assimilation when there is a closing sequence of vowels before a boundary.

Note that whereas the processes of glide formation, assimilation and contraction are final, the process of elision is not final in itself but ordered before other processes. The ordering of these processes when they all apply to vowels, as when there is a sequence of three vowels before the boundary, is (1) glide formation, (2) elision and (3) assimilation (and contraction). The following example illustrates and supports this ordering.

(21)	ɛgɵaɪ	+	ɔmɔ́
	'beans'		'child'
By GF	ɛgwaɪ	+	ɔmɔ́
By V.El	ɛgwa	+	ɔmɔ́
By V.As	ɛgwɔ		ɔmɔ́
By V.Ct	ɛgwɔ́mɔ́		
	'a child's beans'		

The direction of assimilation is determined by the syntactic relationships between the vowels on both sides of the boundary just as the application of the glide formation process is determined by this relationship. The syntactic relationship between vowels therefore interplays in the application or non-application, as well as the direction of application of some phonological processes.

REFERENCES

Awobuluyi, O. 1978. Essentials of Yoruba Grammar, Oxford University Press, Ibadan 1978.

Bamgboşe, A. 1965. Assimilation and Contraction in Yoruba, Journal of West African Languages Vol. II No. 1.

Chumbo 1982. Contraction and Tone Polarisation in Ogori, Journal of West African Languages, Vol. XII No. 1.

Elugbe, B. O. 1972. Assimilation and Elision in Urhobo and Ghotuo. Research Notes Vol. 5 No. 2 and 3, University of Ibadan.

Emenanjo, E. N. 1972. Vowel Assimilation in Igbo. Research Notes Vol. 5 No. 2 and 3. University of Ibadan.

Hoffman, C. 1972. A Note on Vowel Contraction in Central Kambari. Research Notes Vol.5 No. 2 and 3, University of Ibadan, Department of Linguistics.

Maddieson, I. 1972. Some Tentative General Claims on Vowel Contraction and Assimilation. Research Notes Vol. 5 No. 2 and 3. University of Ibadan.

Oyelaran, O. 1972. Some Hackneyed Aspects of the Phonclogy of the Yoruba Verb Phrase in The Yoruba Verb Phrase edited by Ayọ Bamgboşe, Ibadan University Press.