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SOUND CORRESPONDENCES AND CHANGE: A
COMPARATIVE STUDY OF BURJI, HADIYYA,
KAMBAATA, SIDAAMA AND GEDEO

BY

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June 2010

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ABSTRACT

This study is about sound correspondences and change of twenty-four consonant phonemes and five vowel phonemes in Highland East Cushitic languages (Burji, Hadiyya, Kambaata, Sidaama and Gedeo). The objective was to identify and establish phonological correspondences, to deduce sound changes and to contribute to the development of historical and comparative study of the Cushitic languages and of HEC. Data was collected from Hudson's Comparative Highland East Cushitic Dictionary. Then, the collected data were analyzed within the framework of the comparative method. The results of the analysis show that most of the consonant phonemes correspond regularly among the languages. Some non-identity correspondences were also identified. Irregular correspondences of some sounds were also noted among the languages.

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ABBREVIATIONS

acc	accusative
adj	adjective
adv	adverb
C	consonant
cf.	cross reference
cs	causative
dat	dative
dem	demonstrative
det	determiner
EC	East Cushitic
f	(grammatical) feminine
G	Gasparini 1983
glott	glottalic
HEC	Highland East Cushitic
impl	implosive
m	(grammatical) masculine
n	noun
nom	nominative
p.c.	personal communication
PEC	proto-East Cushitic
PHEC	proto-Highland East Cushitic
pl	plural
pron	pronoun
Rf	reflexive
S	Sasse 1982
sec.	section
SNNPR	Southern Nations Nationalities and Peoples Region
V	vowel
v	verb
vcd	voiced
vcls	voiceless
vi	intransitive verb
vs.	versus
vt	transitive verb
Y	Yri 1984

NOTE ON LANGUAGE NAMES

The same spelling does not consistently represent the names of most HEC languages. The spellings that are used to represent the names of the languages vary from writer to writer. For example, Treis 2008 and Hudson 2007 write Kambaata, Ehret 1987 spells Kembatta and in most old literature, it is written as Kambata. Hudson 2007 writes Sidaama, Ehret 1987 and 1991 writes Sidamo; on the other hand the language is widely represented as Sidama in most of the literature. Treis 2008 notes that in the literature T'imbaro, T'ambaaro and Timbaaro are written in various sources, but she writes Xambaaro and notes that it conforms to the official orthography of the Kambaata-Xambaaro zone. Therefore, except in direct quotations from other sources, I will consistently use the spellings Burji, Hadiyya, Kambaata, Sidaama and Gedeo to represent the name and spelling of the languages.

Chapter One: Introduction

1.1 The People and the Languages

According to Hudson (2007: 29), Burji, Hadiyya, Kambaata, Sidaama and Gedeo are Highland East Cushitic languages of the Afro-Asiatic superfamily. Hadiyya, Kambaata, Sidaama and Gedeo are spoken only in Ethiopia, but Burji is spoken both in Ethiopia and in the northern part of Kenya. In Ethiopia, these languages are spoken in the Southern Nations, Nationalities, and Peoples Region (SNNPR), which is found in the southwestern part of the country. In this regional state, the speakers of each language (i.e. the speakers of Burji, Hadiyya, Kambaata, Sidaama and Gedeo) have their own specific zones and special weredas where the people live and where the languages are mainly spoken. All of these language names also refer to the people and the place they live in.

Burji is spoken in Burji special wereda of the SNNPR. The special wereda is centered on the town of Soyama. According to Sasse (1981a:198) cited in Wedekind (1990:44), the dialect varieties of this language are described as the Highland and Lowland dialects of Burji. However, most recent studies that I have seen do not note explicitly the existence of these varieties in Burji. According to the results of the 2007 census, the number of Burji speakers is 71,871.

Hadiyya is spoken in Hadiyya zone of the SNNPR. Their zone is centered on the town of Hosaina. According to Hudson (2007 and www.edu/~hudson/HECrefs.htm.) Hadiyya is described as a dialect-pair, because there is a variety which is closely related to, but perhaps not mutually intelligible with, Hadiyya, namely Libido (or Marak'o, Maraqa). However, Hadiyya and Libido are mutually intelligible (Joachim Crass, p.c.). According to Hudson (1976) and Bender (1976) Lemo, Shashago and Soro are also identified as dialects of Hadiyya. According to the results of the 2007 census, the number of Hadiyya speakers is 1,284,373.

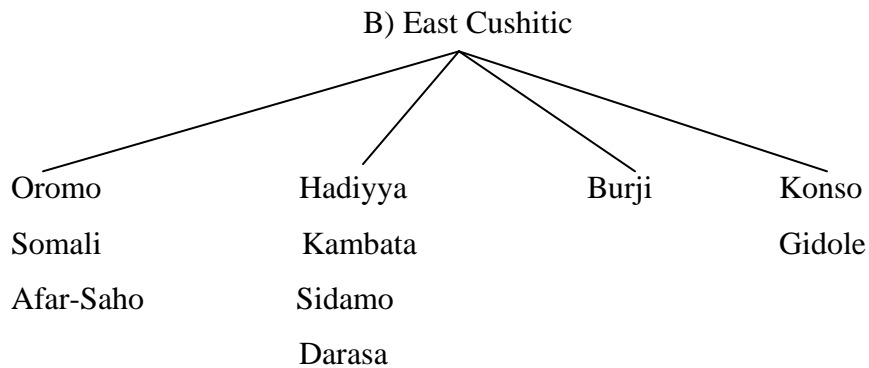
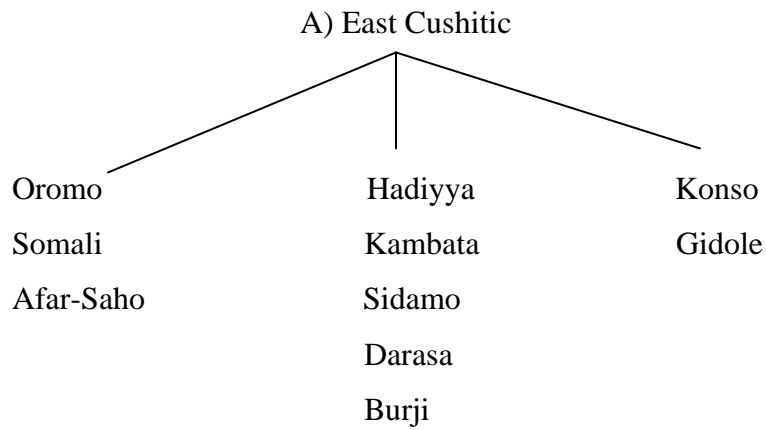
Kambaata is spoken in Kambaata-T'ambaaro zone of SNNPR. According to Treis (2008:4) "Kambaata is not only the name of an individual language but also the name of a small HEC branch, the Kambaata group, which consists of Kambaata (in the narrow sense) and Xambaaro as well as Alaaba and Qabeena". About the relationship of the varieties Hudson (on www.edu/~hudson/HECrefs.htm.) says that a variety mutually intelligible with Kambaata is T'imbaaro, and more divergent still are the Kambaata-like varieties Alaaba and K'abeena (Qabeena). However, according to Treis (2008) Alaaba and Kambaata are mutually intelligible. On the other hand, according to Crass (2001) cited in Treis (2008), Qabeena is most closely related to Alaaba. Geographically, the speakers of Kambaata are found to the south of Hadiyya and to the north of Sidaama: they live in the highland areas around the Hambarrichcho massif about 300 km southwest of Addis Ababa (Treis 2008: 2). According to the results of the 2007 census, the number of Kambaata speakers is 630,236.

Sidaama is spoken in Sidaama zone of the SNNPR. Their zone is centered on the town of Hawasa. According to Kawachi (2007: 3), "there are large differences among both regional and social dialects of Sidaama". He notes also that thus far there is no study that shows the dialectical differences in Sidaama. According to the results of the 2007 census, the number of Sidaama speakers is 2,966,474.

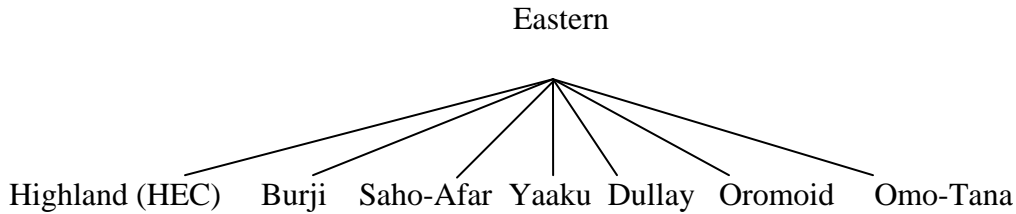
Gedeo is spoken in Gedeo zone of the SNNPR. Their zone is centered on the town of Dilla. According to Hudson (1976: 233), Gedeo has two dialects: 'Northern' and 'Southern'. Geographically, the speakers of Gedeo are found to the south of Sidaama and to the north of Burji. According to the results of the 2007 census, the number of Gedeo speakers is 986,977.

Different scholars have proposed various classifications of the Highland East Cushitic languages at different times. But there were disagreements among the linguists who made the earliest classifications of the languages. Particularly because of the long-standing disagreement about the membership of Burji within Highland East Cushitic, its exact

position within the family is still controversial. Hudson (1976: 244) suggests either of the following two classifications as representing the position of Burji in East Cushitic.

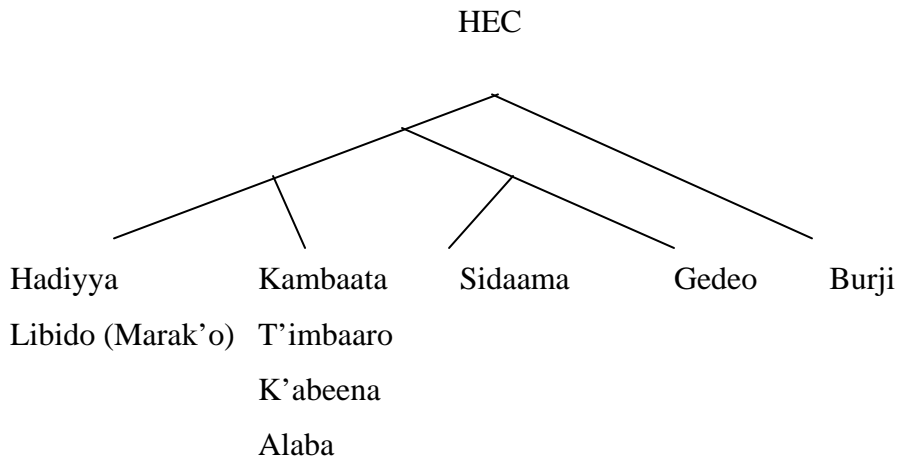


According to him, better results emerge if diagram A is correct. Tosco (2000: 90) presents another classification of Highland East Cushitic languages, originally made by Sasse (1981a), as a flat tree:



According to this classification, Burji is not classified within Highland East Cushitic, but is assigned a separate group of its own. This is also true for Hudson's (B) above.

The above trees say nothing about subgrouping within HEC. Recently, Hudson (2007: 529) has proposed the following tree diagram showing the inner relationships of the Highland East Cushitic languages.



1.2 Review of Related Literature

Grover Hudson (1976: 232-277) introduced the five Highland East Cushitic languages together with their geo-linguistic information. He also mentioned previous descriptive works, which mainly consisted of treatments of particular features. Attempts made by different linguists to classify the languages are also included in Hudson's work. Specifically, he pointed out the long-standing disagreement about the membership of Burji, which has continued to be the major controversy about Highland East Cushitic. In pointing this out Hudson suggested his own classification, which is included in section

1.1 of the present study. Major features of the languages were also described in Hudson's study under the section on comparative grammatical sketch. According to Hudson, the Highland East Cushitic languages all have a five-vowel system, and different numbers of consonant phonemes. After his comparative grammatical study of the languages, he finally notes that the basic phonological correspondences within Highland East Cushitic, or between Highland East Cushitic as a whole and other East Cushitic groups, have still not been worked out.

Hudson (1989) wrote a comparative dictionary of the five Highland East Cushitic languages comprising 1612 main entries and incorporating 778 reconstructions of Highland East Cushitic words and morphemes. In addition to this, Hudson (1989: 7) lists ten sound changes that have taken place in individual HEC languages. Some years before this in 1981, he proposed an internal classification of Highland East Cushitic languages based on various shared features; sound correspondences, however, are given only minimal attention in his 1981 article. Recently in 2007, he did a comparative study of the lexical, verbal and nominal morphology of the five Highland East Cushitic languages.

Sasse (1979) reconstructed 23 consonant phonemes for proto-East Cushitic as a whole, based on phonological comparison of the East Cushitic languages. Some years after this in 1982, he wrote an etymological dictionary of Burji. This dictionary shows some important sound correspondences of Burji with proto-East Cushitic consonant phonemes. Nothing is said in any detail, however, about Highland East Cushitic per se.

Bender (1971) made the first lexicostatistical classification of Ethiopian languages. He used a 99-word list to compare and classify all the languages of Ethiopia, including Highland East Cushitic. This lexicostatistical classification was based on the classification proposed by Joseph Greenberg in 1966.

Bender (1974) made a comparative study of Highland East Cushitic languages in his article "Mutual intelligibility within Sidamo [his name for Highland East Cushitic]". In this study, he used three criteria for degree of linguistic diversity as a test of relationship.

These are basic vocabulary, textual morphemic correspondences and textual syntactic correspondences. Based on these criteria he concluded the following: in a 100-item basic vocabulary list, Alaaba, Kambaata, and Sidaama show the highest average correspondence with the other HEC languages, and Burji shows the least. In textual morphemes shared by the languages (this involves a morpheme-by-morpheme comparison of root morphemes and grammatical morphemes in equivalent texts in closely related languages), Alaaba shows the highest average correspondence with all the languages, and Burji again shows the lowest. In textual syntactic correspondences (this involves the measuring of syntactic resemblances or differences, again by examining equivalent texts in closely related languages, by comparing items that are transposed in one text as compared to their position in another, and by comparison of root or grammatical morphemes in one language that are lacking in another), Bender did not compare Burji but only the other languages. Generally, he concluded that basic vocabulary, textual morphemic correspondence and geographical proximity are equally correlated with mutual comprehension in Highland East Cushitic.

The other phonological comparative study made on some Highland East Cushitic languages was by Klaus Wedekind (1980) under the title of “Sidamo, Gedeo (Derasa), Burji: Phonological differences and likenesses”. In this study various phonological aspects of the three languages are compared. In addition to this, he assessed pairwise sound correspondences in Sidaama-Gedeo and in Sidaama-Burji. According to him the phonetic and phonemic inventories of these three languages, as well as their syllable and word structures, are identical in most important respects. Nevertheless, several areas of differences were also identified among the languages. To mention only one, stress placement differs from language to language. The three languages all have almost the same set of phonemes.

Mauro Tosco (2000: 87-121) presents a Cushitic overview with special reference to the classification of all the languages. Since Tosco’s study concentrates on the internal (genetic) classification of Cushitic languages, it incorporates the most important classificatory proposals that have been made. The major internal classification problems

and the inconsistent placement of some languages within particular sub-groups are given considerable emphasis and duly discussed. In his sketchy review of the state of Cushitic studies, he generally suggests the need for much more description and analysis of all the Cushitic languages.

The individual phonologies of Burji, Hadiyya, Kambaata, Sidaama and Gedeo have also been studied by various people as follows. Amborn and Kellner (1999:19-20) examined Burji phonology. In 1984 Haile Eyesus Engdashet studied Hadiyya phonology. Hudson (1976:247) gave a short description of Kambaata phonology, recently superseded by the full grammar by Yvonne Treis (2008). Kawachi (2007) wrote a full grammar of Sidaama. And Wedekind (1990: 50) presented the full consonant inventory of Gedeo in comparison with Burji and Sidaama. All of these phonological studies will be examined in chapter two.

1.3 Theoretical framework

This study is made in light of the comparative method and the neo-grammarians model of language development. Working with Indo-European, the neo-grammarians firmly established historical linguistics on a scientific basis for the first time in the 19th century by formulating methodological principles and a theoretical framework (Bynon 1977: 23). According to this model sound change and analogy are the basic principles that govern language development. Particularly, the fundamental principle which governs sound change is the regularity of sound change.

By assumption, a proto-sound is assumed to change according to a rule (regularly). However, regularity of sound change can be directly observed in daughter languages only if their parent language is attested. Contrary to this, since we do not directly know what the proto-sound was if the parent language is unattested, then it must be reconstructed to figure it out. This is done synchronically by establishing sound correspondences and then diachronically by establishing sound changes based on the correspondences. Sound correspondences can be directly observed among related languages, if the expected cognate sets are well established. Then, starting from the observable sound

correspondences the unobservable sound change is reconstructed through the comparative method. Since the method developed by this model remains the best and most reliable method, the facts of this study are explained and stated within this model.

1.4 Statement of the problem

Previous comparative studies that have been made on Cushitic languages show a lack of detail and well-established comparisons and reconstruction within a particular small subgroup of Cushitic languages. For example, the dictionary of HEC reconstructs different PHEC words that are not supported by regular correspondence sets and it does not seek to reconstruct different proto-phonemes for different sets of correspondences. Particularly, the problem of not having established the basic phonological correspondences among related languages of the highlands has made the treatment of the historical evidence of East Cushitic languages very complex. This problem has led to classification problems and disagreements over some languages. In particular, Burji can be mentioned because of its controversial placement within East Cushitic: different people have classified this language in East Cushitic differently at different times. The present study tries to partly fill this research gap by examining sound correspondences and sound changes in Burji, Hadiyya, Kambaata, Sidaama and Gedeo comparatively.

1.5 Objective of the study

The objective of this study is to establish phonological correspondences among the languages and to deduce sound changes that have taken place since these languages diverged from their assumed proto language (proto-HEC). It is also hoped to make a contribution to the development of historical and comparative study of Cushitic languages and of HEC. It will also serve as a data source for other researchers who want to study other aspects of the languages.

1.6 Research methodology

In this study, the comparative method is used as the basic methodological principle. The comparative method is central to historical linguistics, the most important of the various methods and techniques we use to recover linguistic history (Campbell 1998: 108). Data is compiled from Hudson's comparative *Highland East Cushitic Dictionary* (1989), which incorporates Burji words from Hans-Ju_rgen Sasse's (1982) *Etymological Dictionary of Burji*. (A number of words from Libido have also been added based on information from Joachim Crass (p.c.), if the Libido word is significantly different from the Hadiyya and adds useful information to the cognate set.) Based on the data collected from Hudson's dictionary, cognate sets are established to find out sounds that regularly correspond to each other. From these sound correspondences, sound changes are inferred.

In this study, my main concern is HEC. Only sometimes do I mention broader comparison using Sasse (1979) and Ehret (1990). My standard order of languages in presenting the data is Burji, Hadiyya, Kambaata, Sidaama and Gedeo. Hudson's standard order is different from mine. His order is Burji, Gedeo, Hadiyya, Kambaata and Sidaama.

Chapter Two: A Brief Guide to the Phonology of Burji, Hadiyya, Kambaata, Sidaama and Gedeo

2.1 The Phonology of Burji

According to Amborn and Kellner (1999:19-20) Burji has twenty-six consonant phonemes and five vowel phonemes with their long counterparts as shown in the following chart.

The consonant phonemes of Burji (according to Amborn & Kellner 1999:19):

	Labial	Dental/ Alveolar	Palatal	Velar	Glottal
Stops	vcls vcd ejec impl	p b p' t d t' d'		k g k'	/
Affricates	vcls vcd ejec		c j c'		
Fricatives	vcls vcd	f s (z)	Σ		h
Nasals	m	n	ŋ		
Approximants		r l			
Glides	w		y		

The vowel phonemes of Burji according to Amborn & Kellner (1999:20):

i	u	ii	uu
e	o	ee	oo
a		aa	

The voiced alveolar fricative /z/ is a marginal phoneme in Burji, but it occurs in at least 14 Burji words in Hudson’s dictionary, five of which participate in HEC cognate sets that Hudson reconstructs to PHEC. Hudson (2007:531) says, of the HEC languages, that /z/ appears in native words only in Kambaata; according to Sasse (1982: 18), /z/ is an “obvious loan phoneme”; but in light of the attestations in Hudson’s dictionary, these statements may need revision. See sections 3.1.10.1, 3.1.11.2 below.

Sasse says (1982: 16, 18) that in Burji /z/ and /ʃ/ are loan phonemes, /ʃ/ occurs only word-initially, /p/ and /p’/ occur only word-medially and all consonants except /z/, /h/ and /// can occur as geminates word-medially. In this language, vowel and consonant length is contrastive and long consonants occur only between vowels.

2.2 The Phonology of Hadiyya

The following phonological description of Hadiyya is taken from the work of Haile Eyesus Engdashet, who made a study of Hadiyya phonology in 1984. According to him, Hadiyya has twenty-three consonant phonemes and five vowel phonemes which occur both long and short. According to Haile Eyesus’s study all consonants can be geminated except ///, /h/ and /z/. Like vowel length, consonant length is also phonemic except for the flap /r/, whose long counterpart has only allophonic status.

About the (non-)phonemic status of some sounds, he notes the following points: /z/ is a marginal consonant because it only occurs in borrowed words; /ʃ/ is found only as an allophone of /n/ before palatal consonants; /p’/ does not have equal status with the rest of the consonants. The marginal status of /p’/ is because it is rare, can be short and long

without contrast, has a limited distribution and is not originally a Hadiyya phoneme. This language does not have implosive stops.

The phonemic chart of Hadiyya consonants (according to Haile Eyesus 1984:13):

		Labial	Alveolar	Palatal	Velar	Glottal
Stops and	vcls		t	c	k	/
Affricates	vcd	b	d	j	g	
	glot	p'	t'	c'	k'	
Fricatives	vcls	f	s	Σ		h
	vcd		z			
Nasals		m	n			
Liquids			r l			
Semi-vowels		w		y		

The phonemic chart of Hadiyya vowels according to Haile Eyesus (1984:16):

	Front	Central	Back
High	i		u
Mid	e		o
Low		a	

The equivalent long vowels also exist. About the distribution and frequency of phonemes, the following points are included. Vowels do not occur word-initially (they occur word-medially and finally). Most short consonants can occur word-initially and medially, but only /m/ and /n/ may occur word-finally. Contrary to this, the following consonant phonemes are stated to have defective distribution: /p'/and /r/ do not occur word-initially, /c/ is never found initially or intervocalically and /w/ and /y/ do not occur word-medially and intervocalically except in their long forms. Long consonants and consonant clusters occur only word-medially.

As regards consonant clusters, Haile Eyesus argues that most clusters are biconsonantal and carry a resonant as one of their members; also, /h/ and /p'/ do not form clusters. Stress is not prominent, and it is not easy to detect the main stress in the word.

2.3 The Phonology of Kambaata

Different people have studied the phonology of Kambaata. The most recent and most extensive study was made by Yvonne Treis in 2008. According to her, the language has twenty-five consonant phonemes and five vowel phonemes as shown in the chart below.

The consonant inventory of Kambaata according to Treis (2008:22):

	Labial	Alveolar	Palato- alveolar	Velar	Glottal
Stops					
voiceless		t	c	k	/
voiced	b	d	j	g	
glottalic	p'	t'	c'	k'	
Fricatives					
voiceless	f	s	ʃ		h
voiced		z	(ʒ)		
Nasals	m	n	(ɲ)		
Liquids					
Vibrants					
plain		r			
glottalized		r'			
Laterals					
plain		l			
glottalized		l'			
Glides	w		y		

With regard to the glottalized liquids, Treis (2008) states that liquids in Kambaata show a phonemic distinction between plain and glottalized. The phoneme /r'/ contrasts both with plain /r/ and the cluster //r/, as is shown by the near-minimal triplet /hira↔no/ 'he will

sell', /hir'a↔/ 'sensitive body part' and /hi/ra↔no/ 'he will buy' (2008: 36); it is not a bi-phonemic unit composed of glottal stop and plain /r/. The same is also indicated for /l'/ as shown by the near-minimal triplet //adala↔/ 'type of flower', /gal'a↔/ 'shard' and /Σa/la↔/ 'cow dung' (Treis 2008: 37). Geminate glottalized liquids are perceptually identical to a cluster of a glottal stop and a plain trill (for /r'/: r'r' = /r) and a cluster of a glottal stop and a plain lateral approximant (for /l'/: l'l' = /l). In the orthographic representation, glottalized liquids are marked by a preceding glottal stop, which makes them look like a cluster of glottal stop and liquid at first sight.

As Treis states, /Z/ and // are marginal phonemes, and the consonant chart does not include phonemes that are found in recent loan words. In addition to this, she discusses the distribution of consonants as follows. In Kambaata consonants occur word-initially, intervocalically and in a cluster of identical or different consonants; all consonants may occur phonemically short (simplex) and long (geminate) intervocalically. However, consonant clusters neither occur word-initially nor are subject to gemination. Contrary to the distribution of consonants stated above, she points out the following consonants as having defective distribution. /p'/ does not occur word-initially (but Hudson 2007:531 says /p'/ is absent in Kambaata), /Z/ does not occur as a simplex phoneme but occurs only intervocalically in its geminate form, /h/ occurs word-initially and non-geminate intervocalically, /l'/ is never attested word-initially and /r'/ only occurs between vowels or as the first element of a cluster. Moreover, she states that the occurrence of /χ/ is rare and /// differs in its distribution from the other obstruents because it can only occupy the first position in a cluster.

Vowel phonemes of Kambaata (Treis 2008: 18)

	Front	Central	Back		Front	Central	Back
High	i		u		ii		uu

Mid e o ee oo
 Low a aa

As the chart shows, vowel length is contrastive. Both long and short vowels occur word-medially and finally.

About the syllable types in Kambaata she states that a syllable can be open or closed, consonant sequences are not possible in onsets and codas, and the nucleus of a syllable can be either a short or a long vowel.

2.4 The Phonology of Sidaama

According to Kawachi (2007), Sidaama has twenty-five consonant phonemes and five vowel phonemes with their long counterparts as shown in the following chart (2007: 28):

	Bilabial	Labio-dental	Dental	Alveolar	Palatal	Velar	Glottal
Stop plosive	b		t d			k g	/
ejective	p'		t'			k'	
implosive			d'				
Affricate				c j			
ejective				c'			
Fricative		f	s z	Σ			h
Nasal	m		n		ŋ		
Tap / Flap			r				
Lateral			l				
Approximant							
Approximant	w				y		

According to Kawachi (2007), the glottalized sonorants /'l/, /'m/, /'n/, /'r/ and /'y/ are phonologically clusters of a glottal stop and a sonorant consonant; hence they are not incorporated in the chart. Of these consonants, /'m/, /'n/ and /'l/ can occur in open-class words. In addition to this, /'n/ also appears as part of the 2nd person plural pronoun

(*ki'ne*). From the point of view of applying morphophonemic rules, there is no evidence whether /'r/ and /'y/ are consonant clusters or not. In Sidaama, /'y/ occurs in only one morpheme and /'r/ is usually an allomorph of the middle suffix /-d'/.

About the (non-)phonemic status of some sounds and the infrequent occurrence of some phonemes, Kawachi (2007) states the following points. /z/ occurs only rarely in borrowed words from Amharic. There is only one example that shows the occurrence of simplex /j/. This example shows its word-initial occurrence. In all other environments, /j/ is consistently geminated. The sounds /b/, /k/ can occur initially in Sidaama, but intervocalic /b/ and /k/ are seen only in borrowed words, because b > w and k > h intervocalically.

About consonant clusters, Kawachi (2007) says that in Sidaama consonant clusters occur only intervocalically across syllable boundaries and the language allows only the occurrence of two consecutive consonants. In addition, Kawachi (2007) notes that gemination is contrastive, has a grammatical value and all Sidaama consonants can be geminated. He adds that contrary to some previous studies, there is one example of geminate /hh/, *ahahhe* 'grandparents'. Geminate /zz/ is extremely rare because in Sidaama the phoneme /z/ occurs only in borrowed Amharic words. He notes further that his study lacks minimal or near-minimal pairs for /d' - /dd'/, /z/ - /zz/, /c/ - /cc/ and /j/ - /jj/.

Vowel phonemes of Sidaama according to Kawachi (2007: 30):

	Front	Central	Back	Front	Central	Back
High	i		u	ii		uu
Mid	e		o	ee		oo
Low		a			aa	

About vowels, Kawachi (2007) says that length is contrastive and all Sidaama words end in vowels.

2.5 The Phonology of Gedeo

I had less information available for Gedeo than for the other languages. According to Wedekind (1990: 50), Gedeo has twenty-three consonant phonemes as shown in the following chart:

	Labial	Alveolar	Palatal	Velar	Glottal
Stops					
vcls		t	c	k	/
vcd	b	d	j	g	
ejec	p'	t'	c'	k'	
impl		d'			
Fricatives					
vcls	f	s	Σ		h
vcd					
Nasals	m	n			
Liquids		l			
		r			
Glides	w		y		

According to Hudson (2007: 531), consonant length is generally contrastive throughout HEC (hence in Gedeo) and long consonants occur only between vowels. Hudson (1976) states that all consonants except r and h occur phonemically long intervocalically, and that of all the Highland East Cushitic languages, geminate d' is found only in Sidaama and Gedeo (also Burji, see Sasse 1982: 16).

About vowels Hudson (2007: 531) says that all the HEC languages have five phonemic vowels /i, e, a, o and u/ with their long counterparts. He states further that vowel length is contrastive and both long and short vowels can appear at word-initial position. The vowels of Gedeo thus show the same pattern as all the other HEC languages:

	Front	Central	Back	Front	Central	Back
High	i		u	ii		uu
Mid	e		o	ee		oo

Low

a

aa

2.6 The Consonant Inventories of PEC and PHEC

Sasse (1979:5) reconstructs the following 23 consonant phonemes for Proto-Eastern Cushitic, the larger group to which HEC belongs:

	Labial	Alveolar	Palatal	Velar	Pharyngeal	Glottal
Plain stops: voiceless		t		k		/
voiced	b	d		g		
Glottalized stops		d'	d'₁	k'		
Fricatives: voiceless		s	Σ	(x?)	□	h
voiced	f	z			√	
Nasals	m	n				
Liquids		l r				
Semivowels	w		y			

The voiceless velar fricative is put with a question mark here because it is left for further study to reveal whether it truly is a proto-phoneme; in Sasse's study it is considered a common innovation of Yaaku and Dullay. In this study it is indicated that *d'₁ is an assumed proto-phoneme that is restricted to the correspondence of Gidole c' ~ Konso | ~ Oromo c' (Sasse 1979: 27-28). Note that this phoneme, given here as a palatal, is presented in the alveolar place alongside d' in Christopher Ehret's work (1991: 212).

On the other hand, Hudson (2007: 531) presents the following 25-consonant inventory specifically for Highland East Cushitic, with some phonemes absent in particular languages.

Plain stops and affricates /b, t, d, c, j, k, g, //

Glottalized ejective voiceless stops and affricate	/p', t', c', k'/
Glottalized retroflex stop	/d'/
Fricatives	/f, s, z, Σ, h/
Nasals	/m, n, ɲ/
Approximants	/l, r, w, y/

According to him, some of these consonants have restricted distributions: /z/ appears in native words only in Kambaata, /p/ occurs only in Burji (and rarely), /p'/ is rare (seemingly absent in Kambaata), /ɲ/ is rare, and /d'/ has merged with /// in Hadiyya and Kambaata, and with //r/ in Sidaama.

Based on the already stated consonant inventories of the languages, Burji differs from Hadiyya, Kambaata, Sidaama and Gedeo because it is the only language that possesses /p/ in native words. According to Hudson (1976: 248), “only Burji has the alveo-palatal nasal as a phoneme, but only marginally. ... But /ɲ/ occurs in all five languages as the nasal allophone before alveo-palatal consonants”. However, according to Kawachi (2007) phonemic /ɲ/ is found also in Sidaama. Kambaata is also different because of having the voiced alveolar fricative /z/ and according to Treis (2008) because it has the glottalized liquids. The phoneme /d'/ is common to Burji, Sidaama and Gedeo, but absent in Hadiyya and Kambaata.

About the glottalized liquids, Treis (2008) identifies both /r'/ and /l'/ as phonemes of Kambaata; by contrast, Hudson (2007: 532) does not mention such glottalized liquids for HEC languages, but says that intervocalically there are phonetic preglottalized sonorant consonants ['m, 'n, 'l, 'r] which should be considered as sequences of a glottal stop and a sonorant consonant, i.e. as //m/ etc.

2.7 Summary Chart

The phonological inventories of Burji, Hadiyya, Kambaata, Sidaama, and Gedeo are summarized and presented in the following chart.

		Labial	Alveolar	Palatal	Velar	Glottal
Stops	vcd	b	d	j	g	
	vcls	p (B)	t	c	k	/
	eject	p'	t'	c'	k'	
	implo		d' (B, S, G)			
Fricatives	vcd		z (K)	Z (K)		
	vcls	f	s	Σ		h
Nasals		m	n	ŋ (B, K, S)		
Liquids plain			r			
	glottalized		l r' (K) l' (K)			
Glides		w		y		

In the above chart, the capital letters in parentheses after some of the phonemes show that the phoneme exists only in that particular language(s). For example, p (B) means that p exists only in Burji, r' (K) means that r' exists only in Kambaata, etc. According to the above chart twenty-two phonemes are common to all five languages. /z/ occurs in native words only in Kambaata, while in the rest of the languages, it occurs marginally in borrowed words. /d'/ is common to Burji, Sidaama and Gedeo but is absent in Hadiyya and Kambaata. /Z/ and /ŋ/ are marginal or defective consonants in Kambaata (Treis 2008); as remarked above, /j/ is rare throughout HEC.

In this thesis I will be operating with 24 consonant proto-phonemes: the 22 which were just mentioned, plus /d'/ and /z/.

Chapter Three: Regular Sound Correspondences and Regular Sound Change in Burji, Hadiyya, Kambaata, Sidaama and Gedeo

This chapter deals with the regular sound correspondences and changes based on the currently existing phonemes that are found in Burji, Hadiyya, Kambaata, Sidaama, and Gedeo. It attempts to show sounds that are in regular correspondence with each other in the languages. It also infers sound changes from the correspondences based on the fundamental principle of sound change, which is the regularity of sound change.

According to the regularity of sound change, a given proto-sound always changes in a rule-governed way in a given daughter language. It does not change randomly or sporadically, i.e. it does not change sometimes in one way and sometimes in another way.

According to Sasse (1979: 6), “The shape of the root is rather uniform in all EC languages. The following general principles of PEC word structure can be deduced from the daughter languages...: Each root began with one and only one consonant... No (or very few) words ended in a consonant... There were no CCC clusters... [etc.]”. Based on these principles of root structure, individual consonant correspondences have been established at word-initial and medial positions, but not word-finally.

For the present comparative study, data was collected from Hudson’s *Highland East Cushitic Dictionary* (1989). This dictionary incorporates Burji words from Sasse’s 1982 *Etymological Dictionary of Burji* and words for other languages from other sources. Burji words from Sasse are indicated in Hudson’s dictionary by “S”; and if a word is identical in Hudson’s own notes and in one of the sources, he notes the other source in parentheses: (S) for Sasse, (G) for Gasparini and (Y) for Yri. Other grammatical information is also given after some words, for example “m” for grammatical masculine, “f” for feminine, and the occurrence of common suffixes with stems of given words is also shown. If a suggested cognate seems questionable, a question mark appears after it in the dictionary. Note that Hudson transcribes [Σ] as <sh>, which I have also done. Finally, words that seem likely to be borrowings (e.g. from Oromo), even if reconstructed to PHEC by Hudson, have generally been omitted in the following lists.

3.1 The correspondences of consonants

3.1.1.1 Word-initial correspondence of b

Many cognate sets show the regular identity correspondence of the voiced bilabial stop across Burji, Hadiyya, Kambaata, Sidaama and Gedeo at word-initial position.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
-------	---------	----------	---------	-------	-------

buhoo S	buko/e	buku-ta	buko (f Y)	buko	dust n.
burr- (S)	barar-	burri y-	buub-	birret-	fly vi.
be-, bay- S	bi/-	ba/-	ba/- (G)	ba/-	lost, be vi.;
					spoil, go bad vi.
bagadi	bagado	bagazu m	bagado (m G)	bagado	spear n.
buuda (S)	buudo	buuda	buuda	buuda ‘horn cup’	horn n.
beeri-	bork’-	bork-	boraab- (G)	booro/-	impure, be vi.
---	buuro	buuru m	buuró m (G)	buuro	butter n. (same root: ‘anoint’)

3.1.1.2 Word-medial correspondence of b

According to the following cognate sets the identity correspondence of b at word-medial position is also very regular across the daughter languages.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
c’ibba (S)	t’ibbe	t’ibbe	t’ibbe (G)	d’ibba	hundred n.
ebelo m / f	ebaro m	ebalo m	ebelo m	ebelo m/f	so-and-so n.
arraba S	allabo	arrabi-ta	arrabo (m Y)	arrabo	tongue n.
ibba (f S)	ibiiiba	ibiibba pl	ibiibe pl	ibbe	louse n.
gilba f (S)	gurubbo	gulube	gulube	gulubo	knee n.
---	iibba(IIa)	iibba	iibb-ado (G)	eebba	hot, warm adj.
lubbo	---	lubbu ‘skill’	lubbo ‘soul’ f	lubbo	life n.

As can be seen from the examples, word-medial b also corresponds regularly in Burji, Hadiyya, Kambaata, Sidaama and Gedeo. Some of the above cognate sets show the correspondence of geminate bb across the languages. According to Sasse (1979: 14), “PEC *b is normally reflected by ... HEC b (with free (?) variants w, B in Sidamo); Burji b ...”; similarly, Hudson (1989: 7) says that “*b > w or B between vowels in Sidamo”. This B or w is not reflected in any of the cognate sets given above. Nevertheless, the identity correspondence of b appears to be regular among Burji, Hadiyya, Kambaata, Sidaama and Gedeo (at both word-initial and medial positions).

3.1.2.1 Voiceless bilabial ejective p'

According to Hudson (1989: 11), geminate /pp'/ is rare in Hadiyya, Kambaata, Sidaama and Gedeo; simplex p' is rare in Kambaata, Sidaama and Gedeo and is absent in Hadiyya (Haile Eyesus (1984) lists p' as a marginal sound in Hadiyya); that is, /p'/ is a normal sound only in Burji. According to Hudson (2007: 531), “ejective labial /p'/ is rare (seemingly absent in Kambaata)”. However, according to Treis (2008: 24), /p'/ in Kambaata is not absent but has a defective distribution: in native words of Kambaata, it does not occur word-initially. She indicates that the same is reported with regard to other HEC languages in Wedekind (1990: 51). Hudson (1989) gives no examples with initial p', in any language. Thus word-initial /p'/ apparently does not occur, and hence it is impossible to establish correspondences for it.

3.1.2.2 Word-medial correspondence of p'

Hudson reconstructs word-medial *p' for the following cognate sets:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
roobe f	looba / -icco sg	looba / -iccu sg	roo/e (f G)	roop'e	hippopotamus n.
c'uub-	c'eef-	c'ef-	c'uu/- G	c'uup'-	immerse vt.
k'ipp'-	---	---	k'ipp'i ass-	k'imf ass-	wink vi.
---	k'opp'an-	k'opp'an-	kapp'- (G)	---	lie (deceive) vi.
c'immi-	t'iimbipp'-	timbiipp'-	t'imbiil-	---	close the eyes vt.
---	t'uf-	t'uf-	t'u/-	t'up'-	close with lid vt.
---	k'uunk'a	k'uupp'-	k'uupp'e	k'uupp'e	egg n.
k'ubb'/pp'-	---	---	k'upp' y-	k'upp' hiyy-	squat

(Libido has *k'uunk'ota* for ‘egg’ (Joachim Crass, p.c.))

Note the following points:

A. For the proto-ejectives *t', *k' all the reflexes in all the languages are ejectives (except Sidaama *hinko* ‘tooth’); see sec. 3.1.8.2, 3.1.22.2. But with simplex proto-*p',

none of the languages except Gedeo has an ejective. On the other hand, *pp' seems more stable. This indicates that *p' is less secure as a reconstruction than *k', *t'.

B. In all three words with simplex *p' (hippopotamus; immerse; close with lid [not in Burji]), we have

Burji	Sidaama	Gedeo	(Hadiyya	Kambaata)
b	/	p'	(b	vs. f)

And these are the only (?) words involving a correspondence of Burji /b/ ~ Sidaama ///. Here two independent words show the same correspondence, and 'close with lid' also fits the same pattern except for its absence in Burji. *p' looks like a good proto-candidate here, since the proto-sound should be similar to b, p', / – especially since we seem to need *pp' (geminate) anyway.

C. In the 3 words with simplex *p', we twice have Hadiyya/Kambaata f, and once Hadiyya/Kambaata b. This is puzzling.

D. Hudson (1989: 87) reconstructs PHEC *gilub-ad'- 'kneel' for the set Burji *gilb-is-ad'*- (S), Hadiyya *gurupp'*-, Kambaata *gulupp'*-, Sidaama *gulupp'*- (G) and Gedeo *guluff-at*-correspondence, where Hadiyya, Kambaata and Sidaama (but not Burji and Gedeo) show a word-medial pp' reflex. Presumably he intends a progression like *bd' > b/ > pp' in Hadiyya, Kambaata and Sidaama, and *bd' > b/ > ff in Gedeo.

Finally, it should be noted that Ehret (1991: 212) mentions a PhD dissertation by Linda Arvanites, who argues (contra Sasse 1979: 15) for a PEC phoneme *b'. Ehret mentions no further details.

3.1.3.1 Word-initial correspondence of f

The following cognate sets show the identity correspondence of word-initial f among Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
fuul- 'gallop'	fir-	ful-	ful- (G)	ful-	go out, exit vi.

fayya-n-ga m	fayya/a	fayya	fayy-	'be healthy' G	fayya	healthy adj.
foole	foosha	fossha	foole (m G)		fissha	odor, smell n.

Cognate sets that show word-initial correspondence of f in all five languages, Burji, Hadiyya, Kambaata, Sidaama and Gedeo are few in number. However, the following cognate sets show the correspondence of word-initial f across three or four of the languages; the excluded languages have completely different words.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
fuutto S	---	fuutta	fuutta (m G)	fuutta	cotton n.
fiisk'- S	---	fiik'-	fiik'- (G)	fiiss-	whistle vi.
---	fiinc'-	finc'-	finc'- (G)	---	scatter vt.
---	fo/o	fo/a	foonco m Y	---	waterfall n.
faana S	---	---	faana m/f G	faana	track of animal n.
---	farassho	faasshu m	farassho	faracco	horse n.

Contrary to the regular identity correspondence of word-initial f, Hudson (1989: 31) presents the following two sets, which he reconstructs with *f:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
hooli (voice)	foore	fooli	foole	---	breath, soul n.
husha, wusha	fuut'e/e	fuut'a	futakko	---	mole (animal) n.

In these last two reconstructed words, Burji shows h reflex of *f before o or u, which looks like a rounding dissimilation of f > h / _ [u & o]. It is a conditioned sound change but it does not happen regularly. This change in Burji could be a result of contact with the nearby language Gidole because, as Sasse notes (1979: 18), "In Gidole f became h mainly, but not regularly, adjacent to back vowels". This is what we see here in Burji.

An apparently irregular correspondence is seen in Hudson's (1989: 43) reconstruction of PHEC **fil-d'*- 'comb vt' for Burji *sil?*- (S), Sidaama *fitt'*- (G) Rf (*fil*- 'choose best fibres of ensete' G) and Gedeo *fil*-, *fi'l* Rf, where Burji shows an unexpected word-initial s.

3.1.3.2 Word-medial correspondence of f

I found only one cognate set that shows a word-medial identity correspondence of f in all five languages, Burji, Hadiyya, Kambaata, Sidaama and Gedeo. There are numerous cognate sets in four languages.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
tuf- (S)	tuf-	tu(y)-, tuf-	(anja) tuf- (G)	tuf-	spit vt.
afala	afare	afali(-ta)	afale(f G)	---	liver n.
ufu(u)f- (S)	ufa/-	---	ufuuf- (G)	ufuuf-eem-	blow (on fire) vi.
tafi 'thigh' (m S)	tefo	---	tafa 'buttocks'	tafa	hip(s) n.
c'affa	---	c'afa	c'affa (m G)	c'affa/a	marsh, swamp n.
afay m S	---	afoo m	afoo (m G/Y)	afa/o	mouth n.
---	t'uf-	t'uf-	c'uf- (G)	c'uf-	close vt.
---	hafaff-e?-	hafaaff-a?-	afaaff-i'r- (G)	---	yawn vi.
t'eefe f	t'aafe/e	t'aafa	---	t'aafe f	millet (<i>Eragrostis abyssinica</i>) n.

(Libido has *c'afa* 'puddle' for 'marsh, swamp' (Joachim Crass, p.c.).)

From the above cognate sets, some words show a correspondence of geminate ff across all or most of the languages.

Hudson (1989: 44) also reconstructs PHEC **k'uf-ad'*- 'cough vi.' for the set Burji *k'ufay-* (S), Hadiyya *kutt'*- < *k'uf-d'*- ?, Kambaata *kucc'*- < *k'uf-d'*- ? and Gedeo *k'uf-a/-*. In this correspondence, the Kambaata and Hadiyya words involve an assimilation affecting the cluster *fd'*. See section 3.1.9.2 on assimilation of **d'*.

3.1.4.1 Word-initial correspondence of m

The following cognate sets demonstrate the regular identity correspondence of m at word-initial position in Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
mic'a (S) m.	mik'e	mik'-iccu	mik'-icco m	micc'o	bone n.

mar- (S)	mar-	mar-	mar- 'go towards' G	mar-	go vi.
mina m (S)	mine	mine	mine (m G/Y)	mine m	house n.
maala m (S)	maara	maala	maala (m G/Y)	maala	meat n.
micca (S)	mato	matu, mett'o	mitte f (G)	mitte	one n.
mala	mara	mala-t	malaa (m Y, f G)	mala	pus n.
madaa S	mada	maza-t	mada (f G/Y)	mada	sore, wound n.
miya (S)	maha	maha, ma'a	maa	maacco	what? pron.
miyaa-ga	mahi-na	mii(ha)	mae-ra	maya	why?
meena (S)	manna	manna	manna (m G/Y)	manna	people n.
meeta	meeta	meeta	meeta (m G)	meeta	scraping board in preparing ensete n.

3.1.4.2 Word-medial correspondence of m

The following cognate sets show the regular identity correspondence of m at word-medial position.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
layma S.	leema	leema	le(e)mma	leemma	bamboo n.
gam- (S)	ga'm-	ga'm-	ga'm- (G)	ga'm-	bite vt.
k'oomo S.	k'ooma	k'oomu	k'oon-co (mG)	k'omma pl	calabash n.
huuma	wo'ma	wiima, yiima	wo'ma (G)	wo'ma	full, filled adj.
loomay	loome	loomi-t	loome f G	loome	lemon n.
ama	ama	ama-ta	ama f G/Y	ama	mother n.
sam- (S)	sham-	sham-	sham- (G)	sham-	rot vi.
ham-ad'-	ham-	he'm-	he'm- (G)	ham-at-	slander vt.
kuma (S)	kuma	kumi-ta	kume	kuma	thousand n.
lama (S)	lamo	lamu, lamo	lame (mG)	lame	two n.
k'urt'umme	k'urt'ume/e	k'ort'ume	k'ilt'i'me	k'urt'umme	fish n.
gamma	gamma	---	gamma m G	gamme	mane of horse n.
---	t'umma	t'uumma	t'umma 'good'	---	peace n.

---	adaam(ma)	---	hadaamma f	adaamma	euphorbia tree n.
tum-	tum-	tum-	tum- (hit G)	tum-	pound (e.g. metal vt.)

Some of the above cognate sets show a correspondence of geminate m across the languages. Nevertheless, in ‘bamboo’, only Sidaama and Gedeo have a geminate m, and in ‘fish’, only Burji and Gedeo.

3.1.5.1 Word-initial correspondence of w

The following cognate sets show the regular identity correspondence of word-initial w among the languages.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
waa (m S)	wo/o	wa/a, wi/a	waa (m G/Y)	wada/e f	water n.
wassha pl	wusha pl	wushata pl	wassha pl	warsha	dog n.
war-	war- ‘bring’	war-	war- (brew beer)	---	add(to) vt.
wanay m	wan(a) beeto	wana(a) beetu	wana (previously) G	---	first-born n.
wodana m (S)	wadano	wazana	wadana (m G)	---	heart n.
wonna /-icco sg.	wannanna	wann-iccut	wenen-co m Y	---	digging stick, hoe n.

Only the first two cognate sets involve all five languages. Four cognate sets show the regular correspondence of word-initial w among Burji, Hadiyya, Kambaata and Sidaama; Gedeo has completely different words.

On the other hand, a different correspondence is seen in Hudson’s reconstruction of PHEC **wam-is-* ‘fill’ for Burji *huus-* (S), Hadiyya *wansh-*, Kambaata *wiinsh-* (*wiim-s-*), *yiinsh-*, Sidaama *wo’m-is-*, *wonsh-* G and Gedeo *wansh-*; likewise **wom/-* ‘full, be(come)’ and **wom/a* ‘full, filled’, which show just the same correspondence. Similarly PHEC **wiliile* ‘smoke’ is reconstructed for Burji *hilila*, *hilili* S (*hilil-* v S), Hadiyya *wuriira*, Kambaata *wili(i)li-ta*, Sidaama *wiliile* (f G/Y) and Gedeo *wilille*. In these cognate sets, the Burji words show an h which is accounted for by Hudson as the reflex

of initial *w. This is puzzling and irregular; there is no evident reason for a change *w > h in these words.

3.1.5.2 Word-medial correspondence of w

I could not find cognate sets showing a word-medial identity correspondence of w among all five languages, Burji, Hadiyya, Kambaata, Sidaama and Gedeo. A few cognate sets show the correspondence of word-medial w among some of the languages.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
uww- S	uww-	---	uw- (G)	uww-	give vt.
boowa (S)	---	boowwa cliff	---	boowwa/a cliff	valley n.
k'a↔/wee f S	---	k'awwi-ta	k'awwe weapon	k'awwe	rifle n. (or 'Amhara' as rifleman)

For 'valley' and 'rifle', Burji has a simplex w corresponding to geminate w in the other languages. In 'give', Sidaama has a simplex w corresponding to geminate w in Burji, Hadiyya and Gedeo. Note also that word-medial w exhibits a very frequent correspondence between Hadiyya and Kambaata. Hadiyya *haww-is-* and Kambaata *haww-is-* 'bother, disturb', and Hadiyya *hawwo* and Kambaata *hawwa* 'famine', 'misfortune, trouble', are some examples.

There are some irregular cases, however. Hudson (1989: 154) reconstructs PHEC **awda* 'threshing floor' with a word-medial w for the correspondence Burji *ooyda*, *oyda* S, Hadiyya *oodo/o*, *awda*, Kambaata *oodu*, Sidaama *ayddumme* (f Y), *aidumme* f G and Gedeo *oodde*. Only Hadiyya shows word-medial w here, and the set is puzzling. Similarly, PHEC **awwan-* 'follow vt' is reconstructed for Hadiyya *awwan-*, Kambaata *awwan-* and Sidaama *aan-* G. Here, Sidaama does not show medial w, which could be a result of deletion. PHEC **duwiha* ? 'empty adj' is also reconstructed for Hadiyya *diiha*, Kambaata *diiha* and Gedeo *duwwika*. Here, Hadiyya and Kambaata *w might have been assimilated to the following i vowel.

3.1.6.1 Word-initial correspondence of t

Some cognate sets that show the regular identity correspondence of word-initial t among Burji, Hadiyya, Kambaata, Sidaama and Gedeo are the following.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
tuf- (S)	tuf-	tu(y)-, tuf-	(anja) tuf- (G)	tuf-	spit vt.
ci f nom (S)	tu(t) f nom	ti f nom	te f nom	tinni f nom	this sg dem det.
ta f acc (S)	ta f acc	ta f acc	te f acc	tenne f acc	this sg dem det.
tanna (S)	tommo	torduma	tonne	tomme	ten n.
tuuma S	tuma	tuma	tuma (bulb of onion G)	----	garlic n.
tum-	tum-	tum-	tum-,hit, strike' G	tum-	pound (e.g. metal) vt.

Except for Burji *ci* ‘this f nom’, which shows a palatalized c reflex before i (see below), the above cognate sets show the regular identity correspondence of word-initial t. However, Hudson (1989: 160) also reconstructs PHEC **tir-* ? ‘untie vt’ for Burji *hiir-* (‘loose(n)’ S) < *hiik-* + *tir-* ?, Hadiyya *tir-*, Kambaata *hiir-* < *hiik-* + *tir-* (?), Sidaama *tir-* and Gedeo *tik-* < *tir-* + *hiir-* + *hiik-* ?. In this correspondence, since the Burji and Kambaata words show irregular word-initial h reflexes and since most of the etymologies are tentative (with question mark), the reconstruction seems speculative.

3.1.6.2 Word-medial correspondence of t

Words that show the apparently regular identity correspondence of word-medial t among Burji, Hadiyya, Kambaata, Sidaama and Gedeo are presented in the following.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
it- (S)	it-	it-	it- (G)	it-	eat vt.
it-is- (S)	it-is-	it-is-	it-is- (G)	it-is-	feed vt.
hiditta (S)	sadeento	hezzetto	sette (G)	saddeeta	eight n.
kottee f S	konte/e	kott-it	kotte (f G)	kotte	hoof n.

galata	galata	galata	galata (m G/Y)	galata	thanks n.
ash(i), ash(i) S	ati	ati	ati (G)	ati	you 2 sg. nom pron.
micca (S)	mato	matu, mett'o	mitte f (G)	mitte	one n.
umutta (S)	onto	onto	onte (m G)	onti	five n.
fuutto S	---	fuutta	fuutta (m G)	fuutta	cotton n.
alatee f S	---	---	allaatte (f G)	allaatte	bird of prey n.
meeta	meeta	meeta	meeta (m G)	meeta	scraping board for use in preparing ensete n.

In general terms, the identity correspondence of word-medial t holds across Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

There are two possible problems, however. First, in Burji t would be expected to show palatalization before i – sometimes to c, sometimes to sh. Sasse discusses this Burji palatalization in different ways: in his 1979 work (pp. 9, 11), t > c initially but t > sh intervocalically; in his 1982 work, the change t > c is presented as the general change, with “traces [in Burji] of an older process by which PEC *t became sh intervocalically” (1982: 18). Of the above examples, *ci* ‘this’ (f.nom.) and *ash(i)* ‘you’ fit Sasse’s generalization. But *it-is-* ‘feed’ (eat-CAUS) does not palatalize the t; perhaps this irregularity has to do with the presence of an intervening morpheme boundary. On the other hand, the palatalization seen in *micca* ‘one’ occurs in a non-palatalizing environment (before a) and is evidently irregular.

Second, geminate tt does not show fully consistent correspondences. The six relevant words in the above list are: eight, hoof, one, five, cotton, bird of prey. (The etymology of ‘eight’ is problematic (see sec. 3.1.10.1), in that the Burji and Kambaata forms may not belong to this set at all.) In all six words, Burji shows a geminate (tt, once cc); Hadiyya never does, even though geminate tt does exist in Hadiyya. In these words, Hadiyya usually shows nt (intrusive n?). Simplex t also occurs sporadically in different languages in the words ‘eight, one’.

3.1.7.1 Word-initial correspondence of d

Both initially and medially, Kambaata shows two distinct correspondences compared to the other languages: Kambaata d ~ other d, and Kambaata z ~ other d. The correspondence involving z will be treated in sec. 3.1.11.1 and 3.1.11.2 below.

The following words show the regular identity correspondence of word-initial d among Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
demmees-	dee/acc-	debe'l-	deebe'l-	dee/efat-	belch vi.
duuda (S)	duuda	duuda	duuda	afa duuda	mute n.
dul-	'pierce' vt dur-	dul-	dul- 'skin, flay'	dul- 'skin' vt	slaughter (cattle) vt.
dansaa S	dan-aamo	dan-aamu	danca (G)	---	good adj.
---	dill-	dirr-	dirr- (G)	dirr-	descend, go down vi.
---	dassh-	darsh-	darsh- (G)	darsh-	swell vi.
---	dun-	dun-	dun- (G)	dun-	leak (of e.g. bag, roof) vi.
dulla	---	dulla (bigger)	dulla stick m G	dulla	club n.

Hudson (1989: 18) also reconstructs PHEC **dan-* 'able, be vi' for Burji *dan-* (S), Hadiyya *t'an-*, Kambaata *dand-*, Sidaama *dand-* (G) and Gedeo *dand-e/-*. Here Hadiyya shows an irregular word-initial t' reflex which cannot be easily explained.

3.1.7.2 Word-medial correspondence of d

The regular identity correspondence of word-medial d among Burji, Hadiyya, Kambaata, Sidaama and Gedeo is demonstrated by the following words.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
buuda (S)	buudo	buuda	buuda m G	buuda	'horn cup' horn n.
kad- (S)	kadi/-	kad-	kad- step on G	kad- 'become'	kick vt.
oyda S	awda	oodu	aidumme f G	oodde	threshing floor n.
mudd-am- s	---	---	mudd-am- (G)	mudd-am-	hurry vi.

idd- (S)	---	---	idd- (G)	idd-	sting vt.
---	weddeessha	weddessa	waadde m G	waddassa	wanza tree n.
---	ada	ada(-ta)	ada (f G)	adaada	aunt, maternal n.
---	edd-e?-	odd-akk’-	udd-i’r- (G)	oddo?-	wear, put on (clothes) vt.
saddeek’a	---	---	saddeek’a (m G)	saddeek’a	game, board game n.

(Libido has *kadaa*’ for ‘kick’ and *mudd-* for ‘hurry’ (Joachim Crass, p.c.).)

The above cognate sets show the identity correspondence of word-medial simplex and geminate d across the languages. On the other hand, Hudson (1989: 149) reconstructs PHEC **indiiddo* ‘tears (of eye) n’ for Hadiyya *indiidda*, Kambaata *injiji-ta*, Sidaama (*h*)*indiiddo* (f Y), *hindiddo* f G and Gedeo *indiddo*. Here, the Kambaata word shows (twice) a word-medial simplex j corresponding to d and dd in the other languages. This seems to be palatalization of d to j before i, but it is not regular; Kambaata does have words with medial -di-, e.g. *idiid-* ‘economize’. Except for this word, and **dan-* ‘be able’, the correspondence of d is regular at both word-initial and medial positions.

3.1.8.1 Word-initial correspondence of t’

The following cognate sets show the near-regular identity correspondence of word-initial t’ among Burji, Hadiyya, Kambaata, Sidaama and Gedeo. The data show that Burji almost always palatalizes *t’ before i, e, and sometimes (surprisingly) before u.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
t’ur-aaw-, c’uraaw-	t’ur-	t’ur-	t’ur- (G)	t’uro/-	dirty, be vi.
c’eena m (S)	t’eena	t’eena	t’eena (m G/Y)	t’eena	rain n.
t’unt’- (S)	t’uut’-	t’ukk’-	t’uut’- (G)	t’uut’-	suck vt.
t’unga (m S)	t’uranka	t’ulunka-ta	c’ulunk’- <i>icco</i> (m G/Y)	t’uungo	claw, fingernail.
c’immi-, c’immiy-S	t’iimbipp’-	t’imbiipp’-	t’imbii’l-	---	close the eyes vt.
t’e-	t’oo/-	t’a/-	t’o/-	---	dry up (spring, COW), go out (fire) vi.

c'ikk'-ad'- (S) t'ukk'- t'ukk'- --- --- narrow, be vi.

The following sets, all reconstructed by Hudson with *t', involve irregularities:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
c'eeje-	t'iig-e/-	k'eeg- < t'eeg-	---	---	bleed vi.
c'ibba (S)	t'ibbe	t'ibbe	t'ibbe (G)	d'ibba	hundred n.
d'ed'e-	t'ee/-	t'e(e)/-	---	t'e'm-	taste good, be sweet vi.
d'aaybod'-	t'eebe/-	t'eebek-	---	d'eeboo/-	thirsty, be vi.
---	t'uf-	t'uf-	c'uf- (G)	c'uf-	to close vt.

The data show various irregularities. In 'bleed', the Kambaata form *k'eeg-* with initial *k* seems to be an assimilation of word-initial *t'* to word-medial *g* in place of articulation. Irregularly, **t'* is palatalized in Sidaama 'fingernail', and not palatalized in Burji 'dry up'. More remarkable is the Gedeo *d'* in *d'ibba* < **t'ibbe* 'hundred', and similarly the initial *d'* in the Burji words for 'taste good' and 'be thirsty' (*d'* also in Gedeo). In the word for 'close', Sidaama and Gedeo *c'uf-* seem to have an unexpected palatalized *c'* reflex of **t'* before *u*; but these forms are similar to Oromo *c'ufa* and could well be borrowings. (See also sec. 3.1.17.1 on **c'*, and sec. 3.1.9.1 on **d'*.)

3.1.8.2 Word-medial correspondence of t'

The following cognate sets show the near-regular word-medial identity correspondence of *t'* among Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
k'urt'umme	k'urt'ume/e	k'ort'ume(-emata)	k'ilt'i'me	k'urt'umme	fish n.
hat'ish- S	hat(t)'issh-	hit'issho ass-	hant'issh-i'r (G)	hett'if-at-	sneeze vi.
t'unt'-	t'uut'- (gulp)	t'ukk'-	t'uut'- (G)	t'uut'-	suck vt.
---	t'aat'-	t'a(a)t'-	t'aat'- (G)	---	bundle vt.
---	maat'-	maat'-	maat'- (G)	---	hide vt.
---	---	k'itt'-a/-	k'itt'-eess- (G)	k'itt'-ess-	prepare vt.

finc'e shiinc'ara --- fint'aare finitt'aare splinter

(Libido has *hatt'is-*, *'att'is-* for 'prepare' (Joachim Crass, p.c.)

In the above cognate sets, a correspondence of geminate tt' can be seen in Kambaata, Sidaama and Gedeo in the cognate set 'prepare', and in Hadiyya and Gedeo in 'sneeze' (Sidaama has nt'; the word is an onomatopoeia). The word for 'splinter' shows palatalization in Burji (expected) and in Hadiyya (unexpected). In 'suck' (*t'uut'-), the correspondence of Kambaata t'ukk'- to t'uut'- in the other languages might perhaps represent dissimilation.

3.1.9.1 Word-initial correspondence of d'

Only Burji, Sidaama and Gedeo have the sound d' (Hudson 1989: 11). HEC cognate sets that show a correspondence involving word-initial d' are very few. Hudson (1989) reconstructs only two PHEC words with initial *d'. These cognate sets are:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
d'iib- (S)	---	---	t'iib- (G)	d'iib-	push vt.
---	t'ook'-	t'ook'-	t'ook-, d'ook-	do/-	burst vi.

(Libido has t'iib- for 'push' (Joachim Crass, p.c.)

Both of these sets show irregularities. In 'push', Sidaama has an unexpected t'. In 'burst', Gedeo do/- has lost the glottalization of *d', and – more significantly – both Hadiyya and Kambaata have t'. This directly contradicts the rule given by Hudson (1989: 7, 12) whereby *d' > / in Hadiyya and Kambaata. In fact, in initial position the regular correspondence would instead seem to be d' ~ t' (regularly t' in Hadiyya and Kambaata, and sometimes in Sidaama), as seen in the above two words and also in several other sets:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
c'ibba (S)	t'ibbe	t'ibbe	t'ibbe (G)	d'ibba	hundred n.
d'ed'e-	t'ee/-	t'e(e)/-	---	t'e'm-	taste good vi.
d'aaybod'-	t'eebe/-	t'eebek-	---	d'eeboo/-	thirsty, be vi.
(d'ukkubi)	t'isso	(t'idana-ta)	t'ibba, d'ibba	d'ibo	sickness n.
d'igo	t'igo	---	---	---	number n.
---	t'aban-s-	---	---	d'abanaa-s-	slap vt.

d'ink'-	---	---	t'ink'(-i'r)-	---	peck vi.
d'uud'-, t'it'-	---	t'uun-sh-	---	---	squeeze vt.

(Libido has *t'ega* for 'number' (Joachim Crass, p.c.).)

(In the word for 'sickness', the Burji and Kambaata words are not part of the cognate set **t'ibbo* as given by Hudson; but Burji does have d', and Kambaata does have t', which is the expected pattern.)

Hudson reconstructs initial **t'* (not **d'*) for the first four of these sets (no reconstruction is given for the others); but it is unclear why these sets should be reconstructed any differently from 'burst' (above) which has **d'*. On this point see Hayward (1997: 118-119), who brings together the above sets showing this correspondence (*d' ~ t'*). Note that for initial **t'*, we have seen that the normal correspondence is the identity correspondence in all five languages, except that Burji sometimes shows palatalized **c'* (see sec. 3.1.8.1). By contrast, the above cognate sets all show Burji or Gedeo *d'*. This argues against a reconstruction in **t'*.

3.1.9.2 Word-medial correspondence of d'

In medial position, Hudson's rule that **d' > /* in Hadiyya and Kambaata does seem to apply. Moreover, he states (1989: 7) that **d' > Sidaama 'r* between vowels, and **d' > 'r* in one dialect of Gedeo between vowels (cf. also Hudson 2007: 531). The following cognate sets show the complex correspondences of word-medial *d'* among Burji, Hadiyya, Kambaata, Sidaama and Gedeo. All of these words except the first three are reconstructed by Hudson as involving the reflexive morpheme **(a)d'-* (see Hudson 1989: 6, and Hudson 1976: 271-272 for discussion).

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
c'iid'a m S	c'ii/a pl	c'ii/a-ta pl	c'e/-oota pl	c'i/a	bird n.
bayd'- (S)	---	---	bay'r-	be/ed'-	carry vt.
d'aaybod'-	t'eebe/-	t'eebek-	---	d'eeboo/-	thirsty, be vi.
k'ufay- (S)	kutt'-	kucc'-	---	k'uf-a/-	cough vi.
---	---	buu'rr-	buud'-	buud'-	anoint oneself vi.

---	hafaff-e/-	hafaaff-a/-	afaaff-i'r- (G)	---	yawn vi.
---	hee/-	he/-	hee'r- (G)	he'r-	live vi.
---	shikk-e/-	shikk-a/-	sikk'-i'r-	---	lean (on stick) vi.
---	k'eeraa'l-	k'eeraa'r-	---	k'eerr-ad'-	long, tall, be vi.
lik'ees-ad'-	lik'ayyo a/-	le/eecc'-	lik'ii'r- (G)	lik'eess-e'r-	borrow (money) vt.
---	maass-e/-	maass-a/-	maass-i'r- (G)	---	bless vt.
---	aansh-a/-	---	hayssh-i'r- (G)	aansh-e'r-	wash oneself vi.
---	lag-a/-	rag-a/-	rag-i'r- (G)	---	inherit vt.
sil/- (S)	---	---	fitt'- (G) Rf	fil-, fi'l Rf	comb vt.
sin/-aaw-	shum-e/-	shum-a/-	shumaa-'r-	shi'n-	urinate vt.
galateef-ad'-	galatt'-	galatt'-	galatt'- Rf	galateef-at-	thank vt.
gilb-is-ad'-(S)	gurupp'-	gulupp'-	gulupp'- (G)	guluff-at-	kneel vi.

(Libido has *fit'* - for 'comb' (Joachim Crass p.c.).)

In Burji, the reflex of *d' is predominantly d'. This language shows / reflex of *d' after l and n in 'comb' and 'urinate' above; about this point Sasse (1982: 18) says that in Burji "d' becomes or alternates with / after liquid, nasal and r". Sidaama shows mainly 'r reflex of *d' intervocalically, as expected (Hudson 1989: 7). The exceptions are: *c'e/oota* 'bird' that shows / reflex of *d' intervocalically, *buud'* - 'anoint oneself' < *buur-d'* - (G) (Hudson 1989: 20), and *fitt'*-, *galatt'*-, and *gulupp'*- representing assimilations of ld', td', and bd' respectively. Gedeo has no one dominant pattern that shows the reflex(es) of *d' at word-medial position. In Gedeo, intervocalic d' > 'r dialectally (Hudson 1989: 7), as seen in several of the above sets. Postvocally, two examples show / reflex of *d', and *d' sometimes remains d'. The above cognate sets also show that in Gedeo liquids and nasals followed by d' yield glottalized liquids and nasals. Finally, the middle ending -ad' has a variant -at in Gedeo (Hudson 1976: 272).

Hadiyya and Kambaata show / reflex of *d' word-medially except in 'long, tall, be' (**k'eeraa-d'*-) that shows a glottalized reflex ('l, 'r) of *rd', in 'thank' (*td' > tt'), in 'kneel' (*bd' > pp'), and in 'cough' (*fd' > tt', cc'). In 'anoint oneself', Kambaata

buu'rr- < *buur-d'*- (Hudson 1989: 20); and in ‘borrow (money)’ (**lik'-ay-ad'-*), Kambaata *le/ecc'*- seems to represent **yd' > cc'*. Usually Hadiyya and Kambaata show a consistent assimilation rule: *Cd' > CC'*. If the input consonant C has no glottalized geminate counterpart, then the output *CC'* changes to the glottalized geminate that does occur at that point of articulation. Thus:

- *td' > tt'* (‘thank’)
- *bd' > pp'* (‘kneel’)
- *rd' > 'rr* (‘anoint’)
- *yd' > cc'* (‘borrow’)
- ‘cough’ deviates a little: **fd' > tt'* or *cc'*.

The above cognate sets do not show the correspondence of geminate reflexes in the languages, although Hudson says that *dd'* does exist in Burji, Sidaama, and Gedeo (1989: 11). On the other hand, when *d'* is assimilated to a neighboring sound, it yields a geminate glottalized reflex (though not *dd'* itself) as in ‘kneel’ and ‘thank’, as discussed above.

3.1.10.1 Word-initial correspondence of s

The regular identity correspondence of word-initial *s* among Burji, Hadiyya, Kambaata, Sidaama and Gedeo is presented as follows. (The last set shows the rare irregular occurrence of *z* in Burji.)

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
saa (m S)	saayya	sa/a	saa (f G/Y)	saayya m/f	cow n.
sood- (S)	sood-	sooz-	sood- (G)	sood-	dawn vi.
sunk'- (S)	sunk'-	sunk'-	sunk'- (G)	sunk'-	kiss vt.
sunaf (S)	sane	sanu(-ta)	sano (f G/Y)	sano	nose n.
sima	sima	sima (2 nd stage)	sima (f G)	sima	ensete tree 1st growth- stage n.

zagayto --- sagaayu-t saga(a)yyo sageetto bracelet n.
 (Libido has *sano* for ‘nose’ (Joachim Crass, p.c.).)

There are two sets reconstructed with *s that show irregular palatalization to sh.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
sal-	sar-	shol-	---	---	cook
sii-, siy- S	sh-	sh-	sh- (G)	shi-	kill

These last two sets illustrate a general problem in HEC with the two phonemes *s and *sh. Many correspondences involve s in some language(s), and sh in the others; such correspondences are found both initially and medially. What is the proto-sound? In some cases Hudson reconstructs *s, in some cases *sh, even for near-identical correspondences. Compare:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss	PHEC
sii-, siy- S	sh-	sh-	sh- (G)	shi-	kill	*siy-
sin/a (S)	shuma	shuma-t	shuma (G)	shi'na	urine	*shuma

In both sets, Burji has si- in contrast to sh- in the other languages. Yet Hudson reconstructs the first set as *siy-, and the second set as *shuma. It is not clear on what basis he chooses *s for one set but *sh for the other.

In medial position the same problem can be observed:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss	PHEC
huus- (S)	wansh-	w/yiinsh-	wonsh-, wo'm-is-	wansh-	fill	*wam-is-
reesi (m S)	leessha	re(e)sha	reesha (m G/Y)	rensha	corpse	*reesha

The word ‘corpse’ is reconstructed with *sh (*reesha), but ‘fill’ is reconstructed with *s (*wam-is-). In ‘fill’ the causative morpheme is clearly involved, which makes *-is- likely; but the general problem (*s vs. *sh) still remains.

As a non-specialist, I had to adopt some approach to this apparent (?) inconsistency. My approach is to orient my discussion to Hudson’s own reconstructions, pointing out some problems in passing. Thus sets that Hudson reconstructs with *s are presented here, while sets that he reconstructs with *sh are in sec. 3.1.18.1 and 3.1.18.2.

Finally, Hudson (1989: 56) also reconstructs PHEC **saddzee* ? ‘eight’ for the correspondence of Burji *hiditta* (S), Hadiyya *sadeento*, Kambaata *hezzetto*, Sidaama *sette* (G) and Gedeo *saddeeta*. If the reconstruction is valid, the Burji and Kambaata forms would show an irregular h reflex of *s. However, Ehret (1991: 217-218) rejects this reconstruction. He removes the Burji and Kambaata forms from the cognate set and gives them a completely different etymology, involving a base-five counting system: “Burji *hiditta* and Kambaata *hezzetto* ‘eight’ ... can be seen to be built on the Omotic root for ‘three’ (Ometo languages, in particular, have *hedz-*, *hezz-*, etc., for ‘three’). In Wolaytta, for example, the word for three is *heezza* (Lamberti 1997: 114).

3.1.10.2 Word-medial correspondence of s

Cognate sets that show the identity correspondence of word-medial s among Burji, Hadiyya, Kambaata, Sidaama, and Gedeo are the following.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
ka(a)kk-is-	kaakk-ees-	kaakk-e(e)s-	kakk-is- (G)	k’aak’-iss-	cackle (hen) vi.
it-is- (S)	it-is-	it-is-	it-is- (G)	it-is-	feed vt.
haas-iss-	has-is-	has-is-	has-is- G	has-is-	necessary, be vi.
iss- (S)	iss-	ass-, es-	ass- (G)	(h)ass-	do vt.
isi (S)	---	isi	isi (G)	isi	he 3 rd m sg nom pron.
isinu (S)	issuw	issa/ooti	insa (G)	insa’ne	they 3 rd pl. nom pron.
haas- (S)	has-	has-	has- (G)	has-	want, seek vt.
---	maass-e/-	maass-a/-	maass-i’r- (G)	---	bless vt.
---	siissa	sissa/-iccu sg	sissa/-icco sg	sissa	scraping tool of bamboo for use in preparing ensete n.

The above cognate sets show the identity correspondence of word-medial simplex and geminate s in the languages. Note that the first three examples all involve the causative morpheme -is-. Sporadically, however, this morpheme can undergo palatalization, as shown by the first of the following irregular sets:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
huus-	wansh-	w/yiinsh-	wonsh-, wo'm-is-	wansh-	fill vt.
ish, ishi (S)	isi	ise	ise (G)	ise	she 3 rd f sg nom pron.

The second of these irregular sets ('she') shows a different problem. According to Sasse (1979: 33), the regular reflex of PEC *s is HEC s, and Burji s and sh: "In Burji, s becomes sh after i". (Note that this palatalization rule is different from the rule for t, which palatalizes **before** i; see sec. 3.1.6.2.) However, in the above sets, this Burji rule applies only to the word *ishi* 'she'; and here the sh is functionally motivated, distinguishing *ishi* 'she' from *isi* 'he'. Many Burji words do have sh after i. On the other hand, there are not a few words in Burji that show s reflex even after i, as is clear from the above tables. Thus the change s > sh after i seems random and non-rule governed.

3.1.11.1 Word-initial correspondence of z

As mentioned in sec. 3.1.7.1, many cognate sets in HEC involve d in all the languages except Kambaata, which has z. The following cognate sets show the regular correspondence of word-initial z and d among Burji, Hadiyya, Kambaata, Sidaama and Gedeo. Hudson reconstructs such words with PHEC *dz; I will instead assume PHEC *z (see below).

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
dar- 'break' S	direer-	zar-	dar- 'hatch' vi (G)	dar-	tear vt.
duug- (S)	duug-	zuug-	duug- (G)	duug-	scrape, tan (hide) vt.
daldal	daddaro	zazzalu-ta	daddalo	daddala	trade, business n.
daraar-	---	zaraar-	daraar- (G)	daraar-	bud, blossom vi.
diida honey	diissha	ziisshu m	diissho sg f	---	bee n.

--- daad- zaaz- daad- (G) --- spill, flow vi.

Note that Burji, irregularly, does have a few words with z, both initially and medially (e.g. *zagayto* < **sagaayo*, sec. 3.1.10.1). Four of these sets are reconstructed by Hudson with PHEC *z; see next section.

3.1.11.2 Word-medial correspondence of z

The following cognate sets show the regular correspondence of word-medial z and d among Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
sood- (S)	sood-	sooz-	sood- (G)	sood-	dawn vi.
ada f (S)	ado	azu-t	ado (f Y)	ado	milk n.
bagadi	bagado	bagazu m	bagado (m G)	bagado	spear n.
orda m S	odda < orda	orza-t	orda f G	orda	hair of animals n.
madaa S	mada	maza-t	mada (f G/Y)	mada	sore, wound n.
daldal	daddaro	zazzalu-ta	daddalo	daddala	trade, business n.

Note that the last of these cognate sets shows the correspondence of geminate zz in Kambaata and dd in Hadiyya, Sidaama and Gedeo.

The correspondence of Burji, Hadiyya, Sidaama and Gedeo d to Kambaata z must reflect a proto-sound different from *d. The straightforward reconstruction is *z, which I adopt here (cf. Leslau 1980 for Proto-*Sidamo (i.e. PHEC) *z, and Sasse 1979: 19, Ehret 1991: 273 for *z in PEC). Hudson prefers to posit PHEC *dz (1989: 8) instead; see also Hayward (1997: 114-118) for further discussion. Whatever the exact reconstruction, there has been a merger of the two sounds (*d and *z) in all the languages except Kambaata.

There are four exceptional words reconstructed with PHEC *z (Hudson's *dz) which also have z in Burji. I present these sets below, but I cannot explain them.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss	PHEC
bazoo inheritance	---	----	bado \cong revenge	bada	(last) will	*badzoo
biziik'o small	---	bezzeccu	beddakko	---	star	*beddzeeko ?
gaaze \cong shield	gaado	gaazu	gaado, gaaro	---	war, campaign	*gaadzo
bagad(d)i, bagaz(z)i	bagado	bagazu	bagado	bagado	spear	*bagadzo

3.1.12.1 Word-initial correspondence of n

The following words show the regular identity correspondence of n at word-initial position in Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
naacci (m S)	naacca	naacca	naacca (m G)	naacca m	crocodile n.
ninsi (S)	ne(e)s	ne(e)s, -nne	ninke (G)	no/o(o)	us 1 st pl. acc pron.
naafa	---	---	naaf-icca (m G)	naafá	lame adj.
nak' - (S)	---	nak' -	nak' - infect G	---	hit vt.
---	nigga	nigga	nigga	---	tendon n.
naac'a	naac'o	naac'a	---	---	joke n.
nada (S)	naara	naarra-ta	---	---	pile, stack (of grain) n.

In the above cognate sets, the omissions (---) represent very different words.

3.1.12.2 Word-medial correspondence of n

The identity correspondence of word-medial n among Burji, Hadiyya, Kambaata, Sidaama, and Gedeo is demonstrated by the following words.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
dan- (S)	t'an-	dand-	dand- (G)	dand-e/-	able be vi.
ununa (S) m.	anuuna	anuuna	unuuna (m G/Y)	unuuna	breast n.
anga f (arm S)	anga	anga(-ta)	anga (f G)	anga f	hand, arm n.
mina m (S)	mine	mine	mine (m G/Y)	mine m	house n.

sunk'- (S)	sunk'-	sunk'-	sunk'- (G)	sunk'-	kiss vt.
agun-co	agan-co	agana	agana (m Y)	agen-jo	month n.
an(n)aa m S	ann-icco	anna (father)	anna (father)	anna m	owner (of) n.
c'eena m (S)	t'eena	t'eena	t'eena (m G/Y)	t'eena	rain n.
hunna	---	---	hunna m G	hunna	strength, power n.
anta (antaa S)	anja	anja	anja (m G)	hanc'ufa	saliva n.
sunun-	sangugg-	sangugg-	sanann- (G)	funuun-	bleed from nose vi.
ani (S)	ani	ani	ani (G)	ani	I, 1st sg. nom pron.

Note that some of the above cognate sets show the identity correspondence of geminate nn in the languages.

3.1.13.1 Word-initial correspondence of r

The following words demonstrate the correspondence of word-initial r among Burji, Hadiyya, Kambaata, Sidaama, and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
ra/- is-	li/- is-	re/- is-	ra/-is-	ra/-iss-	cook vt.
reeha, reeya	leho	rehu-t	reo (f G/Y)	reo	death n.
re-, rey- S	leh-	re(e)h-	re- (G)	re(/)-	die vi.
---	lossha	ro(o)sha-t	roso	---	habit, custom n.
---	los-is-aanco	roos-is-aancu	ros-iis-aanco	---	teacher n.
---	lag-a/-	rag-a/-	rag-i'r- (G)	---	inherit vt.
rakk-ad' - (S)	---	---	rakk-am- G	rakk-at-	bothered, be vi.

All the above cognate sets reflect the correspondence of Burji, Kambaata, Sidaama and Gedeo r to Hadiyya l at word-initial position. The correspondence thus indicates a totally regular change of PHEC *r into l in Hadiyya at word-initial position. Note that there are no Hadiyya words in Hudson's list that have initial r- (1989: 296). The change of initial

*r > l also happens irregularly in one Sidaama word, ‘ripen’: *ra/- > Sidaama le/-, although Hudson seems unsure of whether to assign this word to PHEC *ra/- ‘ripen’ or to *le/- ‘grow up’ (see sec. 3.1.14.1 below; cf. also Hayward 1997: 109).

Deviating from this regular correspondence, Hudson (1989: 80) reconstructs PHEC *roop’e ‘hippopotamus’ for Burji *roobe* f, *roobee* f S, Hadiyya *looba* / -*icco* sg, Kambaata *looba* / -*iccu* sg, Sidaama *roo/e* (f G) and Gedeo *roop’e*. Here Kambaata (with l-) does not show the regular word-initial r reflex (perhaps the word is borrowed from Hadiyya). Another exceptional correspondence reconstructed by Hudson (1989) is PHEC *raar- ‘shout, scream vi’ for Burji *t’aar-* (S), *t’aar-ay-* S, Hadiyya *laar-*, Kambaata *yaar-*, Sidaama *raar-* (G) and Gedeo *raar-*. Here the inclusion of Burji in the reconstruction is speculative (Hudson gives it with a question mark). On top of this, Kambaata has an unexpected word-initial y reflex.

3.1.13.2 Word-medial correspondence of r

The following cognate sets show the standard correspondences of word-medial r among Burji, Hadiyya, Kambaata, Sidaama, and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
k’araar- S	k’araar-	k’araar-	k’araar- (G)	k’araar-	bitter, be vi.
orra ‘midday’	balla	bar(r)a	barra (m G/Y)	barra f	day n.
t’ur-aaw-	t’ur-	t’ur-	t’ur- (G)	t’uro/-	dirty, be vi
jiira f (S)	giira	giira (ta) f	giira f (G)	giira f	fire n.
orda m S	odda < orda	orza-t	orda f G	orda	hair of animals n.
beeri-	bork’-	bork-	boraab- (G)	booro/-	impure, be vi.
haarayaa S	haare-cco	haaro	haaro (G)	haaro	new adj.
dar- ‘break’ S	direer-	zar-	dar- hatch vi (G)	dar-	tear vt.
arraba m S	allabo	arrabi-ta	arrabo (m Y)	arrabo	tongue n.
harre	halla	harre(-ta) pl	harre pl (f G)	harre/-icco sg	donkey n.

Here all the languages except Hadiyya have a very regular r reflex of PEC *r. Hadiyya has both r and l reflexes; but the l reflex occurs only for geminates, such that rr in the

other languages is ll in Hadiyya. This matches Hudson’s statement (1989: 7). Sasse does not discuss the geminate environment, although he does give the cognate set for ‘tongue’ (above); he simply says that *r merges with *l in Hadiyya (1979: 22-23), a statement which I will return to below (sec. 3.1.14.1). Note also that in medial clusters rC, the r usually assimilates in Hadiyya: rC > CC (this is clear from an examination of all the *rC sets given by Hudson). And once we have a correspondence of rk’ ~ nk’ (i.e. r ~ n) in Burji *irk’a* (f S), Hadiyya *ink’e*, Kambaata *ink’u-ta* and Sidaama *hinko* (m Y, f G) ‘tooth’.

In summary, the following points can be made about the reflexes of PEC *r in Hadiyya.

1. Word-initially *r > l
2. Geminate *rr > ll word-medially
3. Only simplex intervocalic r regularly remains unchanged; clusters VrC usually assimilate.

3.1.14.1 Word-initial correspondence of l

The identity correspondence of word-initial l among Burji, Hadiyya, Kambaata, Sidaama and Gedeo is very regular, as shown by many cognate sets:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
layimi, layma S	leema	leema	le(e)mma (f Y)	lemma	bamboo n.
lali m (S)	laro	lalu	lalo (m Y)	lali	cattle n.
lukka (f S)	lokko	lokka-ta	lekka f (G)	lekka	foot / leg n.
loomay	loome	loomi-t	loome f G	loome	lemon n.
lama (S), lam	lamo	lamu, lamo	lame (m G)	lame	two n.
lamala (S)	lamara	lamala	lamala	---	seven n.
lia, liya S	loho	leho	leye, lee m G	---	six n.
le- ‘sprout’ vi S	li/-	le/-	le/- ‘ripen’ G	---	grow (up) vi.
labbu i-	laban-	laban-	law(w)is-	---	blaze up, flame vi.

See sec. 3.1.13.1 for Sidaama le/- ‘ripen’.

3.1.14.2 Word-medial correspondence of l

The following cognate sets show the standard correspondence of word-medial l (simplex and geminate) among Burji, Hadiyya, Kambaata, Sidaama and Gedeo. Sasse states (1979: 22-23) that *r merges with *l in Hadiyya, so the two PHEC phonemes (*l, *r) would both be expected to show the same distribution medially: geminate ll, simplex intervocalic r. The following items indeed show this pattern.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
lali m (S)	laro	lalu	lalo (m Y)	lali	cattle n.
foola (S)	sooro	shoolo	shoole (m G)	shoole	four n.
fuul- ‘gallop’	fir-	ful-	ful- (G)	ful-	go out, exit vi.
gilba f (S)	gurubbo	gulube	gulube	gulubo	knee n.
maala m (S)	maara	maala	maala (m G/Y)	maala	meat n.
mala	mara	mala-t	malaa (mY, f G)	mala	pus n.
daldal	daddaro	zazzalu-ta	daddalo	daddala	trade, business n.
lamala (S)	lamara	lamala	lamala	---	seven n.
c’il- S	c’ir-	c’in-	c’il- (G)	c’il-	defecate vt.
dul- pierce vt	dur-	dul-	dul- skin, flay	dul-	slaughter (cattle) vt.
illa f	ille	illi	ille f (G)	ille f	eye n.
k’ulaalle	urulla	urulla	ulaa/ulle (f G)	ula/ulla	leech n.
bulla	bullo	---	bullee (f Y)	bulle	flour n.
dollo	dall-icco	---	---	dallo	hump of cow n.
---	allagga	allagga pl	allagga pl G	alaga	outsider, alien, foreigner n.
bolla	ballo /-icco	ballu m	ballo m/f (G)	ballo m/f	brother-in-law / father- in-law n.

The above cognate sets show the correspondence of Hadiyya r to l of the other languages at word-medial position. Geminate ll also corresponds identically across the languages, as shown by the last six examples. The word for ‘leech’ (which has both l and ll) additionally shows an irregular r reflex in Kambaata (dissimilation?).

Regarding PHEC intervocalic *l, Hudson (1989: 7) says that “*l > Hadiyya r between vowels”. Likewise, Sasse (1979: 21) states that “The liquid *l continues as l in all EC languages except Hadiyya, where it split into r and l, the former occurring intervocalically, the latter elsewhere”. However, the following words, all reconstructed by Hudson (1989) with PHEC *l, do show an -l- between vowels in Hadiyya:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
gabala ‘until’	gabala	gabala	gabala G	gabala	border, frontier, limit
galata	galata	galata	galata(m G/Y)	galata	thanks n.
k’ilangiloo S	k’elo/o	k’elema-ta	k’erek’e’na (f G)	k’ak’ank’ale f	snail n.
---	saankaal-	saanka(a)l-	sakaal- G	sakaal-	hobble vt.
---	shiil-	shiil- melt	shiil- melt G	---	dissolve vi.
---	t’uut’ul-icco	buttu’l-iccu	buttu’le G	bucculla	puppy n.
---	t’ok’ol-	t’ok’ol-	t’ok’ol- snatch G	---	pry, lever vt.
c’ik’ile forearm	t’unku’la	---	c’igile (f G/Y)	c’ik’ile	elbow n.
---	k’alima	k’alima	k’alimmo	---	ensete tree seed pod n.
---	kikkiro, kilkilo	kikkilit	kikki’la	---	armpit n.

These words show that Hudson’s and Sasse’s generalization cannot be right: intervocalic PHEC *l is sometimes l in Hadiyya, and sometimes r, with no numerical preference.

In Hadiyya, we can almost say that {r, l} form a single Hadiyya phoneme (call it “R”):

R > l initially

R > r and l (irregularly) word-medially

RR > ll (geminate)

The only problem is the irregularity of intervocalic r and l coming from PHEC *l.

As the northernmost HEC language, Hadiyya is in direct contact with Gurage. In Western Gurage there is a phonemic merger of l, r, n (Hetzron 1997: 537). Quite likely the near-merger of l, r in Hadiyya reflects contact with Gurage.

Finally, one exceptional set is Burji *c'il-* S, Hadiyya *c'ir-*, Kambaata *c'in-*, Sidaama *c'il-* (G) and Gedeo *c'il-* 'defecate vt'. Here, Kambaata shows an unexpected n corresponding to Hadiyya r and to l in the other languages.

3.1.15.1 Word-initial correspondence of c [tʃ]

About the word-initial occurrence of c Treis (2008: 25) states that in Kambaata there are only a few lexemes starting with the phoneme /c/; she indicates further that the same is reported about other HEC languages in Wedekind (1990 a: 51). Kambaata words such as /cifa↔/ 'coffee grounds' and /cacu↔ta/ 'slats for slatted frame (of a bed)' are given by Treis (2008: 25) as examples with initial c reflex. Hudson's dictionary of HEC lists only Hadiyya *cingaraalla* 'hawk', Kambaata *cufa* 'chaff', Sidaama *cigi/je* 'seedling', *cuuc'* 'take a mouthful', and a few Burji words as having initial c reflexes. There are no reconstructed PHEC items beginning with *c; in the cognate set Burji *cin(d)'i-*, Hadiyya *tut, tat*, Kambaata *tiini*, Sidaama *tini* and Gedeo *tinni* 'this (fem.)', Burji c is clearly a palatalized t, and the set thus provides no evidence for initial proto-*c. In fact, there is no good evidence that PHEC had initial *c at all.

3.1.15.2 Word-medial correspondence of c [tʃ]

Cognate sets that show word-medial correspondence of c do exist, but are still very few. I found only one cognate set that shows the correspondence of word-medial c among all five languages; several cognate sets involve three or four of the languages. Note that all of the sets in the table involve either geminate /cc/ or a cluster /nc/.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
naacci (m S)	naacca	naacca	naacca (m G)	naacca m	crocodile n.
moocca	moocca	mooccu	moycco (m Y)	---	beast of prey n.
---	k'opp'an-aanco	k'opp'an-aancu	kapp'-aasinco	---	liar n.

---	maccaar-	maccaar-	maccaraar-	---	crazy, be vi.
---	ha'm-icco	ha'm-iccu m	ha'm-icco	ha'm-icco	ensete tree main root n.

Other cognate sets show a regular correspondence of word-medial geminate cc specifically between Hadiyya and Kambaata: Hadiyya *waacc-* and Kambaata *wa(a)cc-* ‘swim vi’, Hadiyya *kiccecca* and Kambaata *kiccecca* ‘sadness, sorrow n’, Hadiyya *bollacco/o* and Kambaata *bollocca* ‘marriage, wedding n’; and Burji *gucce* f, *guccee* S and Kambaata *gucce*, *gucci-ta* ‘ostrich’ (cf. Oromo *guccii*) show a word-medial correspondence of cc between Burji and Kambaata. Hudson also gives two PHEC sets involving a reconstructed suffix **-co*: **agan-co* ‘month, moon’ and **icco* < *it-co* ? ‘rheumatism’. These sets show various assimilations of the nc and tc clusters in the different languages. There is also the set PHEC **anca* ‘saliva’ for Burji *anta* (*antaa* S), Hadiyya *anja*, Kambaata *anja*, Sidaama *anja* (m G) and Gedeo *hanc’ufa*; note that here none of the languages shows a c reflex.

Simplex intervocalic c is almost unattested in HEC. About the status of c Hudson (1989: 12) states that in Hadiyya, Kambaata and Sidaama simplex c is realized as geminate [c:] intervocalically and single [c] elsewhere, but that geminate cc is rare in Burji and Gedeo. Treis (2008: 25) points out that in Kambaata “the intervocalic occurrence of simplex /c/ is [very rare], which might have led other authors to assume earlier that /c/ can only appear in geminate form in intervocalic position (Hudson 1989: 12, M.G. Sim 1985: 44 and 1988: 58)”. But as she notes, there are a few Kambaata words such as /ka↔ca yu↔/ ‘to argue’, /tumaancu↔/ ‘blacksmith’, and /cacu↔ta/ ‘slats for slatted frame (of a bed)’ that have a medial simplex c reflex; two of these do have simplex intervocalic c. But this is only for Kambaata, and the word *ka↔ca* (*yu↔*) ‘argue’ seems to be built on an ideophone. In Hudson’s dictionary I found six words with simplex intervocalic c in Burji, and none elsewhere. From the above cognate sets, we do have several examples that show medial cc and nc across the languages. This is enough to establish a word-medial c identity correspondence among these languages, though not of intervocalic simplex c.

3.1.16.1 Word-initial correspondence of j

Hudson’s dictionary has no cognate sets that show word-initial correspondence of j among Burji, Hadiyya, Kambaata, Sidaama and Gedeo (all five languages). There are three cognate sets showing an identity correspondence in three or four languages. Thus we have:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
---	jall-	jalli y-	jalli y-	---	dizzy, be vi.
jaali (m S)	---	jaala	jaala (G)	jaalo	friend n.
jimfo	---	jimfu-ta	---	jinfo	counterbalance of spear n.

Hudson (1989: 70) also presents the correspondence Burji *jinjibili*, Hadiyya *jinjibila*, Kambaata *jaanjebeelu*, Sidaama *janjibeelo* (m G) and Gedeo *gaanjibelo* ‘ginger’. Hudson’s PHEC reconstruction **gaanji-belo* is very unlikely; the word is a borrowing (directly or indirectly) from Arabic *zanjabil* ‘ginger’ (Orin Gensler, p.c.), and the Gedeo form with initial g- could be a dissimilation (j > g).

There are also two irregular correspondences. Hudson (1989) reconstructs PHEC **jor-?* ‘bad, be vi’ for Burji *yer-ad’-*, Hadiyya *jor-*, Gedeo *yoo/-*; and PHEC **jaba* ‘brave’ for Burji *goobi* (m ‘brave man’ S), Sidaama *jawa* G and Gedeo *jaba(ke)*. These show two correspondence patterns, both of them different and both irregular: Burji y ~ Hadiyya j ~ Gedeo y in the first cognate set and Burji g ~ Sidaama j ~ Gedeo j in the second set. Note that in **jaba* ‘brave’, Burji (a language which often palatalizes) has a non-palatal reflex.

Given the very small number of relevant cognate sets, we can only tentatively suggest that the identity correspondence is the “regular” development of *j in initial position.

3.1.16.2 Word-medial correspondence of j

Word-medially, there are also very few sets. We can see an identity or near-identity correspondence across the languages in the following words:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
hanjaar-	jaanjur-	jaa(n)jur-	---	---	talk nonsense vi.
ajaj- (S)	ijaaj-	(azzaz-)	hajaj- (G)	ajaj-	order vt.
hujee f S	---	hujita	---	huje	work n.

(Libido has *ajaj-* for ‘order’ (Joachim Crass, p.c.).)

Thus unlike medial *c*, we do have simplex intervocalic *j* (as well as *nj* clusters) in a couple of words. Regarding medial *jj*, there is just one cognate set: PHEC **baajja* ? < *baad-ca* ? ‘fear n’ is reconstructed by Hudson (1989: 62) for Hadiyya *baddimma*, *baacca* < *baad-ca*, Kambaata *waajju* and Sidaama *waajja* (f G/Y). Thus medial *j* does seem to be reconstructible to PHEC, but there is too little data to say anything reliable about its distribution.

3.1.17.1 Word-initial correspondence of *c’*

Cognate sets that show the word-initial identity correspondence of *c’* among Burji, Hadiyya, Kambaata, Sidaama, and Gedeo are the following:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
<i>c’iid’a</i>	<i>c’ii/- icco</i>	<i>c’iiccu-ta</i>	<i>c’ee/-icco</i> (m Y)	<i>c’iicco, c’i/a</i>	bird n.
<i>c’iil-, c’il- S</i>	<i>c’ir-</i>	<i>c’in-</i>	<i>c’il- (G)</i>	<i>c’il-</i>	defecate vt.
<i>c’uub-</i>	<i>c’eef-</i>	<i>c’ef-</i>	<i>c’uu/- G</i>	<i>c’uup’-</i>	immerse vt.
<i>c’obtoo f S</i>	<i>c’abt’o/o</i>	<i>c’obt’a</i>	---	<i>c’ott’o</i>	gonorrhoea n.

Hudson reconstructs PHEC **c’* for all of the above sets. An unexpected Kambaata *t’* can be seen in the following sets:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
<i>c’uucc’ee f S</i>	<i>c’uuma</i>	<i>t’ut’i-ta</i>	<i>c’uunc’a</i>	---	ant
<i>c’alla</i>	---	<i>t’alla</i>	<i>c’alla (G)</i>	<i>c’alli</i>	only, alone adv.

(Libido has *t’alé:* for ‘only, alone’ (Joachim Crass, p.c.).)

Recall, conversely, that several words reconstructed with *t' have sporadic c' reflexes in HEC (see sec. 3.1.8.1).

3.1.17.2 Word-medial correspondence of c'

The following cognate sets show the identity correspondence of word-medial c' and cc' among three or four of the languages.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
boc'-	boc'-	---	boc'- (G)	boc'-	carve, split (wood) vt.
barc'umma	---	bar(i)c'uma	barc'um(m)a	barc'umma	stool of wood n.
---	macc'e	macc'a(-ta)	macc'a f (G)	mansha	ear n.
---	c'aac'-	c'anc'-	c'anc'- (G)	c'aanc'-	chatter vi.
naac'a	naac'o	naac'a	---	---	joke n.

Word-medial intervocalic single c' occurs in 'joke' and 'carve' above; the remaining cognate sets show cc', nc' and rc' correspondences. Gedeo *mansha* 'ear' is irregular.

Altogether, there are not many cognate sets for PHEC *c'. According to Sasse (1979: 30), "all HEC languages have a phoneme c' which is mainly confined to loanwords. The two or three instances in which it appears to be autochthonous do not seem to have cognates outside HEC".

3.1.18 Correspondence of sh [Σ]

The development of the Proto-Eastern-Cushitic phonemes *s and *sh in HEC is not clear. Sasse and Ehret appear to say different things. According to Sasse (1979: 31, 33),

PEC *sh, s > Burji s (but sh after i)

PEC *sh, s > HEC s (except Burji).

On the other hand, regarding PEC *sh, Ehret says that in Burji "its regular reflex is /sh/", and that in Sidaama and Hadiyya it becomes /s/ "although in environment of /o/ it remained /sh/ in Sidamo" (1991: 220). These characterizations cannot both be right. Fortunately, this disagreement is not crucial to the present study. PHEC does appear to have had /*sh/, whatever its earlier origin may have been. In this thesis, I will simply

examine the correspondences for sh which I found in the five HEC languages according to Hudson’s dictionary.

It should be emphasized that, synchronically, Burji does have many words where sh appears not after i. Burji sequences *ash*, *osh* are not unusual in the dictionary, and there are many Burji words with initial sh. Because HEC sh is in fact a well-established phoneme in all the HEC languages, both initially and medially, it is legitimate to study HEC correspondences involving this sound.

3.1.18.1 Word-initial correspondence of sh [Σ]

In fact, there do exist not a few cognate sets in HEC which involve sh, both initially and medially, across all or most of the HEC languages. Hudson’s dictionary gives over 20 cognate sets which he reconstructs with initial *sh in PHEC. The following sets illustrate the identity correspondence across the languages in initial position.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
shom/-is-	sho/-is-	shash-is-	shosshogg-ish-	---	loosen vt.
shooma	shomba	---	shoobba (f G)	---	hair: pubic hair n.
shasshaas-	shafshaf-a/- pl	---	shaf- G	---	shake vt.
---	shiil-	shiil- melt	shiil- melt G	---	dissolve vi.

Hadiyya *shaano/o* and Kambaata *shaanu-ta* ‘green’, and Hadiyya *shumage/-icco* sg and Kambaata *shumage(-ta)* ‘hare, rabbit’, show a word-initial correspondence of sh specifically between Hadiyya and Kambaata.

A number of sets reconstructed with initial *sh show various deviations from the identity correspondence. In the following two sets, one language shows s instead of sh; that this language is specifically Burji is less surprising (see sec. 3.1.18.2).

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
sam- (S)	sham-	sham-	sham- (G)	sham-	rot, be wet.

sin/a (S) shuma shuma-t shuma (G) shi'na urine n.
 (The Kambaata word for 'urine' should be *shuma-ta* (Joachim Crass, p.c.))

A few sets reconstructed with initial *sh show greater irregularity:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
foola (S)	sooro	shoolo	shoole (m G)	shoole	four n.
fooli-see-kka	shoo'l-ane	shool-ki-bi	shool-ki-ha m	sho(o)l-ga	fourth (ordinal).
hiik'-	hinc'-	hinc'-	shik'- (G)	shik'-	approach.

Strangely, the ordinal 'fourth' in Hadiyya has sh-, in contrast to 'four' with s-. (The same is also true in Libido (Joachim Crass, p.c.))

3.1.18.2 Word-medial correspondence of sh [Σ]

The following cognate sets show the identity correspondence of word-medial sh across Burji, Hadiyya, Kambaata, Sidaama and Gedeo. The distribution of simplex sh and geminate ssh (below) is not fully regular; furthermore, sometimes rsh assimilates to ssh (or the reverse dissimilation).

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
wassha pl	wash-icco	wash-iccu	wash-icco m/f	warsha	dog n.
---	gansha	ga(y)nshu m	gansho(m G/Y)	gansho	cold (illness) n.
---	shiish-	shiish-	shiish- (G)	---	sour, (be)come vi.
---	dassh-	darsh-	darsh- (G)	darsh-	swell vi.
---	heessh y-	---	heesshi y-	heesshi hiyy-	bend over, stoop, bow vi.

On the other hand, in the following cognate sets, Hadiyya, Kambaata, Sidaama and Gedeo show a word-medial sh reflex but Burji forms show an s reflex. Hudson (1989) reconstructs word-medial sh for all of them. Here the Burji s (not after i) does fit Sasse's generalization (sec. 3.1.18 above). But many Burji words have sh in the same environment.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
-------	---------	----------	---------	-------	-------

reesi (m S), reefa	leessha	re(e)sha	reesha (m G/Y)	rensha	corpse n.
hasaas-	hashasha wac-	hashaassh-	hashaash-(G)	hashash-	whisper vi.
k'aas- 'set a trap' S	k'aash-	k'aash-	---	---	trap, snare vt.

Two special cases are displayed in the following sets:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
hat'ish- S	hat(t)'iss-	hit'issho ass-	hant'iss-h-i'r- (G)	hett'if-at-	sneeze vi.
hayya/a 'thanks' S	hasshu	hayya	hasshu (G)	hasshu	bravo!

In 'sneeze', Gedeo has an irregular f reflex; but the word is an onomatopoeia. In 'bravo!' (**hayshu*) there are numerous irregularities; but the word is an interjection.

3.1.19.1 Word-initial correspondence of y

According to Sasse (1979: 43), "initial y [in Eastern Cushitic] is extremely rare. In each EC language there are only a few words beginning with y, and correspondences are not easy to find". Indeed, cognate sets that show word-initial correspondence of y among Burji, Hadiyya, Kambaata, Sidaama and Gedeo are rare. Most of the individual languages have some 12-15 words with initial y-, but Hudson reconstructs just three words as having initial *y in PHEC:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
i-, iy- S	y-	y-	y- (G)	hiyy-	say vt.
yed'-	y-	y-	---	---	present, be vi.
yeyye	---	---	hiyyeyye pl	yaayye/-icco sg	wolf, jackal n.

The initial h- in Sidaama and Gedeo (with following -i-) is less problematic than it seems; Sasse (1979: 40) notes that initial *h is unstable in HEC and can sometimes appear for zero (for no apparent reason). See section 3.1.24.1 below.

3.1.19.2 Word-medial correspondence of y

Cognate sets that show a word-medial identity correspondence of y among Burji, Hadiyya, Kambaata, Sidaama and Gedeo are the following.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
ayye (S)	oyye	ayi-ti	ayi, aye	ayye	who? pron.
fayya-n-ga m	fayya/a	fayya	faayya	fayya	healthy adj.
yeyye	---	---	hiyyeyye pl	yaayye	wolf, jackal n.
ayyaana (m S)	---	ayyaani bari	ayyaana	ayyaana	holiday, festival n.
moyye, mooyee f S	mooyye/e	---	---	mooyye	mortar (and pestle) n.
---	dooy-	dooyy-	doy-	---	migrate vi.
ayyann-im	ayyi-m	ayy-ni	---	---	nobody, no one, anyone n.

(Libido has *ayi* for ‘who’ and *dooy* for ‘migrate’ (Joachim Crass, p.c.).)

This is consistent with Sasse’s statement (1979: 43): “intervocalic *w and *y remain as such in ... Burji, and apparently also in HEC”. Note that almost all the above cognate sets involve geminate yy; intervocalic simplex y occurs only sporadically, in Kambaata and Sidaama ‘who’ and in Sidaama ‘migrate’.

On the other hand, there are some less consistent correspondences for which Hudson also reconstructs medial *y or *yy:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss	PHEC
hayya/a (thanks S)	hasshu	hayya	hasshu (G)	hasshu	bravo!	*hayshu
taay(y)a m S	tusshe/e	taay-ccu	---	---	fly n.	*taaya
gaayya↔	ga(a)wwa	gaayya-ta	gaayya (f G/Y)	gaayya	pipe (of clay) n.	*gaayya
liattan(n), liittanna S	loyayye	leyaa-duma, lehaa-duma	leao, leaa m	---	sixty n.	*leyaa

(Libido has *tikaaya* for ‘fly’, *gaawa* and *gaaya* for ‘pipe’ and *lehaaye* for ‘sixty’ (Joachim Crass, p.c.).)

In the word for ‘bravo!’ (if Hudson’s reconstruction **hayshu* of this interjection is correct), the words that show ssh instead of *ysh could reflect a very natural assimilation of /yΣ/ > /ΣΣ/. The Hadiyya ww in the word for ‘pipe’ is strange. The *y in the

reconstruction for ‘sixty’ seems not secure. Hudson reconstructs **leho* ‘six’ vs. **leyaa* ‘sixty’ and the change from h to y seems odd (though partly supported by the words for ‘six’); the *h in **leho* is clear from cognates elsewhere in EC (Sasse 1979: 22).

Despite these irregularities, the first group of cognates above suffices to establish a word-medial correspondence at least of geminate yy across the languages.

3.1.20.1 Word-initial correspondence of k

The following cognate sets demonstrate the regular identity correspondence of word-initial k among Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
ka(a)kk-is-	kaakk-ees-	kaakk-e(e)s-	kakk-is- (G)	k’aak’-iss-	cackle (hen) vi.
ka/- S	ki/-	ke/-	ka/- (G)	ke/-	get up, arise vi.
kottee f S	konte/e	kott-it	kotte (f G)	kotte	hoof n.
kad- (S)	kadi/-	kad-	kad- (‘step(on)’ G)	kad-	‘become’ kick vt.
kuma (S)	kuma	kumi-ta	kume	kuma	thousand n.
ka (S)	ka	ka	ko	konne	this sg dem det. (m. acc.).
shinsi (S)	ki’n(-uwwa)	ki’ne	ki’ne (G)	ha’no(o)	you 2 nd pl acc.
shee (S)	ke(e)s	ke(e)s	-he	---	you 2 nd sg acc.

As noted by Sasse (1979: 13), PEC *k assumes a palatalized reflex in Burji before *i and *e. This is seen in the sets for ‘you (acc.)’ above; Sasse also mentions PEC **kirb-* ‘dance and sing’ > Burji *shibir-* (metathesis).

Aside from palatalization, the above data show two exceptions to the regular identity correspondence: Gedeo *k’aak’-iss-* is irregular (but it is an onomatopoeia), and Gedeo *ha’no* is irregular.

3.1.20.2 Word-medial correspondence of k

The regular identity correspondence of word-medial k among Burji, Hadiyya, Kambaata, Sidaama and Gedeo is shown by the following cognate sets.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
lukka (f S)	lokko	lokka-ta	lekka f (G)	lekka	foot / leg n.
borke f S	barkumma	borkaanu	barko (f Y)	---	head-support, pillow (of wood) n.
haak(ada)	hinkane	hakkanee-t	hiikkonne	huuni	which?
t'unga (m S)	t'uranka	t'ulunka-ta	c'ulunk'-icco (m G/Y)	t'uungo	claw, fingernail n.

Note that these examples all involve a k-cluster (kk, nk, rk) except for Burji and Gedeo 'which?', which show very unclear correspondences anyway. In the last cognate set 'claw, fingernail', Burji and Gedeo -nk- > -ng- would be a reasonable assimilation of voicing; Sasse (1982: 18) notes that after a nasal, k > g in Burji. Similarly, in Sidaama, c'...k > c'...k' is assimilation of ejectives at a distance. (Ejectives assimilation can also be seen in Libido *t'urank'a*: t' ... k > t' ... k' (Joachim Crass, p.c.).)

The following cognate sets show a regular correspondence of simplex k in Hadiyya, Kambaata and Sidaama (and in Gedeo 'dust') versus h in Burji; as Sasse (1982: 18) observes, in Burji "intervocalic k > h or g, depending on the dialect". Hudson (1989) reconstructs all these words with word-medial *k.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
ih- (S)	ik-	ik-	ik-, ikk- G	---	become vi.
buhoo ⇔ (buhoo S)	buko/e	buku-ta	buko (f Y)	buko	dust n.
boh-ees- cs vt	buk-ees- vt	buk-ees- vt	buk-ees- vt	---	ferment vt.
mammaah-, mommaak-	---	----	mammaah-, mammak-	mammaak-	tell story, proverb, history

There are a couple of highly irregular correspondence sets that Hudson also reconstructs with medial *k:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss	PHEC
booyee S	boonkek-icco	bookk-iccu	---	booye	pig, wild pig n.	*booke/e
batte	bayte	bahita	batte	---	carrion	*bakite

Here the Burji and Gedeo words for ‘pig’ (which have yy) are identical to Oromo and could be borrowings. (Similarly for Libido *booye’o* (Joachim Crass, p.c.)) In the set for ‘carrion’ (**bakite*), none of the languages shows word-medial k.

Finally, according to Hudson (1989: 7) “*k > h between vowels in Sidamo”. Yet, most of the cognate sets presented above do not show this change in Sidaama.

3.1.21.1 Word-initial correspondence of g

The following cognate sets show the regular identity correspondence of word-initial g among Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
gam- (S)	ga’m-	ga’m-	ga’m- (G)	ga’m-	bite vt
gabala ‘until’	gabala	gabala	gabala	gabala	border frontier, limit n.
gilba f (S)	gurubbo	gulube	gulube	gulubo	knee n.
gal- ‘enter’	gar-	gal-	gal- (G)	gal-	pass/ spend the night vi.
gaayya ⇔	ga(a)wwa	gaayya-ta	gaayya (f G/Y)	gaayya	pipe (of clay) n.
galata ⇔	galata	galata	galata (m G/Y)	galata	thanks n.
jiira f (S)	giira	giira(ta) f	giira f (G)	giira f	fire n.

These words show a straightforward identity correspondence in all five languages. The only minor deviation involves Burji palatalization of *g > j, which should occur before *i and *e (Sasse 1979: 18). In Hudson’s data, Burji palatalizes g > j in ‘fire’, but not ‘knee’; Sasse (1979: 18), however, gives *jilba* ‘knee’ (palatalized) alongside *gilba*.

3.1.21.2 Word-medial correspondence of g

The regular identity correspondence of word-medial g among Burji, Hadiyya, Kambaata, Sidaama and Gedeo is demonstrated by the following cognate sets.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
anga f (S)	anga	anga (-ta)	anga (f G)	anga f	hand, arm n.
agun-co	agan-co	agana	agana (m Y)	agen-jo	month n.
duug- (S)	duug-	zuug-	duug- (G)	duug-	scrape, tan(hide) vt.
bagadi	bagado	bagazu m	bagado (m G)	bagado	spear n.
---	nigga	nigga	nigga	---	tendon n.
wogga↔ time	---	wagga m	---	wogga f	year n.
hig- exchange vt	hig-	hig-	hig- return vi	hig- return vi	pass vt.
c'eeji (S)	t'iiga	k'egu<t'egu?	---	---	blood n.
hook' - remain (S)	hoog- tire vi	hoog- tire, be unable	hoog- (G) be unable	haak'-	lose, miss, lack vt.

In medial position the correspondence is the same as in initial position. Burji shows palatalization in 'blood' (above). The final cognate set is difficult. First, Hudson's data for Gedeo is inconsistent, *haak'*- (p. 94) vs. *haak*- (p. 243); moreover, Hadiyya, Kambaata and Sidaama all have g and all have similar meanings, whereas the other two languages are different both phonetically (k, k') and semantically. The above cognate sets also show the correspondence of geminate gg and of the ng cluster.

3.1.22.1 Word-initial correspondence of k'

The word-initial regular identity correspondence of k' among Burji, Hadiyya, Kambaata, Sidaama and Gedeo is shown by the following cognate sets. The only slight irregularities are the Gedeo palatalization k' > c' in the set for 'chopping tool', and the loss of glottalization (dissimilation?) in Hadiyya *kaa*/- 'win over'.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
k'araar-	k'araar-	k'araar-	k'araar- (G)	k'araar-	bitter, be vi.
k'oomo S	k'ooma	k'oomu	k'oon-co (m G)	k'omma	calabash n.
k'urt'umme	k'urt'ume/e	k'ort'ume(-emata)	k'ilt'i'me	k'ult'u'me	fish n.
k'a↔ro S	k'ooraa	k'ooraa	k'arooyye f (G)	k'aro	clever adj.
k'as- (S)	k'as-	k'as-	k'as- (G)	---	pierce vt.
k'al-	k'ar-	k'al- of animals	k'al- of animals	---	give birth, beget.
k'or-anco	k'oraanta	k'o'rranda	---	k'oorande	crow n.

k'ubee f S	k'uba/a	k'ub-iccu-ta	---	k'ube	ring, finger-ring
k'amay (S)	k'ama	k'ama	---	---	flour n.
k'aas-	k'aash-	k'aash-	---	----	trap, snare vt.
k'ipp'-	---	---	k'ipp'i ass-	k'imf ass-	wink vi.
---	---	k'itt'-a/-	k'itt'-eess- (G)	k'itt'-ess-	prepare vt.
---	k'eewo/o	k'eeu-ta ?	k'eho	c'eeke	chopping tool n.
k'ay-	kaa/-	---	k'oh-	---	win over, defeat

(Libido has *k'ube'o* for 'ring, finger-ring' (Joachim Crass, p.c.).)

3.1.22.2 Word-medial correspondence of k'

The following cognate sets show the identity correspondence of word-medial k' among Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
sunk'- (S)	sunk'-	sunk'-	sunk'- (G)	sunk'-	kiss vt.
hakk'a f S	hakk'a	hakk'-a	hakk'e (m G)	hakk'a	tree n.
---	---	sukk'-	sukk'- (G)	suk'-	spin (cotton) vt.
sakk'- (S)	---	---	shakk'- (G)	shakk'-	tire, become tired vi.
c'ikk'o↔	t'ukk'a	t'ukk'a	---	---	narrow adj.

Of the above sets, four involve geminate kk' and one has an nk' cluster. None has simplex intervocalic k'.

In the following data sets, the first three correspondences are regular except for sporadic palatalization k' > c'; note that 'bone' does show simplex intervocalic k'. The fourth set 'tooth' shows multiple irregularities; Hudson reconstructs **ink'o*.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
hirc'imme	hikk'i-tano	hikk'e	---	hekk'imo	hiccups n.
mic'a (S) m	mik'e	mik'-iccu	mik'-icco m	micc'o, mik'e pl	bone n.
hiik'-	hinc'-	hinc'-	shink'- (G)	shink'-	approach vt.

irk'a (f S) ink'e ink'u-ta hinko (m Y, f G) ---- tooth n.

Finally, the prehistory of HEC k' prior to PHEC is unclear. The connection between PEC *k' and HEC k' is apparently only a very weak one. Sasse (1979: 48) states that PEC *k' usually (but not always) becomes / or O in HEC; on the other hand, he remarks that “in both Sidamo and Hadiyya many words with initial k' have been recorded, but only a few of these have any bearing on the reconstruction of PEC *k' ” (1979: 49). The development of *k' > / can sometimes be seen sporadically within HEC itself: the word for ‘beans’ (Burji *bak'ella*, etc.), which is borrowed into HEC (Hudson 1989: 25), has k' in all the languages except for Kambaata *baa/eela*. See also Kambaata *lee/eecc'*-‘borrow’, reconstructed by Hudson as **lik'-ay-ad'*- (cf. sec. 3.1.9.2).

3.1.23.1 Glottal stop at word-initial position

The representation and occurrence of a glottal stop at word-initial position before initial vowels is a serious problem of comparative Cushitic linguistics (Sasse 1979: 50). Much of the existing literature on Cushitic languages does not represent the occurrence of glottal stop at initial position, except for some statements of its optional occurrence word-initially before a vowel. Thus, referring to Saho (Welmers) and Afar (Mahaffy), Sasse says that “initial vowels are generally preceded by a glottal stop. This is also true of HEC, Burji, and Dullay, but none of the authors who deal with all these languages have ever treated initial glottal stops as phonemic”. Treis (2008: 26) explicitly states that in Kambaata, the glottal stop occurs initially just like any other consonant phoneme; but such statements are exceptional in the literature. In Hudson’s dictionary, a glottal stop seems never to be marked in vowel-initial words. This problem makes it impossible to even try to find cognate sets for this sound at initial position.

3.1.23.2 Word-medial correspondence of /

The following cognate sets show the (near-)identity correspondence of word-medial / among Burji, Hadiyya, Kambaata, Sidaama and Gedeo. The only minor irregularity in these words is sporadic deletion of /, especially in Burji.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
ra/-is-	li/-is-	re/-is-	ra/-is-	ra/-iss-	cook vt.
ka/- S	ki/-	ke/-	ka/- (G)	ke/-	get up, arise vi
mi/a (S)	mee/o	me/o	me/e (G)	me/e	how many how much?
be-, bay- S	bi/-	ba/-	ba/- (G)	ba/-	lost, be; spoil, go bad
waa (m S)	wo/o	wa/a, wi/a	waa (m G/Y)	wada/e f	water n.
so/a so/o /	so/a	so/a	---	so/a m	barley n.

Other cognate sets show greater irregularity:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
baas- (fire) S	ba/-is-	ba/-is-	ba/-isis- G	ball-ess-	extinguish vt.
le- sprout	li/-	le/-	le/- ripen G	---	grow (up) vi.
d'ed'e-	t'ee/-	t'e(e)-	---	t'e'm-	taste good, be sweet vi.
k'ay-	kaa/-	---	k'oh-	---	win over, defeat vt.
lola↔	---	---	lolahe (m Y)	lola/a	flood, torrent n.
---	meent-ic(c)	me/aat	me/ate, meyate, mehaa(te)	melaalle	female n.
boo/e	boohe/e	booyi, boohu-ta	boo/e f G	---	ditch n.

Hudson reconstructs all of these with */ except 'ditch', for which he has **boohe*. (This last reconstruction with *h is not obvious, nor is the reconstruction of */ for the sets **k'a/-* 'win over', **lola/a* 'flood', where / appears in only one out of three languages.) Again Burji shows deletion of /. In two Gedeo words the sequence -ll- appears which I cannot explain. There is sporadic alternation among /, h, y in some of the sets (see especially Sidaama 'female'). Hadiyya *meent-ic-* 'female' is undoubtedly connected with *mento* 'woman'; for *kaa/-* see sec. 3.1.22.1. The unexpected m in Gedeo *t'e'm-* would seem to reflect Amharic *t'ama_* (Ge'ez *t'↔√ma*) 'taste good'. I cannot explain Burji

d'ed'e- (< **t'ee/-*), if it is truly cognate with the other words (see sec. 3.1.8.1, 3.1.9.1 for alternation of *t'*, *d'*).

Finally, regarding geminate glottal stop, Hudson (1989: 11) describes // as rare in Hadiyya, Kambaata, Sidaama and Gedeo and absent in Burji, perhaps due to accidental gap. Hence the above cognate sets do not show a correspondence of // in the languages.

3.1.24.1 Word-initial correspondence of h

The following cognate sets show the regular identity correspondence of word-initial h among Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
haas-iss-	has-is-	has-is-	has-iis-	has-is-	necessary, be vi.
haarayaa S	haare-cco	haaro↔	haaro (G)	haaro	new adj.
hig- exchange	hig-	hig-	hig- return	hig- return	pass vt.
ham-ad'-	ham-	he'm-	he'm- (G)	ham-at-	slander vt.
hakk'a f S	hakk'a	hakk'-a	hakk'e (m G)	hakk'a	tree n.
haas- (S)	has-	has-	has- (G)	has-	want, seek vt.
habala	ha(a)nno	hakkanne	hiikko↔	haba	where? pron.
haak(ada)	hinkane	hakkannee-t	hiikkonne (G)	huuni	which?
hasaas-	hashasha wac-	hashaassh-	hashaash-(G)	hashash-	whisper vi.
hakk'a (f S)	hakk'a	hakk'a	hakk'e (m G)	hakk'e	wood n.

(The Kambaata word for 'which?' should be *hakkannee-ta* (Joachim Crass, p.c.).)

On the other hand, the following cognate sets, all reconstructed with initial *h, show irregularities.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss	PHEC
womfa (S)	honso	honso	honse	---	nine n.	*honso
habar- (S)	ur-	agur-	agur-	---	leave vt.	*hagur-

hanjaar- jaanjur- jaa(n)ur- jawaawurr- --- talk nonsense vi. *haanjur- ?

In Burji *womfa* (above) the roundness of the o vowel has apparently spread to the whole word *womfa*. Similarly, Burji *habar-* ‘leave’ can perhaps be seen as rounding assimilation: *g would absorb the roundness of the u, so that **agu* > *aba*. In the last two cognate sets the reconstruction with *h is not obvious.

According to Sasse (1979: 40), initial *h of Proto-Eastern-Cushitic is very unstable in HEC: sometimes *h has zero reflex, while other times h appears for proto-zero. This instability can be seen within HEC itself, as the exceptions (above) show. Furthermore, based on Hudson (1989), Burji has a sporadic h reflex which can develop from the proto-sounds *w, *f, *k, *sh, and possibly *s. These are (respectively) the proto-sounds he reconstructs for the following five words, all showing an h reflex in Burji.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss	PHEC
huuma	wo'ma	wiima	wo'ma (G)	wo'ma	full, filled adj.	*wom/a
hooli voice (m S)	foore soul	fooli soul	foole m (G)	---	breath n.	*foole
ih- (S)	ik-, ih-	ik-	ik-	---	become vi.	*ik-
hiik'-	hinc'-	hinc'-	shik'- (G)	shik'-	approach vt.	*shink'-
hiditta (S)	sadeento	hezzetto	sette (G)	saddeeta	eight n.	*saddzee ?

(Note that not only w > h but also h > w word-initially in Burji.) These changes all seem sporadic and non-rule-governed. For the correspondence for ‘eight’ Hudson reconstructs PHEC **saddzee* ?; but Ehret (1991: 217-218) rejects this etymology, assigning the Burji and Kambaata forms a different origin (see sec. 3.1.10.1 above for discussion).

3.1.24.2 Word-medial correspondence of h

Medial h is much rarer than initial h. The following cognate sets, all reconstructed with medial *h by Hudson, demonstrate the development of medial *h in the HEC languages, assuming the correctness of Hudson’s reconstructions. Only in Hadiyya and Kambaata is h generally preserved. In Burji it usually becomes /, or y (after i, e); in Sidaama it most

often disappears. (For Gedeo there is not enough data.) There are no fully “regular” correspondences. Moreover, no cognate set shows the occurrence of geminate hh in the languages.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
miya (S)	maha	ma/a, maha	maa, ma (G)	maacco	what? pron.
boo/e	boohe/e	booyi, boohu-ta	boo/e f G aqueduct	---	ditch n.
lia, liya S	loho	leho	leye, lee m G	---	six n.
miyaa-ga	mahi-na	mii(ha), mahiiha	mae-ra	maya	why?
reeya, reeha	leho	rehut	reo (f G/Y)	reo	death n.
---	diiha	diiha	---	duwwika	empty

For other minor sporadic correspondences involving h, see sec. 3.1.20.2 (h < *k in Burji) and 3.1.23.2 (h < */ in Sidaama).

About the word-medial occurrence of h, Sasse (1979: 41) says, “in... HEC the reflexes of [PEC] medial *h are ... generally retained in intervocalic position, but disappear[s] when adjacent to consonants or word-final”. This statement is apparently true if “HEC” means “PHEC”. It is not true if “HEC” means “all the individual HEC languages”. As we have seen, according to the cognate sets presented above, Sasse’s statement is true only for Hadiyya and Kambaata, because only these HEC languages have retained intervocalic h. In addition to this, its disappearance at word-final position, which is stated by Sasse, fits nicely with the synchronic fact that the phonology of these languages generally does not allow any consonants at word-final position (see introduction to this chapter).

3.2 Vowels

According to Sasse (1979: 5), “one of the greatest problems of PEC vowels is their relative instability. The minority of the PEC roots can be reconstructed with a stable vowel... In the majority of roots, variation is found, as between i/u and e/o (the most common type)”. Ehret (1987: 11) agrees with Sasse. Hudson (1989) says nothing about this point. Despite this fact, some cognate sets involving identical vowels can be found at

word-initial, medial and final positions. To what extent this represents a “regular” correspondence must be left open.

3.2.1 Low Central Vowel

The identity correspondence of the low central vowel /a/ among Burji, Hadiyya, Kambaata, Sidaama and Gedeo is shown by the following cognate sets.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
dan- (S)	t’an-	dand-	dand- (G)	dand-e/-	able, be vi.
mar- (S)	mar-	mar-	mar- ‘go towards’ G	mar-	go vi.
anga f	anga	anga (-ta)	anga (f G)	anga f	hand, arm n.
war-	war- bring	war-	war- brew beer	---	add (to) vt.
k’al-	k’ar-	k’al- of animals	k’al- of animals	---	give birth, beget vt.

The word *war-* seems to have two meanings (homonyms?): ‘add, put’ and ‘brew beer’; only Hadiyya lacks the ‘brew’ meaning.

3.2.2 High Front Vowel

The following cognate sets show the identity correspondence of the high front vowel /i/ among Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
it- (S)	it-	it-	it- (G)	it-	eat vt.
jiira f (S)	giira	giira (ta) f	giira f (G)	giira f	fire n.
hig- ‘exchange’ vt.	hig-	hig-	hig ‘return’ vi	hig- ‘return’ vi	pass vt
ih- (S)	ik-	ik-	ik-	---	become vi.
ish(i)	isi	ise	ise	ise	she
sima	sima	sima ‘2 nd stage’	sima (f G)	sima	ensete tree 1 st growth-stage n.

3.2.3 Mid Front Vowel

The following cognate sets show the identity correspondence of the mid front vowel /e/ among Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
ebelo m/f	ebaro m	ebalo m	ebelo/-icco sg m	ebelo m/f	so-and-so n.
reeya, reeha S	leho	rehu-t	reo (f G/Y)	reo	death n.
eela ‘water-hole’ S	leera < eela?	eela	eela f ‘low place’	eela	pond, pool n.
c’eena m (S)	t’eena	t’eena	t’eena (m G/Y)	t’eena	rain n
shee	ke(e)s	ke(e)s, -ke	-he	---	you 2 nd sg acc.
ee	e(e)s	e(e)s, -/e	-e	---	me 1st sg acc.
meeta	meeta	meeta	meeta (m G)	meeta	scraping board for use in preparing ensete n.

Note that for the word **ebelo*, only the initial e shows an identity correspondence, not the medial e.

3.2.4 High Back Vowel

The following cognate sets show the identity correspondence of the high back vowel /u/ across Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
duuda (S)	duuda	duuda	duuda	afa duuda	mute n.
tuf- (S)	tuf-	tu(y)-, tuf-	(anja) tuf- (G)	tuf-	spit vt.
kuma (S)	kuma	kumi-ta	kume	kuma	thousand n.
ku m nom	ku(k) m nom	ku m nom	kuni m nom	kunni m nom	this sg dem det.
tum-	tum-	tum-	tum-	tum-	pound (e.g. metal) vt.
urra mountain	ulla	ulla(-ta) f	u(u)lla (f Y)	---	earth n.

Note here the compounds Gedeo *afa duuda* ‘mute’ (formed with Gedeo *afa* ‘mouth’) and Sidaama *(anja) tuf-* ‘spit’ (formed with Sidaama *anja* ‘saliva’).

3.2.5 Mid Back Vowel

The following cognate sets show the identity correspondence of the mid back vowel /o/ in the languages.

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
orda m S	odda< orda	orza-t	orda f G	orda	hair of animals n.
olla (m S)	olla/a	ollo↔ m		olla↔ (m G/Y)	olla/a village, neighborhood n.
so/a	so/o / so/a	so/a	---	so/a	barley n.
gota m (S)	got-icco	got-iccu	got-icco (m Y)	---	hyena n.

Two irregular examples could be mentioned:

Burji	Hadiyya	Kambaata	Sidaama	Gedeo	Gloss
oota (S)	oota	oota	hutt'a (m G/Y)	---	fence n.
ooyda, oyda S	oodo/o, awda	oodu	ayddumme (f Y), aidumme f G	oodde	threshing floor n.

In both these sets the Sidaama word is very different from the others.

Chapter Four: Summary and Conclusion

4.1 Summary

The phonological comparison among Burji, Hadiyya, Kambaata, Sidaama and Gedeo has the following results. From a phonological point of view, the inventory of phonemes for PHEC as a whole is bigger than the inventory for any individual language: PHEC *z disappears everywhere except Kambaata, and PHEC *d' disappears in Kambaata and Hadiyya. On the other hand, Burji differs from the rest of the languages because it is the only language that possesses /p/ in native words and, according to Hudson (1976), it is the only language that has /ʃ/ natively. Kambaata is also different because of having the voiced alveolar fricative /z/ and because it has glottalized liquids that do not exist in the other languages.

A comparison of regularly corresponding cognate sets among Burji, Hadiyya, Kambaata, Sidaama and Gedeo yields the following results in the languages. Nasals correspond regularly and identically at word-initial and medial positions in all the languages. For the most part, the voiced bilabial stop and voiceless labiodental fricative also have regular identity correspondences among the languages, although in Burji $f > h$ / $_$ [u and o] sporadically. Though cognate sets that show the correspondences of semivowels are few in number, some words do show the correspondence of the bilabial glide, and of the palatal glide, among the languages. Burji sometimes has an irregular h correspondence of

w. The palatal glide is rare at word-initial position; word-medially, geminate yy is much more securely established than simplex y.

Liquids (r and l) also correspond regularly among Burji, Kambaata, Sidaama and Gedeo at word-initial and medial positions. In Hadiyya, however, PHEC simplex *r becomes l at word-initial position, geminate *rr becomes ll word-medially and only simplex intervocalic word-medial *r remains unchanged (initial *rr never occurs). In addition to this, PHEC *l shows the regular correspondence of Hadiyya l to Burji, Kambaata, Sidaama and Gedeo l at word-initial position, and as geminate ll. Intervocalically, however, simplex *l is sometimes l and sometimes r in Hadiyya. Thus the PHEC phonemes *r, *l have almost (but not quite) merged in Hadiyya.

The bilabial ejective, voiceless palatal affricate and glottal stop show only word-medial correspondences among the languages; moreover, cognate sets that show the correspondences of these sounds are few in number. Only Gedeo has simplex p' reflex, which corresponds to Burji b, Hadiyya b and f, Kambaata b and f, and Sidaama /. Geminate pp' is more securely established in the languages. For the voiceless palatal affricate, the languages show cc and nc (but not simplex c) correspondences at word-medial position. For the voiceless glottal fricative h, the identity correspondence is the regular correspondence at word-initial position. Intervocalically, h usually survives in Hadiyya and Kambaata; in Burji it gets deleted or becomes y or /; in Sidaama it usually gets deleted; for Gedeo there is insufficient data. The palatal sounds j, c' and Σ also generally correspond identically among the languages; at word-medial position, the languages show the correspondences of simplex j and nj intervocalically, and of cc', nc' and rc' (but not simplex c').

At the alveolar position, the voiced alveolar stop and voiceless alveolar fricative generally have regular identity correspondences at both word-initial and medial positions. The voiceless alveolar stop corresponds regularly and identically among the languages except for its occasional palatalization to c and sh in Burji. The alveolar ejective also has

a regular identity correspondence among the languages except for its palatalization before i, e and u (!) in Burji.

The voiceless velar stop shows an identity correspondence in the languages except that it palatalizes to sh before front vowels in Burji. Similarly, the voiced velar stop corresponds regularly in the languages except that it palatalizes to j before i, again in Burji. The velar ejective shows a regular identity correspondence across the languages except for sporadic palatalization.

Hudson (1989: 7) says that PHEC *d' becomes / in Hadiyya and Kambaata. This view needs revising: in fact this change happens only at word-medial position. Instead, Hadiyya and Kambaata (and sometimes Sidaama) have word-initial t' reflex corresponding to Burji, Gedeo and sometimes Sidaama d'. A PHEC phoneme *z is established which generally survives as such only in Kambaata; the other languages have a d reflex corresponding to Kambaata z, thus showing merger of *z and *d (Burji has four exceptional cases of z as reflex of *z).

Because of the general instability of vowels, only a comparison based on some cognate sets has been made to show that all five vowels sometimes show an identity correspondence in Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

4.2 Conclusion

This study has been about sound correspondences and change of twenty-four consonant phonemes (i.e. among Burji, Hadiyya, Kambaata, Sidaama and Gedeo). Most of the consonants have regular identity correspondences among the languages. Some correspondences that show a regular change in individual languages were also identified in this study. The correspondence of Kambaata z to d in the other languages points to a change of *z to d in all the languages except Kambaata. The proto-sounds *l and *r have almost merged in Hadiyya, with reflexes l initially, ll geminate, and (usually) simplex r

intervocally. The correspondences also show the change of *d' into t' in Hadiyya and Kambaata at word-initial position; this change also occurs sometimes in Sidaama.

Of all the languages, Burji is the language that most often shows palatalized reflexes of non-palatal sounds. This change affects many phonemes. Hence, in Burji,

t > c or sh / _ i (irregularly)

t' > c' / _ i, e and u (irregularly)

k > sh / _ i and e

g > j / _ i (sporadically)

s > sh / i _ (sporadically)

The correspondences further show that Burji sporadically has an h reflex which seems to be a change of w, f, k, sh and s; additionally, Burji shows a regular word-initial correspondence of h with the rest of the languages.

The present study has also confirmed that both *s and *sh exist robustly and independently in Burji, Hadiyya, Kambaata, Sidaama and Gedeo.

This detailed study of HEC sound correspondences has yielded a number of new findings. *r and *l have almost (but not completely) merged into a single phoneme in Hadiyya, realized as l word-initially, geminate ll (word-medially) and r and l irregularly at word-medial position. Intervocalic k does not regularly change into h in Sidaama, but usually remains k in this language. Word-initially, d' does not change into / in Hadiyya and Kambaata; rather, it changes into t' in both languages and sometimes also in Sidaama (which shows inconsistent and unpredictable d' ~ t' reflexes at this position) (cf. also Hayward 1997). Whatever the proto-sound(s) may have been, synchronically s and sh are both well attested in all the languages, usually showing identity correspondences. Based on three good cognate sets, the rare simplex *p' shows a correspondence of Burji b to Sidaama / to Gedeo p' and to Hadiyya and Kambaata b or f.

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