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Why Bench' (Ethiopia) has five level tones today

In 1980 Habtemariam Marcos of the Addis Abeba University included Bench'[1] in his preliminary survey of Omotic languages, and he said he suspected this language could be very interesting as far as tone was concerned. But when Ernst-August Gutt told me that after a tentative analysis he thought this language might have five tones, I felt obliged to warn him not to make such outrageous claims about an Ethiopian language: I thought I knew this couldn't be.

He was basically right, though. Bench' is a tone language with five level tones, and there is a sixth toneme, a glide (cf. Wedekind 1983 : 134).

The question is: How could such a tone system ever develop? How can a six tone language exist in an area, and in a language family, where only three tones "should" exist? None of the related languages has more than three tones, while Bench' has six. It exploits the tonal scale to the extreme: no language known today has more than five phonemic level tones. There is a limit to differentiating linguistic signals which are points in a continuum – such as tonemes in the pitch scale or vowels in the timbre spectrum – and Bench' uses the maximum number of steps. This may be the maximum number possible – not in music, but in language.

Tone systems of Ethiopian languages have not been described in much detail, unfortunately. With the exception of Mocha and Dizi, hardly any Ethiopian tone system has been described so far. But on the basis of the few sketches which there are[2], the language families in Ethiopia can be listed according to the maximum number of tones:

4 tones	East Sudanic, Berta, Kunama
3 tones	Omotic
2 tones	Cushitic?

In general, the distribution of tone languages over Ethiopia resembles the distribution of tone languages over the world,[3] if the comparison is based on the number of tones and on descriptions available now:

	Tone languages in Ethiopia	Tone languages in the world
4 tones or more	1 out of ten	1 out of ten
3 tones	3 out of ten	3 out of ten
2 tones	4–7 out of ten	5 out of ten

1. Sketch of the Bench' phonology

The phonology of Bench'[4] will be presented only as far as it is relevant to the topic of this paper, and as far as it is necessary for reading the data presented in the examples.

The segments are those common to most Omotic languages, but retroflexion as a phonemic feature is unusual. In the Omotic family of languages, retroflexed sibilants do occur – but not as a full set of sibilants, and not as full phonemes (cf. Yemsa, Wedekind forthc.).

Note that in this paper the same transcription will be used for Bench' data as well as for data from the other languages.

CHART I
Consonants and Vowels

Consonants[5]

	labial	dento-alveol.	palatal	retro-flex	velar	glottal
Stops	b	d			g	
	p	t			k	'
glott.	P	T			K	
Affric.		c	ch	ch'		
glott.		C	Ch	Ch'		
Fric.		z	zh	zh'		
	[p]	s	sh	sh'		h
Sonor.	m	n				
		l				
		r				
Semiv.	(w)		y			

Vowels

	Front	Central	Back
High	i		u
Mid	e		o
Low		a	

Note that for practical reasons the palatals and retroflexed palatals will be transcribed as phonemic di- and trigraphs. Capital letters stand for glottalized consonants.

Suprasegmentals

Of the various modifications of segments and larger phonological units – such as pharyngealization, vowel length, pitch movements, devoicing etc. – only tone is phonemic. Since the focus of this article will be on tone, it is important here to point out that both length of vowels, and gemination, are not phonemic in Bench'. In Cushitic languages as well as in many Omotic languages, these features are fully phonemic and carry a considerable information load – in Bench', neither of them does. This should be kept in mind, when it comes to gauging the functional load of tone.

Syllable and word patterns

The most frequent syllable pattern of Bench' is the simple closed syllable: /CVC/ plus tone. There also are patterns such as /CVCC/ or /CyVC/ plus tone, where the cluster /CC/ consists of continuants (including the fricativized /p/) followed by other consonants, and where, for some reason, an initial /Cy/ requires the vowel /a/ as nucleus. All other syllables can have any vowel as nucleus – or one of the syllabic nasals: /m/ or/n/. Certain suffix morphemes and function words do have the pattern /-VC/ or /-CV/, but otherwise open syllables are rare. The typical Bench' morpheme, then, is monosyllabic, carries one tone, and comes without gemination or vowel length. In most of these points, Bench' differs from its relatives and neighbours.

2. The tone system of Bench' today

Today the language has six tonemes, and they will be identified here as follows:

1	Low	level tone
2	Mid/Low	level tone
2–3	Mid	glide from point 2 to 3
3	Mid	level tone
4	Mid/Hi.	level tone
5	High	level tone

These six tonemes are fully contrastive: none of them occurs with one word class only, or with certain vowels only, and none of them is conditioned by any other factor consistently (such as position in the word, etc.). The glide is a quick rise from level 2 to level 3, executed in about the same time as any of the level tones. In the framework of the present analysis of Bench', there is no reason for regarding it as a two-unit tone.

When we worked on the tonal analysis, Endrias Essay (see footnote 1), then a mathematics student at Addis Abeba University, noted my interest in contrasts such as the following:

Tone	1	2	2–3	3	4	5
	–	mar2 pity (v)	mar2–3 hypo-thesis	mar3 plait (v)	mar4 pers. name	–
	shot1 seed-ling	–	–	shot3 strip (v)	shot4 crutch	shot5 edge

He started to investigate his own language under this aspect and discovered the following minimal set of forms:

Tone	1	2	2–3	3	4	5
	kar1	kar2	kar2–3 or karap	kar3	kar4	kar5
	pu-denda	wasp	game with stones	to be round	broad leaf	clear

This certainly is one of the most striking incidents of tonal contrast with segmental identity. The language has many minimal sets, and in a Bench' word list, as many as every seventh word would be ambiguous without its tone.[6]

Phonetically, the five "level" tones are not always distinguished by relative pitch levels alone. Tone 1 for instance – in addition to its distinctive relative pitch, sometimes has a characteristic pitch movement: it tends to glide to a lower pitch; likewise, tone 5 tends to rise – i.e., the two extreme tones tend to glide into even more extreme pitches. However, these glides are not an essential, distinctive mark of tone 1 or 5, and they are not always there. Tone 1, the lowest tone, not only is characterised by this optional falling pitch, but also by some vowel laryngealisation – as it seems to be the case with low tones in other tone languages as well. Again, in Bench' this is an optional property, and it is not distinctive.

In terms of pitch frequencies, the phonetic realisations of different tonemes show relatively little variation, and the entire tone system is rather stable both in terms of phonemic stability (there is very little sandhi, for instance), and in terms of absolute pitches. Every toneme is closely tied to its proper interval of pitch frequencies, and this seems to be primarily defined in relation to the speaker's normal voice compass rather than in relation to neighbouring tones in the text. This gives every individual toneme its characteristic stability – very much unlike the typical West African tone language. This "stability", or limited degree of variation, has also been observed in whistled speech of this language (cf. Wedekind 1983: 135 ff.). In whistled speech, the range of variation for each Bench' tone is slightly larger than in spoken language, but in tends to be one whole tone – the interval which also characterizes the typical toneme of spoken Bench'.

3. Evidence of factors which have influenced the Bench' tone system

In this paper we will take the risk of reconstructing bits of what could be called some pres-hift Bench' tone system. The evidence in the form of tonal data will be presented in the following sections. Until recently, data on Ehtiopian languages have not been collected with much attention being paid to tone or stress. Tone is usually not transcribed even tentatively.

So the evidence for tonal changes is sparse and complex. It is basically of two kinds: evidence from within the language, and evidence from neighbouring languages. Evidence from within the language we have in the form of statistics, and evidence from other languages, in the form of loans and cognates.

3.1 Vowel/tone relations

In two regards the statistics of vowel/tone relations is relevant to the question of tonal differentiation: First, there are more tones in Bench' than in any other language of this area.

Second, there are more high vowels of higher tones than a normal distribution would allow for. Chart II displays the distribution of tones over vowels. Frequencies above average are marked with an asterisk.

	Syllable Nucleus						
Tone	Vy	i	e	a	o	u	N
5	20	31*	08	03	03	14*	11*
4	20*	19	20*	21*	25*	19*	11*
3	20	31*	20*	29*	25*	10	05
2–3	01	00	08	08	09	05	11
2	20	06	20*	21*	13	10	00
1	20	13	24*	19*	34*	33*	56*

CHART II
Distribution of tones over vowels

Chart II makes obvious that high vowels frequently carry a high tone, while back vowels (cf. /o/ and /u/, including the original Omotic back vowel /u/ which today is a syllabic nasal /N/) frequently carry low or high tones, but not mid tones.

3.2 Semantic and tonal extremes

There are other reasons for tone change, and the most obvious one is the onomatopoeic characteristics of tones which express semantic 'extremes': Extreme quantities and qualities, sizes, numbers or the like, are represented by extremely high tones – to take an example. These tonal changes – or phonemic fixations of high pitches which express semantic 'extremes' – are of the following type:

Tum	tone 1	"to be dark and late"
Tum	tone 5	"to be very dark and late"
'ez	tone 2–3	"big"
'ez	tone 5	"very big"
Pad	tone 3	"long"
Pad	tone 5	"very long"
soy	tone 4	"good, well"
soy	tone 5	"very good, very well"

3.3 Focus and transitivity and marked tones

When in focus, Bench' pronouns are marked by special tones. This has been described earlier (Wedekind 1983 : 144), and it might be an example of a universal relation between tone and information value (Bearth 1980 : 129).

In the derivation of verbs, passive/intransitive vs. active/transitive/causative verbs are marked by tonal differences. Often it is difficult to decide which form in this scale of transitivity should be regarded as the neutral, basic or unmarked verb form. However, it is clear that tone 4 (Mid High) very often marks causatives – while

in related languages there still is a full syllable which does the same work. Cf. tone 4 in these Bench' verbs:

sum1/sums4	be called/name
bom1/bom4	change intr./change tr.
dont2/dons4	rise/raise
wor'2/wod4	fall/fell

3.4 Loan words and stress

Loan words should give some indication about how the Bench' language assimilates – and has assimilated – borrowings from languages with stress rather than tone. Tone patterns in loan words are of interest, since they show how stress and other features have been reinterpreted in terms of tone when Bench' speakers integrated such patterns into their tonal system. Loan words belong to the very small set of Bench' polysyllabics, and in our data disyllabic loans never have a falling tone sequence. Typical sequences are the following ones:

Tone Pattern	Example (Loan word)	Gloss
33	simar (Cush.)	clothes
	katam (Amh.)	village
34	makin (Amh.)	car
	zayit (Amh.)	oil

4. Comparison with neighbouring languages

The comparison of tonal data from neighbouring languages is not without its problems: There is the practical problem that comparisons can only be made with the few data which are available from other languages. These data include Dizi, where Allan has provided a tonal analysis (Allan 1974 and 1976: 379), and Mocha, with data provided by Leslau (1958 and 1959). Data on Yemsa have become available only in December 1983.

The theoretical problem is, of course, the status of such an ephemeral thing as tone in comparative studies.

Dizi		Bench' non		Gloss
yasida	MLL	yars	1	small
(iti	ML	yi	1	he)
(abt	M	bod	1	way)
(izu	MM	yi	1	he)
(sisku	MM/HM	sis	1	hear)
Caniz	MM	Cid	1(cf.5)	black
(mdu	MM	'um	1	eating)
kucu	MM	kuch	1	hand
(inu	MM	nuna	13	we (Bench': excl.))
(kac	M	kac	2	cook/cooked)
uchu	HH	'uch'	2	five
koliz	ML	kol	2	dry
(katam	LM	katam	33	town (Amh.))
cwazh	M	Cod-	3	snake
kianu	MLL/LML	kyan	3	dog
yaaba	MLL/HLL	'yan	3	man
ai	MM	'ay	4	ear
(Kedn	LH	KayC	4	work)
kadu	LH	kaz	4	three
nialu	LLM	nyal	4	stone
(in	M	nu	4	us (B.: excl.))
(bongo	MM	bun/K	4	burn (B.: intr.))
(Kankas	ML	kang	5	pl. (B.: all))
tamu	HH	tam	5	ten
inch	M	inch	5	wood
(in	M	ni	5	us (B.: excl.))
(izn	MM	yi	5	him)
(Caniz	MM	Cid	5(cf.1)	very black)
ishi	ML	'icay-	51	they

CHART III
Dizi/Bench' Cognates

4.1 Comparison of tones in Dizi/Bench' cognates

Chart III does not look a very promising list – but it is all the data there are. All cognate pairs of doubtful status should be disregarded in a comparison of this kind, such as all those in brackets: pronouns whose tone depends on their case and focus, verbs whose tone depends on their transitivity, and noun syllables whose tone changes with genitive case. Once these forms are eliminated, the question remains whether the point of comparison should be the last, or the first, syllable of the disyllabic Dizi cognates.

Correspondences with the first Dizi syllable are very few (see Chart III): only 'dry; snake; ear; three; us; burn; and ten' are of interest. All others have a Mid tone anyway. Correspondences with the last Dizi syllable are somewhat more convincing (cf. Chart IV).

Dizi		Bench'-		Gloss
ishi	-L	'icay-	-1	they
yasida	-L	yars	1	small
kucu	-M	kuch	1	hand
Caniz	-M	Cid	1	black
koliz	-L	kol	2	dry
uchu	-H	'uch'	2	five
kianu	-L	kyan	3	dog
yaaba	-L	'yan	3	man
ai	-M	'ay	4	ear
nialu	-M	nyal	4	stone
kadu	-H	kaz	4	three
tamu	-H	tam	5	ten

CHART IV
Dizi/Bench' Cognates

These relations are not evidently regular, and the evidence is so slim that they could be attributed to chance. But they are not totally irregular either:

Dizi H – Bench' 2 and above only (i.e., M/L to H)
Dizi M – Bench' 4 and 1 (i.e., M/H; L)
Dizi L – Bench' 3 and below only (i.e., L to M)

4.2 Comparison of tones in Mocha/Bench' cognates

The list of Mocha/Bench' cognates is based on Leslau's Dictionary of Mocha, and it contains, without exception, all of the comparable entries for which information on tone has been available bot in Mocha and in Bench'. For more than half of the Mocha data, Leslau does give the tone transcription – but usually on the first syllable only. Most of the 22 items which Leslau includes in his Gimira/Mocha list (1959: 78) have also been considered as cognates.

All of these data are contained in Chart V, including some pairs which are dubious and therefore enclosed in brackets. These data do not seem to be a good basis for tonal comparisons – partly because the morphological classes are not the same in both languages (cf. the glosses 'number, play, urin-, beg-', where one language has the nominal form and the other, a verb) – and partly because the verb forms differ (cf. 'come, count'). In the transcription of the Mocha data the same symbols have been used as for Bench'. With the exception of Leslau's central vowel which we guess is Mocha /e/, (Cf. 1959 : 9 where Leslau himself states that this shwa is never long), no changes have been introduced. (We assume that Leslau's description of our /ch/ and /Ch/ as 'dental affricates', 1959: 14, is a printing error). Neither has Leslau's information on stress been neglected. The reason why there are no data marked for stress in our lists is that Leslau consistently transcribes no stress where he writes tone, and vice versa. F stands for 'falling tone'.

Mocha		Bench'		Gloss
First syllable				
(maao	L-	m'	1	eat
(Paddo	L-	pyad	1	number, v./n.)
Tumo	H-	Tum	1	night
aapo	H-	ap	1	face
maao	H-	m'	1	food
(kaass-	F-	kas	1	play)
(sheess	F-	sh'esh'	1	urine)
(kaama-	L-	kam(am)	23	above/upright)
hach	H	hash	2	here
kaata-	F-	kat	2	snore
(kessi-	F-	kes	2	go out)
uuccho	F-	uch'	2	five
ballo	H-	bal	2–3	hundred
boto	H-	bot	2–3	gourd
gasho	H-	gash	2–3	tooth
yeeri	H-	yer	2–3	God
(Kolla-	F-	Koyntn-	2–34	beg-)
(waa-	L	wu	3	come! impv.)
baaro	F-	bar	3	holiday
gallat-	F-	galat	33	thank
hammi-	F-	ham	3	go
kasha-	F-	kacn	34	breathe/rest
maari-	F-	mar	3	pity, v.
massi-	F-	mask	3	wash
(Kewa-	F-	Kog	3	shiver)
shunni-	F-	sh'un	3	love v.
wuTi-	F-	woT	3	kill
ChuTo	F-	Ch'uCh'	4	louse
(Paddi-	F-	pyad	4	count)
duubbi-	F-	dub	4	dance, v.
(kero	F-	ket	4	house)
moCho	F-	mat	4	grass
shaano	F-	sam	4	cabbage

Second syllable

kisho	-H	kuch	1	hand
tuullo	-H	Tul	1	hill
('Teno	-H	Tyam	2	breast)
maTi	-H	myaC	2	bee
arii	-F	er	3	know

CHART V
Mocha/Bench' Cognates

Which conclusions can be drawn from the comparison of Mocha/Bench' cognates? No statements can be made about stress, and none about tones of the non-initial syllables: According to Leslau's transcription, in all of the Mocha cognates where stress is marked, stress is word initial – but the corresponding Bench' words belong to various different tone classes. On noninitial syllables, tone is transcribed only rarely.

But as far as tones of the word initial syllables are concerned, Mocha cognates have been found for all of the larger tone classes of Bench'. The exception is tone 5, which is rare 6 (and late) anyway; only 8 percent of Bench' morphemes have this High tone. On the basis of the data in Chart V, tonal relationships can be summarised as follows:

Mocha F – Bench' 3 and 4 (i.e., M/H and M)
Mocha H – Bench' 2–3 and 1 (i.e., Glide and L)
Mocha L – Bench' i (i.e., L)

There is no indication that the Bench' glide could be related to long vowels originally, nor is there any evidence that gemination could be related to the history of Bench' tone. In Bench', gemination and vowel length got lost, or were never used, but tone does not seem to have taken over any of their contrastive functions.

4.3 Yemsa/Bench' cognates

The tonal data for a comparison with Yemsa are based on an analysis of late 1983, prepared with the help of the speaker Kasahun Rega from the central Janjero area, then a student at Addis Abeba University, (Cf. Wedekind forthc.)

The language has three tones: 'Low, Mid, High', where 'Low' is the unmarked and most frequent one. The labels 'High' vs. 'Low' may not be the happiest choice: Both of these tones include some amount of pitch movement, and 'Rise' vs. 'Fall' may eventually turn out to be more appropriate. There are also a few complex gliding tones (here written as 'LR') which can probably be derived from the others by morphotonemic rules, with reference to elision and verb changes. In the list of Yemsa data, tones given as alternatives, such as M>H, refer to verb tones which change with different aspects. Doubtful cognate pairs are written in brackets.

Yemsa		Bench'		Gloss
(paadu	LL>M	pyac	1	counted, be)
'arki	LM	'erg	1	old/elder sibling
garo	LM	yars	1	little
(ta	M	ta	1	I, subj. (Bench': focus))
mu	M	m'	1	eat, v.
'eesa	ML	'es	1	honey
sheesha	ML	sh'esh'	1	urine
chuwa	MM	C'ub	1	smoke, n.
'aapa	MM	'ap	1	eye
suna	MM	sum	1	name, n.
siya	MM	sinT	1	nose
tujo	MM	C'ud	1	spit
kushu	HM	kuch	1	hand, arm
saa'ra	HM>H	saC	1	bite v.
kiichu	HM>H	KeC	1	burn, be hot
'usha	HM>H	'ush'	1	drink, v.
toosha	HM>H	Ch'osh'	1	vomit, v.
bocha	LM	bot	2–3	gourd

Yemsa		Bench'		Gloss
mega	LM	mert	2	bone
kecz	LR	kaz	2	three
yero	LRM>H	yiT	2	sand
tama	MM	Tyam	2	breast
'uuch	H	'uch'	2	five
'ash	H	hash	2	here/now
naa-	L	nya'	3	child
daa-	L	dod-	3	land (poss.)
('atKa	LL	'ac	3	man)
shuna	LL	sh'un	3	love v
'ama	LL	ham/K	3	go, walk
kasa	LL	kap	3	bird
'asu	LL	'ac	3	person
kana	LL	kyan	3	dog
kata	LL	kacn	3	breathe
nawa	LL	nam	3	daughter (addr.)
'awa	LL	'obar	33	sun
woru	LL>M	woT	3	kill
maso	LL>M	mas/k	3	wash, tr/refl.
'aru	LL>M	'er	3	know
katama	LLM	katam	33	town (Amh.)
'orpo	LM	yapar	3	after
(gonyo	LM	giz	3	animal)
wosu	LM	wos	3	send
(yo	L>M	ye'	3	come, inf.)
zala	MM	zar	3	seed
(biya	MM>H	beK	3	see)
('anyo	HL	wu	3	come! impv.)
'o	L	'on	4	who?, subj.
keya	LL	ket	4	house
tu'a	LL	CuC	4	louse
'asha	LL	'ach'	4	meat
wono	LL	wonsan	44	tomorrow
('a'su	LL>M	haz/K	4	throw, caus.)
(paadu	LL>M	pyad	4	count, v.)

Yemsa		Bench'		Gloss
'unyu	LM	'unk	4	tail
noono	LM	non	4	mouth, lang.
kuPi	LL	kep	5	all
'apa	LL	'ap	5	gr'mother

CHART VI
Yemsa/Bench' Cognates

Which regularities can be observed? The Yemsa Low tone is very frequent and is attested for cognates of all Bench' tones – remarkably rare though in cognates of tone 1.

The distribution of 'High' and 'Low' tones is just the opposite of the distribution in Bench'. (In the second syllable this is blurred by morphotonemic changes.) It should be kept in mind that both in function and phonetics, what is 'low' in Yemsa cannot really be equated with 'low' (tone 1 or 2) in Bench'.

With this understanding, the correlations of tones can be abbreviated as follows:

Yemsa L (or F?) – Bench' 3; 4; 5 (i.e., M to H)
Yemsa M – Bench' 1; (i.e., L)
Yemsa H (or R?) – Bench' 1; 2? (i.e., L, maybe M/L)

5. A guess about the correlations and the history of Bench' tones

As far as lexico-statistic/genetic relations are concerned, Yemsa – geographically the remotest of the three – is Bench's closest relative: both belong to the same North Omotic subgroup called 'Gim-O-Jan'.

Dizi is only a distant relative, while Mocha takes an intermediate position. (Cf. the family tree given with Chart VII.)

5.1. Tonal correlations

The lexico-statistic/genetic classification correlates with the various degrees of tonal similarity: If we accept r, the correlation coefficient, as a preliminary measure of overall tonal similarity, we can state that a) there is some correlation between the two tone systems of each language pair, and b) that this correlation is higher (and firmer) for pairs of lexicostatistic/genetic proximity.

The tonal data of Bench', compared with those of Dizi, have a correlation coefficient of r = +0.46, where the basis of comparison is n = 12 cognate pairs only; Bench'/Mocha (n = 25) have r = +0.58 and Bench'/Yemsa (n = 45), r = −0.74 or +0.74, depending on the role one assigns to phonetic 'similarity'.

Language by language, and tone by tone, these correlations would appear to be those of Chart VII.

Lang. Family:	North-Omotic	(-same)	(-same)	(-same)
	Kefa-Gimojan	(-same)	(-same)	Dizoid
	Gimojan	(-same)	Kefoid	Dizoid
Lang.:	GIMIRA =BENCH'	Janjero =Yemsa	Mocha	Dizi
Bench' Tones				
5	High	Low(F)	–	High?
4	Mid/Hi.	Low(F)	Fall	High? Mid4
3	Mid	Low(F)	Fall	Low
2	Mid/Low	Low?(F) Mid? High(R)	Fall	Low? High?
2–3	Rise	–	High	–
1	Low	Mid High(R)	High Low?	Midi Low
	Correl. with Bench':	r = −0.74	r = +0.58	r = +0.46

CHART VII
Genetic and Tonal Correlations

Several points should be kept in mind when considering Chart VII:

Note that this Chart does not invite a comparison of 'same or similar' tones across languages, but it collates and correlates cognates (or rather: groups of cognates) which were found to have recurring tones – a procedure entirely different from a phonetic comparison of tones across languages. In Chart VII correlations, quite dissimilar tones can correspond to each other; e.g., Bench' High correlates with Yemsa Low (Fall) and vice versa, and so does Bench' High with Mocha Fall.

Question marks indicate that the claimed correlation may be valid but can only be backed by very few cognates.

From left to right, the languages are arranged in the order of increasing classificatory (and historical?) distance from Bench'.

5.2 Conclusion: Stages in the development of the six Bench' tones

Which conclusion can be drawn on the basis of these data? Is it possible to speak of older and more recent Bench' tones, or tone systems?

The basic, persistent dichotomy seems to be the one between an old tone I (Bench' 1; including 2–3?) vs. an old tone II (Bench' 2; 3; 4; 5). This dichotomy is inherent to all four languages: Yemsa H vs. others, Mocha L/H vs. others, and possibly Dizi L/M1 vs. others. At a first conceivable stage, the tone (or accent?) system common to all four of these languages could therefore be postulated as in STAGE IA or IB below.

At this stage, the language must have been predominantly disyllabic, and most syllables must have been open. Pronoun case, and transitivity markers were expressed by segmentals. Unless there was already a glide in addition to two basic tones (cf. STAGE IB), the suprasegmental opposition may have been one between stress vs. non-stress. If a guess can be based on today's percentages, tone II may have been the unmarked one:

STAGE IA
Tone II (65%: today's Bench' 2; 3; 4; 5)
Tone I (35%: today's Bench' 1; 2–3)

Two other dichotomies seem to be the following ones: tone 1 vs. 2–3 (also attested in a few Mocha H tone data),

STAGE IB
Tone II (65%: today's Bench' 2; 3; 4; 5)
Glide? (10%: today's Bench' 2–3)
Tone I (25%: today's Bench' 1)

and, tones 2 plus 3 vs. 4 plus 5:

STAGE II
Tone III (25%: today's Bench' 4; 5)
Tone II (40%: today's Bench' 2 with 3?)
Glide? (10%: today's Bench' 2–3)
Tone I (25%: today's Bench' 1)

At this stage, tone II would have been the unmarked tone. The word final vowels – charateristic for other Omotic languages – would have disappeared. Tones 2 and 3 may well have separated earlier, since they carry a lot of grammatical information (e.g. in the transitivity system), but the other languages do not supply clear evidence for an early separation of 2 and 3. (STAGE II or III?)

The separation of tone 5 from the others – especially from 4 – has already been described above. (Cf. section 3, and STAGE III). This split-off may have become phonemic once the phonetic exponents of a very high tone (i.e., tone 5) approached a critical percentage. Today, tone 5 is used by a small, but systematically safe, minority of 8%.

STAGE IIIA
Tone IV (25%: today's Bench' 4; 5)
Tone III (25%: today's Bench' 3)
Tone II (15%: today's Bench' 2)
Glide (10%: today's Bench' 2–3)
Tone I (25%: today's Bench' 1)

STAGE IIIB
Tone 5 (8%)
Tone 4 (17%)
Tone 3 (23%)
Tone 2 (17%)
Tone 2–3 (9%)
Tone 1 (27%)

This final stage is today's tone system.

Notes

1. Bench'non, literally, "the Bench people's mouth, or language", phonemically /bench'4 non4/ with tone 4 (mid high) and retroflexed palatal affricate /ch'/, is the name preferred to "Gimira, Ghimirra" by the speakers themselves.

   The language is spoken by about 35,000 inhabitants of the Bencho administrative region around Mizan Teferi in the Kefa province of south-western Ehtiopia. Unless stated otherwise, data are from the Bench' dialect which, as some say, is mutually intelligible with Mer and She.

   The data were provided by Endrias Essay in 1980 when we worked together for a field linguistics course at Addis Abeba University, and in occasional sessions during several weeks before and after this course. I have appreciated the opportunity of working with Endrias, and I want to thank him again.
2. Cf. Wedekind (1983 : 130) for a list of studies on tone in Ethiopia. Studies on Gumuz (Uzar, Aster Taddese and Wedekind), Yemsa (Wedekind), and Wolaytta (Adams) have been undertaken since.
3. The figures are based on Maddieson's oral presentation at the 1979 IPA Congress, cf. Maddieson 1979.
4. Cf. Breeze, forthc., and Wedekind (1983 : 133) for more detail.
5. The /p/ has a bilabial fricative variant. The /w/ is not a full phoneme, as in many Ethiopian languages. It has been included here for convenience, but an adequate description would go beyond traditional phonemics.
6. The relation between the lexicon size and the number of minimal pairs, triplets, etc. can be approximated quite closely with a formula given in Wedekind 1983: 140, an attempt to measure the functional load of tone.
7. The 'Gimojan' group was, in fact, named after these two languages: Gim-ira and Jan-jero, plus Ometo. Maybe the self-names, Bench' and Yemsa, would have given a more appropriate name to this youngest Afroasiatic family member: Ben-yem-om.

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