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noted that the tonal implication of Cl. 3 radicals is according to the basic tone of the suffix. In negative tenses the implication of Cl. 3 radicals, in relation to tonal behaviour in the affirmative, is reversed if the suffix in the negative is firm, and is not reversed if the suffix in the negative is free.

Examples of reversal in the governed nominal:

Tòtìkáágùgàyà mágútá mɔɔ̀ðε   We will not divide the oil

(— —— ‾ —— — | ‾‾ ‾ — | — —)

Tòtìkááun̄n̄á wéérá roclɔ̀   We will not finish the work tomorrow

(— —— ‾ —— ‾ | ‾‾ ‾‾ | — —— —)

Cf. with corresponding affirmative sentences:

Tokaagayá magútá mɔ́ɔ̀ðε
Tokaaniina weera roctó

Note that the speech tones of the governed nominal are reversed, maguṭá and weera after a positive form but máguṭá and wéérá after a negative. There is no reversal in the verbal in each negative sentence.

11. The presence of regular mid-tones in negative tenses can therefore be related to a two-level system, but only through observation of tone-shift and tone-reversal.

THE NOMINAL

12. For nominals the same method of tonal classification as for verbals is found to be effective. As in most Bantu languages, there are many Kikuyu nominals which have the same radical as that in a related verbal, e.g. oðeri light, cf. -ðer- be bright, be clean; keroto a dream, cf. -rot- dream. The tonal correspondence between related radicals is regularly maintained in Kikuyu so that if the tonal class of the verbal radical is known, the related nominal has a radical of the same class. The suffix is a lexical element in nominals and may have predictable tone, e.g. -i and -ɔ in nominals related to verbals have basic Low tone, -ε and -u have basic High tone. Tonal classification of nominals is according to the basic tone of radical and suffix. The nominal prefix is tonally neutral. In nominals with a radical related to that of a Cl. 3 verbal tonal behaviour corresponds to that in the verbal, i.e. it accords with the basic tone of the suffix. So that nominals of this type are in either Class IA (Low, Low) or Class IIB (High, High) e.g. maðaakɔ IA, sports, moðéécé IIB, beak.

Loan words and other nominals unrelated to verbals may have fixed tonal patterns. These fixed patterns, five in number, have no tone-shift and remain firm in all positions. Study of these fixed patterns will be the subject of a subsequent article.

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NOTES ON THE STRUCTURE OF SAHO*

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0. This study was made possible by a grant from the American Council of Learned Societies and by the generosity and hospitality of the American Evangelical Mission of the Orthodox Presbyterian Church in Eritrea. Research for it was done at Irafalo and Ghinda, Eritrea, during March–May, 1950. The principal informant was Asa Ḥamed, a native of Irafalo.

During the cooler months, the Saho people are concentrated largely on the coastal plains of Eritrea, to the southeast of Massawa. During the hot season many of them move to the hills farther inland. Saho is a Cushitic language of the Hamito-Semitic family, and is closely related to Afar (Dankali), which is spoken to the southeast along the coast, including the port of Assab. There are recognized dialect areas in each, and it may be that there is no sharp dividing line between the two, but that they are joined by a chain of dialects such that each is intelligible to speakers of adjacent dialects.

By far the most complete and important part of this analysis is the morphology of nouns and verbs. The underlying phonological analysis was of necessity made with considerable care, but there was no opportunity to make a careful check of every detail. Particularly suspicious points are noted here and there. Phonological features characteristic only of long utterances were not systematically studied, although a few notes were made of stress in short phrases and of some type of phrase division. It should also be noted that English equivalents (usually arrived at through Italian or Tigre or both) may be quite incomplete and in some cases inaccurate. Fortunately, they are largely irrelevant.

1. The phonemes of Saho are listed below. Included in parentheses are two

CONSONANTS:	LABIAL	APICAL	RETROFLEX	LAMINAL	DORSAL	PHARYNGEAL	GLOTTAL
Voiceless stops		t			k		
Glottalized vcls st		t'		(c')	q		
Voiced stops	b	d	ḍ	j	g		
Voiceless spirants	f	s		š	x	ḥ	h
Glottalized vcls sp		s'					
Voiced spirants		z		(ž)		ʕ	
Flap/trill			r				
Lateral			l				
Semivowels	w			y			
Nasals	m	n					

Vowels: i e a o u
Stress: '
Nasalization: ~

consonants that were recorded almost uniquely, in forms that were suspected of being citations from another language (i.e., not loanwords in the proper sense). In addition, | t' | , | s' | , and | x | are rare, and are apparently confined to loan-words; but there is no evidence that they have a different status than | j | and | q | , which are far from common. In some dialects, there is no contrast between | s | and | š | . Nasalization of vowels is very rare, but cannot be shown to be conditioned in any way.

1.1. | ḍ | is a retroflex stop in initial, final, preconsonantal, and postconsonantal positions. It is a retroflex flap in intervocalic position. | ḍḍ | is a long retroflex stop. In contrast, | r | is an alveolar trill in initial, final, preconsonantal, and postconsonantal positions. It is an alveolar flap in intervocalic position. | rr | is a trill, not appreciably longer than the trill allophone of | r | , but limited to intervocalic position. In contrast with both of these, | d | is always an alveolar stop.

1.2. | ḥ | and | ˤ | are pharyngeal spirants similar to those that have frequently been described for Arabic. Adjacent vowels are strongly pharyngealized. This pharyngealization increases during a vowel before one of these consonants, and decreases during a vowel after one of them. Thus it is possible to hear a difference between the sequences | aˤ | and | ˤa | , as in | dadaˤ | 'the coastal rainy season' and | marˤa | 'a marriage feast', but the difference is not as immediately apparent as with the voiceless | ḥ | or with other voiced consonants. Sequences which I have transcribed as | aˤ | , | ˤa | , and | aˤa | may include some errors. In the case of vowels other than | a | , there are other allophonic features adjacent to the pharyngeal spirants as well as pharyngealization itself. Each vowel is a glide, and the glide is in opposite directions for vowels before | ḥ | or | ˤ | and for vowels after them. The terminus of the glide adjacent to | ḥ | or | ˤ | is somewhat lower than the rest of the vowel (and than its position adjacent to other consonants), and considerably fronted for back vowels. Thus the sequence | ˤu | has a glide much like that in English *dew* in the pronunciation of those who say /diw/ rather than /dyuw/ or /duw/; | uˤ | , on the other hand, has a glide somewhat like that in English *fluid*, roughly the reverse in direction.

1.3. Vowels in other positions show little allophonic variation. They are approximately the sounds usually associated with the symbols used for them, but short and a little toward mid-central tongue position before a final consonant or a medial consonant cluster. Double writing of a vowel indicates length. Long vowels occur only before a single consonant followed by another vowel, as in many forms like | boodo | 'a hole'. Morphophonemic alternations limiting long vowels to this position are described in 2.6 below. For the interpretation of phonetically double or repeated vowels, which differ from long vowels, see 1.7 below.

1.4. Nasalized vowels are recorded only in the forms | ḥãḥáyta | 'wind', | máaḥã | 'time before dawn', and | ˤãyso | 'grass'. With the last of these compare | ˤálsa | 'moon, month' and | aysin | 'envy'.

1.5. Consonants other than | x, ḥ, h, ˤ, w, y | occur both short (written singly)

and long (written doubly), but the long consonants occur only in intervocalic position. Further details on | ḍḍ | and | rr | are included in 1.1 above.

1.6. Stress in different positions is obviously the determining factor in contrasts such as those between | yibáda | 'my son' and | yíbada | 'my daughter'. Forms like these and also like | báda | 'a son' are pronounced with an intonation much like the common English declarative intonation—the stressed vowel has the highest pitch, and the form ends with low pitch. But forms that are not clearly stressed on a vowel before the last one are pronounced in isolation with a final high pitch. The first impression for the speaker of English is that the last vowel is stressed. But the final high pitch, without a drop to low, may also be interpreted as conditioned by an absence of stress in the form. This interpretation, yielding many forms like | bada | 'a daughter', is made the more attractive by the fact that the same forms in many sequences (compare | yíbada | 'my daughter') obviously have no stress and have low pitch throughout. That the same forms may also occur in other sequences (always non-final) with the last vowel stressed (see 1.7 below) is beside the point; it happens to be more convenient to account for the appearance of such a stress than for its loss. Accordingly, forms with fewer than two stresses are interpreted as having either stress with a vowel other than the last, or no stress. In such short forms (mostly but not exclusively morphological words), stress has both a lexical and a morphological function. The lexical function appears in noun stems. Some, like | dabéla | 'a he-goat', have inherent stress; others, like | kabella | 'a shoe', have no stress. Unstressed forms are somewhat more common. Morphologically, stress sometimes serves to differentiate a masculine from a feminine noun, as in the case of | báda | 'son' and | bada | 'daughter'; it also serves as part of the plural formation for many nouns, as in the case of | arat | 'a bed' and | árot | 'beds'.

1.7. Not included in the list of phonemes at the beginning of this section, because of inadequate evidence for many pertinent details, is what appears to be a juncture phoneme. Where there is clear evidence for something of the sort, it will be written with a space. Such cases include some morphological word boundaries, and also some divisions between stem and suffix. For the sake of convenience, some other morphological boundaries will be written with a hyphen. Such points are in clear contrast with space-juncture, and probably do not contrast with comparable points within a stem. Space-juncture is identified by two factors: (1) repetition of vowels, and (2) certain phenomena of stress and pitch. Evidence for each is as follows:

(1) A repeated vowel is interpreted as including a space-juncture in forms like | ˤeydo obbe | 'the sheep heard (it)' (not actually recorded but comparable to many forms recorded and others about which notes were made), because of a contrast with a long vowel in forms like | ˤembooba | 'blossoms'. The repetition of the vowel in forms like this often (but, my impression is, not always) includes a glottal stop. It may also be that all forms of this type have the stress and pitch requirements for space-juncture as well. On the other hand, repeated vowels in final position and before a final consonant seldom if ever include a glottal stop;

in spite of their phonetic difference from long vowels (1.3 above), they are apparently in complete complementary distribution with long vowels and also with the repeated vowels described above. Thus they need not be interpreted as including space-juncture. Examples are | adíi | (participle of | adu | 'go'), | sáa | (participle of | sa | 'enter'), | laa | 'cows', and | adíik | (perhaps a bound form, but occurring in | adíik-wee | 'I haven't gone'). This analysis is completely confirmed if my impression is correct that form | adíi-k-ane | 'I'm going' contains a long vowel no different from and not contrasting with the long vowel in | bíilo | 'blood'.

(2) Contrasts involving stress and pitch make it possible to write distinctions like the following (in which the hyphen in the forms on the right apparently represents nothing different from no hyphen or space):

faras ʕado		'the horse is white'		masangale		'side'
fáaris ʕado		'the horses are white'		ḍáamo-kio		'I'm going to buy it'
mila fáda-k-ane		'I want jewelry'		ʕado-fáaris		'white horses'
adáo fáda-k-ane		'I want to go'		yábba-ʕáre		'my father's house'

In the first of the above pairs, the form on the left has the pitch sequence low-high low-high (each part pronounced as if in isolation), while the form on the right has the sequence low-low-low-high. But the unstressed character of each part of the form on the left is in sharp contrast with the stress in | ʕadó-faras | 'a white horse'. In the second pair, the form on the left has the pitch sequence high-low low-high, while the form on the right has the sequence high-low-low-low. In the third pair, there is only indirect evidence in my notes to confirm my memory that the form on the left has the sequence low-high high-low . . . , while the form on the right has the sequence low-low-high-low. In the forms on the left of both the second and third pairs, the unstressed form again is pronounced as if in isolation. For the fourth pair there is even less evidence, but it is significant that the whole problem of juncture arose just after recording the form on the right and the comparable form | yábbah-saga | 'my father's cow'. At another time, the form on the left was recorded with the first stress louder than the second. My notes indicate nothing about the form on the right—perhaps the second stress is louder. In any case, I am confident that some phonemic contrast exists between pairs of sequences with two stresses, comparable in some way to the three better attested contrasts, and analyzable with a space-juncture in one type. It is hoped that problems of this type will underscore the necessity of a careful analysis of transitional phenomena on the phonemic level in any language analysis.

1.8. Similar problems of possible phonemic phrase divisions and of intonation have not been investigated. In a very general way, Saho intonations do not sound strikingly unfamiliar to a speaker of English. It is quite likely that they could be described in terms of three pitch levels (probably not as many as four,

which English has) and two or three phrase-terminal contours. Fortunately, these questions are not directly relevant to the morphological analysis, which is as far as this article goes. In so far as the phonemic system has been determined in the description above, it may be safely used for purposes of transcription basic to further analysis, and forms so transcribed are set off in vertical strokes (| . . . |).

1.9. The points discussed in 1.1, 2, 3, 5, 6 above are illustrated in the following sets of forms, along with some illustrations of contrasts between simple and glottalized consonants. The contrasts illustrated include most of the difficulties that a speaker of English is likely to have in mastering the pronunciation of Saho. The illustrations are organized in such a way that they can conveniently be used as pronunciation drills for a person who has occasion to work on the language with an informant.

1. Contrasts between |d| , |ḍ|, and |r| in intervocalic position. |rádo-kio| I'll fall, |fáḍo-kio| I want (it), |áro-kio| I'll bite (it); |adáo-kio| I'll go, |ḥáḍo-kio| I'll pour (it), |gúro-kio| I'll ask; |rádod| animal hides, |báḍa| son, |ʕáre| house; |boodo| hole, |baḍa| daughter, |ʕara| place; |ede| I went, |idaafálo| Irafalo, |ḥaray| arm; |ʕuduf| filth, |idig| know, |uruf| sew; |sído| skin rug, |yibbiḍe| he caught (it), |ure| he got well; |daḍaʕ| coastal rains, |daḍay| a sprout, |dara| flowing stream; |anada| skin, |eḍeḍa| an end, |ḥera| female donkey; |ḥeden| be happy, |duuḍe| black ant, |maru| ram; |maʕado| door, |maḥáḍo| spear, |agára| the itch; |badiila| shovel, |geḍénta| stranger, |káre| dog; |ayda| custom, |áḍa| back tooth, |sára| garments; |leeda| a patch, |ḥaḍa| tree, |faras| horse; |ḥado| meat, |ḥaḍe| he poured (it), |daro| fruit seed; |adu| go, |baaḍo| country, |arat| bed.

2. Contrasts between |d| , |ḍ|, and |r| in initial position. |dab| bend (it), |ḍam| dissolve, |rab| die; |dor| choose, |ḍo| suck on (it), |rob| rain; |dif| ray, |ḍis| guarantor, |ríste| real property; |des| keep (it) out, |ḍi| choke, |rimid| root; |deeʕem| call, |ḍaʕem| beg, |rakub| male camel; |dahab| gold, |ḍawuḍ| care for, |radid| sideburns; |dalal| clarify (butter), |ḍamaḥ| become cool, |rába| death; |date| discussion, |ḍakso| reward, |róxsa| permission (?).

3. Contrasts between |d| , |ḍ|, and |r| in final position. |bad| the sea, |baḍ| pour (it) out, |bar| night; |rad| fall, |sar| goatskin bag; |eded| begin, |der| cry out; |rimid| root, |kondoḍ| a boil, |digir| play; |ifrid| judge, |ibbiḍ| hold; |máḥoḍ| spears, |kor| saddle.

4. Contrasts between |d| , |ḍ|, and |r| in preconsonantal position. |madhin| guarantor (in cattle deals), |maḍhan| millstone, |árdi| ground; |bádna| corpse, |idḥen| grind, |irke| ?; |idbit| thresh (in hand), |eḍḥe| say (it), |erde| run.

5. Contrasts between |h| , |ḥ| , and |x| in initial position. |hadan| send away, |ḥat| help, |xaatim| ring; |hay| put, |ḥan| milk; |haasaw| converse, |ḥasama| pigs.

Additional examples of initial |ḥ|: |ḥab| leave, |ḥado| meat, |ḥarid| meal, |ḥagay| hot season, |ḥákke| justice, |ḥaray| arm, |ḥen| refuse, |ḥesi| rub, |ḥera| female donkey, |ḥókmi| legal sentence, |ḥogga| neighbor, |ḥútuk| stars, |ḥuluf| cubit, |ḥoolim| corner.

6. Contrasts between |h| and |ḥ| in intervocalic position. |dahab| gold |naḥar|

the chest; |dehe| return (it) |roḥe| breath, spirit; |mahia| wages |máaḥä| time before dawn.

Additional examples of intervocalic |ḥ|: |naḥas| a can, |šaḥan| a dish, |daḥéeni| morning, |laḥu| sickness, |uḥu| give.

7. Contrasts between |h| and |ḥ| in final position. |qiiyah| tradition, story |likaḥ| interest-free loan; |dimbih| perspire |subaḥ |clarified butter.

Additional examples of final |ḥ|: |saḥ| churn (compare |sa| enter), |laḥ| she-goat, |maḥ| to dawn, |faḥ| boil, |gaḥ| return, |abaḥ| spoil, |araḥ| road, |andaḥ| voice.

8. Contrasts betweeh |h| and |ḥ| in postconsonantal position: |mazhab| religion, |madḥin| guarantor in cattle deals.

Addition examples of |ḥ| in postconsonantal position. |subḥe| dawn, |sotḥet| slip, |imḥer| forgive, |idḥen| grind, |mulḥu| salt, |urḥud| slaughter.

9. Examples of |ḥ| in preconsonantal position. |eḥlif| be annihilated, |eḥzin| be sad, |eḥqiq| become smaller, |uḥfus| scoop up, |uḥkum| settle.

10. Contrasts between no consonant and |ˤ| in initial position: |arat| bed, |ˤaran| sky; |aysin| envy, |ˤäyso| grass; |áda| back tooth, |ˤara| place; |ádra| greens, |ˤalsa| moon, month; |asḥayta| dew, mist, |ˤaso| fever; |amo| head, |ˤawat| praise; |atir| small beans, |ˤaasa| fish; |edebba| repay (it), |ˤed| throw (it) away; |emeg| fill (it), |ˤéela| a well; |eneb| grow, |ˤeyid| feast; |eketta| gather (it), |ˤeyále| family; |eley| be lost, |ˤelisa| heavy; |efeˤ| give water to, |ˤetro| large jar; |engeˤ| fight, |ˤendáuka| small boy; |orob| enter, |ˤowla| dust storm; |ugrub| congeal, |ˤuduf| filth; |ure| be well, |ˤulul| famine; |umrur| dissolve, |ˤumúte| throat; |iton| hearth, |ˤidda| pay a fine.

11. Contrasts between no consonant and |ˤ| in intervocalic position: |daame| he bought (it), |daˤame| he tasted (it); |sug| wait, |uˤug| bury; |sáur| goatskin water bags, |dáˤun| old men; |sa| enter, |saˤa| cattle; |daylo| sons, |daˤáyna| old man; |dáit| stones, |báˤel| husbands.

Additional examples of |ˤ| in intervocalic position. |qaˤay| housefly |deˤera| thigh bone |beˤéra| ox |ufuˤe| coughing |uˤub| drink.

12. Contrasts between no consonant and |ˤ| in final position: |ge| find (it), |weˤ| cry out, wail; |lu| be hungry, |fuˤ| suck on (it); |fi| sweep, |diˤ| be able; |dara| flowing stream, |dadaˤ| coastal rains; |mila| jewelry, |migaˤ| name; |uybullu| show me, |sulluˤ| peelings; |ede| I went, |igreˤ| cut (it) off.

13. Contrasts between no consonant and |ˤ| in postconsonantal position: |áro kio| I'll bite (it), |arˤot| yoke; |bakal| kid, |nakˤa| dew; |faras| horse, |marˤa| marriage feast; |garab| forest, |qorˤat| pride; |kobbaya| cup, |ayˤa| baby.

14. Contrasts between no consonant and |ˤ| in preconsonantal position: |ure| he got well, |uˤruf| rest, |ˤulul| famine; |rado| a hide, |maˤdet| sickle, |maˤado| door; |gále| wing, |báˤla| husband.

15. Contrasts between |k| and |q|. Initial: |káre| dog, |qábre| grave; |kábel| shoes, |qábeˤ| leopard; |kurkur| small round object, |qoraarat| bottle. Intervocalic: |bakal| kid, |baqil| stingy; |akat| rope, |maqas| scissors; |sukat| butter used as ointment, |bagar| be thirsty; |takale| cause, reason, |šoqoli| work. Final:

|lubak| lion, |maraq| meat juice. Postconsonantal: |inkaˤ| louse, |inqil| copy (it). Preconsonantal: |yiklibe| he turned over, |yuqluqe| he created (it).

16. Contrasts between |s| and |s'| . Initial: |sáḥsaḥ| roasting pan, |s'áḥla| earthen pot; |aífol| small nether millstones, |s'íqqa| (|cíqqa|?) mud. Intervocalic: |ḥasama| pigs, |nas'ala| light wrap, |ˤaasa| fish, |haras'a| interest-paying loan, |nuguusa| king, |maras'an| mirror. Postconsonantal: |iksib| make a profit, |iqs'eˤ| punish.

17. Contrasts between |t| and |t'| . Initial: |takale| cause, reason, |t'aula| table. Intervocalic: |atir| small beans, |at'aˤase| I regretted it.

18. Contrasts between single and double vowels:

|dame| it dissolved, |daame| he bought (it); |ḥabe| he left, |gaabe| he delayed; |bada| daughter, |baado| country; |daga| base of the neck, |adaaga| market; |ˤaso| fever, |ˤaasa| fish; |daˤam| taste (it), |daaˤem| beg; |danan| male donkey, |laana| egg; |dahab| gold, |saaḥeb| friend; |ḥado| meat, |xaatim| ring; |ˤaran| sky, |ˤaada| back.

|ˤede| he threw (it) away, |ˤeege| he bent down; |ḥera| female donkey, |ḥeelat| skill, care; |ˤedo| rump, |ˤéela| a well; |eneb| grow, |seenan| mat.

|mila| jewelry, |giilal| highland harvest season; |lífen| combs, |bíilo| blood; |íbur| needles, |síile| picture.

|kóre| he mounted, |sóole| he stood still; |obbe| hear, |oobe| he went down; |bola| flame, |boodo| hole; |folo| bread, |soono| dream.

|numa| woman, |guuma| large bird.

19. Contrasts between single and double consonants.

|danan| male donkey, |jannat| heaven; |sánon| noses, |anna| aunt; |eneb| grow, |dinniš| potatoes; |lóyna| hersdman, |wanna| master of the house.

|numa| woman, |dummu| cat; |ˤumúte| throat, |súmme| poison.

|mila| jewelry, |illa| a spring; |silal| shade, |tillab| pass through; |ala| be cooked, |yálla| God; |folo| bread, |filla| neck; |ˤulul| famine, |ˤullul| colt; |ˤelibo| corn, |ˤello| rust; |alif| close, |allula| animal; |ele| be lost, |lelleˤ| day; |okólo| donkey, |asgállo-kio| I'll mix (it).

|iton| hearth, |ˤetta| curds; |kitab| book, |eketta| gather; |dite| darkness, |ittimini| desire (it).

|bakal| kid, |bakkéla| rabbit; |wakáli| partner, |wakkáyna| a switch; |ikok| front teeth, |ikkiti| put on (of trousers); |ukum| win over, |šukki| suspicion; |ˤakal| become clean, |ekkele| think; |rakub| male camel, |šakkit| suspect.

|gaba| hand, |abba| father; |jabanat| coffee pot, |kobbaya| metal cup; |rába| death, |obba| hear; |dabéla| male goat, |edebba| repay; |ḥankabit| frighten, |iydibbis| join.

|yigdile| he broke (it), |yiggidile| it broke; |daga| base of the neck, |dagge| compound; |anada| skin, |maxadda| pillow; |ˤuduf| filth, |kuddum| jump; |ḥeden| joy, |iyfiddin| widen; |radid| side whiskers, |iddirir| eat supper; |wagaba| lip, |iggida| year.

|ífo| light(ness), |ḥaffu| be inflated.

|basal| onions, |missíla| story, fable; |usul| laugh, |issilli| pray.

20. Contrasts between single and double |d|, |ḍ|, and |r| : |rade| I fell, |radde| you fell; |báddo kio| I'll die, |báddo kito| you'll die; |ḥadis| (name of a town), |ḥaddas| (name of a river). |ḥaḍe| I poured (it), |ḥaḍḍe| you poured (it); |fáḍo| I want, |fáḍḍo| you want; |idig| know, |eḍḍag| touch (it). |fare| I sent (it), |barrad| tea kettle; |are| I bit (it), |surre| trousers; |sára| garments, |sarrah| after.

21. Contrasts between stressed and unstressed forms: |báda| son, |bada| daughter; |yibáda| my son, |yíbada| my daughter; |áyˤa| baby boy, |ayˤa| baby girl; |árot| beds, |arat| a bed; |áruḥ| roads, |araḥ| a road; |ámom| heads, |amo| a head; |dúmmum| cats, |dummu| a cat; |íllal| springs, |illa| a spring; |léedad| patches, |leeda| a patch. |ˤeydóyta| ram, |ˤeydoyta| ewe; |ˤullúyta| male colt, |ˤulluyta| female colt; |jabánot| coffee pots, |jabanat| coffee pot; |dabéla| he-goat, |takale| cause, reason; |ḥalága| piece of cloth, |waraqat| paper.

2. Regular morphophonemic alternations of several types are recorded. There are perhaps a few more than those listed below, but they provide a fair idea of the total picture. A few others, along with numerous morpholexical and some suppletive alternations, are more conveniently treated as they arise in later morphological descriptions.

2.1. Assimilation of a consonant to a following consonant occurs in three recorded cases at morpheme boundaries. The symbol + here indicates the morpheme boundary involved, and is not to be taken as part of the transcription. The symbol ~ is to be read 'has the alternant'.

|t + n| ~ |nn| : |benne| 'we ate', from |bet| 'eat' + |ne| 'we (past)'.

|t + s| ~ |ss| : |bessis| 'feed (him)', from |bet| + |sis| (causative).

|t + f| ~ |ff| : |dáf-faras| 'a black horse', from |data| 'be black' (for loss of final |a| see 2.7 below) and |faras| 'horse'.

In spite of the analogy with the first of these, |d + n| ~ |nn| can hardly be expected in the light of the cluster |dn| in the stem |bádna| 'a corpse'. My notes include no case of the combination of morphemes involved.

2.2. Assimilation of a consonant to a preceding consonant occurs in at least three recorded cases at morpheme boundaries.

|s + t| ~ |ss|: |bessisse| 'you fed (him)', from |bet| 'eat' + |sis| (causative) + |te| 'you (singular, past)'.

|d + t| ~ |dd| : |radde| 'you fell', from |rad| 'fall' + |te|.

|ḍ + t| ~ |ḍḍ| : |ḥaḍḍe| 'you poured (it) out', from |ḥaḍ| 'pour out' + |te|.

My notes also include the statement |š + t| ~ |šš|, but I can find no case to prove it. The cluster |št| is permitted in the form |aštaqálo-kio| 'I'll work'. For the form |te| in the above examples, compare |kor| 'mount' and |korte| 'you mounted'.

2.3. One case of metathesis is recorded at a morpheme boundary.

|ḍ + n| ~ |nḍ| : |ḥanḍe| 'we poured (it) out', from |ḥaḍ| 'pour out' + |ne| 'we (past)'.

2.4. Morphemes with a final vowel add |y| before a suffix consisting of a consonant plus a vowel. Some notes seem to indicate that |iy| in these forms may change further to |ii|, though the two sequences seem to contrast in some posi-

tions. Examples of this alternation are: |sayte| 'you entered', from |sa| 'enter' + |te| 'you (s., past)'; |sayne| 'we entered', from |sa| + |ne| 'we (past)'; |duyte| 'you herded (cattle)', from |du| 'herd' + |te|; |duyne| 'we herded (cattle)'' from |du| + |ne| ; |loyte| 'you counted', from |lo| 'count' + |te| ; |geyne| 'we found (it)', from |ge| 'find' + |ne| ; |fiyte| (or |fiite|?) 'you swept it', from |fi| 'sweep' + |te| ; |giráyto| 'a fire', from |gira| 'fire' + |to| (unit suffix); |ḥalmayto| 'a leaf of (a certain) greens', from |ḥálma| 'greens' + |to| ; |ˤeydóyta| 'a male colt', from |ˤedo| 'colt(s)' + |ta| (unit suffix).

That the |y| in these forms is not part of the suffix is clear from a comparison of the following forms: |fakte| 'you opened (it)', from |fak| 'open' + |te| ; |fakne| 'we opened (it)', from |fak| + |ne| ; |basálto| 'an onion', from |basal| 'onion(s)' + |to|; |atírta| 'a bean', from |atir| 'beans' + |ta|.

My notes suggest a similar addition of |y| in some cases and |w| in other cases between a stem-final vowel and a vowel suffix. The most certain point is that stem-final |a| may be immediately followed by a suffix |a|, as in |sáa|, the participle form of |sa| 'enter'. The interpretation of the other sequences depends in part on a careful check of all records to see if contrasts such as |ie| and |iye| exist in the language at all. Where no morphophonemic alternation is involved, I have recorded at least some cases of each type, but had no opportunity to recheck all of them. Where morpheme boundaries are involved, only a tentative interpretation can be suggested. By this interpretation, only the following sequences are written:

|iye, eye, aye|, but |oe, ue|

|io, eo, ao|, but |owo, uwo|

|ia, ea, aa, oa, ua|

Examples of these sequences in recorded verb forms are:

|fiye, geye, saye| but |loe, due| : 'he did' + 'sweep, find, enter, count, herd'.

|fio, geo, sao| but |lowo, duwo| : 'he should' + the same. ~

|fia, gea, saa, loa, dua| : participle forms of the same. ~

2.5. |h| has a zero alternant before |h, ḥ, x, ˤ|, and apparently also before a vowel in at least one construction, though intervocalic |h| is common elsewhere. With forms like |yábbah-saga| 'my father's cow', which show |h| before other consonants, compare the following without |h|: |yábba-ˤáre| 'my father's house'; |yábba-ḥasama| 'my father's pigs'; |yábba-xaatim| 'my father's ring'.

2.6. Some stems have an inherent long vowel before a final consonant, but the long vowel appears only in forms with a suffix consisting of or beginning with a vowel. Such long vowels have short alternants in forms that have no suffix or that have a suffix beginning with a consonant. Examples are:

|beete| 'I ate', but |bet| 'eat' and |bette| 'you ate'.

|deeren| 'they cried out', but |der| 'cry out' and |derne| 'we cried out'.

|diine| 'I slept', but |dinte| 'you slept' and |dinne| 'we slept'.

|igiila| 'lakes', but |igil| 'a lake'.

|luuḥa| 'boards', but |luḥ| 'a board'.

Other stems have an inherent short vowel that appears in all forms:

|afite| 'I hurried' and |afit| 'hurry'.

|aren| 'they bit (it)' and |arne| 'we bit (it)'.

|lakok| 'feet' and |lak| 'foot'.

2.7. Some stems in some constructions show alternants with and without a final vowel. Only limited evidence is available, but the alternation appears to be morpholexical. It is not confined, for example, to positions before a vowel. Nor does it appear to be confined to constructions without space-juncture. The following are some examples of this alternation:

|fidín-araḥ| 'a wide road', but |araḥ fidina| 'the road is wide'.

|ʕusúb-akat| 'a new rope', but |akat ʕusuba| 'the rope is new'.

|udúḍ-akat| 'a short rope', but |akat uduḍa| 'the rope is short'.

|dáf-faras| 'a black horse' (with |t| ~ |f|), but |faras data| 'the horse is black'.

|ḥad úma| 'the meat is bad' (|ḥad-úma|??), but |ḥado| 'meat'.

Comparable pairs that do not show such an alternation are as follows:

|meʕé-ḥado| 'good meat' and |ḥado meʕe| 'the meat is good'.

|ʕadó-faras| 'a white horse' and |faras ʕado| 'the horse is white'.

3. The morphology of nouns involves problems of grammatical gender, a subject form in distinction from a general form, and number.

3.1. Two grammatical genders are distinguished by the association of different nouns with different third person singular pronouns, of which the independent forms are |úsuk| 'he' and |íse| 'she'. The first of these is associated with singular nouns indicating male persons or animals, and the second with those indicating females, almost without exception. Each pronoun is also associated with some nouns for which sex distinctions are meaningless. A third person plural pronoun, of which the independent form is |úsun| 'they', is associated only with plural nouns indicating persons. Comparable 'plural' forms of impersonal nouns are associated with singular pronouns, and thus fall into singular genders. To a large extent, the gender of a noun is predictable in terms of its phonemic structure, according to the following statements, and several nouns have two forms (fitting the first two of these statements) refer to males and females of the same species.

(1) Forms with stress are regularly masculine.

(2) Forms without stress and with a final vowel are regularly feminine. In a few apparent exceptions, the final vowel is preceded by a double consonant: |abba| 'father' and |wanna| 'master of the house' are masculine. Morphophonemically, the final vowels are not inherent parts of the stems; but other forms like |illa| 'a spring' are feminine, and in them the final vowel belongs to the stem.

(3) Forms without stress and with a final consonant are usually masculine. Most of the exceptions listed below are known to be loans from Arabic feminine nouns. In addition, the Arabic loan |faras| 'horse' may be used with either pronoun, depending on the sex of the horse being talked about. Feminine nouns without stress and with a final consonant are as follows: |saaʕat| hour (also |saaʕa|), |qoraarat| bottle, |jabanat| coffee pot, |waraqat| paper, |kofyet| cap, |maʕdet| sickle, |arʕot| yoke, |madḥan| millstone, |ḥeaw| person, |laḥ| she-goat.

3.2. A subject form in distinction from a general form appears only with nouns that are stressed and have a final vowel. In the subject form, the final vowel is replaced by |i| and the stress is lost. Thus the subject form of |ʕáre| 'house' appears in |ʕari naba| 'the house is big', and of |bakkéla| 'rabbit' in |bakkeli ʕado| 'the rabbit is white'.

3.3. Number distinctions form the basis for a division of nouns into three classes, which may be called mass nouns (having only one form), class nouns (having a derived unit form), and unit nouns (having a derived plural form). Some nouns have forms in both of the last two groups. There are also formal subclasses of class nouns and unit nouns. The following subsections describe the classificatory criteria and list the recorded nouns in each class and sub-class.

3.3.1. The following mass nouns (nouns having only one form) are recorded. Gender may be determined from the staements in 3.1 above, with exceptions noted in parentheses. |abda| half, |adaaga| market, |adógara| (kind of) beans, |agára| the itch, |amburre| clouds, fog, |amorkab| cold in the head, |andaḥ| voice, |andúgul| dozing, |árde| country, |aryoyta| kicking, |ashayta| dew, mist, |ayda| custom, |ayro| the sun, |bad| the sea, |baaḍo| country, |bar| night, |baska| honey, |bátke| carcass, |beetimtam| (f) feed, vittles, |bfilo| blood, |bola| flame, |boyat| paint (?), |bóyla| raid (?), |dadaʕ| coastal rainy season, |dahab| gold, |daḥéeni| morning, |dálta| story, |danan| male donkey, |dara| flowing stream, |darat| boundary, |daro| fruit seed, |date| discussion (?), |debne| chin (?), |dif| ray, beam, |dígir| playing, |dimbi| sweat, |dinniš| potatoes, |dfrab| lying, |dite| darkness, |dirar| supper, |diwa| medicine, |dakso| reward, |ḍis| guarantor, |edeḍa| end (as of a stick), |fayda| profit, |fidaani| large size, width, |fírde| judgment, |folo| bread, food made with meal, |gadaʕa| soft manure, |gádda| wealth, |gar| payment for killing, |garab| forest, |gárba| stomach (?), |giilal| highland harvest season, |gombod| ashes, |gudda| back, |guftaani| funeral, |gusun| running nose, |haras'a| interest-bearing loan, |ḥagay| hot season, |ḥáḥáyta| wind, |ḥákke| justice, |ḥan| milk, |ḥarid| flour, meal, |ḥáyla| power, strength, |ḥeden| joy, |ḥeelat| skill, care, |ḥembo| foam, froth, |ḥera| female donkey, |ḥesran| trouble, tiredness, |ḥókmi| legal sentence, |ífo| light, |iman| faith, |iskok| dirt, |iton| fireplace, hearth, |ízne| permission, |jannat| heaven, |karma| highland rainy season, |káso| afternoon-evening, |kira| rent, |kúmri| stack (as of hay), |kurkur| small round object, |lae| water, |laḥu| (m) sickness, |laʕana| heat, |likaḥ| loan without interest, |limo| cost, |madḥin| guarantor in cattle deals, |maflis| wild pig, |mahia| wages, |máaḥá| time before dawn, |maksab| profit, gain, |mal| money, property, |mangar| bribe, ransom, |mangísti| government (?), |maqadim| household (?), kinsmen, |maqarqar| tongs, |maraq| meat juice, |marʕa| marriage feast, |masaareʕ| plow (?), |mazhab| religion, |meʕene| goodness, |meeri| tax, |mila| jewelry, ornaments, |misáfla| story, fable, |mosob| woven table, |mutuk| butter, |muz| bananas, |nabi| (m) prophet, |nábsi| self, person, |nagad| trade, |naḥar| chest, |nakʕa| dew, |nifio| chicken pox (?), |ʕaada| back, |ʕálsa| moon, month, |ʕáran| sky, |ʕaso| fever, |ʕawat| praise, |ʕaynat| kind, |áyso| grass, |ʕello| rust, |ʕétta| curds, |ʕeyáli| family, |ʕeyo| work, |ʕowla| dust storm, whirlwind, |ʕuduf| filth, |ʕulul| famine, |ʕumúte| throat, |oddonia| the world of people, |qálbe| heart (?), |qarantit| (f) cloth bag, |qásban| force, |qiiyaḥ| (f) tradition, story, |qoobir| hat, |qorʕat| pride, |qórsi| breakfast, |rába| death,

|radid| sideburns, |ríste| property in land, |rob| rain, |róḥe| breath, spirit, soul, |róxsa| permission (?), |sakna| leprosy (?), |salamta| greeting, |sambat| sabbath, |serʕat| law, |siam| fast, feast, |siray| strength, |soono| dream, |subaḥ| clarified butter, |súbḥe| morning, dawn, |sukat| butter used for ointment, |súmme| poison, |šeet'an| Satan, |šifa| medicine (?), |šiiša| water pipe (for smoking), |šoq| down-town, shop area, |šúkki| suspicion, |s'aḥyay| weeds, |c'íqqa| mud (also |s'íqqa|), |takale| cause, reason, |tíka| smoke, |timbaako| tobacco, |tooba| repentance, |tuumar| mark, identifying message, |ufuʕe| (m) coughing, |wadana| abdomen (?), |wagare| (m) peace, |wákti| time, |waqaaqaʕ| trouble, |wašaarib| curled moustache, |yálla| God, |zamad| relative (?), |zámbi| sin, |zanta| story of long ago, |zára| seed grain, |zet| oil, |ziad| something added, |zurriya| tribe.

3.3.2. Class nouns in their stem form indicate an unspecified quantity or an item for which number is irrelevant. Unit forms, indicating a single specimen of the class, are formed by adding one of two suffixes, |to| and |ta|. For the addition of |y| after vowel-final stems, see 2.4 above. In a few cases, morpholexical alternation occurs. The gender of the unit form is not predictable from anything in the stem, but masculine unit forms predominate. In some cases, unit forms exist for both genders, indicating sex difference unless otherwise specified. In the lists below, the gender of both the stem forms and the unit forms may be determined from the statements in 3.1 above. The translations generally attempt to give equivalents for the stem forms.

(1) With suffix |to| : |ádra, adráyto| collards (?), |alaama, alaamáyto| weavers, |allula, allulávto| animals, |awuuḥa, awuuḥávto| worms, maggots, |azgálab, azgalábto| rabbits, |baldónga, baldongáyto| broad beans, |barya, baryáto| , f: |baryayto| slaves, |basal, basálto| onions, |biršiq, biršiqto| watermelons, |daḍay, daḍáyto| sprouts, |dagar, dagárto| hair, |dóoba, doobáyto| friends, |furta, fur-táyto| ants, |ganga, gangáyto| twins, |gira, giráyto| fire, |guuma, guumáyto| large birds, |ḥabḥab, ḥabḥabto| watermelons, |ḥálma, ḥalmayto| greens, |ḥasama, ḥasamáyto| pigs, |ḥasar, ḥasárto| straw, |ḥeaw, ḥeáwto| men (stem f), |ḥéray, heráyto| wild boars, |ḥogga, ḥoggáyto| neighbors, |ilaw, iláwto| grain (also pl: |ílow| kinds of grain), |ínkaʕ, inkaʕto| lice, |oolaʕ, oolaʕto| olive trees, |ʕaasa, ʕaasáyto| fish, |ʕembooba, ʕemboobáyto| blossoms, |ʕéray, ʕeráyto| fat, |sáʕa, saʕáyto| cattle, |simbiláleʕ, simbilaleʕto| moths, |sirnay, sirnáyto| wheat, |tukwán, tukwánto| fleas, |réedon, reedánto| chiefs (stem pl, mphlxcl alt.), |rubábiʕ, rub-biʕto| measures for grain (mphlxcl alt.).

(2) With suffix |ta|: |atir, atírta| small beans, |baʕalage, baʕalagéyta| crude people (?), |barbare| pepper, m: |barbaréyta| a pepper, f: |barbareyta| a pepper plant, |boḥo, boḥóyta| dry wood, |duuḍe, duuḍeyta| black ants, |ḥado, ḥadoyta| meat, |ḥéwo, ḥewóyta| orphans, |ḥútuk, ḥutúkta| stars, |kaye, káyta| fences (|e| dropped?), |kududulle, kududulleyta| pigeons, |miskíleh, miskiléhta| stones to hold pots, |mulḥu, mulḥúyta| salt, |núay, nuáyta| goods, |ʕelibo, ʕelibóyta| corn, |ʕeydo, ʕeydóyta|, f: |ʕeydoyta| sheep, |ʕúllul, ʕullúyta| , f: |ʕulluyta| colts (l| ~ |y|), |okólo, okolóyta| donkeys, |qábeʕ, qabéʕta| leopards, |qaniʕo, qani-ʕoyta| mosquitos, sandflies, |qáʕay, qaʕáyta| houseflies, |safari, safaríyta| travel-lers, |sarwe, sarwéyta| poles, |súlluʕ, sullúʕta| peelings, |šuqúrti, šuqurtéyta|

onions (|i| ~ |e|), |túful, tufúlta| thread, |unqoqoḥo, unqoqoḥoyta| eggs, |wakáli, wakaléyta| partners (|i| ~ |e|).

3.3.3. Unit nouns are nouns that appear in two forms, singular and plural. For personal nouns, the plural form is associated with a plural pronoun. For im-personal nouns, the plural form has a singular syntax and gender. The term plural reflects the morhpological parallelism with the syntactic plurals of personal nouns, not merely a semantic category. Indeed, in some cases the plural form has a collective or a distributive, rather than a numerical, reference. There is a rather complex variety of plural formations, for some of which the possibility suggests itself that the plural form be considered basic and the singular form de-rived (compare 3.3.2 above). Taking all of the formations together, however, it seems more economical to consider the singular form as basic. Neither form is invariably predictable from the other, but the degree of predictability is far higher from the singular form. For each of the commonest types of phonemic structure in the singular form, one type of plural tends to predominate. The most convenient statement of these facts seems to be in terms of five general types of plural forms, with subtypes for each. These types will be labeled with roman numerals, and for mnemonic purposes may be referred to by the following names: (I) masculine vowel-change plurals, (II) masculine suffix plurals, (III) feminine suffix plurals, (IV) masculine infix plurals, and (V) irregular plurals. The follow-ing statements give a somewhat fuller, but still very rough, summary of these types, with an indication of the main correlations between singular and plural forms.

(I) Masculine vowel-change plurals have masculine singular gender (for im-personal nouns) by virtue of both a final consonant and stress (except for one unstressed sub-type). In most sub-types the vowel before the final consonant differs from that of the singular; it is most commonly |o| . This is the predomi-nant plural type for singular forms that have two or more vowels before the last consonant, the last of which is |a| ; for singular forms with one vowel which is inherently short; and for other singular forms with final |a| or |o| .

(II) Masculine suffix plurals also have masculine singular gender (for im-personal nouns) by virtue of both a final consonant and stress. The suffix is |it| . All of the singular forms have a final vowel, and most are masculine. Other-wise, the types of structure in the singular overlap those found in I, so that the choice between I and II is lexical.

(III) Feminine suffix plurals have feminine singular gender (for impersonal nouns) by virtue of a vowel suffix (most commonly |a|) and absence of stress. This is the predominant plural type for singular forms that have two or more vowels before the last consonant, the last of which is not |a| ; for singular forms with one vowel that is inherently long; and for other singular forms with final |i| , |e| , or |u| (compare the statements for I above).

(IV) Masculine infix plurals have masculine singular gender (for impersonal nouns) by virtue of stress. Stressed |a| is infixed between the consonants of a medial cluster, or after a single medial consonant. Most singulars with a medial cluster and a final consonant have this type of plural, though others are also

included. There are numerous morpholexical alternations, many of them apparently reflecting the complications of Arabic broken plurals.

(V) Irregular plurals are those that show unique morpholexical or suppletive alternation. There is no particular type of singular that tends to have this plural type.

The above statements form a sort of advance outline for the detailed survey of plurals that follows. The application and significance of the statements will be made more clear as they are compared with the materials below. In describing the sub-types of plural formation, it is pertinent to note which distinctions are morphophonemically determined, and which are lexically determined. It is also necessary to note sporadic morpholexical alternations that occur within the general structure of a given type. In all citations below, the gender of a form may be determined by the statements in 3.1 above, or is stated in case of irregularity.

I. Masculine vowel-change plurals.

Ia. Simple. The vowel before the last consonant of the plural differs from that of the singular, and the plural is stressed. The choice of vowel in the plural yields five subdivisions, which are lexically determined. The first is the commonest.

Ia1. Plural with |o|. This group may be further subdivided by the structure of the singular form. These subdivisions are morphophonemically determined.

Ia1.1. Singular with two or more vowels before the last consonant, the last of them |a| , and the last consonant final. Further nonsignificant details of the singular structure are indicated only by order in the following list. The recorded singular and plural forms of this type are as follows: |arat| |árot| bed; |gafan| |gáfon| embankment, |gamad| |gámod| milk basket lid, |haray| |hároy| arm, |maqas| |máqos| scissors, |mahas| |náhos| can, |qalam| |qálom| pen, |salaf| |sálof| thigh, |saˤal| (f |saˤala|) |sáˤol| brother (f: sister), |šahan| |šáhon| dish, |saaˤat| (f) |sáaˤot| hour, |qoraarat| (f) |qoráarot| bottle, |jabanat| (f) |jabánot| coffee pot, |maras'an| |marás'on| mirror, |arrab| |árrob| tongue, |mabrad| |mábrod| file, |sáhsah| |sáhsoh| roasting pan, |kitab| |kítob| book, |rikab| |ríkob| stirrup.

Ia1.2. Singular with two or more vowels before the last consonant, the last of them |a| with one exception, and another vowel (final) after the last consonant. The final vowel does not appear in the plural. |anada| |ánod| skin, |biake| |bíok| sore, |gafaˤo| |gáfoˤ| large jar, |halága| |hálog| piece of cloth, |lakota| |lákot| goatskin bag, |maˤado| |máˤod| door, |mahádo| |máhod| spear, |nas'ala| |nás'ol| light wrap, |ˤandawa| |ˤándow| rat, |sifaalo| |sífol| small nether millstone, |wagaba| |wágob| lip, |waˤága| |wáˤog| monkey.

Ia1.3. Singular with consonant cluster followed by |a| or |o| . The |o| of the plural form is infixed between the consonants of the cluster; the first consonant of the cluster does not appear in the plural if it is |y| . The final vowel of the singular does not appear in the plural.

|labka| |lábok| top of shoulder, |sarba| |sárob| lower leg, |ˤetro| |ˤétor| jar, |gaysa| |gáos| horn of cattle.

Ia1.4. Singular with single short vowel and final consonant. The |o| of the plural is infixed between the stem vowel and final consonant. But most singulars of this type belong in Ib1 below.

|bab| |báob| door, |fas| |fáos| axe.

Ia2. Plural with |u| . Note the lexical determination of this type versus the preceding type, but the morphophonemic determination among the subdivisions of each.

Ia2.1. Singular with two or more vowels before the last consonant, the last of them |a| , and the last consonant final. Cf. Ia1.1.

|arah| |áruh| road, |hangal| |hángul| brain (?), |lubak| |lúbuk| lion, |malah| |máluh| pus (?), |migaˤ| |míguˤ| name, |silal| |sílul| shade, |matarˤas| |matárˤus| mattress.

Ia2.2. Singular with two or more vowels before the last consonant, but the last of them not necessarily |a| , and a final vowel after the last consonant. The final vowel does not appear in the plural. Note also a loss of |y| in the last example. Cf. Ia1.2.

|deˤera| |déˤur| thigh bone, |ˤebina| |ˤébun| bride, |yangula| |yángul| hyena, |habúbba| |hábub| baboon, |kabbúdda| |kábbud| rib, |daˤáyna| |dáˤun| old man.

Ia2.3. Singular with consonant cluster followed by a vowel. Cf. Ia1.3. |ibra| |íbur| needle, |sunku| |súnuk| shoulder joint, |qábre| |qábur| grave (cf. |qabaara| cemetery).

Ia2.4. Singular with single short vowel and final consonant. Cf. Ia1.4. |sar| |sáur| goatskin water bag.

Ia3. Plural with |i|. Compare Ia1 and Ia2.

Ia3.1. In two of the three cases, the plural shows a morpholexical alternant with a longer vowel than the singular. Compare the formations in IV below. More examples might compel a reorganization of classes.

|faras| (m/f) |fáaris| horse, |marabaˤ| |maráabiˤ| wooden house, |waraqat| (f) |waráqit| paper.

Ia3.2. In both cases the singular also has |i| before the last consonant, but this seems to be the best tentative classification. |kimbiro| |kímbir| small bird, |ˤengiro| |ˤéngir| bark.

Ia3.3 Again one of the plurals has a longer vowel than the singular. |baqli| (m |báqla|) |báaqil| mule, |bírta| |bírit| iron.

Ia4. Plural with |e| . Compare Ia1, 2, 3.

Ia4.1. No forms with final consonant in the singular are recorded.

Ia4.2. In all but one form, the singular also has |e| before the last consonant, so that the change for the plural is zero. |bakkéla| |bákkel| rabbit, |dabéla| |dábel| he-goat, |kabella| |kábel| shoe, |liféena| |lífen| comb, |masangale| |masángel| side.

Ia4.3. |báˤla| |báˤel| husband, |s'áhla| |s'áhel| earthen pot, |gúnde| |gúned| log.

Ia5. Plural with |a| . There are only two cases recorded, but this seems to be the only reasonable classification. A full code would be Ia5.2 for the first and Ia5.3 for the second. |beˤéra| |béˤar| ox, |tenda| |ténad| tent.

Ib. Reduplicating. The situation in respect to vowels is like that in Ia, but in this type the plural vowel occurs after the last consonant of the stem, and is followed by the last consonant of the stem repeated. The singular structures

are such that, at least to a large extent, the choice between Ia and Ib is morphophonemic. The choice of the plural vowel shows more morphophonemic correlation than in Ia, but lexical determination is still found.

Ib1. Plural with |o| . Note the predominance of nouns referring either to persons or to parts of the body.

Ib1.1. Singular with one vowel before the last consonant, which is followed by final |a| or |o| , and which is either single or double. |amo| |ámom| head, |ina| |ínon| mother, |iko| |íkok| front tooth, |daga| |dágog| base of the neck, |gaba| |gábob| hand, |lafa| |láfof| bone, |ˤedo| |ˤédod| (?) rump, |rado| |rádod| hide, |ˤara| |ˤáror| place, |abba| (m) |ábbob| father, |anna| |ánnon| aunt, |wanna| |wánnon| master of the house.

Ib1.2. Singular with one vowel before the last consonant, which is final. In this subclass, alone of all in I, the plural is unstressed. |af| |afof| mouth, |lak| |lakok| foot, |nef| |nefof| face, |san| |sanon| nose, |jib| |jiibob| pocket.

Ib2. Plural with |u| . The few cases recorded are like Ib1.1, but have final |u| in the singular. |angu| |ángug| breast, |dummu| |dúmmum| cat.

Ib3. Plural with |i| . The few cases recorded are like Ib1.1, but have final |i| in the singular. For those that end in |ti| , the plural form would be identical for this class and for II, for which see below. Because of the limitations in II, feminine (unstressed) nouns with final |ti| are put in this class, but masculine (stressed) nouns with final |ti| are put in II. |roomi| |róomim| large knife, |ayti| |áytit| ear, |inti| |íntit| eye.

Ib4. Plural with |e| . The few cases recorded are like Ib1.1, but have final |e| in the singular. |dagge| |dággeg| compound, |surre| |súrrer| trousers.

Ib5. Plural with |a| . As for Ib1, there are two sub-types.

Ib5.1. The singulars are similar to those in Ib1.1, including the final |a| or |o| , but differ in having a long vowel before the last consonant in both singular and plural. One exception has a double consonant. |boodo| |bóodad| hole, |leeda| |léedad| patch, |keena| |kéenan| thorn, |kooma| |kóomam| hill, |seela| |séelal| saddle, |illa| |íllal| spring.

Ib5.2. The one recorded case has one long vowel before its final consonant, like one of the cases in Ib1.2. As in Ib1.2, the plural is unstressed. |kor| |koorar| saddle.

II. Masculine suffix plurals.

IIa. With masculine singular forms. The suffix |it| replaces the final vowel of the singular. For singulars with final |ti|, compare Ib3 above. |alfénta| |alféntit| lid, |áyˤa| (f |ayˤa|) |áyˤit| baby, |dísti| |dístit| pan, |dáa| |dáit| stone, |ffílla| |ffíllit| neck, |halánga| |halángit| whip, |iggída| |iggídit| year, |laazína| |laazínit| porcupine, |lóyna| |lóynit| herdsman, |maddára| |maddárit| master, |naˤabtóli| |naˤabtólit| enemy, |oréna| |orénit| builder, |ˤedádo| |ˤedádit| woodworker, |qáyši| |qáyšit| priest, |sfile| |sfilit| picture, |sánti| |sántit| knife, |wakkáyna| |wakkáynit| switch, |áda| |adídit| (mphlxcl alt.) back tooth.

IIb. With feminine singular forms. Only the first example follows the predominant pattern of IIa above. In the next two, the suffix |it| is added after the complete singular form, and in the others there are other morpholexical alterna-

tions. But for feminines with final |ti| , compare Ib3. |maxadda| |maxáddit| pillow, |mallada| |malladáit| razor, |robra| |robrait| rainbow, |hada| |hódit| tree, |daqiiqa| |daqáyit| minute.

III. Feminine suffix plurals.

IIIa. Singular with two or more vowels and final consonant. Contrast the singulars in Ia1.1, Ia2.1, Ia3.1. Here the last vowel is not |a| , with one exception which shows morpholexical alternation, and it is long in many cases. The plural suffix is normally |a| ; two recorded cases with |u| are appended here to save a separate class. |arˤot| |arˤoota| yoke, |aur| |aura| bull, |dudub| |duduuba| plain, |gulub| |guluuba| knee, |hoolim| |hooliima| corner, |huluf| |huluufa| cubit, |igil| |igiila| lake, |nugus| |nuguusa| king, |rakub| |rakiiba| (mphlxcl alt.) male camel, |rimid| |rimiida| root, |saaheb| |saaheeba| friend, |qaalib| |qaaliba| pipe, |muzgulub| |muzguluuba| snare, |mas'aawid| |mas'aawida| mouse trap, |akat| |akoota| (mphlxcl alt.) rope. |seenan| |seenanu| mat, |leema| |leemamu| (mphlxcl alt.) lamb.

IIIb. Singulars with consonant cluster followed by a vowel. Compare the singulars in Ia1.3, Ia2.3, Ia4.3. The choice of this type rather than one of the former is lexically determined, but this group also shows morpholexical alternation in all cases. |bádna| |badaana| corpse, |ˤárke| |ˤaraaka| constant companion, |amídda| |amiida| forked pole, |sariddo| |sariida| cedar (?).

IIIc. Singulars with a single vowel and final consonant, in which the vowel is inherently long. Contrast the predominant structures in Ia1.4, Ia2.4, and Ib1.2, which include only one case with a long vowel. |dik| |diika| extended family, |kis| |kiisa| sack, |luh| |luuha| board.

IIId. Singulars with two vowels, the second final, and a single medial consonant. Contrast the structures in Ia1.2. Compare also the structures in Ib1.1, where all singulars are unstressed. In the following, all singulars are stressed except for one that is irregularly masculine. In every case but the last, the final vowel of the singular is replaced by |u| and the suffix |a| added to that. |gádi| |gadua| wadi, |gále| |galua| wing, |káre| |karua| dog, |maru| (m) |marua| ram, |ˤáre| |ˤarua| house, |ˤéela| |ˤeelua| well, |sído| |siida| skin rug.

IV. Masculine infix plurals (with one exceptional feminine sub-class). There are so many morpholexical alternations that any classification is bound to be arbitrary at some points. In general, the lists themselves will have to supplement the brief descriptions.

IVa. Infixed |á| , last vowel |a| ~ |i| , but |e| retained. |barrad| |barárid| tea kettle, |madhan| |madáhin| large millstone, |muftah| |mufátih| key, |maˤdet| |maˤádet| sickle, |garˤéna| |garáˤen| thief, |xaatim| |xawátim| ring, |manfio| |manáfi| sieve, |kobbaya| |kobábi| metal cup.

IVb. Infixed |áa| , last vowel |a| ~ |i| , but |i| retained. |bismar| |bisáamir| nail, |muswan| |musáawin| shawl, |zambil| |zanáabil| (m ~ n) basket, |fijan| |fijáajin| coffee cup.

IVc. Infixed |á| after a medial consonant. |qamiš| |qamáiš| shirt, |badiila| |badáil| shovel, |mizan| |mizáun| (with |u|) scale.

IVd. Infixed |á| before a medial consonant. |faanus| |foánus| lamp, |kofyet| |koáfi| cap.

IVe. Infixed |á| and suffix |ti| , plurals irregularly feminine. |danya| (m) |daanáyti| (f) judge, |marʕáwi| |marʕawti| (f) bridegroom.

IVf. Infixed |aa| without stress. |miskin| |misaakin| poor man.

IVg. Infixed long vowel and suffix |i| or |e| , unstressed, feminine. |soldi| |solaadi| small coin, |kursi| |kuraasi| chair, |kondoḍ| |kondaaḍi| boil, |bakal| |bakooli| kid, |mos| |moosaasi| knife, |rúga| |rugaage| calf, |burgúdda| |burguude| strong young man, |lelleʕ| | lellaaʕe| (|aa|?) day.

V. Irregular plurals.

Va. With morpholexical alternation. |barnet'a| |barnét'at'| hat, | imbilta| |imbíltat| horn, |c'aac'útta| |c'aác'ut| chick, |sarena| |sára| garment, |gedénta| |géḍa| stranger.

Vb. With suppletive alternation. |áwka| (f |awka|) |irri| (m) child (boy, girl), |báḍa| (f |baḍa|) |ḍaylo| child (son, daughter), |laana| |lálim| egg, |laḥ| (f) |ala| female goat, |numa| |sayyo| woman, |saga| |láa| cow.

(to be continued)

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Interlingua-English, A dictionary of the international language prepared by the research staff of the International Auxiliary Language Association under the direction of Alexander Gode. New York, Storm Publishers, 1951. Pp. lxiv + 415.

Interlingua, A grammar of the international language prepared by Alexander Gode and Hugh E. Blair of the research staff of the International Auxiliary Language Association. New York, Storm Publishers, 1951. Pp. x + 118.

Interlingua is the final product of more than twenty-five years of serious and painstaking, though at times imperfectly coordinated, research involving the cooperation of well-trained specialists and high ranking professional linguists of the calibre of Edward Sapir, Otto Jespersen, or Nikolaas Van Wijk. If linguistic scholarship and hard work were the only ingredients necessary to secure the success of such an enterprise, we could expect Interlingua some day to become the general medium of international communication. Unfortunately, the real problem, which is convincing the world that it needs an auxiliary language, is far too complex to be solved by a body of linguistic specialists. The common mistake of nearly all language-makers is to assume a demand where there is practically none. Well publicized and perfectly utilizable artificial languages have now been in existence for more than seventy years. Everybody knows about Esperanto, but no one, except a handful of idealists, ever bothers to learn it. The reason for this is not hard to find: except for professional linguists and a few amateurs, a language is never an end in itself. It is a tool with which one expects to achieve definite aims. An American planning a trip to Europe may decide to learn some French because he expects a knowledge of that language to make his tour more pleasant or intellectually and artistically more profitable. A physician may decide to learn German, a language through which he may hope to increase his professional competence. But who will take the trouble of learning even the simplest language if it does not give him access to new values? Would it not therefore be sound, before launching into the shaping of a new language, to investigate whether new values can be created which could be reached only through the proposed linguistic medium. If none can be thought of, it would certainly be wise to desist from the start. No individual or association, however powerful financially or otherwise, can hope to prevail upon a large body of people with prestige to use, in their contacts with fellow humans, the new medium exclusively. Whether it would be possible to persuade some outstanding thinkers with important messages to the world to let these messages be diffused in the new language is not certain, but should at least be investigated. Were such an approach to prove practicable, it would to a large extent determine the form to be given to the language. The latter should of course be made easiest for those who can be expected to respond most readily to the messages. The type of message to be conveyed would determine whether emphasis should be placed upon ease of aural or visual understanding, or both. Since it is as a rule incomparably

NOTES ON THE STRUCTURE OF SAHO (CONCLUDED)

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4. The morphology of verbs involves stems of two classes, two types of form affixes, and affixes corresponding to subject pronouns. The two classes of stems may be most simply distinguished by the fact that subject pronouns are suffixed to the first and prefixed to the second. The subject pronouns can best be treated first; the following forms illustrate them with a stem of each class:

Independent Pronoun	Class I stem |ḥab-| 'leave'		Class II stem |-ubl-| 'see'	
1s |anu|	|ḥabe|	I left	|uble|	I saw
2s |atu|	|ḥabte|	you left	|tuble|	you saw
3ms |úsuk|	|ḥabe|	he left	|yuble|	he saw
3fs |íse|	|ḥabte|	she left	|tuble|	she saw
1pl |nanu|	|ḥabne|	we left	|nuble|	we saw
2pl |átin|	|ḥabten|	you left	|tublin|	you saw
3pl |úsun|	|ḥaben|	they left	|yublin|	they saw

A comparison with other forms of the same verbs makes it possible to identify the stems as cited above, and also a suffix \|e\|, with the alternant \|i\| before final \|n\| with verbs of Class II only. The suffix is discussed in 4.3.2 below. A further comparison of the plural with the singular forms above suggests the isolation of a plural morpheme \|n\| in final position in the 2pl and 3pl forms. A complicated statement could be devised to include in this morpheme also the \|n\| in the 1pl forms which has a different position. But it is simpler to take the 1pl \|n\| as a different morpheme, comparable to the \|t\| in the 2s and 3fs forms. This interpretation leaves us with four basic pronoun morphemes, describable as follows:

'I':	zero
'we':	|n|
'you, she':	|t|
'he':	|y| (prefix) ~ zero (suffix)

As suffixes, these pronoun morphemes immediately follow a stem (or a consonantal suffix; see 4.2 below), preceding a vocalic suffix (as /e/ above; see 4.3 below); as prefixes, they are initial in any form. The plural morpheme /n/ may be used with the last two; its position is always final, following a vocalic suffix; \|t\| with \|n\| refers only to the second person, and \|y\| ~ zero with \|n\| refers to either males or females of the third person (for the use of impersonal plurals without a plural morpheme see 3.1 and 3.3.3 above). A similar analysis could reasonably be applied to the independent pronoun forms, but a number of morphophonemic statements would obviously be required. It should be noted that forms for 'you (sing.)' and 'she' are always identical, and that those for 'I'

and 'he' are identical for stems of Class I. These morphemes are regular for all verb forms.

The following sections describe (1) verb stems of each class, (2) consonantal affixes with stems of each class, and (3) vocalic affixes with stems of each class. Consonantal affixes represent distinctions generally describable as 'voice'; the resultant forms may be labeled General, Intransitivized, Causative, Subjective, and Intensive (the last only in Class II). A form is General unless otherwise specified. Intransitivized forms seem to occur quite freely with any stem used with an object; these have not been separately listed, but most of them can be predicted from the translations. Other forms require special listing. With each of these consonantal affixes, vocalic affixes may also be used, apparently with only stylistic limitations, representing distinctions generally describable as 'mode' and 'aspect'; the resultant forms may be labeled Imperative, Perfect, Imperfect, Jussive, and Participle. In conjunction with these forms, verbal constructions including negatives are treated. A description of a few irregular verbs concludes this outline of the morphology of verbs.

4.1. Verb stems and verb classes. The criteria for classifying a stem are given above. Only stems recorded in the General form are listed here. A few others are listed with the discussion of other forms in following sections.

4.1.1. Verbs of Class I (suffixing). All stems with an initial consonant belong in this class, but the class also includes some stems with an initial vowel. The stem is derivable from any form that has a suffix consisting of or beginning with a vowel. Only before such a form can an inherently long vowel be recognized (cf. 2.6 above). The imperative includes only the stem, but does not show the length of its last vowel. Thus the form \|alife\| 'he closed (it)' shows a stem \|alif-\| 'close'; the imperative is \|alif\|. Similarly, \|beete\| 'he ate (it)' shows a stem \|beet-\|; but the imperative is \|bet\|.

The following list gives key forms for stems of Class I. The stem, not given separately, is readily derivable by the statement above. In each case the imperative is given first, followed by the third person masculine singular of the perfect. The notations which follow the perfect in some instances indicate whether 'voices' other than the Intransitivized are recorded with the stem: C^1 and C^2 indicate two types of Causative, S indicates Subjective, and C^2S indicates a complex Causative Subjective. Most stems with final \|s\| might be analyzed as Causative, and those with final \|t\| as Subjective, from stems not occurring in the General form. In a few cases, the forms given are hardly normal speech forms. Note that all forms (and stems) are unstressed.

\|ab\| \|abe\| do, make; \|abaḥ\| \|abaḥe\| spoil; \|abar\| \|abaare\| curse; \|abas\| \|abaase\| finish; \|afit\| \|afite\| hurry; \|al\| \|ale\| parch, roast; \|alaˤ\| \|alaaˤe\| (C^1) become cooked, heated; \|alel\| \|aleele\| reach (for); \|alif\| \|alife\| close; \|andaḥ\| \|andaḥe\| call or speak to by name; \|andugul\| \|andugule\| be sleepy; \|ar\| \|are\| bite; \|aysin\| \|aysine\| envy; \|bad\| \|bade\| (C^1) die (of an animal or fire); \|bah\| \|baahe\| (C^2) bring; \|bak\| \|bake\| (S) finish, eat; \|balig\| \|balige\| swell (as grain in water); \|baqar\| \|baqare\| be thirsty; \|bet\| \|beete\| (C^2) eat; \|bey\| \|beye\| take away; \|biak\| \|biaake\| (S) injure; \|biaysit\| \|biaysite\| forget; \|bil\| \|biile\| (C^1) bleed; \|bolol\| \|bolole\| (C^1, C^2) blaze up; \|botoˤ\|

|botoˤe| burst, split open; |bururu| |bururuse| winnow; |dab| |daabe| (C¹, S) bend; |dalal| |dalale| clarify (butter) by cooking; |datten| |datteene| confer; |der| |deere| cry out; |defe| |defeeye| (C¹) sit down; |dehe| |deheye| give back; |deeˤem| |deeˤeme| call; |des| |deese| keep out; |didi| |didiye| send (a person); |digir| |digire| play; |dimbih| |dimbihe| perspire; |din| |diine| sleep; |diiwit| |diiwite| swear; |dor| |doore| (S) choose; |du| |due| herd; |duddub| |duddube| swell (as a sore); |dufu| |dufue| push; |dam| |dame| (C¹) dissolve; |dam| |daame| (C², S) buy; |damah| |damahe| become cool; |daˤam| |daˤame| taste; |daaˤem| |daaˤeme| beg; |dawud| |dawude| (C²) care for; |diˤ| |diˤe| be able; |do| |doe| suck on; |dum| |dume| become dark; |eded| |edede| (C¹) begin; |esser| |essere| ask; |fah| |fahe| (C¹) boil; |fak| |fake| open; |far| |fare| send; |faraˤ| |faraˤe| dig; |fi| |fiye| sweep; |fot| |fote| dig; |fugut| |fugute| kiss; |fuˤ| |fuuˤe| suck; |gah| |gahe| return to, climb onto; |garˤet| |garˤete| steal (cf. |garˤena| thief); |ge| |geye| find, get; |goylis| |goylise| play, sing; |haasaw| |haasawe| converse; |hadan| |hadane| send away; |hay| |haye| (C², C²S) put (on); |hab| |habe| leave; |hadil| |hadile| divide; |had| |hade| pour out; |haffu| |haffue| (C¹) bloat, be inflated; |hat| |hate| help; |hayit| |hayite| be full; |heden| |hedene| be happy; |hembo| |hemboe| foam; |hen| |hene| refuse; |herig| |heriige| pull (as a rope); |hesi| |hesiye| rub; |hukuk| |hukuuke| smooth, sand; |hunsuso| |hunsusoe| (S) remind; |ifis| |ifoose| (!) light (a lamp); |ilal| |ilaale| wait for; |ilaˤ| |ilaaˤe| despise; |kaf| |kafe| (C¹) dry up; |kal| |kale| (S) cut off; |kaaris| |kaarise| snore; |kor| |kore| climb, mount; |kud| |kude| flee; |kuddum| |kudduume| jump; |labaˤado| |labaˤadoe| learn, become used to; |lo| |loe| count, add; |lu| |lue| be hungry; |mah| |mahe| dawn; |mak| |make| (C¹) revolve, screw, twist, bend; |makar| |makare| surround; |mar| |mare| live at; |mos'o| |mos'oe| suck out (as marrow); |ob| |oobe| (C¹) go down; |or| |ore| hew; |orob| |orobe| enter; |ˤag| |ˤaage| hope; |ˤakal| |ˤakale| (C¹, S) become clean; |ˤaamul| |ˤaamuule| wilt; |ˤandid| |ˤandide| (C¹) become torn; |ˤar| |ˤare| grow; |ˤawat| |ˤawaate| praise; |ˤawul| |ˤawule| faint; |ˤed| |ˤede| throw away; |ˤeg| |ˤeege| (C¹) bend down; |ˤello| |ˤelloe| rust; |ˤembob| |ˤembobe| bloom: |ˤidda| |ˤiddaye| (C¹) pay a fine; |ˤul| |ˤule| pour, draw (water); |rab| |rabe| die (of a person); |rad| |rade| fall; |raˤ| |raˤe| remain; |sa| |saye| enter; |sah| |sahe| churn; |sidis| |sidise| spread out; |sirah| |siraahe| build; |sok| |sooke| twist, plait (rope); |sol| |soole| stand still; |soonit| |soonite| dream; |soono| |soonoe| become large, pregnant; |sothet| |sothete| slip; |sug| |suge| (C¹) wait; |sulluˤus| |sulluˤuse| peel; |suwa| |suwaye| ripen; |šakkit| |šakkite| suspect; |takar| |takare| hang; |tan| |taane| be tired; |teedeˤ| |teedeˤe| become pregnant (of animals); |tillab| |tillabe| pass through (?); |ufuˤ| |ufuˤe| cough; |ugrub| |ugrube| congeal; |ur| |ure| (C¹, C²) become well; |urguf| |urgufe| shake out; |urre| |urreye| (C¹) have an odor; |wa| |waye| lack; |wagar| |wagare| (C¹) reconcile; |waanis| |waanise| speak, tell (?); |waris| |warise| speak (?); |waatim| |waatime| curse, abuse; |weˤ| |weeˤe| cry out, wail; |yamfeˤ| |yamfeˤe| be suitable.

In just one of the above cases, the forms |ifis| and |ifoose| from a stem meaning 'light (a lamp)' show a vowel alternation. My record is ambiguous; I may have intended to record alternant regular stems |ifiis-| and |ifoos-|, having the same meaning.

In addition, a few comparable forms are recorded with stress. In every case but one, there is a resemblance to Causative forms. There is also some evidence (possibly from expressions I heard but neither recorded nor remember) that these stems are related to or derived from adjectival stems. Since only one 'voice' is recorded for each, they are tentatively listed here as a special type of Class I stems, with stress: |fílis| |fílise| scratch; |gabálaˤ| |gabálaˤe| go fast; |háfis| |háfise| raise; |látis| |látise| lower; |náwis| |náwise| lift up; |síkis| |síkise| make quiet.

4.1.2. Verbs of Class II (prefixing). All stems in this class have an initial vowel, and no stem contains the vowel |a|; |o| in a stem is not common. In most cases, all vowels in the stem are the same. A comparison of forms for various stems shows three subclasses differing as follows:

IIa. The stem is equivalent to the imperative (the last vowel is always short). The stem has the structure VCCVC, VCCV, VCVCVC, VCVCCVC, or VC-VVCVC. Of these structures, the first is by far the commonest, and the second is an expected variant. For the third, it is possible that I have recorded the second vowel erroneously; the release of the first of two consonants often sounds like a vowel. In the list of these stems below, the order follows these structural types. These may be called 'full stems'.

IIb. The stem is derivable from the imperative and a form with a suffix consisting of or beginning with a vowel. The second of these is not enough, because other forms show alternants that obscure the stem vowel. It is necessary, however, because of a very few stems in which the last vowel is long. The stem has the structure VCVC or VCV in most cases, but VCVVC in a few cases. The perfect forms also have an initial long vowel (unique for verb stems of this type, not a regular morphophonemic alternation) in almost all cases. Those recorded with an initial short vowel should be considered suspect for the time being; if they are wrong, they have nothing to do with the form of the stem. In the list of these stems below, the last seven should be rechecked for one reason or another. These may be called 'short stems'.

IIc. The stem is derivable from a form with a suffix consisting of or beginning with a vowel. The stem is this form minus the suffix. The imperative form adds a vowel to avoid a final consonant cluster. The stem has the structure VCC or VCVCC. These may be described as 'stems with final consonant cluster'.

In the lists below, in addition to the imperative and perfect first person singular, in some instances a third form is included to indicate stems that have a special alternant in the Imperfect form, which will be discussed below. The derived forms for verbs of Class II are C (Causative), S (Subjective) I (Intensive), and CI (Causative Intensive).

IIa. Full stems: |ehlif| |ehlife| be annihilated; |ehqiq| |ehqiqe| become smaller; |ehzin| |ehzine| (C) be sad; |ekkel| |ekkele| |akkale| think; |imher| |imhere| forgive; |engeˤ| |engeˤe| |angaˤe| fight; |eˤtit| |eˤtite| turn sour; |ibbid| |ibbide| (C) hold; |idbit| |idbite| thresh by hand; |idhen| |idhene| grind; |ifrid| |ifride| (C) judge; |ifteh| |iftehe| (C, I) untie; |iftin| |iftine| (C) try; |igdif| |igdife| (C) kill; |igdil| |igdile| (C, I) break; |igreˤ| |igreˤe| (S) cut off; |ikfil| |ikfile| (C) repay;

|iklib| |iklibe| turn over; |iksib| |iksibe| (C) profit; |ikšif| |ikšife| tell about; |ingid| |ingide| trade; |inqil| |inqile| copy; |iqḥen| |iqḥene| (C) like; |iqṣeˤ| |iqṣeˤe| punish; |iskir| |iskire| (C) get drunk; |isniq| |isniqe| strangle; |isqit| |isqite| crush; |itkil| |itkile| plant; |iwris| |iwrise| inherit; |uḥfus| |uḥfuse| scoop up; |uḥkum| |uḥkume| settle; |umrur| |umrure| (C) dissolve; |unduˤ| |unduˤe| swallow; |uˤruf| |uˤrufe| rest; |uqluq| |uqluqe| create; |urḥud| |urḥude| slaughter; |urkut| |urkute| (C) become thin; |usfur| |usfure| (C) measure out; |usmuq| |usmuqe| (C) wring out; |utlul| |utlule| (C) wrap; |uykuˤ| |uykuˤe| (C) carry; |eqli| |eqliye| (C) be expensive; |eqri| |eqriye| (C, I) read the Koran; |ifdi| |ifdiye| (C) repay; |ifri| |ifriye| (C) bear fruit; |igzi| |igziye| (C) rule over; |imfi| |imfiye| sift; |isḥe| |isḥeye| weed; |iḥebir| |iḥebire| (C) receive a portion; |ineˤeb| |ineˤebe| hate; |iqiyid| |iqiyide| be hobbled; |iṭifir| |iṭifire| become poor; |uḥurus| |uḥuruse| plow; |ukuruˤ| |ukuruˤe| (C) be proud; |eḥenkis| |eḥenkise| (C) limp; |uturjum| |uturjume| interpret; |iwilwil| |iwilwile| rub; |idiggil| |idiggile| milk; |uḥulluf| |uḥullufe| measure; |eḥeeseb| |eḥeesebe| count.

IIb. Short stems: |efeˤ| |eefeˤe| give water to; |eḥet| |eeḥete| |aḥate| chew; |eley| |eeleye| |alaye| (CI) become lost; |emeg| |eemege| fill; |eneb| |eenebe| |anabe| (C) grow; |eˤit| |eeˤite| step on; |ibiḥ| |eebeḥe| sell; |idig| |eedege| (C) know; |ilim| |eeleme| weave; |imin| |eemene| believe; |ukum| |ookome| (CI) win over; |uˤub| |ooˤobe| drink; |uˤug| |ooˤoge| bury; |uruf| |oorofe| sew; |usul| |oosole| (CI) laugh; |utuk| |ootoke| (C) hit; |ufu| |oofoe| (C) breathe; |ene| |eneye| (?) (CI) laugh; |utuk| |ootoke| (C) hit; |ufu| |oofoe| (C) breathe; |ene| |eneye| (?) |anaye| flay; |uḥu| |oḥoe| (?) |aḥaye| give; |uru| |urue| (!) tie; |osom| |oosoome| fast; |otob| |ootoobe| (C) repent; |ulus| |uuluuse| (?) knead; |emet| (?) |emeete| |amate| come.

IIc. Stems with final consonant cluster: |edeḥ| |edḥe| say; |erda| |erde| run; |eweˤ| |ewˤe| go out; |ubla| |uble| (CI) see; |erra| |erre| load; |obba| |obbe| (C) hear; |edebba| |edebbe| |adabbe| repay; |eketta| |ekette| |akatte| (C) gather.

4.2. Consonantal affixes indicating 'voice'. These affixes are not entirely mutually exclusive; a few combinations of two of them occur. It is not always easy to identify an affix for Class I with the corresponding affix for Class II, but an attempt is made to do so here. In general, these affixes are suffixed to stems of Class I, and infixed before the first consonant of stems of Class II, with some variation for individual stems. If the infix results in a cluster of three consonants, the cluster is broken by inserting the stem vowel between the two consonants that belong to the stem.

4.2.1. The General form has no affix.

4.2.2. The Intransitivized form has an affix which is analyzable as basically |m|. For stems of Class I, the suffix is presumably |m| after a vowel, though no forms are recorded; it has the regular alternant |im| after a consonant. For stems of Class II, the infix is |m| before labial, pharyngeal, and presumably glottal consonants, with the alternant |n| before other consonants; some stems show special alternations. This form is often translatable as passive, but is basically simply intransitive.

Regular Intransitivized forms for Class I stems are illustrated by the following:

Stem	Intransiti-vized stem	Intransiti-vized perf.	Meaning of perfect
|beet-|	|beetim-|	|beetimte|	it (f) was eaten
|alif-|	|alifim-|	|alifime|	it was closed
|daam-|	|daamim-|	|daamime|	it was bought
|faḥ-|	|faḥim-|	|faḥime|	it (was) boiled
|ḥaḍ-|	|ḥaḍim-|	|ḥaḍime|	it (was) poured out

For Class II, the recorded Intransitivized forms include some from stems not recorded in the General form. Such stems are listed with an asterisk. The regular formations recorded are as follows:

	Stem	Intransiti-vized stem	Intransiti-vised perf.	Meaning of perfect
IIa:	|-ifteḥ-|	|-imfiteḥ-|	|yimfiteḥe|	it came loose
	|-igdif-|	|-ingidif-|	|yingidife|	he was killed
	|-ikfil-|	|-inkifil-|	|yinkifile|	it was repaid
	|-iklib-|	|-inkilib-|	|yinkilibe|	it turned over (of itself)
	|-isniq-|	|-insiniq-|	|yinsiniqe|	he was strangled
	*|-uqsuˤ-|	|-unqusuˤ-|	|yunqusuˤe|	it was sprained
	*|-ifli-|	|-infli-|	|yinfiliye|	it became separate
	*|-esewer-|	|-ensewer-|	|yenzewere|	he travelled
	*|-ibiddil-|	|-imbiddil-|	|yimbiddile|	it (was) changed
	*|-imillik-|	|-immillik-|	|yimmillike|	he surrendered
	|-eḥeeseb-|	|-emḥeeseb-|	|yemḥeesebe|	he thought about it
	*|-oqoomot-|	|-onqoomot-|	|yonqoomote|	he paid attention
IIb:	|-emeg-|	|-emmeg-|	|yemmege|	it filled up
	*|-egeeg-|	|-engeeg-|	|yengeege|	he was mistaken
IIc:	*|-emeng-|	|-emmeng-|	|yemmenge|	there were many of them

In the following case, the stem shows an irregular alternant:

IIa:	|-ibbiḍ-|	|-inḍibiḍ-|	|yinḍibiḍe|	it was held (?)

In two cases, neither recorded in the General form, the intransitivizing affix is accompanied by internal reduplication, a characteristic of the Intensive form discussed later:

IIa:	*|-emeˤed-|	|-emmeˤeˤed-|	|yemmeˤeˤede|	he stretched himself
IIc:	*|-elekk-|	|-emlelekk-|	|yemlelekke|	he was mistaken

In a few forms, the intransitivizing affix is prefixed to the entire stem; in one

case, it is recorded as double and the stem shows a long vowel that is not recorded in the General form:

IIb:	|-ukum-|	|-ommokoom-|	|yommokoome|	he raced (with)
	|-ufu-|	|-omoofo-|	|yomoofoe|	he breathed hard
	|-uˁug-|	|-umuˁug-|	|yumuˁuge|	he was buried.

Some of my earlier notes record a double medial consonant in some of the regular Class II Intransitivized forms. If this is not an error, then I would suspect another morpheme present in forms like |yingiddife| (?) 'he was killed'.

4.2.3. The Causative form has an affix which is analyzable as basically |s|. For stems of Class I there are actually two affixes, |s| and |sis|. These are largely, but not completely, in complementary distribution in terms of the syntax of the stem, and should therefore be considered together. |s| occurs in its basic form after a vowel, usually in the alternant |is| after a consonant, but in the alternant |us| after a consonant if the preceding vowel is |u|. It makes a transitive from an intransitive verb; the form will be called C(ausative)[1]. |sis| is recorded only after consonants, with the alternant |sus| in the one case where the preceding vowel is |u|. It makes a causative from a transitive verb, but in three recorded cases also from an intransitive verb with a C[1] form in |s|. Forms with |sis| will be called C(ausative)[2]. For a complex Causative Subjective form, see the discussion of the Subjective below.

For stems of Class II, the normal formation seems to be |s| infixed before |ḥ, k, q, g| (and presumably |ˁ, h, x|), with the alternant |y| infixed before other consonants, and |ys| prefixed to the entire stem for some stems classified as IIb. Details and irregularities are given with the lists below.

The recorded Causative forms of each of the two types for stems of Class I are as follows, the stem being followed by the Causative imperative in each case, with cross-references to other derived forms; a special stem alternant |ˁandi-| is noted for the stem |ˁandid-|. The C[1] forms follow: *|agag-| |agagis| make level, straighten; |alaa-| |alas| cook, heat; |bad-| |badis| put out (fire, lamp); |biil-| |biilis| cause to bleed; |bolol-| |bololis| (C[2]) make (fire) blaze up; |daab-| |daabis| (S) bend (something); |defee-| |defes| set down; *|deririg-| |deririgis| (S) spin (something); |dam-| |damis| dissolve (something); *|dii-| |dis| (S) choke (as with the hands); |eded-| |ededis| begin (something); |faḥ-| |faḥis| boil (something); *|gaab-| |gaabis| keep; |ḥaffu-| |ḥaffus| blow (a horn); *|ḥankab-| |ḥankabis| (S) frighten; |kaf-| |kafis| dry (something); *|kombobbol-| |kombobbolis| (S) roll (something); *|laḥuu-| |laḥus| (S) make sick; |mak-| |makis| make turn, screw, twist, bend; *|makilel-| |makilelis| (S) cause to wander around (?); |oob-| |oobis| put down; *|ogu-| |ogus| (S) cause to get up (?); |ˁakal-| |ˁakalis| (S) clean, cleanse; |ˁandid-| |ˁandis| (!) tear; *|ˁayni-| |ˁanyis| (S) spoil (something); |ˁeeg-| |ˁeegis| bend (something) down; |ˁidda-| |ˁiddas| be surety for (someone); *|sar-| |saris| (C[2], S) clothe (someone); |sug-| |sugus| (!) keep; *|suˁu-| |suˁus| (S) hide (something); |ur-| |urus| (C[2]) make well; |urre-| |urres| smell

(something); |wagar-| |wagaris| reconcile; *|waqaaqaˁay-| |waqaaqaˁas| (S) oppress.

The following are the C[2] forms in similar arrangement. |baah-| |bahsis| have (someone) bring; |bet-| |bessis| cause to eat, feed; |bolol-| |bololsis| (C[1]) have (someone) make (fire) blaze up; |daam-| |damsis| (S) have (someone) buy; |dawud-| |dawudsis| give (someone something) to care for; |hay-| |haysis| (C[2]S) cause (someone) to put on (clothes); *|sar-| |sarsis| C[1],S) cause (someone to dress; |ur-| |ursus| (!) (C[1]) have (someone) cure, heal.

Regular Causative formations illustrating the affix alternant |s| with stems of Class II are as follows; other derived forms are of insufficient frequency to make cross-referencing particularly useful:

IIa: |-eḥzin-| |esḥezin| make sad; |-igdil-| |isgidil| cause to break; |-iksib-| |iskisib| cause to profit; |-iqḥen-| |isqeḥen| cause to like; |-eqli-| |esqili| make expensive; |-eqri-| |esqiri| teach the Koran; |-igzi-| |isgizi| cause to rule over; *|-ikti-| |iskiti| tie a knot; |-ukuruˁ-| |uskuruˁ| make proud; |-iḥebir-| |isḥebir| distribute; *|-iqiyir-| |isqiyir| exchange; *|-ikiyid-| |iskiyid| thresh with oxen; |-eḥenkis-| |esḥenkis| cause to limp.

IIc: |-ekett-| |esketta| gather.

Regular Causative formations illustrating the affix alternant |y| with stems of Class II are as follows:

IIa: |-ifrid-| |iyfirid| cause to judge; |-ifteḥ-| |iyfiteḥ| cause to untie; |-iskir-| |iysikir| make drunk; |-umrur-| |uymurur| cause to dissolve; |-urkut-| |uyrukut| make thin; |-usfur-| |uysufur| cause to measure out; |-usmuq-| |uysumuq| cause to wring out; |-utlul-| |uytulul| cause to wrap; |-ifdi-| |iyfidi| cause to repay; |-ifri-| |iyfiri| cause to bear fruit; *|-ifli-| |iyfili| separate; *|-irbi-| |iybiri| punish; *|-emezen-| |eymezen| weigh; *|-eṭeher-| |eyṭeher| cleanse; *|-edirir-| |aydirir| (!) cause to eat supper; *|-usulḥun-| |uysulḥun| smooth out; *|-idibbis-| |iydibbis| join; *|-ifiddin-| |iyfiddin| widen (cf. |fidina| 'wide'); *|-ilillig-| |iylillig| whet (cf. |lilliga| 'sharp' ?); *|-imirreḥ-| |iymirreḥ| guide (cf. |miraḥ| ?).

IIc: |-ubl-| |uybulla| show.

Causative formations with the affix alternant |y| are recorded also in the following special cases:

Where |s| is expected before |g|: |-igdif-| |iygidif| cause to kill.

In conjunction with the intransitivizing affix: |-ufu-| |oymoofo| cause to breathe hard.

With three stems classified as IIb: |-eneb-| |eyneb| cause to grow; |-otoob-| |oytob| cause to repent; *|-emeˁ-| |eymeˁ| repair (cf. |meˁe| 'good').

With a stem having the unique structure VCVVCV: *|-edeewe-| |eydeewe| medicate (cf. |diwa| 'medicine').

With two kinds of internal reduplication (cf. Intensive below): |-eley-| |eyleley| lose; |-usul-| |uysulul| cause to laugh.

With a special stem alternant: |-ibbid-| |iydibid| arrest.

Causative formations with the affix alternant |ys| prefixed to the entire stem (and in turn preceded by a vowel the same as the stem vowel) are recorded a

little more frequently than those with |y| for stems classified as IIb. This alternant is also recorded in a few other cases specified below:

Stem	Causative Imperative	Meaning of Causative
IIb: |-idig-|	|iysidig|	cause to know
|-utuk-|	|uysutuk|	cause to hit
|-ufuˤ-|	|uysufuˤ|	cause to breathe
*|-ududˌ-|	|uysududˌ|	shorten (cf. |ududˌ| 'short')

With two stems of other subclasses		
IIa: |-uykuˤ-|	|uysukuˤ|	cause to carry
IIc: |-obb-|	|oysobba|	cause to hear

With internal reduplication		
IIb: |-ukum-|	|oysokokom|	cause to win over

With a stem having the unique structure VC		
*|-um-|	|oysom|	spoil (cf. |uma| 'bad')

4.2.4. The Subjective form has an affix which is analyzable as basically |t|. For stems of Class I, the suffix has its basic form |t| after a vowel, the alternant |it| usually after a consonant, but |ut| after a consonant if the preceding vowel is |u|. The corresponding affix for stems of Class II is difficult to determine, but is most likely a doubling of the first consonant in the stem. (For several assimilations of |t| to a following consonant, see 2.1 above.) Several forms are recorded that would answer this description, except that the stem is recorded in other forms in only a few cases. The term Subjective is used for this form because it generally indicates action by the actor without outside help, for the actor, upon the actor, or with some other reference to the actor.

The following is a list of the regular Subjective forms recorded for verbs of Class I, with cross-references to other derived forms. This is followed by a list of complex Causative Subjective forms, showing the suffix |sit|.

|bak-| |bakit| eat (?); |biaak-| |biaakit| get hurt; |daab-| |daabit| (C¹) bend, become bent; *|deririg-| |deririgit| (C¹) be dizzy; |door-| |doorit| select, choose for oneself; |daam-| |daamit| (C²) buy for oneself; *|dii-| |dit| (C¹) choke (as on food); *|hankab-| |hankabit| (C¹) be frightened; |hunsuso-| |hunsusut| (!) remember; |kal- | |kalit| restrain, refuse; *|kombobbol-| |kombobbolit| (C¹) roll, be rolling; *|lahuu-| |lahut| (C¹) be sick; *|makilel-| |makilelit| (C¹) wander around; *|ogu-| |ogut| (C¹) get up, depart |ˤakal-| |ˤakalit| (C¹) wash (oneself); *|ˤayni-| |ˤaynit| (C¹) spoil, become spoiled; *|sar-| |sarit| (C¹, C²) clothe oneself,

get dressed; *|suˤu-| |suˤut| (C¹) hide (oneself); *|waqaaqaˤay-| |waqaaqaˤat| (C¹) be oppressed.

|hay-| |haysit| (C²) cause (someone) to dress (?); *|hoolay-| |hoolaysit| be shy; *|marˤe-| |marˤesit| marry (cf. |marˤa| marriage feast); *|may-| |maysit| fear.

The following are what seem to be Subjective forms recorded for stems of Class II:

Stem	Subjective Imperative	Meaning of Subjective
IIa: |-igdil-|	|iggidil|	break (spontaneously), be broken
|-igreˤ-|	|iggireˤ|	be cut off (?)
*|-eteher-|	|etteher|	be clean (cf. Causative)
*|-idirir-|	|iddirir|	eat supper (cf. Causative)
*|-isili-|	|issilli|	pray (cf. |salat| 'prayer')
*|-eteˤes-|	|etteˤes|	regret
*|-ikiti-|	|ikkiti|	put on (trousers)
*|-itimini-|	|ittimini|	desire
IIb: *|-eled-|	|elled|	shave

With internal reduplication		
*|-usuhut-|	|ussuhutut|	wonder

4.2.5. Intensive forms are recorded only for stems of Class II. They are formed by reduplication, sometimes clearly internal but sometimes perhaps better analyzed as final, of a consonant and vowel. Most of these are recorded only in conjunction with other consonantal affixes already discussed. The term Intensive is given to these forms—perhaps prematurely—primarily in the light of the translation of one as 'shatter' from a stem meaning 'break'. In other cases, references more like those of the Subjective seem to be included. The following cases are recorded:

Stem	Imperative	Meaning
With no other affix		
IIa: |-ifteh-|	|ifteteh|	loosen oneself
|-eqri-|	|eqriri|	read the Koran to oneself
With Intransitivized		
IIa: *|-emeˤed-|	|emmeˤeˤed|	stretch oneself
IIc: *|-elekk-|	|emlelekka|	be mistaken

With Causative

IIb:	|-eley-|	|eyleley|	lose
	|-usul-|	|uysulul|	cause to laugh
	|-ukum-|	|oysokokom|	cause to win over

With Subjective

IIa:	|-igdil-|	|eggedeedel|	(!) shatter
	*|-usuḫut-|	|ussuḫutut|	wonder

Compare also the following forms for which the stem is not reconstructed because only the Jussive is known, and the stem vowel is not shown from that form:

General: |angálo-kio| 'I will join'; Causative: |asgállo-kio| (note |11|) 'I will mix it'; Intensive: |angagállo-kio| 'I will join' (with semantic modification recognized by the informant, but not clearly explained).

Causative Intensive: |asgagállo-kio| 'I will mix it thoroughly'.

4.3. Vocalic affixes indicating 'mode' and 'aspect'. These affixes are mutually exclusive, but any one may occur with any consonantal affix or combination of consonantal affixes, with either stem class.

4.3.1. The Imperative has no affix. It contains only the stem, but sometimes with morphophonemic alternation as follows:

I: The last vowel of the Imperative is always short, though it may be long in the stem.

IIa: The Imperative is identical with the stem.

IIb: The Imperative is identical with the stem, except possibly in a few suspicious cases.

IIc: The Imperative splits the final cluster by the vowel |e| if the second consonant in the cluster is |ḫ, ˁ (h, x)|; e.g., |ebeḫ| 'say it' from |-ebḫ-|. The Imperative adds |a| to other clusters; e.g., |erda| 'run' from |-erd-|, and |obba| 'listen' from |-obb-|.

The negative Imperative is constructed with the element |ma| followed by the stem followed by |in|, the Imperative of an irregular verb |inni|. The entire form has stress with the first vowel. The vowel of |ma| assimilates to any following vowel. Examples of negative imperatives are:

I: |daam-|: |mádaamin| 'don't buy (it)'; |fak-|: |máfakin| 'don't open (it)'.

IIa: |-engeˁ-|: |méengeˁin| 'don't fight'; |-iskir-|: |mfiskirin| 'don't get drunk'.

IIc: |-erd-|: |méerdin| 'don't run'.

IIa: |-igdil-|: C: |mfisgidilin| 'don't let it break'.

I: |suˁu-|: S: |másuˁutin| 'don't hide'.

4.3.2. The Perfect regularly has the suffix |e| added to stems of both classes, with any consonantal affix. With stems classified as IIb, other alternations also occur, regularly except for a few suspicious forms. The Perfect formation is

adequately illustrated in lists above. The subject pronouns with the Perfect are illustrated at the beginning of 4 above. Used by itself, the Perfect form is usually translatable by an English past tense form, or sometimes by 'be' with an adjective.

The Perfect is also used before a conjunctive morpheme |h|. There may be a special alternant of this morpheme after (?) the plural morpheme |n|, and it probably has a zero alternant before certain consonants (cf. 2.5 above); relevant forms are not recorded. There is evidence that this combination is freely used in a variety of constructions, but its most common use is with the Perfect and Imperfect forms of the irregular verb |inni| (see 4.4 below). The difference in meaning associated with the two forms of |inni| is not entirely clear, but it is certainly associated with the completion of the action. The following are a few examples of this usage: |yubléhane| he has seen (it); |yubléhine| he had seen (it) (?); |bennéhane| we have eaten (it); |ḫankabittéhane| you have (or she has) been frightened.

The Perfect is also used before a substantivizing morpheme |m|, in constructions such as the following: |rabtem mango| those (f.s.) who died were many; many died; |temeetem uble| I saw you coming.

A negative construction corresponding to the Perfect, but not using the Perfect form, is composed of |ma|, the verb stem, and a copula form of the irregular verb |inni| (see 4.4 below). A few examples of this construction are as follows: |mádaaminnio| I didn't buy (it); |mfiskirinna| he (or she) didn't get drunk; |méerdinnun| they didn't run.

Other negative and negative-like constructions use the Perfect form with conjunctive |h|, followed by a negative form of |inni| or by the irregular verb |wa| 'lack (?)'. These constructions are quite clearly associated with some subtle distinctions in meaning that were impossible to pin down in the limited time available for this analysis.

4.3.3. The Imperfect regularly has the suffix |a| for stems of Class I. For stems of Class II, |a| replaces the initial vowel in every case, the remaining vowels of the stem in a few cases; and there is always a suffix |e|. In stems classified IIb, the long vowel that appears in the Perfect does not appear in the Imperfect. The Imperfect form is commonly translated by the English present progressive form. Some illustrations of regular Imperfect forms are as follows:

I: |daam-|: |daama| I am (or he is) buying it; |ab-|: |abta| you are (or she is) doing it; |alif-|: |alifna| we are opening it; |ˁul-|: |ˁultan| you (pl.) are drawing (water); |dufu-|: |dufuan| they are pushing it.

IIa: |-uˁruf-|: |yaˁrufe| he is resting; |-urkut-|: |tarkute| it (f.s.) is getting thin; |-ifri-|: |tafriye| it (f.s.) is bearing fruit; |-eḫzin-|: C: |tasḫezinen| you (pl.) are making (him) sad.

IIb: |-idig-|: |adige| I know it; |-usul-|: |yasulen| they are laughing; *|-uḍuḍ-|: C: |yaysuḍuḍe| he is shortening it.

IIc: |-edḫ-|: |yadḫe| he says so; |-ubl-|: |nable| we see it.

In the list of Class II verbs given in 4.1.2 above, the Imperfect form is specially

listed for a few in which |a| replaces all vowels in the stem. There are a few additional forms, with consonantal affixes, which require separate listing here. The Imperative and Imperfect forms of these are as follows: |oysooma| |aysaame| (spoil); |eymeꜥ| |aymaaꜥe| (repair); |emlelekka| |amlalakke| (be mistaken); |uybullu| |ayballe| (show).

The Imperfect by itself is used before copula forms of the irregular verb |li| 'have', apparently with a future meaning: |nemeeté-lio| we're going to come.

The Imperfect, like the Perfect, is also used with the substantivizing morpheme |m|, in constructions like the following: |aꜥrufem gura| I want to rest; |aꜥrufem fada| I want to rest; |aꜥrufem fadéhine| I wanted to rest; |aꜥrufem tayse| it would be better for me to rest; |temeetem uble| I saw you (or her) coming; |rabtam mango| many must have died (?); many are dying.

The Imperfect form is used after |ma|, which is stressed, as a negative of the Imperfect. For example: |mádaama| I'm (or he's) not buying it; |mádamna| we're not buying it; |máaban| they're not doing it; |mátafriye| it isn't bearing fruit; |mádige| I don't know; |máyasulen| they aren't laughing; |mánable| we don't see it.

The Imperfect form is also used before the Jussive of the irregular verb |wa| 'lack (?)'; the meaning is apparently a sort of negative of the Jussive. The Imperfect is also recorded before the morphemes |do|, |nko|, and |ged| to express conditions, and before |wa| and then one of these morphemes to express negative conditions. Details of these and similar constructions are not recorded, but they indicate that a large area of syntax is readily approachable in terms of verb forms.

4.3.4. The Jussive has the suffix |o| for stems of both classes, and in stems of Class II all vowels are replaced by |a|. In addition, the Jussive form is stressed (the first verb form discussed so far which is); the stress accompanies the last vowel of the stem. By itself, the Jussive is usually translatable by phrases with 'let' etc. Illustrations of Jussive forms corresponding to the stems and Imperfect forms listed in 4.3.3 above are as follows: |dáamo| let me buy it; |ábto| have her do it; |alífno| let's open it; |ꜥúlton| you should draw (water); |ꜥdufúon| they should push it; |yaꜥráfo| let him rest; |tarkáto| let it get thin; |tafráo| let it bear fruit; |tashazánon| you should make him sad; |adágo| let me know; |yasálon| let them laugh; |yaysadádon| have them shorten it; |yádho| let him say it; |náblo| let's see it.

The commonest usage of the Jussive is before copula forms of the irregular verb |ki|. The combination expresses future action. A similar construction is recorded with |li|, and there are other constructions similar to those with the Perfect and Imperfect plus substantivizing |m|. Some of these are as follows: |dáamo-kio| I'm going to buy it; |dáamo-lio| (I guess) I'll buy it (?); |dáamo gura| I want to buy it; |dáamo fadá-iane| I want to buy it; |yaꜥráfo-kinni| he's going to rest; |náblo-kinu| we're going to see it; |alífno-kinu| we're going to open it; |tashazánon-kitin| you're going to make him sad.

A construction is recorded with |ma| followed by the Jussive and optionally a Perfect form of |inni|. This seems to be another negative of the Perfect, but the evidence is not clear. Such a form is: |madáamo-ine| I didn't (?) buy it.

4.3.5. The Participle also has stress. Otherwise, it is identical with the Imperfect for stems of Class I, and also for stems of Class II except that it has the suffix |i| instead of the Imperfect suffix |e|. Subject pronouns are not used with the Participle. Some representative Participle forms are as follows: |daam-| |dáama| (buying); |dufu-| |dufúa| (pushing); |sa-| |sáa| (entering); |fi-| |fía| (sweeping); |-uꜥruf-| |aꜥrúfi| (resting); |-ifri-| |afríyi| (bearing fruit); |-ebet-| |aháti| (chewing); |-emet-| |amáti| (coming).

The Participle is recorded primarily before two conjunctive morphemes, |h| and |k|, the latter before affirmative and negative forms of |inni| as well as in other constructions. Some of these are as follows: |aꜥrúfi-kane| I'm resting; |aꜥrúfi-kine| I was resting (?); |fáda-kane| I want; |gúra-kine| I want; |fáda máane| I don't want; |fíi huble| I saw someone sweeping (?); |fíi kuble| I saw it while I was sweeping.

4.4. Irregular verbs.

4.4.1. A common verb meaning 'go', recorded only in the General, is clearly a Class II verb, but is irregular in the combination of its stem with vocalic affixes. The key forms, from which all forms with subject pronouns may be derived, are as follows: Imperative: |adu|; Perfect: |ede|; Imperfect: |adie|; Jussive: |adáo|; Participle: |adíi|.

4.4.2. A verb meaning 'say', recorded only in the General, is a Class I verb with variant stems |akke-| and |ak-|, and with a special Jussive formation. The imperative is |akke|. The Perfect and Jussive forms with subject pronouns are listed below; the Imperfect and Participle probably follow from the Perfect, but are not recorded:

	Perfect	Jussive
1s	|akke|	|akkóowa| or |óowa|
2s, 3fs	|akte|	|aktóowa|
3ms	|akie|	|akkóowa| or |óowa|
1pl	|akne|	|aknóowa|
2pl	|akten|	|aktóowan| (?)
3pl	|akken|	|akkóowan| (?)

4.4.3. |inni| is an irregular verb of Class II, expressing existence and location ('be, be at'). An Imperfect form |in| is used in negative Imperative constructions (4.3.1 above). The Perfect is |ine|, and is regular in respect to subject pronouns: |ine, tine, yine, nine, tinen, yinen|. The Imperfect is based on |ane|, but is irregular in respect to subject pronouns. In addition, there is another set of forms

which may be called 'copula' forms. The Imperfect and copula forms with subject pronouns are as follows:

	Imperfect	Copula
1s	|ane| *or* |anio|	|innio|
2s	|tane| *or* |tanito|	|innito|
3ms	|yane|	|inna|
3fs	|tane|	|inna|
1pl	|nane| *or* |nanino|	|innino|
2pl	|tanitin|	|innitin|
3pl	|yanin|	|innun|

The Jussive is \|annáo\|. A negative construction corresponding to the Perfect is \|máannannio\| 'I was not (there)', apparently composed of \|ma\| + \|anna\| + \|innio\|. Other uses of this verb are referred to throughout 4.3 above.

4.4.4. \|ki\| 'be' (indicating description) and \|li\| 'have' are more properly defined as copulas than as verbs. They are recorded only in forms similar to the copula forms of \|inni\| described above, and in the stem. The copula forms are as follows:

	|ki|	|li|
1s	|kio|	|lio|
2s	|kito|	|lito|
3ms, 3fs	|kinni|	|le|
1pl	|kinu|	|linu|
2pl	|kitin|	|litin|
3pl	|kinun|	|lon|

Constructions with these corresponding to the Perfect are made with the stem followed by the conjunctive morpheme \|k\| and the Perfect forms of \|inni\|. The stems are recorded with long vowels in this construction: \|kíi-k-ine\| I was; \|líi-k-ine\| I had.

Besides their uses in verbal constructions as described in 4.3 above, these copulas are commonly used after nouns: \|faras kinni\| 'it is a horse'; \|faras le\| 'he has a horse'.

5. A few useful details on additional pronoun forms and on adjectival forms and constructions may be added in conclusion.

5.1. Independent and subject pronouns are discussed at the beginning of 4 above. Besides these, certain other pronoun forms are recorded. These are listed below. The difference in length between the Possessive and Object forms in two cases is suspect.

	Independent	Possessive	Object	Indirect Object	Emphatic
1s	|anu|	|yi|	|yi|	|yoh|	|yóya|
2s	|atu|	|ku|	|ku|	|koh|	|kóya|
3ms	|úsuk|	|kaa|	|ka|	|ákah|	|káya|
3fs	|íse|	|tee|	|te|	|téyah|	|téya|
1pl	|nanu|	|ni|	|ni|	|nóyah|	|nóya|
2pl	|átin|	|sin|	|sin|	|sínah|	|sína|
3pl	|úsun|	|ten|	|ten|	|ténah|	|téna|

Possessive, Object, and Indirect object forms precede the governing form. For example: \|ku-báḍa\| 'your son'; \|kú-nuble\| 'we saw you'; \|kóh-uybulle\| 'I showed it to you'.

My impression is that a direct object (pronoun or noun) precedes an indirect object, but no relevant sentences are recorded.

5.2. Words translatable by adjectives may be morphologically and syntactically no different from nouns, but are treated separately here to illustrate attributive and predicative constructions. Some examples of these are listed in connection with a morphophonemic alternation in 2.7 above. An attributive precedes a noun; a predicative follows a noun. The following adjectives are recorded with loss of final vowel in attributive position: \|data\| black; \|ḍeeḍa\| long; \|fidina\| wide; \|laʕina\| hot; \|ʕusuba\| new; \|uḍuḍa\| short.

The following adjectives are recorded in their full form in attributive position: \|kafina\| dry; \|meʕe\| good; \|naba\| big; \|ʕado\| white; \|ʕenda\| small; \|uma\| bad.

The following adjectives have not been tested in attributive position: \|dumduma\| blunt; \|lilliga\| sharp; \|mangáʕa\| rough.

Some adjectives are followed by \|kin\| (from \|ki\|) in attributive position. The following illustrate two of these; the forms are full in both cases: \|daʕáyna-kin akat\| an old rope; \|raxis-kin sarena\| cheap clothes.

This is very likely the construction used with a noun attribute. A verb may also be used attributively: \|temeeté-saga\| the cow that came.

An attributive that is almost surely a noun has two forms, the second corresponding to a unit form of a class noun: \|sam, sáytia\| 'female'.

5.3. A few morphemes illustrating place relations are illustrated in the following: \|ko\|: \|ʕáreko yemeete\| he came from the house; \|d\|: \|ʕáred yane\| he is in the house; \|al\|: \|aratal tane\| it is on the bed; \|fan(ah)\|: \|ʕáre-fan(ah) yede\| he went to the house; \|rigídid\|: \|arat rigídid tane\| it is under the bed.