PHONOLOGY OF BATAD IFUGAO [1]

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0. INTRODUCTION

This paper [2] describes five hierarchically distributed phonological units (Pike 1955). The phoneme has its distribution within the syllable; the syllable, within the stress group; which, in turn, has its distribution within the pause group; which is distributed within the breath group. These phonological units only roughly approximate grammatical units. Thus, many texts have been observed in which some phonological boundaries are not co-terminous with morphological boundaries. The syllable is roughly equivalent to the morpheme: the stress group, to the word; the pause group, to the clause; and the breath group, to the sentence.

Phonological units at all levels of the phonological hierarchy are composed of aggregates of simultaneously occurring identificational-contrastive components (also referred to as constituents). Shared components group units on a given level into constitutional classes and contrasting components subdivide classes and ultimately identify minimal units of the level concerned.

Constituent features of phonological units may simultaneously be constituent features on two or more levels of the phonological hierarchy. When this occurs, the identificational-contrastive features of the constituent are those of the highest unit involved. For example, silence and breath intake mark initial breath-group juncture and this juncture is simultaneously the initial juncture of the pause group (occurring breath-group intitial), of the initial stress group of that pause group, and of the initial syllable of that stress group. When all the constituent features of two or more phonological units correspond, then the units themselves are identical, and contrast does not exist. The expression $qó$ 'yes' may simultaneously be a breath group, a pause group, a stress group, and a syllable. The following description will be of units and constituents of those units that do not simultaneously occur at different levels of the hierarchy, since those features identify and contrast various units at different levels of the hierarchy.

1. THE SYLLABLE

A syllable is composed of an obligatory nucleus optionally preceded and/or followed by a margin. A syllable peak is an identificational-contrastive feature of the phoneme occurring in the nucleus slot. This peak identifies the nucleus as the most prominent part of the syllable. Phonemes occurring as the margins are consonants. This mutually exclusive distribution divides the phonemes into two classes. No phoneme is a member of more than one class. A prevocalic margin is called a syllable onset and a postvocalic margin a coda. One chest pulse marks the physiological feature of each syllable, distinguishing it from all other emic units of the phonological hierarchy. Onset, nucleus, and coda slots of the syllable are filled by single phonemes. Phonetically complex phonemes consisting of two consecutive segments occur in onset position. These complex phonemes are considered single phonological units rather than two successive phonemes for reasons discussed in sec. 2.12.12 below.

Syllable juncture, which segments stress groups into syllables, is an acoustic feature only under certain restricted conditions. It may sometimes be identified as open transition between heterorganic consonants occurring in a sequence of syllable coda and syllable onset. In this position, transition occurs either in the form of an echo vowel identical to the vowel immediately preceding the first consonant, or as a momentary pause in transition from the articulatory position of the first consonant to that of the second, e.g. [*mapahód*],[3] *maphód* 'good'. Under other circumstances, however, for example, where gemination occurs, or where consonants occur intervocalically, no audible phonetic feature identifies syllable juncture. Under these circumstances, syllable juncture is a postulation, and simplicity of description of the distribution of the allophonic variants of both consonant and vowel phonemes is the criterion used to determine syllable juncture. For example, the phoneme *b* has a two-segment variant consisting of a voiceless bilabial stop followed by a velar fricative release. This variant occurs in nonsuspect syllable onset position (i.e., utterance initial) and also in intervocalic position. By postulating syllable division immediately preceding intervocalic consonants, it is possible to make the statement that this variant of *b* is distributed to syllable onset position. If this postulation were not made, a more complicated statement would be necessary to describe the distribution of this and other phoneme variants. The following postulations are made:

(1) Syllable juncture separates sequences of two consonants of vowels.

(2) Syllable juncture immediately precedes an intervcoalic consonant.

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[3] The following symbols are used to indicate various phonological components and other features:

.	Syllable juncture	...	An indeterminate number of items of a kind indicated by the symbol immediately preceding ellipsis symbol.
#	Stress-group juncture		
/	Pause-group juncture		
//	Breath-group juncture		
'	Stress-group stress	[]	enclose a transcription including at least one phonetic feature. Phonemic transcription appears unbracketed.
"	Pause-group stress		
+	Obligatory item follows		
±	Optional item follows		

There are four syllable types:

(1) A nucleus, e.g., the third syllable of *qu.mé.e.taq* [3] 'I will go home'.
(2) A nucleus followed by a coda, e.g., the final syllable of *mun.qá.eh* 'to shovel a landslide'.
(3) A syllable onset followed by a nucleus, e.g., each syllable of *lu.má.hu* 'hot, (of water)'.
(4) A syllable onset followed by a nucleus and a coda, e.g., both syllables of *láp.nay* 'sweet potato'.

2. THE PHONEME [4]

A phoneme is a minimal phonological unit and is distributed to syllable slots. Phonemes are divided into two major classes: consonants and vowels. Vowels, as distinct from consonants, are those phonemes which carry the syllable peak. Each vowel is characterized, potentially if not in actual fact, by the peak of a separate chest pulse. In rapid speech, when two identical vowels are juxtaposed, it is sometimes impossible to discern two distinct chest pulses; but they are clearly audible in slow deliberate speech.

2.1 CONSONANT PHONEME. Consonant phonemes are divided into subclasses on the basis of contrastive articulatory components. Consonant phonemes may be viewed within a matrix of two columns and two vectors as follows:

CONSONANT MATRIX

	Pharyngeals	*Nonpharyngeals*
Obstruents	q	NO
Sonorants	h	NS

Whereas singly consonants occur in the cells formed by the intersection of obstruent and sonorant dimensions by pharyngeal dimension, a subclass of consonants represented by NO (nonpharyngeal obstruents) and NS (nonpharyngeal sonorants) in the matrix above occurs in each of the cells formed by the intersection of obstruent and sonorant dimensions by nonpharyngeal dimension. These latter phoneme classes are displayed in a submatrix in section 2.12. A pharyngeal dimension is indicated by a component of pharyngeal articulation which contrasts with a component of oral articulation shared by nonpharyngeals. These contrasting ultimate phonological constituents (Hockett 1955) divide consonants into two major subclasses: pharyngeal and nonpharyngeals.

2.11. PHARYNGEALS. Pharyngeals share a component of pharyngeal articulation but contrast in degree or rank of structure: glottal stop *q* has, as an identificational-contrastive component, complete closure and is thus termed an obstruent. Glottal fricative *h* has a component of noncomplete closure and is thus termed a sonorant.

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[4] For a description of the phonemes of a related Ifugao dialect, see Newell 1956.

In utterance initial position and intervocalically within or between stres: groups, the glottal stop varies from little more than a hiatus through varyin degrees of glottal stricture to complete closure of the glottis in deliberate, slov speech, *qoqommódmih dé* 'those are our (excl.) ancestors', *muntámu qen mun qemmé* [5] 'work in making'. When juxtaposed to another consonant and in stres: group final position, the glottal stop is characterized by complete closure of th glottis, *qumúyaq hidí* 'I will go there', *mumbaqbáq tuqu* 'we (incl.) will wast clothes'.

The glottal fricative *h* has two variants. One variant is a pharyngeal frica tive with friction localized at the upper pharyngeal wall resulting from the ap proximation of the tongue root against the pharynx wall. This allophone occurs (1) in syllable final position in stress groups, *napúh* 'is finished'; (2) in each of two identical syllables closed by *h* and occurring consecutively, *qipohpóh* 'will grasp', *munwehwéhde* 'They will plane wood'; (3) in the penult closed by *h*, *mihbúl* 'is broth'; and (4) to a less extent, in the antepenult closed by *h*, *pohpohón* 'will grasp'. In positions other than those stated above, a variant of *h* oc curs which has friction in the general area of the pharyngeal cavity but which has no localized point of articulation, *hamúti* 'bird', *káhu* 'dog'.

2.12 NONPHARYNGEALS. Nonpharyngeals are displayed in the submatrix which is part of the larger consonant matrix of section 2.1.

Nonpharyngeal consonant matrix

	bilabial	alviolar	velar
Ostruents			
Voiceless	*p*	*t*	*k*
Voiced	*b*	*d*	*g*
Sonorants			
Nasal	*m*	*n*	*η*
Oral	*w*	*l*	*y*

The components bilabial, alveolar, and velar indicate areas of articulation rather than points of articulation. The velar component, for example, covers an area from back velar *k* to palatal *y* point of articulation.

Nonpharyngeals, as pharyngeals, are subdivided into obstruents and sono-- rants. A shared component of obstruents is complete closure, which contrasts with a component of non-complete closure share by sonorants.

2.12.1. NONPHARYNGEAL OBSTRUENTS. Nonpharyngeal obstruents may be fur- ther subdivided into voiceless and voiced obstruents. Nonvoicing and unreleased components are common to voiceless obstruents *p*, *t*, and *k*, and these contrast with voiced or fricative released components, which are shared by voiced obs-- truents *b*, *d*, and *g*.

2.12.11. VOICELESS OBSTRUENTS. There are three voiceless obstruents *p*, *t*, and *k* with one allophone each. *p* is characterized by a component of bilabial arti--

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[5] The symbol e (10 pts. Roman) in this article will be used in place of the schwa. (Ed.)

culation, *papá* 'duck'; *t*, by alveolar articulation, *toytóy* 'ladder'; and *k*, by back velar articulation, *kumikí* 'will laugh'. These three components distinguish these phonemes from each other.

2.12.12. VOICED OBSTRUENTS. Voiced obstruents *b*, *d*, and *g* form a subclass of consonants. This class is composed of two alloclasses. That is, the characterizing features which separate these two classes are predictable in terms of distribution of the members of each class. The classes are therefore nondistinctive and considered alloclasses. One alloclass is characterized by a shared predictable component of voicing, and the other by components of nonvoicing and fricative release. The alloclass characterized by voicing is distributed to syllable coda position; and the alloclass, characterized by nonvoicing and fricative release, to syllable onset position. When the bilabial stop *b* is a syllable onset, it is actualized as a voiceless bilabial stop with a front velar fricative release, followed by front vowels, *lebí* 'midnight': with a velar fricative release followed by central vowels, *batú* 'stone': and with a back velar fricative release followed by back vowels, *búŋa* 'fruit'. When the alveolar stop *d* is a syllable onset, it is actualized as a voiceless alveolar stop with an alveopalatal spiral release, *denúm* 'water', *dotég* 'meat'. When the velar stop *k* is a syllable onset, it is actualized as a voiceless front velar stop with a pharyngeal fricative release, *geleygéy* 'finger', *tágu* 'person'.

The sequence of voiceless stop and fricative release is interpreted as a complex allophonic variant of a single phoneme rather than a sequence of two phonemes because (a) the two segment variants are in mutually exclusive distribution with voiced stops; (b) two segment variants occur in an environment (syllable onset position) in which only single phonemes occur in the nonsuspect data; and (c) the sequence of stop plus fricative release is not paralleled by a reverse sequence of the same segments (Pike 1947:132b).

2.12.2. NONPHARYNGEAL SONORANTS. Nonpharyngeal sonorants have in common a component of uninterrupted air flow. Nonpharyngeal sonorants are subdivided into nasal and oral sonorants. Nasal sonorants have in common a component of nasal air flow; oral sonorants, oral air flow.

2.12.21. NASAL SONORANTS. There are three nasal sonorants *m*, *n*, and *ŋ* with but one allophone each. *m* is characterized by a component of bilabial articulation, *matá* 'eye'; *n* by alveolar articulation, *qíne* 'mother'; and *ŋ*, by back velar articulation, *maŋán* 'will eat'. These three components distinguish these phonemes from each other.

2.12.22. ORAL SONORANTS. There are three oral sonorants *w*, *l*, and *y*. *w* is characterized by bilabial articulation, *l* by alveolar articulation, and *y* by palatal articulation.

The bilabial sonorant *w* has but one allophone, *wáde* 'there is', *qawítan* 'rooster', *qalgéw* 'day, sun'.

The palatal sonorant *y* has two variants:

(1) A voiced alveopalatal sibilant manifests *y* as syllable onset (a) if the syllable preceding it is closed, *qalyóṁ* 'you say'; or (b) when *y* occurs as syllable onset preceded and/or followed by a high vowel, *dúyu* 'dish', *qáyaw* 'tree'.

(2) A palatal vocoid (i.e., central resonant oral) occurs in all other environments.

The lateral oral sonorant *l* has three variants:

(1) An alveolar lateral, characterized by alveolar closure with relaxed tongue sides accompanied by secondary palatal articulation (a) occurs as syllable onset followed by central and back vowels, *bálat* 'banana', *qúlu* 'head'; (b) occurs as syllable coda followed by a contiguous *l*, *dallúŋ* 'a revenge ceremony'.

(2) An alveolar lateral flap produced by the forward flap of the tongue following retroflexion occurs as syllable onset preceding front vowels, *qumáli* 'will come', *ledéw* 'wide brimmed hat'.

(3) A nonsyllabic retroflexed vocoid which has the vocoid quality of a preceding contiguous vowel occurs in coda position except when followed by a contiguous *l*, *qoŋól* 'big', *munhénel* 'to sparkle'.

These three sonorants may be viewed in a matrix with high vowels. High vowels and some (though not all) of the variants of each of the sonorants have in common the following components: central air flow, resonance (i.e., no localized friction) an doral articulation. Their shared and contrastive components are displayed in the following matrix:

	Front	*Central*	*Back*
Nonsyllabic	*y*	*l*	*w*
Syllabic	*i*	e	*u*

i shares a component of relatively front tongue position with the palatal vocoid variant of *y,* e shares a component of relatively central tongue position with *l,* and *u* shares a component of relatively back tongue position with the bilabial vocoid *w.* From the matrix, it is further seen that a constituent of syllabicity contrasts high vowels with oral sonorants (and all consonants). A phoneme with syllabicity as one of its components is a carrier of the syllable peak, whereas, a phoneme which does not have syllabicity as one of its components does not carry the syllable peak.

Although gemination of consonants is common within the morpheme, *mundaŋŋól* 'to be slippery', or at morpheme boundaries, *mummumemé* 'to chew betel nut', the phoneme *w* differs from other consonants in that it does not occur as syllable coda when followed by *w* as onset of a following syllable; likewise *y* does not occur as syllable coda when followed by *y* as onset of a following syllable. When the grammatical feature of reduplication would place *w* and *y* in the environments in which they do not occur as described above, these two

consonants are replaced by *g* and *d* respectively, *táwaŋ* 'bird or bat net', *taw-tagwáŋ* 'small bird, bat net'; *mayápit* 'thin', *maymadyápit* 'very thin'. No such morphophonemic change occurs when other consonants are involved in this type of reduplication, *batú* 'stone', *batbattú* 'pebble'; *balúy* 'house', *balballúy* 'minia-ture house'. The possibility of interpreting the first consonant in a phonetic series [*gw*] and [*dy*] as *w* and *y* respectively has been considered. This solu-tion has the advantage of avoiding the awkwardness of describing morphophon-emic changes under conditions illustrated in the citations above, but the ad-vantage is gained at too great a price. In the first place, the interpretation would necessitate the awkwardness of postulating a variant of *w* with components identical to those of one of the variants of *g*, and similarly a variant of *y* with components identical to those of one of the variants of *d*. Furthermore, it creates another morphophonemic situation similar to the one it attempts to avoid. For example, when a word such as *qibaŋŋéd* 'return (something)' is suffixed by *yu* 'you (pl.)' it would involve the morphophonemic replacement of word final *d* by *y*, **qibannéyyu* 'you (pl.) return (something)'.

2.2 VOWEL PHONEMES. Vowel phonemes have in common a component of syl-labicity. This component distinguishes them from consonants. There are six vowel phonemes and they are displayed in the following matrix:

	Front	*Central*	*Back*
High	*i*	*a*	*u*
Low	*e*	*a*	*o*

The designation front, central, back, high and low are relative positions of the tongue and do not indicate absolute tongue positions. e, for example, is located approximately in the mid, close, central position on a vocoid chart (Pike 1947:5).

It is useful to recognize a component of "lowering" in describing the distri-bution of the variants of certain vowel phonemes. A variant of a given vowel containing a lowering component is located slightly lower on a vocoid chart than a variant of the same vowel without the component.

2.21. FRONT VOWELS. Front vowels *i* and *e* comprise a subclass of vowels with common components of relatively front tongue position and unrounded lips. This class consists of two alloclasses defined in terms of predictable components common to the phoneme variants of each class. One alloclass is characterized by a component of lowering common to each variant of the class and is distributed to syllables closed by other than glottal stop, *qitqittáŋ* 'small', *máqet* 'tomorrow'. An alloclass without a component of lowering common to its members is dis-tributed to open syllables and syllables closed by glottal stop, *nehíhi* 'left behind', *muniqwíq* 'skin, husk', *hené* 'there', *neweqwéq* 'deranged'.

i and *e* contrast in the following citations:
Stress group initial syllable

qítob 'bedbug', qíteb 'variety of bean', qetób 'lay board flat'.

qiáh 'wind, qéqeh 'filthy, bad'.

qidatáq 'I will share', qedetáq 'sacrificial pig'.

Stress group medial syllable

newiqwiqén 'skinned, husked', neweqweqén 'foolish acts'.

munqítlug 'will lay eggs', munqegwáh 'wash dishes'.

Stress group final syllable

qihúit 'pour water', quméet 'go home'.

qehín 'salt', henén 'that (near)'.

hidí 'there (far)', hedé 'that (far)'.

In the environments listed under (1) and (2) below there is an absence of i/e contrast. The phoneme in these positions is interpreted as *e* rather than *i* because the components of the manifesting phone in these positions is identical to those of the lowered variant of the phoneme *e* when this vowel occurs in syllables closed by other than *l*, *η* and *h*. The phoneme *e* only occurs in the following environments:

(1) In syllables closed by *l* and *η*, qelpóh 'make wine', qeηgód 'was cut', pumpelgóm 'turn', munqeηhá 'will have a lover', maqétel 'will be small, thin', qúleη 'charcoal'.

(2) In the ultima when it is closed by *h* and in the penult when it is a reduplication of an ultima closed by *h*, békeh 'pot', bígeh 'worm', nabehbéh 'widened dike', munlehléh 'hike up a sleeve, skirt, etc.'.

In contrast to the distribution of front vowels in syllables closed by *l*, *η* and *h*, as stated above, contrast exists in stress group initial and medial syllables closed by *h*, qihdé 'viand', qehnód 'hold close'; qihné 'there is', qehél 'evidence of evil intent'; punqihadé 'eat all the viand', punqehdél 'rely on'.

2.222. CENTAL VOWELS. Central vowels e and *a* comprise a subclass of vowels with common identificational-contrastive constituents of relatively central tongue position and unrounded lips. e is located at the mid, close, central position on a vocoid chart, *a* at the low, central position.

The mid, close, central vowel e has but one allophone, dué 'two', munlebé 'clean stone wall'.

The low, central vowel *a* has two allophones. One allophone is a low, close vocoid and is distributed to unstressed syllables and stressed syllables closed by *b*, *d* and *g*. qalatúη 'to make a clattering noise', quáb 'a yawn', mumbolád 'be naked', dohág 'digging trowel'. The other allophone has a component of lowering (i.e., it is a low, open vocoid) and is found in stressed syllables, either open or closed by other than *b*, *d* and *g*, páut 'that which binds', munqapál 'squeeze sugar cane', mundaηáh 'call someone to offer free labor'.

e and *a* contrast in the following citations:

Stress group initial syllable

qegé 'expression: go ahead!', matabé 'is fat'.

qélig 'man's name', qálig 'honey'.

Stress group medial syllable

mundéah 'will call a dog', munháah 'will hiss (as a snake)'.

mebáu 'will be vacant', mebán 'will be cool (substance)'.

Stress group final syllable

dué 'two', qohá 'one'.

nebíhey 'fallen (dirst) away from the edge', wáhay 'axe'.

qagáqey 'an expression', gináqay 'leased'.

qibém your sibling', matám 'your eye'.

héqqe 'an expression', héqqa 'second person singular pronoun'.

2.23. BACK VOWELS. Back vowels *u* and *o* comprise a subclass of vowels with shared constituent features of relatively back tongue position and lip rounding. *u* is located at the high position on a vocoid chart, *o* at the central position.

This class of vowels has four alloclasses. One alloclass is characterized by a component of lowering and occurs in syllables closed by *η*, or *k, qiduη-dúη* 'people of Dungdung', *qituktúk* 'will be used to call a pig', *qidoη-dóη* 'will aim (as of a gun)', *munlok'ók* 'will brood (i.e. hen)'. A second alloclass is characterized by a component of pharyngealization' and occurs in syllables closed by *h* as follows: in the penult and/or ultima, and in the antepenult when the penult is closed, *qipuhpúh* 'will preside over a case', *qipuhpúhmu* 'you will preside over a case', *qipohpóh* 'will hold', *qipohpóhmu* 'you will hold'. A third alloclass is characterized by a component of front tongue position and occurs in syllables closed by *p* or *t* as follows: in the penult and/or ultima, and in the antepenult when the penult is closed *nelutlút* 'is murky, muddy (i.e., water)', *munhuphúp* 'will suck meat from shells', *munhuphúpqe* 'you will suck meat from shells', *munqotqót* 'will crunch (in chewing)', *ginnopgóp* 'walking stick'. A fourth alloclass is characterized by the absence of any of the three constituent features that identify the other three alloclasses. The member of this alloclass that is an allophone of *u* is a high, close, back, rounded vocoid; the allophone of *o* is a mid, close, back, rounded vocoid. This alloclass occurs in all environments except those described above in which the other three alloclasses occur, *muntudúq* 'will drain water', *qitugtúg* 'will use to tap lightly', *qihúdhud* 'will tell a story', *puhpúhom* 'you will preside over a case', *molóq* 'will sleep', *munlóglog* 'will wash the head', *pohpohóm* 'you will hold', *munqotqótaq* 'I will crunch (in chewing)'.

u and *o* contrast in the following citations:

Stress group initial syllable

qúleη 'charcoal', qoláη 'intestinal worms'.

qulhíp 'a temporary way through the forest', qolháη 'charred end of pitch pine stick'.

Stress group medial syllable

puhpúhon 'will preside over a case', pohpohón 'will hold'.

qutqútan 'will paw the earth', *qotqotón* 'will crunch (in chewing)'.

Stress group final syllable
   mumpudpúd 'will wallow in dust, ashes', *mumpodpód* 'will stuff, cram'.
   pítuq 'my whistle', *pítoq* 'mud'.
   qidúl 'thunder', *qodól* 'body'.

3. THE STRESS GROUP

A stress group is the phonological unit within which syllables are distributed and is itself distributed within the pause group. Like the syllable, it is composed of an obligatory nucleus plus or minus optional margins preceding and/or following. Unlike the syllable, the stress-group nucleus is composed of a stressed syllable (i.e., that syllable of the stress group that is loudest and thus most prominent) and the margins by unstressed syllables. One abdominal pulse [6] marks the physiological feature of each stress group identifying it as distinct from all other distinctive units of the phonological hierarchy.

There are two significant stress-group constituents: juncture and rhythm.

When stress-group juncture does not occur simultaneously with juncture of higher phonological units it may be marked in one of two ways:

(1) Stress-group final, open syllables may be optionally closed by a consonant identical to the initial consonant of the following stress group, [*qedíyuttigón*], *qadíyu tigón* 'you will not see something'; [*yéppinúmŋol*], *yé pinúmŋol* 'and (the rice) is approaching heading stage'; [*táqqumali*], *tá qumáli* 'so that someone will come'.

(2) Except for (1) above, stress-group juncture consists of a slight pause.

Rhythm is a second identificational-contrastive feature of the stress group. A rhythm unit involves peaks and troughs of rhythm carried by syllables distributed within the stress group. Rhythm peaks are here referred to as controlled movements and troughs as ballistic movements. One of the syllables of the stress group characterized by a controlled movement is simultaneously stressed. The combination of controlled and ballistic movements and stress constitutes the rhythm unit of the stress group. Syllables characterized by a controlled movement constitute the centers of pulsation of the rhythm pattern and those characterized by ballistic movement occur in the intervals between pulses. For this reason it might seem desirable to designate the former stressed syllables (i.e., with secondary stress) and the latter unstressed syllables (or with tertiary stress). We have, however, chosen to follow Pike's description of ballistic and controlled movements (Pike 1955:57) since this description seems to most closely approximate the acoustic situation for Ifugao. For one thing, except for the vowel of the nuclear syllable (i.e., the stressed syllable) it has been impossible to recognize a contrast in the relative degrees of intensity of the vowels of the syllables

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[6] Since I am unable to consistently hear abdominal pulse, this feature is, in part, a postulation.

distributed within the stress group. Furthermore, the controlled movement is longer in duration and constitutes a segment of potential transient pause whereas the ballistic movement is short, clipped, staccato and may not be sustained. The length of a controlled movement is carried by the vowel in open syllables and both by the vowel and final consonant of closed syllables. Thus, for syllables characterized by controlled movements, the vowels of open syllables are longer than than vowels of closed syllables since the overall length of these two syllable types is the same. But the length of a closed syllable character- ized by a controlled movement is considerably longer than one characterized by a ballistic movement. The feature of stress is distinct from a controlled move- ment as part of the rhythm unit since only one syllable characterized by a con- trolled movement contrasts in intensity with the other syllables of the stress group. This syllable is stressed; all other syllables are unstressed. A controlled movement will be indicated by a raised dot [·] following the vowel of that syllable, a ballistic movement will not be symbolized, [qumá·li·de·] 'they will come'. The occurrence of controlled and ballistic movements within the stress group are described in their relatiosship to stress in the following rules:

(1) A stressed syllable is always characterized by a controlled movement, [qumú·y] 'go away'.

(2) A ballistic movement always characterizes the syllable immediately pre- ceding a stressed syllable, [qelí·] 'talk'.

(3) An initial syllable, noncontiguous to a stressed syllable, is characterized by a controlled movement, [ma·ŋidá·t] 'one who will give'.

(4) When stress falls on an odd syllable (i.e., 3rd, 5th, etc.) all odd syllables preceding stress are controlled, even syllables are ballistic, [qu·mipa·qalí·] 'will let call out'. When stress falls on an even syllable (i.e., 4th, 6th, etc.) two ballistic syllables are equal in length to single ballistic syllables occur- ring elsewhere, [pa·ŋanupá·n] 'place where someone will hunt'.

(5) Syllables following a stressed syllable of a given stress group are charac- terized by controlled movements, [qitu·lu·d] 'will push', (pa·ŋipa·qelí·- a·nde.][7] 'place to which they will let something come'.

A stressed syllable either begins a stress group or is preceded by from one to six (possibly more) syllables. The variation in the number of syllables in pre-stress position is considered free variation and nonsignificant in identifying stress-group types. Thus the following are examples of only one stress-group type: qánone 'he will remove it', ye qánone 'and he will remove it' ye qunne qánon 'until he will remove it'. The stressed syllable of a stress group occurs as the final syllable of a stress group or it may have from one to three syllables following it: qitulúd 'will accompany', qitulúdda 'they will accompany', qitú- ludda 'they will push', qitúludda yeq 'they will indeed push'. Since contrasts in stress placement occurs in minimal environments (cf., second and third exam-

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[7] This form is in contrast with [pa·ŋipa·qiliá·nde] 'place where they will let someone call out'.

ples above), stress placement is recognized as significant. It might be concluded that since stress occurs on any of the last four syllables of stress groups a four-way contrast in stress placement exists, necessitating the recognition of four stress-group types. It seems significant, however, that only a two-way stress contrast exists in minimal environments (e.g., *qitúlud* 'will push', *qitulúd* 'will accompany'; *qumáli* 'will come', *qumelí* 'will call'; *qídew* 'omen bird', *qidéw* 'a variety of snake'.) and that a three- or four-way stress contrast is not found in anything approaching minimal environments. It is further noted that in some manifestations of stress groups, the first syllable following the stressed syllable is either en enclitic pronoun, *qitulúdde* 'they will accompany', or a particle such as *yeq* 'indeed', *goh* 'also', etc., *qitulúd yeq* 'he will indeed accompany'.

In some cases in which two syllables follow the stressed syllable, the first is an enclitic pronoun and the second is a particle, *qitulúdde yeq* 'they will indeed accompany'. In other manifestations, the first syllable following the stressed syllable is the ultima of the word base, *qitúlud* 'he will push', with one or two syllables following the base as described above: *qitúludde* 'they will push', *qitúludde yeq* 'they will indeed push'. A description recognizing the above factors as relevant to a description of stress-group types and at the same time reducing the significant stress placement from a three- or four-way to two-way contrast seems most desirable. Three alternative descriptions are considered below. The first two are rejected for reasons stated below; the third is accepted as the most satisfactory description.

Description 1. This description would postulate stress-group juncture immediately following each word base. Enclitics and particles would then be treated as separate stress groups and the resultant stress group in which the word base occurred would have significant stress placement either on the penult or ultima. This solution has the advantage of making possible a two-way stress contrast description. There are, however, two major disadvantages to this description. In the first place, there is no audible stress-group juncture between the base and enclitic or particle, nor is there stress on the enclitic or particle (monosyllables) as is found on the nuclear syllable of all other stress groups. Further, to separate the base and enclitic would create a problem involving syllable division since the morpheme boundaries between bases and enclitics are not always co-terminous with syllable boundaries (see 1. above). Thus, in the example *qumúyaq* 'I will go' syllable and morpheme boundaries between the two last morphemes and the two last syllables are not co-terminous (morphemes are separated by a hyphen, syllables by a period): *qumúy-aq, qumú·yag*. If, then, stress-group juncture were postulated at other than at syllable boundaries this would raise problems regarding the composition of the stress group since the syllable would not be distributed within the stress group. Such problems would be extremely difficult to handle.

Description 2. This description would present the significant placement of stress in terms of the grammatical word base. Stress then would be described as significant either on the penult or ultima of the word base. This solution

would make possible a description which would recognize only a two-way stress contrast since it could then be stated that stress occurs either on the penult, *gáyaŋ* 'hawk', or the ultima, *gayáŋ* 'spear', of word bases. This description has the advantage of not disregarding syllable boundaries (as does description 1) but of adding a further component (word-base juncture). It has the disadvantage, however, of describing a phonological feature (stress) in terms of a grammatical unit (word base).

Description 3. This description recognizes two significant stress-group types with nondistinctive free variation of syllables following the stressed syllables as described below. The two stress-group types are as follows:

(1) Two syllables are obligatory to the first stress-group type with one or two optional syllables following. Stress occurs on the first of the obligatory syllables. Thus, if s represents a syllable, the first stress-group type may be symbolized as follows:

$$\pm s \ldots + S + s \pm s \pm s$$

E.g., *qitulúd* 'he will push', *qitúludde* 'they will push', *qitúludde yeq* 'they will indeed push'.

(2) Only one syllable is obligatory to the second stress group and stress occurs on this syllable with one or two optional syllables following. This pattern may be symbolized as follows:

$$\pm s \ldots + S \pm s \pm s$$

E.g., *qitulúd* 'he will accompany', *qitulúdde* 'they will accompany', *qitulúdde yeq* 'they will indeed accompany'.

4. THE PAUSE GROUP

The pause group is the phonological unit within which stress groups are distributed; pause groups are distributed within the breath group. The pause-group nucleus is identified as a stress group with an accompanying primary intonation contour (either nonfinal or final) and with a constituent of stress occurring on the stressed syllable of the stress group but of greater intensity than stress on stress groups distributed to margin slots of the pause group. One or more optional stress groups may precede the pause-group nucleus accompanied by a predictable level 2 (mid) pitch. These optional stress groups are considered in free variation and thus not distinctive in identifying pause-group types. The three examples which follow are therefore considered variations of one pause-group type: *qimúy # naŋyiw # nen linaläqi //* 'the men went to get firewood', *naŋáyiw # nen linaláqi //* 'the men got firewood', *nen linaláqi //* '(It was) the men'.

Pause-group stress is an identificational-contrastive component of the pause group. Intensity is gradually built up from the beginning of the pause group until the stressed syllable of the stress group manifesting the nucleus of the pause group is reached. The vowel of this stressed syllable i more intense than any other stressed syllable of the stress groups distributed within the pause group,

and is lengthened during which the intensity is expended.   When this stressed syllable is not the ultima, the intensity is expended also on the syllables following stress within the same pause group and length on the stressed syllable is less pronounced.

Pause-group juncture is characterized by a constituent feature of pause which is longer in duration than stress-group juncture.

Two major contrastive pause-group types are identified with subtypes of each.   The major types are identified by their distribution within the breath group, to either marginal (nonfinal) position or nuclear (final) position, and the subtypes of each are identified by contrastive intonation patterns.

There are three levels of intonation; high pitch is designated level 1; mid pitch, level 2; and low pitch, level 3.   Level 2 intonation occurs on syllables of stress groups distributed to pause-group margins.   Primary intonation contours occur on the last two syllables of the stress group occupying nucleus slot of the pause group or occur as a glide on a monosyllabic stress group in this position. Unlike English, the position of Batad Ifugao contours is not modified by the relative position of stress.   That is, regardless of the position of stress, the contour always begins with the penult of stress groups composed of two or more syllables.   When intonation occurs on monosyllabic stress groups, the contour is a glide on that syllable involving two or three pitch levels depending on the intonation pattern involved.   A nonfinal pause group (i.e., one occurring as a breath-group margin) has, occurring on its nucleus (pause-group final), one of two intonation contours.   The final pitch of this contour is sustained or frozen. A final pause group (one occurring as a breath-group nucleus) has, occurring on its nucleus, one of four intonation contours.   The final pitch of this contour ends with a fade.

4.1. NONFINAL PAUSE GROUPS.   Two contour patterns [8] are constituents of two contrastive nonfinal pause-group types:

(1)   Pause-group type NF with contour 1 2 indicates nonemotional declara-
$$1\ 2$$
tive discourse in which the speaker believes the hearer to be in general agreement with or, at least, not in opposition to assertions being made, *wah dí # qolteg / qen mihinëh di / (qeneq dí miqyálin häqqin) //*
        2   1 2   2   1 2   2
'Oltag is staying there, (and will not accompany me in coming)'.

(2)   Pause-group type NF $_{2\ 1}$ with contour 2 1 (followed by either contour pattern 2 3 or 2 1 in free variation on final stress groups) indicates an argumentative tone in which the speaker is not in accord with the position of the hearer, *wah dí # qoltëg / qen mihineh di / (qen qedí # miqyálin*
              2   2 1   2   2 1   2

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häqqin) // 'Oltag is so staying there, (and won't accompany me in coming)!'.

4.2 FINAL PAUSE GROUPS. Four significant contour patterns identify four contrastive pause-group types each of which occurs as the breath-group nucleus:

(1) Pause-group type F$_{2\ 3}$ with contour 2 3 indicates a declarative or command statement. Command type contours are often accompanied by breathiness caused by pressure behind the glottal friction accompanying vocalization, *qumüyta* // 'let's go', *qumüyqe* // 'go away!'.
  2 2 3   2 2 3

(2) Pause-group type F$_{1\ 2}$ with contour 1 2 indicates courtesy discourse. This contour is characteristic of salutations and greetings. This pattern may be found with both declarative and interrogative type utterances, *qumüyqemi* // 'we (excl.) will go (a leave taking), *hey qumeyë nyu* //
  2   1 2
'where are you going (polite question)?'.

(3) Pause-group type F$_{2\ 1}$ with contour 2 1 indicates a simple request for information, *ŋáden # hinugwoy* // 'what's that?'. This intonation pattern indicates a simple request for information. When information is demanded, pattern F$_{2\ 3}$ is used and when it is requested with politeness, pattern F 1 2 is used.

(4) Pause-group type F$_{1\ 3\text{-}2}$ with contour 1 3-2 indicates an affirmative utterance. This intonation pattern affirms the truthfulness of a statement—that the event or state was or is as described, or will (or should) be so in the future, *qummüy qemi* // 'we (excl.) will go,' *hië* // 'it is',
  2   1 3-2   1 3-2
naŋände // 'they *did* eat'.

5. THE BREATH GROUP

A breath group is a high-level phonological unit within which is distributed one or more pause groups. Breath groups are marked intitially by silence and an intake of air and finally by fade pitch. Final breath-group juncture is a point of potential change of style, mood, etc. of the speaker. These features await further analysis.

Three breath-group types are determined by co-occurrence restrictions on pause-group types which are distributed within the breath group:

(1) One type has an obligatory nucleus filled by pause-group types F$_{2\ 3}$ optionally preceded by one or more pause-group type NF$_{1\ 2}$. This breath-

group type may be symbolized as follows:

$$\pm \text{NF} \quad \ldots + \text{F}$$
$$\quad 1 \; 2 \qquad \quad 2 \; 3$$

E.g., *hey qinílaq* # *ye qumüyde* // 'I know they will go'.
$$\quad 1\,2 \qquad\qquad 2\;3$$

(2) A second breath-group type has an obligatory margin filled by one or
more pause-group types NF   followed by a pause-group type F   .
$$\qquad\qquad\qquad\qquad\qquad\qquad 2\;1 \qquad\qquad\qquad\qquad\qquad\qquad\qquad\quad 2\;3$$

$$+\text{NF} \quad \ldots + \text{F}$$
$$\quad 2\;1 \qquad\quad 2\;3$$

E.g., *boqón* # *háqqin* / *di naŋäkew* / *qenen* # *m nüqmu* // 'It wasn't
$$\quad 2 \qquad\quad 2\;1 \quad\; 2 \quad\; 2\;1 \quad\; 2 \qquad\quad 2\;3$$
me who stole your chicken!'. A free variant of F   with contour pat-
$$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad 2\;3$$
tern 2 1 occurs preceded by NF   : *qeggüyaq* / *naŋäkew* // 'I did not
$$\qquad\qquad\qquad\qquad\qquad\qquad\quad 2\;1$$
steal!'.

(3) A third breath-group type has an obligatory nucleus filled by one of the
following pause-group types: F   , F   or F   . No margin oc-
$$\qquad\qquad\qquad\qquad\qquad\qquad\quad 1\;2 \quad\; 2\;1 \qquad 1\;3\text{-}2$$
curs preceding this breath-group type.

$$+\text{F} \quad / \text{F} \quad / \text{F}$$
$$\quad 1\;2 \quad\; 1\;2 \quad\; 1\;3\text{-}2$$

E.g., *qumúy qemih* # *Hïgib* // 'We're going now to Higib', *hey ádan* #
$$\quad 2 \qquad\qquad 1\;2 \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad 2$$
nen bábluy # *di qumeyënyu* // 'What's the name of that barrio you are
$$\qquad\qquad\qquad\qquad 1\;2$$
going to?', *hey qinílaq* # *ye qumüyde* // 'I know they'll go'.
$$\qquad\qquad\qquad\qquad\qquad\qquad 1 \quad\; 3\text{-}2$$

6. TEXT

The following phonological features are indicated in the text which appears
below: stress-group juncture and stress; pause-group juncture, stress and intona-
tion contours; breath-group juncture. This text is a portion of a tape-recording
of a conversation between Clarita (C) and Pedro (P).

C: Pëdro // qenúud nin #   di qumeyéyud #   Mindanäw //
$$\quad 2\;\;1 \quad\;\; 2 \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad 2\;1$$
Pedro   when   perhaps the time-to-go-you (pl.)-to Mindanao?

P: Tagwán # di qalyónde # qeyënmi //
$$\quad 2 \qquad\qquad\qquad\qquad 2\;3$$
Not-known the say-they   time-we (exl.)-will-go.
qalyódey #   tulúy # dumíŋgu # qänü /   qunpu   limä //
$$\qquad\qquad\qquad\qquad\qquad\qquad 1\;2 \qquad\quad 2 \qquad\qquad 2\;3$$
Say-they-that   three   weeks   it-is-said, or   five.

ye qumuy   qemíd #   Mindanäw //
2   2 3
And will-go we (excl.) - to Mindanao.
C: qot   qemmúne #   ye nalpah #   di dëynoq //
2   2 3
Then enough (time) and is-finished the time-of tramping-rice-straw-into-
the-mud.

P: Mid maptóq # ye   qedï nin /   qen   héy # pataη #
2   2 1   2
Maybe   and not perhaps, in-that the   time-of-planting-
malpäh //   y mapiqpíqan #
2 3   2
seedbeds will-be-finished.   And mud-will-be-plastered-on-dikes
hi   pannäpnaq // ye   qun qemi   qumúy # hi qed Mindanäw //
2 3   2   2 3
of-the seedbeds.   And then we (excl.) will-go to Mindanao.

C: qóot # qedíaq #   miqbogey   goh /
2   1   2
Yes-so will-not-I will-join-in-transplanting-rice then,
ta   munquúbbu #   tuqü   goh //
2   2   3
so-that will-be-in-a-work-party we (incl.) again.

7. Free Translation

C: Pedro, when do you think you will go to Mindanao?
P: I don't know when we (excl.) will go. They say it will be three or five
weeks before we (excl.) go to Mindanao.
C: Then the tramping of rice straws into the mud will be already finished.
P: Perhaps not, but the planting of the seedbeds and the plastering of mud
on the seedbed dikes will be finished before we (excl.) go to Mindanao.
C: Yes, and when that is finished I won't join the others in transplanting
rice (but will wait) so we (incl.) will work together in a group again.

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