A PANORAMIC VIEW OF 17 pV(C)- FORMATIVES IN PENDAU DISTINGUISHED BY THE PARADIGMATIC LANDSCAPE

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Pendau is a Western Austronesian language spoken by about 3000-5000 speakers in Central Sulawesi, and has been grouped in the Tomini-Tolitoli language group. As is commonly found in many other related languages, there are many prefixes with the shapes *pong-*, *pang-*, *peng-*, *po-*, *pa-*, and *pe-*. These morphs or formatives can be found to occur in 17 distinct grammatical functions. The 17 possible grammatical functions form an interesting and complicated panorama which includes causatives, nominalization, imperatives, requestives, reflexives, applicatives, stem formers, etc. A survey of each of the 17 grammatical functions provides exemplary data, after which the two main objectives of this paper are: 1) discovering a complex matrix that makes sense of a significant number of these formatives, and 2) sorting out those formatives which do not belong to the matrix. The discovery of the paradigmatic matrix demonstrates that many of the pV(C)- prefixes are stem formers which have multiple functions depending on the co-occurrence or absence of other affixation in determining the grammatical function of the whole word. This matrix also shows for the first time the evidence for classifying Pendau verbs into six distinct classes (each verb class has a distinct stem formative associated with it, or lacking in the case of the stative verb class). These multiple functions highlight the morphological problem of calling these 'morphemes', and so this paper resorts to calling these morphs 'formatives'.

1. INTRODUCTION

Pendau[1] has a large number of similar looking formatives which appear as: *pong-, pang-, peng-, po-, pa-,* and *pe-*. A number of these have clearly distinctive morphosyntactic functions. A further complication is the presence of vowel harmony which initially camouflages some distinctions, but which in the end actually facilitates determining that the source of the distinctions is based on different verb classes. For example, one verb type is the active voice marked with *mong-* or *nong-* where the nasal alternation marks irrealis and realis respectively.[2] Since the mode distinction is not important in this paper I will usually refer to the realis mode in discussing the different voice classes. The *nong-* prefix has a large number of morph alternations due to vowel harmony and nasal assimilation processes, the possible allomorphs are: *nong, nang-, neng-, no-, non-, nom-, nony-*. As it turns out, the initial three prefixes listed here (*pong-, pang-, peng-*) can actually be collapsed to one underlying form which patterns precisely in the same manner as the active voice prefix.

We have now reduced the six prefix forms to four morphs from which, as we will see, there are perhaps as many as 17 distinct grammatical functions. These four prefix morphs, or formatives are the re-occurring shapes used in multiple grammatical functions, and can not at this basic level be referred to as morphemes. In a morphemic view there would be a much longer list of morphemes in which different morphemes have the same homophonous morph as other morphemes. I will use the term formative as a neutral term (in regards to whether or not the morpheme concept exists or is useful in Pendau) which means the building blocks required to form a particular word.

Formatives include any identifiable phonological component of a word that contributes to the formation of a word. The most common formatives in Pendau are the affixes. The term formative is often used in some linguistic traditions as a synonym of morpheme, or to deal with components of

words that defy designation of a morpheme to a particular phonological sequence. My usage of formative essentially follows Word and Paradigm theory[3], for example Anderson (1985:160) states:

> ...we will therefore avoid talking about morphemes; rather, in the analysis of word structure we will talk about minimal subparts of the phonological content of a form as *formatives*, and elements of the semantic structure of words as *roots* (or *stems*), and *grammatical categories*. In the simplest case a given formative may directly and unequivocally express a single category, but in other instances the relation is more complex.

I also include Pike's expanded usage of formative[4] which includes what are traditionally referred to as fused morphemes, or what might be called *submorphemic* (Pike 1996:4):

> When applied to morphology (which is the focus of this paper), a matrix has rows and columns labeled by different sets of semantic functions. The cells at the intersection of rows and columns are filled by phonologically-written grammatical entities, which could be morphemes or morpheme complexes or even submorphemic (but recurring) bits of phonological form. We use the term *formative* as a cover term for the phonological material entered into a cell of a matrix.

Approximately 17 grammatical functions use these four formatives and range from several causative forms to stem forms which do not seem to have any particular function. These functions include stem formation, several causatives, several nominalization types, applicatives (or 'focus'), reflexive, reciprocals, reduplication, imperative, requestive, and a second way to form active voice.[5] In this paper I will demonstrate that the *pV(C)-* formatives fall into two groups.

The first group of *pV(C)-* formatives is distinguished from the second group by the fact that the differences are organized according to their verb class and appear to occur only in a first order prefix position.[6] The redundancy in surface forms is clearly differentiated in a matrix where the verb classes are one parameter and the specific grammatical functions are another parameter. The intersection of these matrix cells provides an efficient mechanism to distinguish distinct grammatical functions while re-using the same formative for different grammatical functions of the same verb class.[7]

The second group of *pV(C)-* formatives are those that do not occur in the matrix pattern mentioned above. Secondarily they can usually be distinguished from the second group by occuring in a second or third order prefix position, with a couple of exceptions.

Verb Class	Voice or Verb Type	Prefixes (irrealis / realis)	Stem Prefix	Agentive Nominalization	Locative Nominalization
I	$Active_1$	mong- / nong- (meng-, mang- / neng-, nang-)	pong- (peng-, pang-)	to**pong**komung 'carrier, leader'	**Pon**sau'ong 'place to get water'
II	Dynamic	me- / ne-	pe-	to**pe**guru 'student'	**pe**guruong 'lesson'
III	Verbalizer	mo_2- / no_2-	po_2-	to**po**jala 'fisherman'	**po**gombo'ong 'meeting place'
IV	$Active_2$	m- / n- [or: mo_4- / no_4- ?]	po_4-	to**po**balu' 'seller'	**po**gutuong 'deed'
V	Positional	mo_3- / no_3-	po_3-	--	--
VI	Stative	mo_1- / no_1- (ma-, me- / na-, ne-)	--	tonangkait 'cripple'	--

Figure 1. Verb Class Prefix Template Paradigm

Pendau verbs can be classified into six verb classes (see figure 1).[8] The main thing to observe first is that what I am tentatively calling a *stem prefix* patterns morphologically in exactly the same way as the verb class prefix, except that the nasal phoneme is substituted by a *p* phoneme. Listed here are two nominalization patterns[9] which works on all but the stative voice and positional verb types. The stative verb can be nominalized with the agentive prefix *to-* and requiring either the realis or irrealis prefix as part of the word stem. The positional verb type theoretically could take the agentive or locative nominalization patterns, but I have yet to find an example in my data (the example *topongkoro* is probably an active voice formation based on the positional root '*oro* 'stand'). The other important thing to notice is that there are four possible homophonous *po-* prefixes which are marked with a subscript numeral to indicate they occur with a different voice or verb type.[10] The double line between class five and class six indicates that the first five classes are actor pivot oriented and class six is undergoer pivot oriented.

In summary then there are four formatives which have up to 17 possible distinct grammatical functions. Following the section on the data we will look at how the data can be analyzed. The two main objectives of this paper are: 1) discovering a matrix that makes sense of a significant number of these formatives and determining its significance, and 2) sorting out those formatives not in the matrix.

2. THE pV(C)- FORMATIVES: THE PANORAMA

The panorama of the *pV(C)-* formatives can be separated into two groups (as mentioned above) by making a separate chart for each of the six verb classes (see classes I-VI in figure 1 above) which lists and identifies only those grammatical functions which' occur as repeated patterns in more than one verb class even if the formative has a different shape.

Chart 1. -- Template Verb Class I: *nong-*

Gloss	buy	carry	draw water	get, take
Root	oli	'omung	sau'	alap
AV	nongoli	nongkomung	nonsau'	nangalap
IV	nioli	ni'omung	nisau'	nialap ~ ni**pang**alap
9	ni**pong**olia'	ni**pong**komuni		ni**pang**alapi
14	**pong**oli	**pong**komung ~ 'omung		**pang**alap ~ alap
15			**pon**sau'ong	**pang**alapong
16	to**pong**oli	to**pong**komung		
17		**pong**komung		**pang**alap

Gloss	club	hit, strike	drink	butcher, slaughter
Root	bolilo	rembas	inung	sambale
AV		norembas	nenginung	nonyambale
IV	nibolilo	nirembasi	niinung	nisambale
9		ni**po**rembasa'	ni**peng**inuni	ni**pony**ambalea'
14				sambalea'
15			**peng**inunong	
16			to**peng**inung	
17	**pom**bolilo	**po**rerembas		**pony**ambale

Chart 2. -- Template Verb Class II: *ne-*

Gloss	bathe	wait	hide	search	eat	learn
Root	riing	taang	nsoyo'	lolo	ngkani	guru
DY	neriing	netaang	nensoyo'	nelolo	nengkani	neguru
IV		nipetaang		nilolo	--	
9				nipeloloi		
14	periing	petaang	pensoyo'	pelolo ~ lolo		peguru
15	periinong			peloloong	pengkaniong	peguruong
16				topelolo	topengkani	topeguru
17						

Gloss	live, grow	ride	enter	walk, travel	walk
Root	tubu	sabe	ntama	lampa	gempang
DY	netubu ~ nepetubu	nesabe ~ nensabe	nentama	nelampa	negempang
IV	nipetubu (CAUS?)	nisabe	nintama	nilampa	
9		nipesabei	nipentamai	nipelampai	
14	petubu	pesabe	pentama	pelampa	pegempang
15	petubuong	pesabeong	pentamaong	pelampaong	
16		topesabe			topegempang
17	petutubu	pesabe		pelampa (telampa)	

Charts 1 and 2 show the work chart for the active transitive verbs and for the dynamic verbs (verb classes I and II respectively) illustrating the procedure for identifying and contrasting the patterns of *pV(C)-* for five distinct grammatical patterns. The top row in each chart gives the English gloss for the root in the second row. In chart 1 the third and fourth row contrasts active voice (AV) and inverse voice (IV) affixation (chart 2 contrasts the dynamic verb construction with the inverse voice construction on the same root). The numbers 9, 14, 15, 16, and 17 represent types of grammatical functions that use the formative stem former *pV(C)-* as an exponent which contributes to which grammatical function the specific word becomes depending on the absence or appearance of other formatives (these numbers refer to the grammatical types that are dealt with in sequence from 1 to 17 later in this section). For example, the row labeled with number 9 shows that the *pV(C)-* stem former combines with the inverse voice prefix *ni-* and either with the locative suffix *–i* (in which case then the word determines that the clause will have a locative noun phrase as the pivot or 'focus') or the prefixes combine with the benefactive applicative *–a'* (which determines that the clause will have an instrumental noun phrase as the pivot or 'focus').

The row with number 14 designates that this grammatical function type forms the imperative verb with simply the stem former *pv(C)-* or in some cases with just the root form. Number 15 designates that the stem former *pv(C)-* in combination with the *–ong* suffix creates a locative noun (i.e. has a nominalizing function in this instance). Number 16 similarly designates that the stem former *pv(C)-* in conjunction with the prefix *to-* produces an agentive nominalization of the root. Number 17 designates that the *pv(C)-* stem former can also produce in instrumental nominalization.

Blanks in the chart simply indicate a lack of textual data to support one part of a paradigm (although about 50 texts were searched).

One of the most important findings in this paper is that the grammatical functions listed in chart one as numbers 9, 14, 15, 16, and 17 make up a complicated matrix when verb classes I to V are integrated together.

This section will give one or more examples of each formative. Since this section is presented as a panorama of the *pV(C)-* prefixes, justification for distinguishing every type will not be discussed fully for sake of time. I recognize that one or more of the following distinctions may turn out to be a variation of one of the other types, however that will not affect the general direction of this paper. Abbreviations for the interlinear glosses appear at the end of the paper.

Type 1: Stem Forming po-

This particular stem former only appears on the surface when clearly preceded by another prefix as in examples 1 and 3. Example two illustrates two possible analyses of the active voice form in which the *po-* is underlying or is not underlying. This problem will be discussed later in section 3 where other similar formatives are discussed together in the final analysis. The appearance of this stem former with only some transitive verbs identifies this as a separate transitive verb class from the transitive verb class which is prefixed with *nong-*.[11]

1) *Bau* *uo* *ni-po-gabu* *nijimo.*
fish yonder IV/RE-STEM-cook 3p/GE
'They cooked that fish.' [EN97-002.19]

2) *Jimo* *no-gabu* [or: n-po$_4$-gabu] *bau* *uo.*
3p/AB AV$_2$/RE-cook fish yonder
'They cooked that fish.' [EN97-002.19]

3) *Jimo* *nom-po-po-gabu* *bau* *uo.*
3p/AB AV/RE-CAUS-STEM-cook fish yonder
'They had someone cook that fish.' [EN97-002.19]

Type 2: Positional Stem Forming po-

In contrast to the previous stem former (type 1), this stem former appears on the intransitive (S=A) verbs of this class.

4) *Io* *no-po-duling* *ri='uo*
3s/AB ST/RE-STEM-lie_down LOC=yonder
'He lay down over there.' [horse.pin 508]

5) *Jimo* *n[ong]o-po-duling=omo* *ri=bongkarang.*
they/AB ST/RE-DIST-STEM-lay_down-COMP LOC=garden_hut
'They each lay down in the garden hut.'

Transitive clauses based on this verb class can be formed in the inverse voice by using the prefix *ni-* and the applicative *–a'*, but the *po* formative does not appear as part of the stem (see chart 5 for the full paradigm) in this combination; however, the *po-* formative does form stems for other parts of its verb class paradigm. The next example contrasts two verb classes (type 1 and type 2) within the same sentence. Both of these verb classes are identified by the verbs they occur with. This sentence further illustrates that the *po-* formative cannot simply be a transitivity marker, as is claimed for Kaili languages (cf. Barr 1988 and Evans 1999).

6) *Bai* *uo* *no-tou'* *bongkarang* *uo* *ni-po-gutu,*
like yonder ST/RE-finish hut yonder IV/RE-STEM-make

paey *unga* *uo* *ni-dulin(g)-a'* *ri='uo.*
and.then child yonder IV/RE-lie.down-BEN LOC=yonder

'So he finished making the hut, and then he laid the child down there.'
[mdtext1.txt 038]

In word forms with the *le-* distributional plural prefix, the *po-* is absent, which suggests either that the *le-* prefix morphologically blocks the *po-* from occuring, or that the *po-* formative could have an aspectual meaning. The next two examples contrast these two formatives.[12]

7) *Bai* *uo* *no-po-tundo* *sa-gaat* *no-po-duling=omo.*
like yonder ??/RE-STEM-sit ONE-section ??/RE-STEM-lie.down=COMP

'Like that they sat down, and some already were lying down.'
[poora.pin 508]

8) *Ri=watu* *uo* *ne-dea* *too* *me-le-tundo*
LOC=time yonder ST/RE-many people ??/IR-DIST-sit

ri=pali-palit *ni=Yesus.*
LOC=RED-around PNM/GE=Jesus

'At that time many people were sitting all around Jesus.' [Mark 3:32]

Type 3: Causative pa-

There are several causative formations in Pendau, but the *pa-* causative has the unique characteristic that it appears to form a new lexeme. One source for this view is the fossilized word *pate* 'kill', which is clearly historically from the word *ate* 'die' (note for example *nomate* formed from *nong-pate* not **nomapate*). Historical evidence indicates the fusion of the formative *pa* resulted in a new lexeme.

In addition this causative prefix follows the general morphophonemic pattern in which the *p* phoneme is assimilated and deleted from word roots, whereas in the non-*pa-* causatives nasal assimilation occurs but never deletion of the *p* phoneme (see types 4 and 5). The word bases on which the *pa-* prefix can occur on are from the dynamic verb class or the transitive class.

9) *Io* *nom-(p)a-guru* *jimo.*
3s/AB AV/RE-CAUS-learn 3p/AB

'He taught them.'

10) *Si=rapi='u* *nom-(p)a-inang* *tagu='u* *loka.*
PN/AB=spouse=1s/GE AV/RE-CAUS-eat friend=1s/GE banana

'My spouse fed my friend a banana.' [EN97-003.30]

11) *Tagu='u* *ni-pa-inang* *ni=rapi='u* *loka* *uo.*
friend=1s/GE IV/RE-CAUS-eat PN/GE=spouse=1s/GE banana yonder

'My spouse fed my friend that banana.' [EN97-003.30]

Type 4: Causative (Intransitive Stative Base) po_1-

The causative po_1- takes vowel harmony following the same pattern as the stative prefix no_1-. This takes an intransitive verb from the stative verb class (S=P) and transitivizes the verb. Stative verbs which are causativized can be in either active or inverse voice.

12) *A'u* *nom-pa-lalo'* *lovu='u.*
1s/AB AV/RE-CAUS-deep well=1s/GE
'I deepened my well.' [EN97-003.3]

13) *Rapi='u* *mom-po-'onda'* *ogo* *uo.*
Spouse=1s/GE AV/IR-CAUS-hot water yonder
'My spouse is heating that water.' [EN97-003.3]
"Istri saya kasi panas air itu."

The next example shows an additional combination of the causative *po$_1$-* with the resultative prefix *'o-* (which also takes vowel harmony). Some root bases seem to require this combination, and other root bases do not. This combination can occur in either active or inverse voice.

14) *Unga='u* *ni-pe-'e-siin(g)-a'* *nu=tagu=nyo.*
child=1s/GE IV/RE-CAUS-RSLTV-dirty-BEN CN/GE=friend=3s/GE
'His/her friend made my child dirty.' [EN97-002.25]

15) *A'u* *nom-po-'o-mbosi'* *motor* *tagu='u.*
1s/I AV/R-CAUS-RSLTV-good motorcycle friend=1s/II
'I fixed my friend's motorcycle.' [EN97-003.5]

Type 5: Causative (non-intransitive Base) po$_5$-

This causative formative is used to inflect non-intransitive roots, and includes transitive roots and noun roots. The prefix does not take vowel harmony in contrast to the causative *pa-* and the intransitive causative *po$_1$-* (the latter takes vowel harmony).

16) *Ni-po-'ito-a'* *nijimo* *moje* *sa-karung* *pu'ot.*
IV/RE-CAUS-look-BEN 3p/GE again ONE-sack seine.net
'They again showed (someone) one bag filled with a seine net.'
[jptext4.doc]

17) *Tarus* *ni-po-'ito-a'* *nu=odo* *uo*
continue IV/RE-CAUS-look-BEN CN/GE=monkey yonder
urang *uo* *sono* *bakaka.*
shrimp yonder with kingfisher
'And continuing on the monkey showed the shrimp the kingfisher.'
'Terus diperlihatkan monyet itu udang itu dengan bakaka.' [mdtext6.doc]

18) *Ami* *ni-po-inung=omo* *nijimo* *ogo* *mo-onda'.*
1pe/I IV/RE-CAUS=drink=COMP 3p/II water ST/IR-hot
'They made/had us drink hot water.' or?: 'They gave us hot water to drink.'
[EN97-003.28]

19) *Jimo* *nom-po-inung=omo* *ami* *ogo* *mo-onda.*
3p/I AV/RE-CAUS-drink=CAUS 1pe/I water ST/IR-hot
'They gave us hot water.'
"Mereka sudah kasi kami air panas." [EN97-003.29]

The next three examples illustrate the causativization of a nominal derived root which is already a transitive verb.

20) *Bengkel* *uo* *ni-po-po-rapi* *nu=langkai* *moo.*
female yonder IV/RE-CAUS-STEM-spouse CNM/II=male this
'This man gives that woman in marriage (to someone else).'
"...dikasi kawin..." [EN97-002.20]

21) *Langkai* *moo* *mo-rapi* *bengkel* *uo.*
male this VBZR/RE-spouse female yonder
'This man will marry that woman.' [EN97-002.20]

22) *Bengkel* *uo* *ni-po-rapi* *nu=langkai* *moo.*
female yonder IV/RE-STEM-spouse CN/GE=male this
'This man will marry that woman.' [EN97-002.20]

Type 6: Stative Causative (Causative and Resultative Prefixes) po_1-'o-

This section shows the formative sequence of *po_1-'o-* (in which vowel harmony applies from right to left), in what appear to be a special stative verb construction in which the stative verb remains an intransitive (in contrast to becoming a transitive as is clear for formative type 4 above). Notice that it is clearly the stative prefix *no_1-* and not the transitive affixation alternative since it would otherwise be prefixed for example as *nompa-* or *nipa-* in these particular examples.

23) *Tarus* *panganganta* *uo* *na-pa-'a-nabu* *ila* *tubu*
continue ogre yonder ST/RE-CAUS-RSLTV-fall from trunk
nu=niu *uo* *sampe* *na-ate* *panganganta* *uo.*
CN/GE=coconut yonder until ST/RE-die ogre yonder
'And then that ogre was made to fall (lit. cause to result in falling) from the coconut tree trunk there until that ogre died.' [mdtext20.txt 211]

24) *Paey* *na-pa-'a-tarob* *mai* *bonuo* *nu=tatambuang* *uo.*
and.then ST/RE-CAUS-RSLTV-rip come nest CNM//GE=bumblebee yonder
'And then he ripped open the bumblebees' nest.' [troll.pin 213]

25) *Na-pa-'a-pate* *jimo* *ntoirapi* *uo.*
ST/RE-CAUS-RSLTV-kill them husband&wife yonder
'The husband and wife (ogres) were made to be killed (by the giant cat).' [poora.pin 399]

Type 7: Nonvolitional Reciprocal (Causative or Stem?) te-po_2-

The next example shows the root *tagu* 'friend' prefixed with three prefixes. The first prefix marks it as a realis verb, and the combination of *te-po_2-* occurs together when the meaning infers a reciprocal event. Usually the *te-* prefix marks non-volitional or abilitive aspect, and the *po-* in combination with the *te-* formative is probably a stem form based on the verbalizer prefix *no-*.

26) *Diang* *jea* *too* *ri=ulu* *to-na-ngkait* *o*
EXIS say person at=first AGNMZR-ST/RE-cripple and
to-no-buta *ne-te-po-tagu.*
AGNMZR-VBZR/RE-blind DY?/RE-NV-STEM-friend
'So it was said in the beginning that the cripple and the blind man just happened to become friends.' [nangkait.pin 002]

27) *Bai uo jimo ne-te-po-dua'* *sono si=Katira.*
like yonder 3p/AB AV?/RE-NV-STEM-arrive with PN/AB=Katira
'So they came upon Katira.' [katira.int 027]

Type 8: Iterative/Repetitive (reduplication) po-, pa-, pe-

These formatives are formed by reduplication of the first syllable of the stem or root and result in iterative aspect.

28) *Bau uo ni-po-po-gabu nijimo.*
fish yonder IV/RE-RED-STEM-cook 3p/GE
'They cooked that fish over and over.' [EN97-002.19]

29) *Komputer ni-pa-pa-guru-a'=o'u io.*
computer IV/RE-RED-dCAUS/INSTRf-learn-BEN=1s/GE 3s/AB
'I repeatedly used the computer to teach him.' [EN97-003.66]

30) *A'u nom-po-po-mbosi' tagu='u.*
1s/AB AV/RE-RED-CAUS-good friend=1s/GE
'I repeatedly straightened out my friend.' [EN97-003.5]

Compare the previous examples to the following example which shows that the first syllable of the root of the verb *bura* 'speak' is reduplicated resulting in iterative aspect, just as the stem forms above do.

31) R*o-bu-bura-i* *nu=too.*
IV/IR-RED-speak-LOC CN/GE=person
'One person kept talking about him/her.' [EN97-004.2]

Type 9: Instrument & Locative "Focus" Applicatives pong- / -a' and pong- / -i

This stem prefix co-occurs with applicative suffixes to make a third clausal argument the pivot. There are two grammatical functions which make use of the stem formative *pong-*: 1) instrument pivot, and 2) locative pivot. The occurrence of *pV(C)-* on verbs to mark a third argument as pivot has been tentatively analyzed as an applicativization process (see Quick 1999a). The first two examples illustrate the use of instrument pivot followed by an example with locative pivot.

32) *Patolo ni-pon-(t)ulis-a'=o'u surat.*
Pencil IV/RE-INSTRf-write-BEN=1s/GE letter
'I used A PENCIL to write a/the letter.' [EN97-003.63]
"Pensil saya pakai menulis surat."

33) *Buut ni-pong-komun(g)-i ni=kai tavala.*
mountain IV/RE-LOCf-carry-DIR PM/GE=grandfather spear
'The grandfather carried the spear TO THE MOUNTAIN.'

There are some further complications to this type. Some verbs formed with the derivational causative *pa-* (type 3) and with the stem former *po-* (as in type 1) also have a second functional use of this same formative. The next example illustrates its second use in an instrument clause construction.

(34) *Baliung=o'u mu-po-gutu-a'=omo piso.*
axe=1s/GE 2sIV/IR-INSTR-make-BEN=COMP machete
'You make machetes for me by using my AXE .' (A blacksmith makes machetes from the axe by forging).'

The next two examples contrast the pivot noun phrase. In example (36) the derivational causative prefix serves a double function when the instrument noun phrase is the pivot. This seems to indicate a cyclical process as is suggested in lexical morphology. On the first cycle the causative *pa-* formative forms the lexeme 'feed' derived from 'eat'. On a subsequent cycle the formative *pa-* meets the applicative requirements for the word formation and is also used to mark instrument pivot in combination with the benefactive suffix-*a'*.

(35) *Bau uo ni-pa-inang=oto nu=upang.*
fish yonder IV/RE-CAUS-eat=2pi/GE INSTR=bait
'We used the bait to feed the FISH.'

(36) *Upang uo ni-pa-inan(g)-a'=oto bau uo.*
bait yonder IV/RE-CAUS-eat-BEN=2pi/GE fish yonder
'We used the BAIT to feed the fish.'

There are two possible analyses. The first analysis would be to assume that the prefix position morphologically blocks the use of the applicative stem formative. The second analysis, which is consistent with the current analysis, is that since the prefix position already matches the formative *pV(C)-* template, the second grammatical function stacks a second use on top of the first prefix. As will be discussed later the phoneme *p* plus a vowel meets the minimum requirement when it already fills the prefix position that the stem formative would need in order to make this particular type of applicative.

The final example illustrates that reciprocal and instrumental affixes can combine in the same verb.

(37) *Ogo uo ni-posi-pon-(t)uan(g)-a' nijimo api uo.*
water yonder IV/RE-REC-INSTR-pour-BEN 3p/GE fire yonder
'Together they poured WATER on the fire.' (It is implied that water is taken from one place or container.)

Type 10: Reflexive Stem po-gu-

The following examples show a combination of the two formatives *po-* and *gu-*. The presence of these two formatives forms a reflexive clause. The use of the formative *gu-* appears frequently in the riddle genre, and very rarely elsewhere.

38) *Nao boto=nyo ni-po-gu-boto=nyo,*
that trunk=3s/GE IV/RE-STEM-RFLXV-trunk=3s/GE
roong=onyo ni-po-gu-roong=onyo.
leaf=3s/GE IV/RE-STEM-RFLXV-leaf=3s/GE
'Its trunk is its own trunk, and its leaves are its own leaves.'
[tangke01.doc riddle #3]

39) *Roong=onyo ni-po-roong=onyo.*
leaf=3s/GE IV/RE-STEM-leaf=3s/GE
'Leaves became leaves.'

The next example was a note made by my language helper, and contrasts the use of the *gu-* formative in the previous examples where it most commonly occurs in the inverse voice. The last example shows that there is some restriction of the use of the *gu-* prefix. Almost all uses of *gu-* in the inverse require the same root be used in the verb as in the pivot noun.

40) *Io* *no-gu-n-tope* *si=Mesak*
3s/AB AV/RE-RFLXV-LIG-name CN/AB=Mesak
'His name is Mesak.'

41) **Si=Mesak* *ni-po-gu-tope=nyo.*
CN/AB=Mesak IV/RE-STEM-RFLXV-name=3s/GE

Type 11: Active Voice nepe-

There are two prefixes that overlap in their use of active voice, *nong-* and *nepe-*. Although these two prefixes can be affixed to the same root and produce the same meaning, there are many roots which use only one or the other. For roots which can take either prefix formative, usually one prefix is preferred by speakers for specific roots over the other one. The prefix *nepe-* is listed here because the *pe-* could be analyzed as a separate formative, however there has been no evidence to date to support this.

42) *Too* *uo* *mepe-kova* *bau.*
person yonder AV/IR-carry fish
'That person will carry fish' [EN97-002.54]

43) *Too* *uo* *mong-kova* *bau* *uo.*
person yonder AV/IR-carry fish yonder
'That person will carry that fish.' [EN97-002.54]

Type 12: Reciprocal/Multiple Agents Combined (Mutual Action) posi-

The formative combination of *posi-* creates a kind of reciprocal action between multiple participants. Himmelmann and Wolff (1998:50) have identified the cognate affix as mutual action in another Sulawesi language, Toratán. It is not clear whether the *posi-* is one or two formatives.

44) *No-si-raga=mo (N-posi-raga=mo)* *moje* *jimo* *doruo.*
AV?/RE-REC-chase=COMP again 3p/AB two
'The two of them chased each other.' [troll.pin 164]
[note: only the ogre chases the monkey in this folktale.]

45) *"Sapa* *ni-posi-baro-i* *miu* *nao?"*
what IV/R-REC-argue-LOC 2p/II that
'What are you (pl.) arguing about there?' [ceku01.jdb 042]

Type 13: Requestive[13] pe'i-

The formative combination *pe'i-* creates a requestive verb construction. This formative combination is contrasted in the active and inverse voice clause constructions below.

46) A'*u* *me-'-i-po-gutu-a' (m-pe'i-po-gutu-a')* *piso='u.*
1s/AB AV/IR-REQ-STEM-make-BEN machete=1s/GE
'I request that you create my machete (for me).' [asu2.pin 125]

47) *Ni-pe'i-'ai-a'=onyo=mo* *too* *totolu* *uo.*
IV/RE-REQ-call-BEN=3s/GE=COMP person three yonder
'He requested the three men there to be called (to him).' [natal01.pin 015]

There are some verb constructions which only have the *pe-* formative and it is clear that it is the minimal bit that is required to create a requestive verb. This is contrasted in the active and inverse voice clause constructions below.

48) *Tagu='u* *ni-pe-pa-guru='u.*
friend=1s/GE IV/RE-REQ-dCAUS-learn=1s/GE
'I sent (requested?) my friend to teach.' [EN97-002.23]

49) *A'u* *me-pe-pa-guru* *tagu='u.*
1s/AB DY?/I-REQ-dCAUS-learn friend=1s/GE
'I asked for my friend to teach me.' [EN97-002.23]

Type 14: Imperatives

Most imperative verb constructions are formed by either using the verb class stem formative *pV(C)-* as the initial element or with just the root without any prefixes. The next two examples show the dynamic verb class and the transitive verb class respectively.

50) *"Emu* *pe-nsoyo'=omo* *ri=dodop*
2p/AB STEM-hide=COMP LOC=chest
nu=pe-tubu-ong=o'u *nao!"*
CN/GE=NMZR-grow-locNMZR=1s/GE yonder that
'You (pl.) hide now in my pet's chest.'
[Note: The pet is a giant cat.] [poora.pin 396]

51) *Oo* *pong-komung* *intolu* *ma-manta* *sa-dampe!"*
2s STEM-carry egg ST/IR-raw ONE-CLSF
'You carry one raw egg! [mdtext5.jdb 038]'

There seems to be some variation on imperative transitives, as either voice can appear with or without the *pong-* prefix.

52) "P*e-teule* *oo* *uti* *'omung* *bua* *nu=taipang*
STEM-return 2s/AB son STEM.carry fruit CN/GE=manggo
moo *sa-dampe!"*
this ONE-CLSF
'Son, you bring one manggo fruit here!" [nalalo.pin 024]

53) *"...paey* *'omung* *miu* *mai* *ri='a'u."*
and.then STEM.carry 2p/AB come.here LOC=1s/AB
'...and then bring him to me.' [natal01.pin]

Type 15: Locative Nominalization Circumfix pV(C)- / -ong

One nominalization process is the circumfix *pV(C)- / -ong*, in which the derived noun is generally the place or location of the root.

54) *Ami* *me-lolo* *po-moia-ong.*
1pe DY/IR-search STEM-live-locNMZR
'We are searching for a place to live.' [poora.pin 081]

55) *Ita-i* *nao* *pe-sabe-ong=o'u.*
see-DIR that STEM-ride-locNMZR=1s/GE
'Look, there's my saddle.' [horse.pin 021]

Type 16: Agentive Nominalization to-pV(C)-

Another type of nominalization is with the formative combination *to-pV(C)-* in which the *to-* prefix indicates an agent. The derived meaning of the root is 'someone who does X activity'.

56) *Jari* *nom-(p)eilu=mo* *si=Gibang,*
so AV/RE-tell=COMP PN/AB=goana

"emu *ro-po-rapi* *nu=to-pang-angka!"*
2p/AB IV/RE-STEM-spouse CN/GE=AGNMZR-STEM-steal

'So the goana said, "A thief will marry you!"' [gibang.pin 166]

57) *Ndau* *na-sae* *ila* *uo* *taruus* *no-dua'*
NEG ST/RE-long from yonder continue ST/RE-arrive

to-pong-komung *asu.*
AGNMZR-STEM-carry dog

'Not long after that then the dog carriers arrived.'
[Note: This is about men hunting with dogs.] [katira.int 025]

Type 17: Instrument Nominalization pV(C)-

The last type of nominalization generally derives an instrument noun based on the root by simply prefixing the verb class stem formative *pV(C)-*.

58) *Too* *ni-rembas-i=nyo* *sono* *pom-bolilo.*
person IV/RE-hit-LOC=3s/II with STEM-club

'He/she hit the man/person with a club.' [EN97-002.45]

3. THE pV(C)- TEMPLATE PARADIGM

In this section I will sort out the *pV(C)-* formatives which form verb stems according to their verb class from those examples which do not. The formatives which form verb stems obviously fit into a paradigm which I will discuss below.

Each of the charts represents one verb class (see Charts 1 and 2 in section 2 above) and shows lexical examples of the word forms for several grammatical function types. Notice that in charts 1-5 that there is a very similar pattern for most of the grammatical functions 14, 15, 16, 17, and 9 (these numbers correlate with the sequential numbering of the grammatical function types in the previous section). This pattern is captured in figure 2 below.

Chart 3. -- Template Verb Class III: no_2-

Gloss	spouse	fish	work	govern, rule	fishing net	meeting
Root	rapi	banta	karajaa	parenta	jala	gombo'
VBZR	norapi	nobanta	nokarajaa	noparenta	nojala	nogombo'
IV	niporapi		nikarajaa	niparenta	nijala	
9						
14	porapi	pobanta				
15		pobantaong	pokarajaaong	porentaong		pogombo'ong
16		topobanta		topoparenta	topojala	
17						

Chart 4. -- Template Verb Class IV: *no$_4$-*

Gloss	make	sell	cook	live, dwell	request, beg
Root	gutu	balu	gabu	moia	mongi
AV2	nogutu	nobalu'	nogabu	nomoia	nomongi
IV	nipogutu	nipobalu'	nipogabu	nipomoia	nipomongi
9	nipogutua'		nipogabua'	nipomoiai	
14	pogutu	pobalu'	pogabu	pomoia	
15	pogutuong		pogabuong	pomoiaong	pomoiaong
16	topogutu	topobalu'			topomongi
17					

Chart 5. -- Template Verb Class V: *no$_3$-*

Gloss	lie down	sit	stand
Root	duling	tundo	'oro
Position	nopoduling	nopotundo	nopo'oro
IV	nidulina'	nitundoa'	ni'oroa'
9	nipodulini		
14	poduling	potundo	po'oro
15	podulinong	potundoong	
16			(topongkoro)
17			

Chart 6. -- Template Verb Class VI: no$_1$-

Gloss	deep	dirty	rip, tear	kill	fall
Root	lalo'	nsiing	tarob	pate	nabu
Stative	nalalo'	nensiing	--	--	nanabu
4 - AV	nompalalo'	nompe'ensiing	--	--	
4 - IV		nipe'esiina'	--	--	
6			napa'atarob	napa'apate	napa'anabu
8					
14					

Continuation of Chart 6

Gloss	good	short	become	conscious
Root	mbosi'	empeng	jari	sadar
Stative	nombosi'	neempeng	najari	
4 - AV	nom**po**'ombosi'			
4 - IV	ni**po**'ombosi'	ni**pe**'eempeng	ni**pa**'ajari	
6	--			
8	nom**po**pombosi' ~ nom**po**po'ombosi'			
14	**po**'ombosi' ~ **po**mbosi'		pajari ~ **pa**'ajari	**pa**'aṣadar

Figure 2 shows the prefix groupings which exist for the first five charts. Each of these is represented in figure 2 by a rectangle and is labeled with a roman numeral between I – V. The roman numerals correlates with the verb classes set out in figure 1 above (and in charts I-VI). First note that the largest rectangle has several smaller rectangles within it. These embedded and overlapping rectangles indicate the existence of a matrix that I will discuss shortly.

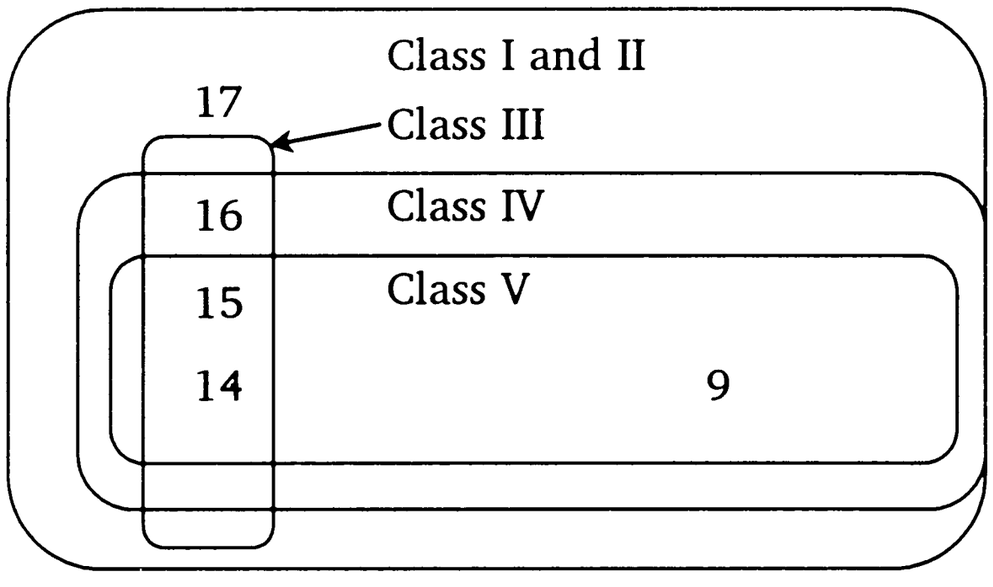

Figure 2. Grammatical Function Prefix Groupings for Verb Classes I-V

The sixth chart shows the stative verb class and it hardly overlaps at all with charts 1-5 (except the grammatical function type 14, the imperative). The gaps in these six charts show that I haven't been able to completely fill in every word form's paradigm from my corpus, but taking them all together supports the basic paradigm. In some cases a gap for all lexical words for a particular grammatical function may be either accidental, or because there may be some semantic restriction that disallows a certain verb class to construct that form.

Next we see that some, but not all, of the *pV(C)* prefixes can fit into one of these six charts. Figure 3 groups all of the *pV(C)-* prefixes into groups contrasting those prefixes which have an ordered pattern and those which do not have a tightly ordered pattern (see figure 4 for a simpler tabulation). The numerals 1-17 refer to the grammatical function types referred to in that sequence in the previous section. Numerals 9, 14, 15, 16, 17 occur in at least one of the first five verb classes (I-V). Numerals 4, 6 and 14 occur in verb class VI (the rectangle on the top right side). Numeral 14 occurs twice, once in the matrix grouping, and once in the verb class VI.

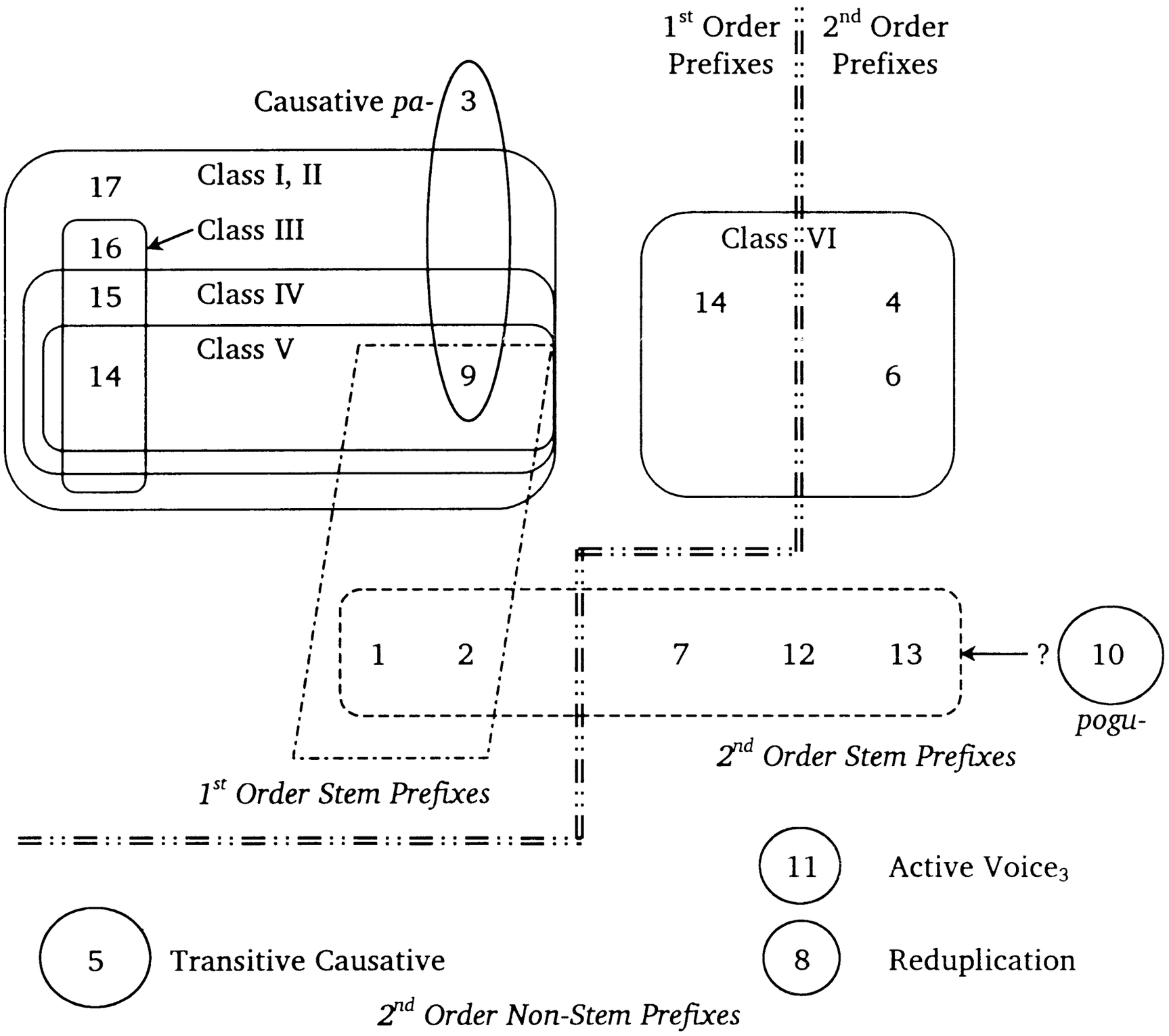

Figure 3. Detailed Prefix Groupings

Numerals 1, 2, 7, 12 and 13 are grouped together in another rectangle since they are suspected to all be special cases of stem formers. Numeral 10 is circled to the right of this last rectangle with an arrow pointing to that rectangle since it is suspected to include a stem former as well. Numeral 3 is in its own circle since this causative appears to be a 1st order prefix in contrast to numeral 5. The numerals 8 and 11 do not group with any of the other numerals. Numerals 3 and 9 are grouped together in an oval since the numeral 3 formative can function doubly as an applicative; likewise numerals 1 and 2 are grouped with numeral 9 in a rhombus to show that their formatives can also function doubly as an applicative. Finally, the double dash-dot line divides the diagram into two halves suggesting that there are primary and secondary prefixes that have tentatively been labeled as 1st order prefixes (on the left side of this line) and 2nd order prefixes on the right side of this line. This final division might be better described using lexical morphology. The 1st order may be one level or stratum above the 2nd order or a lower stratum.

Figure 4 tabulates figure 3 in a simpler format, although it loses some of the insights that are gained in the complicated diagram of figure 3. Each row correlates one or more grammatical functions (again identified by their type number) that form a group based either on a matrix (only row i) or grouped by similar grammatical functions. Question marks indicate that there is a formative combination that could be decomposed with the *pV(C)-* formative actually being some type of stem former. The causative formative for types 4 and 6 are probably the same formative.

Prefix Grouping		Grammatical Functions
i)	matrix stem	9, 14, 15, 16, 17
ii)	non-matrix stems	1, 2, (7?, 10?, 12?, 13?)
iii)	double function as stem and applicative	1, 2, 3
iv)	causatives	3, 4, 5, 6, (7?, 12?)
v)	reciprocal	12?
vi)	requestive	13
vii)	reflexive	10?
viii)	reduplication	8
ix)	active voice	11

Figure 4. Basic pV(C)- Prefix Groupings

Next I collapse the *pV(C)-* formatives from the first five charts (classes I-V) and their verb classes into a two-dimensional matrix (see figure 5). The numbers on the left side indicate the grammatical functions listed previously. Along the top are the verb classes.

Grammatical Functions	Class I nong- AV_1	Class II ne- Dynamic	Class III no_4- AV_2	Class IV no_3- Positional	Class V no_2- Verbalizer
14	pong-	pe-	po_4-	po_3-	po_2-
15	pong-	pe-	po_4-	po_3-	po_2-
16	pong-	pe-	po_4-	--	po_2-
9	pong-	pe-	po_4-	po_3-	--
17	pong-	pe-	--	--	--

14. *Imperatives*
15. *Locative Nominalization Circumfix*
16. *Agentive Nominalization*
17. *Instrument Nominalization*
9. *Applicativization (Instrument and Locatives)*

Figure 5. Two-dimensional Matrix of Verb Classes and Five Grammatical Functions for pV(C)-

This may turn out to be adequate at some level of analysis, but in this two dimensional matrix we see something else that persists in every cell. This is the *p* phoneme. Since there is already a clear alternation between the nasals *m* and *n* for irrealis and realis in the language, I suggest that there may actually be a three-way alternation of stops. A second argument for splitting the *p-* phoneme away from *pV(C)-* formative(s) is an historical one. The Muna language (van den Berg 1989, 1997) of Southeast Sulawesi has three verb classes based on the vowels *o*, *e*, and *a*. These can be reconstructed as reflexes from proto-Celebic verb prefixes *mo-/no-, ma-/na-,* and *me-/ne-* (cf. van den Berg 1996 and Mead 1997).

In the following discussion I will contrast a morphemic analysis with a non-morphemic analysis (i.e. morphological theories which either treat the *morpheme* as basic or non-existent respectively). If we follow a morphemic view of language we could suggest an analysis of certain alternations where m-/n- captures the irrealis and realis alternations (which is clearly not a synchronic morphophonemic solution). In this typical Philippine analysis, then, *po-* underlies certain words such as *mo-gabu* which in its underlyingly form is *m-po-gabu*. Although this *ad hoc* analysis works for certain verb types in Pendau, it does not address the wider paradigm that it occurs in. The wider

paradigm suggests a different solution (i.e. one solution can cover the whole data rather than two solutions which each capture part of the whole solution).

From the morphemic view the main puzzle is in determining what the *pV(C)-* morpheme is for each grammatical function. For a non-morphemic approach such as the Word and Paradigm Theory, it is the combination of formatives (determined by morphological rules) which consist of what the output word can become that is important. In other words, a stem containing a prefix formative *pV(C)-* is required by a morphological rule for each grammatical function type numbered 9, 14, 15, 16, 17. This makes it unnecessary to assign a separate morpheme to each one of these grammatical distinctions (which would be further compounded by five verb classes), because the *pV(C)-* formatives are an exponent of the morphological operation.

Following a procedure identified by Pike and Simons (1996), I suggest that the *p* phoneme is a basic *formative* which I will tentatively label as neutral mode. This means that there are three possible parameters, and not just two as shown in figure 5. Figure 4 shows a three dimensional matrix, where Pike's Matrix Theory is applied (see Pike 1996, Pike and Simons 1996, Dubois, Upton and Pike 1980).

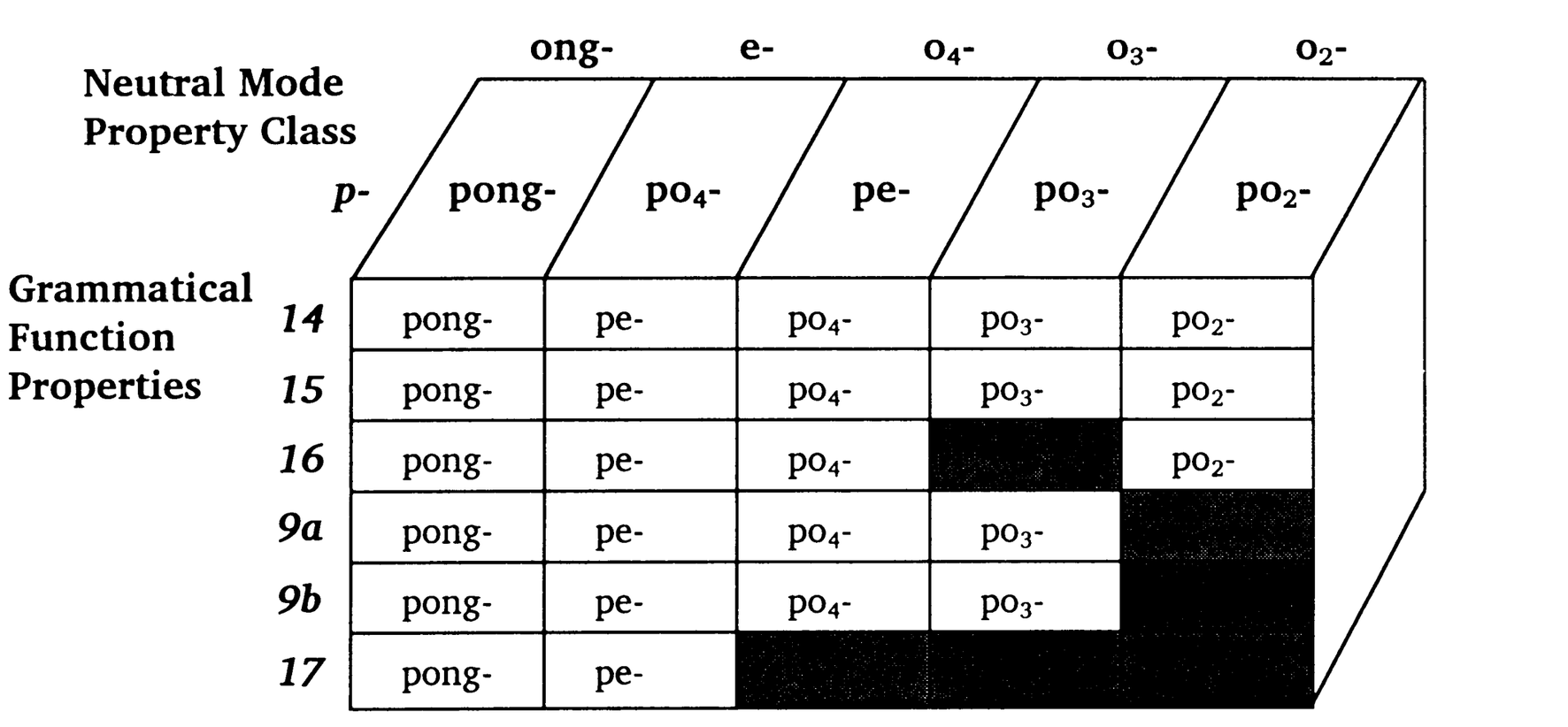

Figure 6. Three-Dimensional Matrix of the pV(C)- Paradigm

The verb classes can be viewed as a *collection* at the top of a hierarchy.[14] The terms *class* and *collection* are terms and concepts used in *object-oriented programming (OOP)* and *object-oriented designing*. Booch (1994:34) defines OOP:

> Object-oriented programming is a method of implementation in which programs are organized and cooperative collections of objects, each of which represents an instance of a class, and whose classes are all members of a hierarchy of classes united via inheritance relationships.

So I have borrowed the OOP terms to label the parameters of the three-dimensional matrix. In addition the basic concepts of OOP applied here suggest that each instance of a particular prefix is an *object*, and that the *p* phoneme seems to be an inherited property of the entire collection of verb classes. The *pV(C)-* forms used are the individual objects. Objects are a particular instantiation of a class. The grammatical functions are the properties which identify a specific object of a class.

4. MORPHOLOGICAL RULES

The following is an outline of a possible rule sequence which could be used in either a lexical morphology approach or in a word and paradigm approach:

1) The grammatical (morphosyntactic) function to be used is chosen, e.g. type 9, the applicativization of an instrument noun phrase which becomes the pivot.
2) The Verb Class for the *pV(C)-* Stem Template is chosen, e.g. class I verbs with *nong-* prefixes as *oli* 'buy'.
3) The surface form of *pV(C)-* is formed based on the intersection of the paradigm vectors, e.g. the stem form of *oli* 'buy' is *pong+oli.*
4) The co-occurrence of other formatives necessary for the particular grammatical functions are chosen if applicable, e.g. *ni+pongoli+a'*
5) The complete word is formed, e.g. *nipongolia'.*

5. SUMMARY OF ISSUES

The following summarizes the issues which surface from this paper which are discussed further in my thesis (Quick 1999b).

1) Since stem formers do not appear in actor pivot verb forms such as *nogabu* 'cooked', but are required to appear in the inverse form such as *nipogabu* 'cooked', there are two alternative analyses of these words: 1) Analyze the word as having an underlying *po-* formative which means then that there is an abstract representation of the nasals *m* and *n*, e.g. *M-po-gabu*, or 2) Assume that there is a three-way alternation *m* ~ *n* ~ *p*, and the *p* is used to form the stem (based on the *no-* template) for any multi-prefix combination including the inverse voice *ni-* prefix. The latter solution is favored based on the fact that this solution can be applied to all the verb classes as demonstrated in the matrix paradigm. Since view one only works for one verb class, the best analysis is the one which works consistently for all of the verb classes.
2) Are the verbalizer and the $Active_2$ Voice actually the same type?
3) Skewing problems such as occur between *nipotubu* 'take care of s.t. (dipelihara)' versus *nipetubu* 'allow to live, grow, raise (dikasi hidup)' (apparent skewing where roots can take different verb classes and the meaning is same, similar or different, depending on the root).
4) In Kaili languages (related to Pendau but in Kaili-Pamona group), linguists have analyzed certain occurrences of *po-, pe-*, and *pa-* forms as a transitivizer (see Barr 1988 and Evans 1999). Verbs that use the po_3- formative in Pendau cannot simply be a transitivity marker (and by extension the other stem formers as well). Transitive clauses based on the positional verb class can be formed in the inverse voice by using the prefix *ro-/ni-* and the applicative *–a'*, but the $po\text{-}_3$ formative does not appear as part of the stem (see chart 5 for the full paradigm) in this combination; however, the po_3- formative does form stems for other parts of its verb class paradigm (including the intransitive construction).
5) Determine if some of the paradigm gaps can be filled in, and whether gaps that aren't filled in are because of semantic restrictions.
6) What does the formative *p* mean?
7) Specific grammatical features that still need to be investigated in detail are the causatives in type 4, type 5, type 6, and type 7.
8) Are there one or two formatives in each of these: *pe'i-*, *posi-*, *pogu-* and *tepo-?*
9) What is the *mo-/no-* and *me-/ne-* prefixes in these formative combinations: *mete-*, *mele-*, *mosi-*, and *me'i-*?

APPENDIX: ABBREVIATIONS

1pe	First Person Plural Exclusive	INSTR	Instrument
1pi	First Person Plural Inclusive	LIG	Nasal Ligature
1s	First Person Singular	LOCf	Locative Pivot ('focus')
2s	Second Person Singular	locNMZR	Locative Nominalizer
2p	Second Person Singular	NMZR	Nominalizer
3s	Third Person Singular	PN	Proper Noun Marker
3p	Third Person Plural	RE	Realis
AB	Absolute Case	RED	Reduplication
AGNMZR	Agentive Nominalization	REQ	Requestive
BEN	Benefactive	RFLXV	Reflexive
CAUS	Causative	RSLTV	Resultative
CLSF	Classifier	RED	Reduplication
CN	Common Noun Marker	RM	Relative Clause Marker
CONT	Continuative Aspect	ST	Stative Intransitive Verb
COMP	Completive Aspect	STEM	Word Stem = Prefix + Root
DIR	Directional	VBZR	Verbalizer
DIST	Distributive Aspect	=	Clitic Boundary
DY	Dynamic Verb		
GE	Genitive Case		
INSTR	Instrument		
INSTRf	Instrument Pivot ('focus')		
IR	Irrealis		

Interlinear Conventions: A single consonant in brackets, e.g. (g) indicates a morphophonemic process has deleted this consonant from the underlying form of the formative. In some of the free translations words are put in all capital letters to indicate the selected argument (or the 'focus'). Some examples also have abbreviations such as EN97-002.34 which indicates the example is in the *elicitation notebook* with date, notebook number and page number (most elicited examples are based on text examples, and the elicitation notebook may in some instances repeat a text example). Other references may indicate a computer file name of a text or a interlinearized text number.

NOTES

1. Pendau is found in Central Sulawesi, Indonesia, and is recognized as a language in the Tomini-Tolitoli grouping. I want to thank the Indonesian government and the Indonesian Institute of Sciences for hosting my field work in 1997-1998, and for financial help from: the Summer Institute of Linguistics, and the Australian National University. I also want to thank ANU colleagues for comments at my mid-term seminar review (i.e. post-field work report and halfway mark of my Ph.D. program) and for further suggestions for revision from Andrew Pawley and Nikolaus Himmelmann..
2. The transitive verbs in Pendau are discussed in Quick 1997a and 1997b.
3. Morphemic theories sometimes refer to formatives when they discuss phonological forms pre-theoretically, that is when proponents of the morpheme are discussing word components that they will likely call a morpheme.
4. Pike's expanded usage of the term *formative* does not contradict general usage, it only further specifies its usage. Pike has used the term *formative* since at least the early 1960s.
5. It should be noted that these functions are a result of a combination or absence of other formatives, which combine to output the final word form.
6. Prefix order positions count right to left from the root. The prefix order positions are a tentative assertion, since there is data that suggests there may be another prefix that can occur before stem formatives. If this is true, then the prefix positions may be a more general relative sequence than has been stated here.
7. Each grammatical function has a unique combination of formatives that co-occur (or do not occur) with the *pV(c)-* formative to form the word. Since it is not clear that the *pV(C)-* formatives are morphemes, I will remain neutral in this paper whether or not the *morpheme* exists by using the neutral term *formative* instead of *morph* in the rest of the paper, but I insist on the centrality of the word (as do both Word and Paradigm Theory and recent Generative Theory regardless of whether morphemes exist or not).
8. Note that all six of these verb classes can also be prefixed with the inverse voice *ni-* prefix.
9. Cf. Rubino 1998 for a similar template paradigm in Tagalog for nominalizations patterned from *Actor focus* prefixes.
10. The stative verb class has po_1- which follows vowel harmony just like the stative prefix, however it is used as a causative in stative verbs and therefore is not listed in figure 1.
11. See chart 4 for the full paradigm of this verb class.
12. Question marks glossed under the first prefix of verbs in these examples indicate that I am still uncertain which verb class these prefixes indicate when they precede these kinds of prefixes.
13. I want to thank Wayan Pastika for clarifying the Indonesian translations that were given to me by my language helper in this section.
14. Neil Fulton suggested that the classes I was describing to him sounded like a *collection* in a hierarchy of some sort.

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