

## Ludlings and Phonology in Tagalog

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This paper presents an analysis of the Tagalog “G-word” ludling and addresses its implications in Tagalog phonology. It is shown that the G-word ludling is best analyzed as an iterative infixal ludling, where the sequence of *-Vg-* is inserted after every onset, rather than infixation of *-gV-*. Crucially, the G-word ludling reveals constraints on Tagalog phonology that otherwise would be difficult to observe:  $*C_1VC_1V$ , hiatus avoidance, and iambic stress. Furthermore, our analysis of the G-words raises an important issue in Tagalog phonology: the possible emergence of the disyllabic “perfect prosodic word” in the G-words. Taken together, this paper offers another case study supporting the important role that ludlings play in phonological theory.

**Keywords:** Tagalog, phonology, ludling, infixation, Prosodic Phonology

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### 1. Introduction\*

Ludlings refer to “a fairly widespread language play phenomenon in which phonological forms of words are systematically altered so as to disguise what they are” (Davis 1994: 1980). Such phenomena have been known as an important source of evidence that can possibly be employed to support different kinds of phonological phenomena, including syllables and syllable structure, abstract underlying representations, and phonological rule ordering (Davis 1994; Vaux 2011).

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In this paper, we investigate the “G-word” ludling in Tagalog.<sup>1</sup> Tagalog is an Austronesian language of the Philippines and is famous for its rich ludling phenomena in the phonology literature (Conklin 1956; Conklin 1959; French 1988). As an illustration, compare the natural language sentence in (1) with its G-word version in (2).

- (1) [a.nó aŋ gá.ga.wín mo]  
*ano            ang            ga~gaw-in            mo?*  
 what            NOM            RDP~do-PV            2SG.GEN  
 ‘What are you going to do?’

- (2) [ʔa.gá no.gó ʔa.gáŋ ʔa.gá ʔa.gá wi.gín mo.gó]

The ordinary language sentence in (1) is transformed into its G-word version in (2). In the G-word sentence, the sequence including /g/ is inserted after every onset. The G-word ludling manipulates the phonological structure of words but does not alter the meaning of the sentence. It is often used by children as a means of secret communication (for example, as a playful means to differentiate their group from those who are not familiar with this ludling).

In this paper, we present an analysis of the G-word ludling and its implications in Tagalog phonology. It is shown that the G-word ludling is best analyzed as an iterative infixal ludling of *-Vg-* (Yu 2008), rather than infixation of *-gV-* (§3.1). The G-word ludling also reveals possible constraints on Tagalog phonology:  $*C_1VC_1V$ , hiatus avoidance, and iambic stress (§3.2). Such constraints are only observable in ludlings and otherwise would have been unnoticed. Furthermore, our analysis of the G-words raises an important issue in Tagalog phonology: the possible emergence of the disyllabic “perfect prosodic word” in the G-words (§4.2).

This paper is organized as follows. §2 provides some background information on Tagalog phonology. The G-word ludling is analyzed in detail in §3. Typological and theoretical implications of this ludling are discussed in §4, followed by the conclusion in §5.

## 2. Background

Tagalog is an Austronesian language spoken in and around the National Capital Region (i.e., Metro Manila) of the Republic of the Philippines. It is spoken by approximately

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<sup>1</sup> The term “G-words” is commonly used by Tagalog speakers to refer to this specific type of ludling. It does not involve any implications about grammatical wordhood.

30,000,000 speakers as their first language. It is also referred to as Filipino and is spoken across the nation as an official language of the Republic.

Tagalog has 16 native consonants /p, t, k, ʔ, b, d, g, m, n, ŋ, s, h, l, r, w, j/ (Table 1). It has 5 monophthongs /i, e, a, o, u/ and 6 diphthongs /iw, ey, ay, aw, oy, uy/, all of which have to contain at least one high vocoid. Vowel length is not contrastive.

Table 1 Tagalog consonants

	Bilabial	Dental	Alveolar	Palatal	Velar	Labio-velar	Glottal
Stops	p b	t d		(c) (j)	k g		ʔ
Nasal	m	n			ŋ		
Fricative	(f)		s				h
Lateral			l				
Tap/trill			r				
Glide				j		w	

The status of the glottal stop as a phoneme is controversial. The glottal stop is said to be “in contrast with other consonants at the beginning, in the middle, and at the end of words” (Schachter & Otones 1972: 19). This is indeed the case at the word-final position, and there are some minimal pairs contrasting in the presence and absence of the glottal stop, as in *bata* /báta/ ‘robe’ vs /bátaʔ/ ‘child’. On the other hand, no minimal pair is found between the presence and absence of a glottal stop at the word-medial and word-initial positions, and thus its contrastive status in these positions is dubious.

In addition, all glottal stops are susceptible to omission: a word-initial glottal stop “is optionally omitted when the word occurs in the middle of a phrase”; “[a] glottal stop within a word, particularly between vowels, is also omissible”; and a word-final glottal stop “is obligatorily omitted and is replaced by vowel length when the word occurs in the middle of a phrase.” (Schachter & Otones 1972: 19). Thus, it may be the case that a glottal stop is realized only at the edges of the phonological phrase.

Syllable structures in Tagalog are limited to CV and CVC in most cases (Himmelman 2005: 352). The onset is obligatory; “every Tagalog syllable contains an initial non-syllabic consonant or consonant cluster. Any one of the individual consonant phonemes of Tagalog may serve as an initial non-syllabic.” (Schachter & Otones 1972: 26). In particular, the glottal stop can be an onset (e.g., *abo* /ʔa.bó/ ‘ash’, *tao* /tá.ʔo/ ‘person’), although it is not indicated in the orthography conventionally used in the Philippines. In native words, syllable-internal consonant clusters are rarely allowed. A small number of syllable-internal consonant clusters occur in loanwords (e.g., *klase* ‘class’ and *grupo* ‘group’; cf. (13) and (15)).

Lexical bases are typically disyllabic, and any combination of the two basic syllable types CV and CVC is allowed (Himmelman 2005: 352). Note that clitics and affixes can be monosyllabic (either CV or CVC; cf. (7)).

Stress position in Tagalog is distinctive, and thus there can be minimal pairs contrasting only in the position of the stress (e.g., [bukás] ‘open’ vs. [búkas] ‘tomorrow’; cf. (9) and (10)). Stress falls on either the final syllable or the penultimate syllable. Acoustically, stressed syllables exhibit higher pitch, longer duration, and stronger intensity (Gonzalez 1970).

In Tagalog, a phonological word can be defined in terms of the domain of (a) infixation (one infix per phonological word; Yu 2008), (b) tapping (Zuraw 2006), and (c) prosodic organization such as accentuation, resyllabification, and length shift (Kaufman 2007).

### 3. The G-word ludling

Tagalog has two major types of ludling: rearrangement and insertion.<sup>2</sup> In ludlings of the rearrangement type, segments are reorganized in a different order. In colloquial Tagalog, this type of ludling is often referred to as *baligtad* (or *tadbalig*) ‘backward’. See the examples in (3), (4), and (5).

- (3) a. pater ‘father’ → erpat  
 b. mater ‘mother’ → ermat  
 c. tigas ‘hard’ → astig ‘cool, awesome’  
 d. malupit ‘cruel’ → petmalu<sup>3</sup> ‘cool, awesome’
- (4) a. pare ‘padre’ → erap ‘the nickname of Joseph Estrada’  
 b. sabog ‘explode’ → gobas ‘drunk’
- (5) a. idol ‘idol’ → lodi  
 b. bro ‘brother’ → orb

The ludling words in (3) are formed by rearranging part of the ordinary language words. By contrast, the segments of the ordinary language words are completely reversed in (4). This process can apply to loanwords, as in the English words in (5). Rearrangement of segments may sometime change the meaning of a word, as in (4), but not often.

In this paper, we are concerned with ludlings that make use of insertion, especially the ludling referred to as *G-words* in the Tagalog-speaking communities, in which a combination of a vowel and /g/ is inserted after every onset of the ordinary language words, as in (6).

<sup>2</sup> Both are commonly employed by children as a means of secret and playful communication. See French (1988: 97–100) for a more detailed inventory of Tagalog ludlings.

<sup>3</sup> The reason why /i/ is lowered to [e] in this specific example is unknown.

- (6) a. sí.no      ‘who’                      →      sí.gí.no.gó  
       b. ka.mí      ‘1PL.EXCL.NOM’ →      ka.gá.mi.gí  
       c. ʔa.kó      ‘1SG.NOM’                      →      ʔa.gá.ko.gó

This section examines the G-word ludling in detail. More specifically, it shows that the G-word ludling is an iterative infixal ludling (§3.1) and reveals three possible hidden constraints of Tagalog phonology (§3.2).

### 3.1. G-words as iterative infixal ludling

In the G-word ludling, the sequence including /g/ is inserted after every onset. We have already considered examples of simple disyllabic words in (6). Examples of monosyllabic words are found in (7). The G-word forms of the words with closed syllables are presented in (8).

- (7) a. sa            ‘LOC’                      →      sa.gá  
       b. yuŋ        ‘that.NOM’                      →      yu.gúŋ  
       c. ʔaŋ        ‘NOM’                      →      ʔa.gáŋ
- (8) a. ma.hál      ‘expensive’                      →      ma.gá.ha.gál  
       b. hin.díʔ    ‘NEG’                      →      hi.gín.di.gíʔ  
       c. ʔa.lám      ‘know’                      →      ʔa.gá.la.gám  
       d. ʔí.ŋat     ‘care’                      →      ʔi.gí.ŋa.gát

In the formation of G-words, the original stress contrast is neutralized, and the stress is assigned to every second syllable counting from the beginning (see §3.2 for more details). For example, compare (9) and (10).

- (9) bú.kas      ‘tomorrow’                      →      bu.gú.ka.gás
- (10) bu.kás     ‘open’                      →      bu.gú.ka.gás

The G-word ludling applies the same way to morphologically complex words. It is observed in the affixed words (the prefix *nang-* and the infix *-um-*) in (11) and the reduplicants of the ordinary language words in (12). The affixes *nang-* and *-um-* are both voice markers. CV-reduplication of verbs indicates imperfective aspect (e.g., *alis* ‘leave’ (root) > *a~alis* ‘will leave’).<sup>4</sup>

<sup>4</sup> In CV-reduplication of this type, stress is assigned to reduplicants of the ordinary language words.

- (11) a. naŋ.yá.ri ‘happened’ → na.gáŋ.ya.gá.ri.gí  
 b. ku.má.ʔin ‘ate’ → ku.gú.ma.gá.ʔi.gín
- (12) a. ʔá.ʔa.lís ‘will leave’ → ʔa.gá.ʔa.gá.li.gís  
 b. ʔí.ʔi.nóm ‘will drink’ → ʔi.gí.ʔi.gí.no.góm  
 c. ʔú.ʔu.wí ‘will go home’ → ʔu.gú.ʔu.gú.wi.gí

The G-word insertion is highly productive and can take place in loanwords. When loan words start with a consonant cluster in the ordinary language, such onset clusters are retained in the ordinary language syllable. Consider (13), for example.

- (13) a. trén ‘train’ → tre.gén  
 b. plá.to ‘plate’ → pla.gá.to.gó  
 c. klá.se ‘class’ → kla.gá.se.gé<sup>5</sup>

Crucially, in the G-word ludlings, /g/ of the base alternates with a glottal stop, as in (14). This alternation with a glottal stop is obligatory. Thus, \*[ga.gá.go.gó] is not acceptable as the ludling form of /gá.go/ ‘stupid’; this will be discussed in detail in §4.1. This is also true of loanwords, as in (15).

- (14) a. gá.go ‘stupid’ → ʔa.gá.ʔo.gó  
 b. gí.gil ‘trembling’ → ʔi.gí.ʔi.gíl  
 c. gi.ni.gi.náw ‘feels cold’ → ʔi.gí.ni.gí.ʔi.gí.na.gáw  
 d. naŋ.gi.gí.gil ‘tremble’ → na.gáŋ.ʔi.gí.ʔi.gí.ʔi.gíl
- (15) a. grú.po ‘group’ → ʔu.grú.po.gó  
 b. gwá.po ‘handsome’ → ʔa.gwá.po.gó

This paper considers the G-word ludling to be an instance of an iterative infixal ludling (Yu 2008; cf. Yu 2007: §6.2.2), where the infix *-Vg-* is inserted after every onset, as in (16). Note that *V* stands for a copy of the following vowel.

- (16) *-Vg-* infixation analysis
- a. sa ‘LOC’ → s<a.g>á  
 b. ma.hál ‘expensive’ → m<a.g>á.h<a.g>ál  
 c. naŋ.yá.ri ‘happened’ → n<a.g>áŋ.y<a.g>á.r<i.g>í

<sup>5</sup> Data examined in this paper were mainly provided by two speakers: (A) a female speaker in her thirties from Bulacan (B) a male speaker in his twenties from Quezon city. Speaker B also accepts the alternative form /ka.glá.se.gé/.

d. ?à.ʔa.lís	‘will leave’	→	ʔ<a.g>á.ʔ<a.g>á.l<i.g>ís
e. trén	‘train’	→	tr<e.g>én
f. gá.go	‘stupid’	→	ʔ<a.g>á.ʔ<o.g>ó
g. grú.po	‘group’	→	ʔ<u.g>rú.p<o.g>ó

The data in (7) through (15) could alternatively be analyzed as *-gV-* infixation, instead of *-Vg-* infixation. For instance, compare the *-gV-* infixation analysis in (16) with the *-gV-* analysis in (17).

(17) *-gV-* infixation analysis:

a. sa	‘LOC’	→	sa.<gá>
b. ma.hál	‘expensive’	→	ma.<gá>.ha.<gá>l
c. naŋ.yá.ri	‘happened’	→	na.<gá>ŋ.ya.<gá>.ri.<gí>

However, such an analysis is problematic. First, with some words containing consonant clusters, such as *grupo* ‘group’, the *-gV-* infixation analysis predicts \*[ʔru.gu.po.go], but this is not the attested form. The *-Vg-* infixation analysis correctly predicts the attested form, ʔ<u.g>rú.p<o.g>ó. Second, the *-Vg-* infixation analysis is compatible with the fact that the two attested infixes in Tagalog, *-um-* and *-in-*, are made up of VC units rather than CV units.

Before closing this section, attention should be paid to sociolinguistic variation in the G-word ludling. Generally, most Tagalog speakers agree on the G-word formation, but some speakers prefer the insertion of the sequence *-ag-* instead of *-Vg-*. In addition, /p/ may appear instead of /g/ in some speech communities.

(18) a. bag.sák	‘crush’	→	ba.pág.sa.pák
b. bá.kit	‘why’	→	ba.pá.ki.pít
c. a.nó	‘what’	→	ʔa.pá.no.pó

Such variation is one of the most pervasive characteristics of ludlings (Vaux 2011: 725). As briefly mentioned in §1, the G-words are usually employed by children as a means of secret communication. It is not surprising that different rules for G-words are employed by different Tagalog speakers. The very point of using ludlings is to disguise what they are saying.

### 3.2. Hidden constraints revealed: \*C<sub>1</sub>VC<sub>1</sub>V, hiatus avoidance, and iambic stress

G-words in Tagalog reveal three possible concealed constraints that are barely observable in the natural language. First, let us consider \*C<sub>1</sub>VC<sub>1</sub>V. With the G-word ludling, the consonant of the base (not the infix *-Vg-*) alternates with a glottal stop if it is a voiced

velar stop /g/ (e.g., (14) /gá.go/ ‘stupid’ → [ʔ<a.g>á. ʔ<o.g>ó], not \*[ga.gá.go.gó]). This data also reveals hiatus avoidance. These constraints will be discussed in more detail in §4.1.

Another peculiarity of the G-words is that their outputs are parsed into strings of iambic disyllabic strings (cf. French 1988: 98; Yu 2008: 518), as in (19).

(19)	a. sa	‘LOC’	→	(s<a.g>á)
	b. ma.hál	‘expensive’	→	(m<a.g>á) (h<a.g>ál)
	c. naŋ.yá.ri	‘happened’	→	(n<a.g>áŋ) (y<a.g>á) (r<i.g>í)
	d. ʔà.ʔa.lís	‘will leave’	→	(ʔ<a.g>á) (ʔ<a.g>á) (l<i.g>ís)
	e. trén	‘train’	→	(tr<e.g>én)
	f. gá.go	‘stupid’	→	(ʔ<a.g>á) (ʔ<o.g>ó)
	g. grú.po	‘group’	→	(ʔ<u.g>rú) (p<o.g>ó)

Thus, in the G-word ludling, stress falls on the final syllable of each foot, forming an iambic rhythm (uneven duration, final prominence) rather than trochaic rhythm (even duration, initial prominence). Thus, we argue that each foot constitutes an independent phonological word; this point will be discussed in more detail in §4.2.

#### 4. Discussion

There are several unresolved issues surrounding the G-word formation in Tagalog. This section looks at two of them and intends to offer some explanations: deletion of /g/ when the base already contains /g/ (§4.1) and the emergence of the disyllabic “perfect prosodic word” in the G-words (§4.2).

##### 4.1. Why does one of the g's alternate with a glottal stop?

In §3, we saw that when the base has /g/ in the onset position, this /g/ alternates with a glottal stop when *-Vg-* is infixes. This fact may suggest that there is a constraint against two adjacent syllables with *g*'s in the onset within the phonological word, or more generally,  $*(C_1VC_1V)\omega$  at play, which prohibits the occurrence of the same consonant in a phonological word, that possibly belongs to the family of constraints relating to the Obligatory Contour Principle (Odden 1986; Yip 1988; Myers 1997).

In order to test this hypothesis, we prepared a database of Tagalog lexical roots. It consists of the lexical bases manually extracted from entries that begin with the letters *b*, *k*, *d* and *g* in the Tagalog-English dictionary (Barrios et al. 2017).<sup>6</sup> There are 1,909 entries

<sup>6</sup> In this Tagalog dictionary, lexical roots are listed as dictionary entries. For the purpose of this study, we used the information about syllabification and stress for each entry this dictionary provides.



and 5,713 syllables overall. The ten most frequent  $C_1 \neq C_2$  patterns and  $C_1 = C_2$  patterns in the database are given in Tables 2 and 3, respectively.

Table 2  $C_1 \neq C_2$  patterns

	$C_1 \neq C_2$	N
1	kVIV	179
2	bVIV	162
3	kVtV	156
4	kVpV	123
5	kVsV	116
6	bVtV	100
7	kVmV	88
8	kVrV	88
9	kVbV	83
10	bVkV	57

Table 3  $C_1 = C_2$  patterns

	$C_1 = C_2$	N
1	bVbV	45
2	kVkV	43
3	tVtV	20
4	lVlV	17
5	gVgV	15
6	sVsV	10
7	dVdV	9
8	rVrV	8
9	nVnV	6
10	pVpV	4

A summary of the database is given in Table 4. The  $C_1 = C_2$  patterns indeed appear less frequently than the  $C_1 \neq C_2$  patterns in our database ( $C_1 = C_2$  12.06,  $C_1 \neq C_2$  14.93), and thus  $*(C_1VC_1V)\omega$  indeed appears to play a role in Tagalog phonology.

Table 4  $C_1 = C_2$  patterns vs.  $C_1 \neq C_2$  patterns

	$C_1 \neq C_2$	$C_1 = C_2$
Min.	1	2
Median	8	7
Mean	14.93	12.06
Max.	179	45

Another question concerning the loss of the place of articulation of /g/ is why the consonant of the base, instead of that of the infix  $-/g-$ , alternates with a glottal stop. For example, the G-word of /gá.go/ ‘stupid’ is [ $ʔ<a.g>á.ʔ<o.g>ó$ ] rather than  $*[g<a.ʔ>á.g<o.ʔ>ó]$ . This is unexpected, since it is more common for affixes to undergo changes rather than the base crosslinguistically (Bybee 2005; Urbanczyk 2011; Beckman 2016). As we saw in §2 above, a glottal stop is likely to be non-contrastive except in the word-final position, and thus possibly is an epenthetic consonant to fill the onset that is obligatory. Thus, the alternation of /g/ and a glottal stop here can be interpreted as the deletion of /g/ in the base. The two possible hypotheses to account for this unexpected deletion of /g/ in the base are that (A) /g/ is unlikely to appear in unstressed syllables; it is crosslinguistically common that fewer contrasts are found in the unstressed positions (Gordon 2011); or that (B) the deletion of /g/ in the infix is avoided since it would result in word-internal hiatus, which is dispreferred.

Our database rejects the hypothesis (A), since /g/ abounds in the unstressed syllables. See Tables 5 and 6, which summarize the frequency of stressed and unstressed syllables per onset and the ratio of stressed to unstressed syllables. These tables clearly reject that /g/

is unlikely to appear in unstressed syllables. The stressed to unstressed syllables ratio of /gV(C)/ is not particularly high.

Table 5 Stressed and unstressed open syllables per onset

	Stressed	Unstressed	Ratio
kV	121	685	0.18
pV	30	83	0.36
bV	164	397	0.41
dV	53	123	0.43
gV	<b>80</b>	<b>156</b>	<b>0.51</b>
tV	96	187	0.51
mV	35	68	0.51
rV	58	112	0.52
ʔV	24	40	0.60
jV	52	86	0.60
sV	69	108	0.64
lV	114	172	0.66
nV	53	75	0.71
ŋV	4	5	0.80
hV	33	25	1.32
wV	27	13	2.08

Table 6 Stressed and unstressed closed syllables per onset

	Stressed	Unstressed	Ratio
kVC	88	316	0.28
ŋVC	11	26	0.42
bVC	69	161	0.43
mVC	20	41	0.49
gVC	<b>42</b>	<b>76</b>	<b>0.55</b>
rVC	37	63	0.59
lVC	106	170	0.62
hVC	42	61	0.69
ʔVC	29	41	0.71
pVC	38	48	0.79
sVC	54	62	0.87
nVC	48	50	0.96
tVC	95	95	1.00
wVC	33	30	1.10
jVC	52	44	1.18
dVC	43	34	1.26

Thus, we argue for the hypothesis (B), that the deletion of /g/ of the infix (and subsequent epenthesis of a glottal stop) is avoided since word-medial hiatus is dispreferred, both in Tagalog and cross-linguistically (Casali 2011). As in Table 7, a glottal stop is infrequent as C<sub>2</sub> of C<sub>1</sub>VC<sub>2</sub>V roots in our database; under the assumption that the intervocalic glottal stop is epenthetic, this shows that word-medial hiatus is indeed infrequent.

Table 7 C<sub>2</sub> of C<sub>1</sub>VC<sub>2</sub>V

C <sub>2</sub>	N	C <sub>2</sub>	N	C <sub>2</sub>	N
t	15	b	6	c	2
l	12	r	5	d	1
s	11	p	4	f	1
k	10	m	4	ŋ	1
j	8	n	3	ʔ	1
g	7	h	3		

In §2, we saw various processes and constraints which target the phonological word as the domain. The examination of the G-words has revealed that \*C<sub>1</sub>VC<sub>1</sub>V may be another justification for the phonological word; that is, the domain of the constraint \*C<sub>1</sub>VC<sub>1</sub>V is the phonological word.

#### 4.2. Why one foot = one phonological word?

Another peculiarity of the G-words is that the resulting sequences are organized into the sequences of disyllabic iambic feet, each of which constitutes a phonological word. Each foot constitutes a phonological word since each foot has a primary accent, and since each foot has an infix which can only occur one per phonological word. Thus, the emergent

structure is where one foot constitutes one phonological word, that is the perfect prosodic word (Pater 1997; Zec 1999; Ito & Mester 2015). In general, language games are said to reveal the unmarked structure concealed in the language (Davis 1994; Vaux 2011). The emergence of the perfect prosodic word in Tagalog G-words may represent a case of the emergence of the unmarked (McCarthy & Prince 1994) in a ludling.

## 5. Conclusions

In this paper, we presented an analysis of the Tagalog G-word ludling and its implications in Tagalog phonology. It was shown that the G-word ludling is best analyzed as an iterative infixal ludling and that it reveals possible constraints on Tagalog phonology, such as \*C<sub>1</sub>VC<sub>1</sub>V, hiatus avoidance, and iambic stress. Furthermore, our analysis of the G-words raised an important issue in Tagalog phonology: the possible emergence of the disyllabic “perfect prosodic word” in the G-words. These findings can only be made in the G-word ludling and otherwise would have been unnoticed. Thus, this paper offered another case study of ludlings being an important source of evidence in phonology.

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## Abbreviations

EXCL	exclusive	GEN	genitive
LOC	locative	NEG	negation
NOM	nominative	PL	plural
PV	patient voice	RDP	reduplicant
SG	singular		

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