The Thulung Rai verbal system: an account of verb stem alternation[*]

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Thulung Rai, an endangered Tibeto-Burman language of Eastern Nepal, has complex verbal morphology, with verb endings encoding agent and patient person and number in transitive scenarios. In addition to this, a large number of verbs alternate between several stems, and the stem selection criteria are initially elusive. Inspired by work by Boyd Michailovsky, who proposes morphophonological accounts for the verb stem alternation in related Dumi Rai, I propose an analysis of the Thulung verbal system and its verb stem alternation.

Keywords : Tibeto-Burman, verbal system, verb stem alternation, morphosyntax, Thulung Rai.

Le thulung rai, langue tibéto-birmane parlée au Népal oriental, présente un système verbal complexe, avec des marques d'accord indiquant la personne et le nombre de l'agent ainsi que du patient pour les scénarios transitifs. La langue présente également des verbes avec alternance de thèmes, les conditions régissant cette alternance demeurant à première vue opaques. Me basant sur le travail de Boyd Michailovksy, qui a proposé des explications morphophonologiques aux alternances de thèmes verbaux en dumi rai, langue apparentée au thulung, je propose ici une analyse du système verbal du thulung et de ses alternances de thèmes.

Mots-clés : tibéto-birman, systèmes verbaux, alternance de thèmes, morphosyntaxe, thulung rai.

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1. INTRODUCTION*

Thulung Rai is a language of the Kiranti group of the Tibeto-Burman family. It is spoken in the Middle Hills of Eastern Nepal, along the Dudh Kosi River valley. The Thulung homeland is thought to be the village of Mukli (Allen 1975:5) and there are a few thousand speakers spread across Mukli and neighboring settlements.

There are some 30-odd Kiranti languages, a number of which have been described individually. The last ten years saw the publication of the reference grammars of Wambule (Opgenort 2004), Jero (Opgenort 2005), Kulung (Tolsma 2006), Sunwar (Borchers 2008), and Bantawa (Doornenbal 2009), all within the framework of the Himalayan Languages Project (http://www.himalayanlanguages.org/). More projects currently underway include descriptive work on Chintang, as part of the Chintang language research program led by Balthasar Bickel (http://www.spw.uzh.ch/clrp/), and on Khaling (Guillaume Jacques, Aimée Lahaussois, Boyd Michailovsky, Dhana Bahadur Khaling). General comparative overviews of the group can be found in Ebert (1994, 2003). Kiranti languages are generally classified geographically. In his work on the phonological reconstruction of the subgroup, Michailovksy (1994, 2009) uses the terms Western, Central, Southern and Eastern languages. Conversely, Ebert (1994:8) uses the terms Southeastern and Northern in a more loose sense to highlight some shared features rather than to refer to a genetic grouping. The two classifications do not correspond to each

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other, so that Thulung is placed in Michailovksy's "Western Kiranti" group, whereas it is one of Ebert's "northern" languages.

Thulung speakers are scattered across many settlements (essentially houses and fields on mountain flanks). The main ones include Mukli, Deusa, Kangel, Tingla, Jubu and Lokhim, and there is also a fairly large Thulung community in Kathmandu. The precise number of speakers is difficult to estimate, given, on the one hand, the complex geographical situation of the settlements and, on the other hand, the fact that nearly all speakers are bilingual in Thulung and Nepali. The latter language has strong influence on Thulung. In my language consultants' estimations, the entire community numbers several thousand people. I worked mostly with speakers of the Mukli dialect, in both Kathmandu and Mukli, but also collected materials from speakers of the Deusa dialect, who live in Kathmandu.

Previous work on Thulung is essentially that of N.J. Allen, an anthropologist who spent several years in Nepal working on Thulung in Mukli in the late 1960's. In 1975, he published a grammar of Thulung, which remains to date the main source of information on this language. More recent work includes Lahaussois (2002, 2003).

The present study is based on the Mukli and Deusa data that I collected during field trips in 1999-2000, 2004 and 2009, and through subsequent email exchange with my main consultant, Bala Thulung, who is originally from Mukli but at the time of our exchanges resided in Kathmandu. The differences between Mukli and Deusa are essentially phonetic, including the presence or absence of aspiration of some initial consonants (*e.g.* Mukli *b* corresponds to Deusa b^h), and a change of Mukli *a* to Deusa *ɤ* (*e.g.* 'later': Mukli *tsaŋra*, Deusa *tsɤŋra*; 'name': Mukli *naŋ*, Deusa *nɤŋ*). The data presented here comes from elicited verb paradigms and from verb forms extracted from a narrative corpus using a concordance.

Kiranti verbal systems are characterized by their "complex system of person and number affixes" (Ebert 1994:10). Transitive verbs have agreement markers, which encode both the agent and the patient. Another particularity of these languages is verb stem alternation: some intransitive and transitive verbs alternate between two (or more) stems. There are no synchronic explanations for the stem distribution found in Thulung, although stem alternation in some languages is considerably simpler. For example, Ebert (1994: 19) states that in "Southeastern Kiranti the first (full) stem is used before vowels, the second (weakened) stem before consonants and word-final." In his analysis of van Driem's (1993) Dumi Rai verbal data, Michailovsky (Ms) argues that it is possible to propose a morphophonological explanation for verb stem alternation in this language. More precisely, he posits a verbal base of (Ci)V(Cf), which may be optionally followed by a dental post final (which is the reflex of an erstwhile directive suffix), yielding the so-called "T-transitive" verb class. Taking the dental post final (or "T-transitive" verbs) into account in describing the verbal system makes it possible to explain how verbs with the same Cf are found to have quite different patterns of verb stem alternation. Using Michailovsky's ideas in my analysis of Koyi verb stem alternations, I was able to separate verbs into intransitive, transitive and "T-transitive" classes and to subsequently describe verb stem alternations in terms of phonologically conditioned pre-consonantal and pre-vocalic stems (Lahaussois 2009). Michailovsky's analysis is of great value in that it makes it possible to determine the phonological relationships among alternating stems and therefore to reduce them to a single form which can be used for comparative work. I shall attempt to adopt this approach with regards to verb stem alternations in the Thulung language.

The present analysis is a departure from my earlier view that verb stem alternation in Thulung is not phonologically based (Lahaussois 2002:155). In this earlier view, there is no synchronically justified way to account for the alternation, and verb stems are analyzed in terms of "conjugation classes". More precisely, I use the labels "Stem I" and "Stem II", distributed throughout an abstract paradigm, showing stem distribution. While in my earlier work on Thulung (2002:157), I noted that Stem I was "more complex, phonologically [than Stem II]", I did not attempt to explain the relationship between the two stems through phonological processes. The reason for the change in my analysis is a greater awareness on my part of research into comparative and historical issues relating to the verbal systems of various Kiranti languages, notably the work of Michailovsky (1975, 1994, Ms).

My main hypothesis presented here is that Thulung verbs underlyingly have one stem (full stem), whereas all remaining (or weakened) stems result from interaction of the final consonant of the stem and verbal endings. The full stem is realized by default. A weakened stem occurs before nasal- and affricate-initial agreement markers. While some aspects of the proposed analysis remain elusive—*e.g.* the stem selection of some verbs remains stable even in combination with some agreement markers that have variant forms, or a weakened stem is unexpectedly conditioned by the zero third singular intransitive marker—the analysis is presented here in the hope to advance our understanding of the Thulung verbal system.

2. GENERALITIES ABOUT THE THULUNG VERB

The basic structure of the verb is mono-syllabic root (Ci)(L)(G)V(Cf), where Ci is an initial consonant, L is a liquid (*r* or *l*), G is a glide (*w* or *j*), V is a vowel, and Cf is a final consonant.

The possible initial consonants in Thulung are *k kʰ g ŋ ʦ ʦʰ ʥ ʥʰ t tʰ d dʰ n ɖ p pʰ b bʰ m h s l r j w*. This contrasts with the final consonants, which are considerably more limited: *k ʈ p ŋ n m l r s*. Note that *s* is unique as a Cf: it resyllabifies and is realized as the phonological initial of the next syllable. Vowels are the following: *i y e a ɑ o ɯ u*.

The verb root template above can be optionally augmented by suffixes, which convey Aktionsart or affect valence or voice. Agreement suffixes that encode the person/number of the various arguments and the tense are then added.[1] While some of the agreement suffixes are portmanteau morphemes, the majority of them are segmentable synchronically, although a number of elements remain difficult to identify. See Table 4 in Section 4.1.3 for a breakdown of the past agreement morphemes, which gives a sense of the segmentability of the suffixes.

Phonological processes synchronically active in Thulung operate at the morpheme boundary between nouns or verbs and their suffixes. They include:

(a) Velar assimilation of bilabial nasals

Morpheme-final bilabial nasals optionally assimilate to the following velar. For example, the form *mam-ka*, which consists of the noun 'mother', following by the ergative marker *-ka* is realized as [maŋ-ka]; the demonstrative pronoun *meram* 'that' followed by the genitive marker *-kam* is realized as [meraŋ-kam]. This type of assimilation is not observed across word boundaries, for instance, *meram ku* 'that water' is realized as [meram ku].

This process is distinct from that observed in verb paradigms, where the final consonant of a bilabial nasal of a verb stem assimilates only when followed by a velar nasal. For example, *ammu* 'to sleep': *aŋ-ŋoro* 'sleep-1SG.PST', but *am-ku* 'sleep-1PE.NPST'.

(b) Liquid alternation

When initials in grammatical morphemes, *r* and *ɖ* are in free variation post-consonantally, but only *r* appears post-vocalically.

Elsewhere *r* and *ɖ* are distinct phonemes. For example, the

[1] The following abbreviations are used: DE=dual exclusive; DI=dual inclusive; DU=dual; ERG=ergative; HS=hearsay INF=infinitive; MM=middle marker; NPST=non-past; PE=plural exclusive; PI=plural inclusive; PL=plural; PST=past; SG=singular; X> Y = X agent acting on Y patient.

noun *nem* 'house', followed by the locative marker *-ɖa* can be realized as *nem-ra* or *nem-ɖa* 'in the house', in free variation. Conversely, *mukli-ra* (**mukli-ɖa*) is the only possible form for 'in Mukli'.

This is again distinct from what is seen in verb endings, where the free variation in the initials of the verb endings is found post-vocalically (e.g. *ba-iɖa* ~ *ba-ira* 'be-3SG.PST') and only after certain finals, namely *–p* (*ɖep-ry* ~ *ɖep-ɖy* 'beat-3SG>3SG.PST'), *-n* (*on-ra* ~ *on-ɖa* 'run-3SG.PST'), and *-ŋ* (*huŋ-ra* ~ *huŋ-ɖa* 'enter-3SG.PST'). More on this phenomenon in Section 4.1.

(c) Liquid assimilation

Verb endings with an initial *-ɖ* assimilate after root-final *l* or *r*. This concerns the following endings: (i) *-ɖi*, 1PI>3SG.NPST, 1PI>3SG.PST, 1PI.NPST and 1PI.PST, (ii) *-ɖy* 3SG>3SG.NPST and .PST, and (iii) *-ɖa* 3SG.PST. For example, the verb form *jal-ɖy* 'strike-3SG>3SG.PST' is realized as [jal-ly]; whereas the verb form *ɖar-ɖi* 'meet-1PI>3SG.PST' is realized as [ɖar-ri].

Liquid assimilation is only observed on verbs.

3. PRESENTATION OF VERB STEM ALTERNATION

Examples (1)-(4) show the different stems of the verbs *remmu* 'to see' and *senmu* 'to kill'. Note that the final consonant (Cf) differs across the examples in each pair (in bold script).

(1) re**p**-ɖi
see-1PI>3SG.NPST
'We see him.'

(2) re**m**-na
see-2SG>3SG.NPST
'You see him.'

(3) se**ʈ**-pu
kill-1SG>3SG.NPST
'I kill him.'

(4) se**n**-tsi
kill-1DI>3SG.NPST
'We kill him.'

An example of the distribution of alternating stems is provided in Table 1, which presents a full paradigm for both non-past and past forms.[2] The stems are differentiated by the shading of the cells: greyed cells contain “full stems” (named thus because they are phonologically more complex than their counterparts), whereas non-greyed cells contain “weakened stems”.

remmu ‘to see’	NPST	PST
1SG>3SG	rep-u	rep-to
1DI>3SG	rem-tsi	rep-tsi
1DE>3SG	rem-tsuku	rep-tsoko
1PI>3SG	rep-i	rep-ɖi
1PE>3SG	rem-ku	rep-toko
2SG>3SG	rem-na	rep-na
2DU>3SG	rem-tsi	rep-tsi
2PL>3SG	rem-ni	rep-ni
3SG>3SG	rep-y	rep-ɖy
3DU>3SG	rem-tsi	rep-tsi
3PL>3SG	rem-mi	rep-miri

Table 1. Distribution of full and weakened stems within a paradigm

The distribution which emerges from this table is that full stems occur throughout the past, and weakened stems occur for most of the non-past forms, excluding 1SG>3SG, 1PI>3SG and 3SG>3SG, which take a full stem.

Note that not all Thulung verbs have multiple stems. In total, there are nine stem classes, based on the final consonant of the verb base (see Table 5 for details). Of these stem classes, five undergo

[2] A default 3SG patient is given for all the transitive paradigms in this paper, this being by far the most common form in narrative contexts.

no alternation and use a single stem throughout their paradigms: these are verbs with a zero final consonant (in other words, open roots with no final), *-m*, *-n*, *-r* and *-l*. The other stem classes systematically alternate between two stems, in predetermined places within their paradigms (see Section 5 for a detailed discussion).

4. VERB ENDINGS

Considering that I am taking as a starting point the fact that verb endings create the phonological environment that determines stem selection, I will first lay out the system of verb endings.

To parse the verb ending, one takes the maximally recurring material, for given person/number/tense combinations, across all the verbal forms available. The result is presented in Tables 2 and 3, which illustrate transitive and intransitive endings respectively.

	NPST	PST
1SG>3SG	-u/-pu	-uto
1DI>3SG	-tsi	-ttsi
1DE>3SG	-tsuku	-ttsoko
1PI>3SG	-i/-ɖi	-ɖi
1PE>3SG	-ku	-ttoko
2SG>3SG	-na	-nna
2DU>3SG	-tsi	-ttsi
2PL>3SG	-ni	-nni
3SG>3SG	-y/-ɖy	-ɖy
3DU>3SG	-tsi	-ttsi
3PL>3SG	-mi	-mri

Table 2. Transitive endings

	NPST	PST
1SG	-ŋu	-ŋro
1DI	-tsi	-ttsi
1DE	-tsuku	-ttsoko
1PI	-i/-ɖi	-ɖi
1PE	-ku	-ttoko
2SG	-na	-nna
2DU	-tsi	-ttsi
2PL	-ni	-nni
3SG	-	-ɖa
3DU	-tsi	-ttsi
3PL	-mi	-mri

Table 3. Intransitive endings

4.1. Variation in verb endings

Even taking the maximally recurring material for the same person/number/tense combinations of different verbs, there is some variation in the agreement markers. The variation is of two types: one is phonological, with allophonic variation in endings, on the one hand, and free variation, on the other; another is morphological.

4.1.1. Allophonic variation in endings

The endings that are affected by allophonic variation are those whose initial is *-ɖ* (namely, (i) *-ɖi*, 1PI>3SG.NPST and 1PI>3SG.PST, (ii) *-ɖi*, 1PI.NPST and 1PI.PST, (iii) *-ɖy*, 3SG>3SG.NPST and .PST, and (iv) *-ɖa*, 3SG.PST). Such endings assimilate to the preceding consonant for verbs whose root ends in *-l* or *-r* (see Section 2).

4.1.2. Free variation between *-ɖ* and *-r* in verb endings

There is free variation between *-ɖ* and *-r* initials for suffixed morphological material, such as verb endings (1PI marker *-ɖi* ~ *-ri*, 3SG markers *-ɖy* ~ *-ry* and *-ɖa* ~ *-ra*), case markers (locative *-ra* ~ *-ɖa*, ablative *-ram* ~ *-ɖam*). For verbs, such variation is found in the following environments:

(i) following vowels, e.g. *ba-iɖa* ~ *ba-ira* 'be-3SG.PST'
(ii) following a stem final *-p*, e.g. *ɖep-ry* ~ *ɖep-ɖy* 'beat-3SG>3SG.PST'
(iii) following a stem final *-n*, *e.g. on-ra* ~ *on-ɖa* 'run-3SG.PST'
(iv) following a stem final *-ŋ*, *e.g. huŋ-ra* ~ *huŋ-ɖa* 'enter-3SG.PST'

After s and k, a slightly different phenomenon emerges. r is not realized in such situations, and instead there is free variation between *-ɖ* and a devoiced (and dentalized) *-t*. For example, *p^hik-ɖy* ~ *p^hik-ty* 'put.in-3SG>3SG.PST'.

After a stem final *-ʈ*, only *-ɖ* occurs. This is probably due to the fact that the stem final retroflex makes the realization of *-ɖ* more natural than a change in the place of articulation.

For notational purposes, the varying phonemes (both allophonic and in free variation) are represented by *-ɖ* in the verb ending charts.

4.1.3. Morphological variation in some non-past endings

Variation of a different type is also found for 1SG>3SG.NPST, 1PI>3SG.NPST, 1PI.NPST and 3SG>3SG.NPST endings, as seen in the greyed cells in Tables 2 and 3. The variation in the non-past verb endings patterns as follows:

For 1SG>3SG.NPST:
-u occurs with verbs whose full-stem final is *-V, -ŋ, -r, -l, -s, -p*
-pu occurs with verbs whose full-stem final is *-ʈ, -k, -m, -n*

For 1PI>3SG.NPST and 1PI.NPST:

-i occurs with verbs whose full-stem final is *-V, -ṭ, -k, -ŋ, -r, -l, -s*
-ḍi occurs with verbs whose full-stem final is *-p, -m, -n*
For 3SG>3SG.NPST:

-y occurs with verbs whose full-stem final is *-V, -ṭ, -k, -ŋ, -r, -l, -s*
-ḍy occurs with verbs whose full-stem final is *-p, -m, -n*

Significantly, the variation always involves at least one form, which is vowel-initial, the other being consonant-initial. The agreement markers in the rest of the paradigm, which show no variation, are all exclusively consonant-initial.[3] The next three paragraphs look into evidence for these varying non-past markers originally being vowel-initial.

As far as the 1SG>3SG.NPST *-u/-pu* alternation is concerned, one possible scenario is a reanalysis of the boundary between ending and stem for verbs with stem final *-p*: what was originally a 1SG>3SG.NPST form CV*p-u* was reanalyzed as CV*-pu*, with the 1SG>3SG.NPST ending *-pu* then spreading to other verb types. A weakness of this analysis is that a good half of the verb types take *-u* and the other *-pu*, so reanalysis alone is not a sufficient explanation and there are (or there were at some point) clearly other factors at play here.

My partial reconstruction of the past endings of proto-Thulung, aimed at highlighting the full stem, is proposed in Table 4. It is based on the past marker *t*, which is bold-faced in the reconstructed forms in the *pst column. While Allen (1975:134) reconstructs the past marker as *-to*, I note that the vowel is restricted to some past forms (such as 1SG>3SG, 1SG, 1PE>3SG), for which reason I do not include it in my reconstruction. Note in

[3] Excepting allomorphy in the 1SG and 3PL past verb endings, which have an easily identifiable distribution: in vowel-final environments, 1SG>3SG.PST is *-uto* (vs. post-consonantal *-to*), 1SG.PST is *-ŋro* (vs. post-consonantal *-ŋoro*), 3PL.PST and 3PL>3SG.PST are *-mri* (vs. post-consonantal *-miri*).

addition, that only the _*t_ is reconstructed below; vowels are left as in modern-day Thulung, provided that the point of the reconstruction is to show that the main forms for 1PI and 3SG do not contain a *-ɖ*, and that the past forms for these person/number combinations reveal this.

	NPST	PST	*PST	*PST breakdown
1SG>3SG	-u/-pu	-uto	-u-**t**-o	-u =1SG (agent), -t =PST, -o = possibly, additional 1SG marking
1SG	-ŋu	-ŋro	-ŋ-**t**-o	-ŋ(u) =1SG (subject), -t = PST, -o = possibly, additional 1SG marking
1DI>3SG, 1DI	-tsi	-ttsi	-**t**-tsi	-t = PST, -tsi = DU
1DE>3SG, 1DE	-tsuku	-ttsoko	-**t**-tso-ko	-t = PST, -tso = DU, -ko = exclusive
1PI>3SG, 1PI	-i/-ɖi	-ɖi	-**t**-i	-t = PST, -i = 1PI
1PE>3SG, 1PE	-ku	-ttoko	-**t**-**t**o-ko	-t = PST, -ko = exclusive, -to = possibly, additional past morpheme
2SG>3SG, 2SG	-na	-nna	-**t**-na	-t = PST, -na = 2SG
2DU>3SG, 2DU	-tsi	-ttsi	-**t**-tsi	-t = PST, -tsi = DU
2PL>3SG, 2PL	-ni	-nni	-**t**-ni	-t = PST, -ni =2PL
3SG>3SG	-y/-ɖy	-ɖy	-**t**-y	-t =PST, -y = 3SG (agent)
3DU>3SG, 3DU	-tsi	-ttsi	-**t**-tsi	-t = PST, -tsi = DU
3PL>3SG, 3PL	-mi	-mri	-m-**t**-i	-m + -i = 3PL, -t = PST

Table 4. Non-past and past verb endings with morphemic break-down of past

In Michailovsky's (1994, 2009) analysis, Thulung *ɖ* develops from Proto-Kiranti initial _*t._ The observed endings (1PI>3SG.PST -

ḍi and 3SG>3SG.PST *-ḍy*) support this analysis. For the remaining reflexes of past marker **t*, pre-consonantal **t* does not undergo the expected change to *ḍ* but remains *t* (when followed by ts, such as 1DI, 1DE, 2DU, 3DU) or undergoes nasal assimilation (when followed by a nasal, as in 2SG, 2PL).[4]

The reflex r in -mri can be explained by the free variation between *r* and *ḍ* found in the language: the past marker **t* underwent the expected change to *ḍ* and at some point the free variant *r* became fixed in the 3PL past marker.

The only forms for which something unusual is found are 1SG>3SG.PST and 1PE>3SG.PST (and 1PI intransitive): in 1SG>3SG.PST, something like *-uḍo* is expected, as the past marker **t* is in syllable-initial position and should therefore have become *ḍ*. As for 1PE>3SG.PST, *-ttoko* is found, with the additional *t* looking like a reinforcement of the past marker. Whatever the explanation for the geminate *t*, the second *t*, if it is a reflex of the past marker, is in syllable-initial position and should have undergone the change to *ḍ*. Perhaps it does not because it assimilates to the first *t*.

The analysis of the reconstructed past forms suggests that the 1PI and 3SG markers are *-i* and *-y*, and that non-past forms *-ḍi* and *-ḍy* are secondary variants. 1PI>3SG.NPST and 3SG>3SG.NPST can therefore be considered to be vowel-initial forms. This is also the conclusion reached by Allen (1975:136). The explanation for the variant non-past forms for 1PI>3SG.NPST *-ḍi* and 3SG>3SG.NPST *-ḍy* remains elusive. One possibility is that it is by analogy with the equivalent past forms, considering that many verbs have superficially identical non-past and past endings for a good part of their paradigms.

4.2. Past markers

[4] Note that the change is unexpected, given that in pre-consonantal environments, **t* is the reflex of an initial but rather of a final.

The past markers outlined in Tables 2 and 3 are those which occur with open verbs, namely verbs with no Cf. As Thulung does not allow triple consonant clusters, in situations where a consonant-final root combines with past markers, the result is a loss of phonological material.[5] Open verb roots thus provide an environment where there is no reduction of the past markers as a result of the triple-consonant interdiction, and thus where the full past forms of the agreement markers appear. Table 4 provides my partly reconstructed past endings alongside the equivalent current forms, and the majority of these past endings have an initial cluster which includes the reflex of the past marker **t*. These clusters are often obscured in combination with consonant-final verb stems: the avoidance of triple consonant clusters results in a reduction of the past endings, and they often appear, in their surface form, identical to their non-past equivalents.

An interesting point to consider is the position of the elements within the verb ending, namely the relative position of person/number marker and past marker: in most of the endings, the reflex of the past marker appears first and the person/number marker second, but with 1SG and 3PL forms, the order is reversed: instead of an expected *-rimi* for 3PL>3SG.PST or *-roŋo* for 1SG.PST, *-mri* and *-ŋro* are found respectively. I believe that evidence from stem alternations suggests that the forms for these two person/number combinations were originally in the expected order, and that the metathesis occurred after the stem alternation system was already in place.[6] I shall examine this evidence in the last paragraph of Section 5.2. below.

[5] This is true throughout the language, except when the medial consonant is an *s*. This is presumably a matter of syllabification: the *s* clusters with the following consonant and is a syllable onset.

[6] But note that Thulung does not use metathesis as part of its grammar synchronically.

5. VERB STEM CLASSES

In order to make sense of the patterns of stem alternations, the verbs of the language must be organized into what I shall call verb stem classes.[7] To the same verb stem classes are assigned all verbs, which share the same verb stem finals and stem alternation patterns. Thus for example, all verbs for which there are two stems alternately ending in stem finals -p and -m are grouped together. Likewise, all verbs for which there is a single stem ending in stem final -m are grouped together. By grouping all verbs into such verb stem classes, the distribution patterns for the alternating stems emerge and explanations for these patterns can be sought.

Table 5 gives the different verb stem classes of Thulung, and the corresponding finals for the full and weakened stems.

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[7] Allen (1975:61) also organizes his data into stem classes, calling them "types of stem", but also referring to a stem type as forming a "class". He provides a grid (Table IV on p. 62) where he shows what happens to each Cf when it occurs with a specific "ending class" (somewhat abstracted endings outlined in his Table I on p.46). This analysis of verb stem alternation in terms of the Cf of the verb is adopted in most grammars of Kiranti languages. In some cases, the observed alternation is straightforwardly phonological, so that the two types of stems (pre-consonantal and pre-vocalic) are often related through lenition or reduction. This is, for instance, the case in Camling (Ebert 1997), Athpare (Ebert 1997), Yamphu (Rutgers 1998), and Bantawa (Doornenbal 2009). Other languages present more complex systems of alternation, where phonological criteria alone cannot explain the synchronic alternation patterns. For example, an ending of identical form can be found with different stems of the same verb. This is the case in Dumi (van Driem 1993), Jero (Opgenort 2005), Wambule (Opgenort 2004), and Koyi (Lahaussois 2009). For such languages, one way to present the data is by means of paradigms showing co-occurrence patterns of stems with person/number/tense endings. In some cases, the data cannot be accounted for in terms of a set of rules or regularities, because the factors conditioning the attested alternations are no longer recoverable. In other cases, morphophonological conditions can be proposed that elucidate the observed phenomena. This is the case of Thulung, as discussed presently.

stem class	full stem	weakened stem	example forms
-V	-V	-V	No alternation
-p	-p	-m	Full: *sɯp-to* ‘wash-1SG>3SG.PST’ Weakened: *sɯm-mu* ‘wash-INF’
-t[8]	-ʈ/-ɖ[9]	-n	Full: *k^hreʈ-to* ‘bite-1SG>3SG.PST’ *k^hreɖ-I* ‘bite-1PI>3SG.NPST’ Weakened: *k^hren-mu* ‘bite-INF’
-k	-k	-∅	Full: *tsak-to* ‘break-1SG>3SG.NST’ Weakened: *tsa-mu* ‘break-INF’
-m	-m	-m	No alternation
-n	-n	-n	No alternation
-ŋ	-ŋ	-∅	Full: *ɖaŋ-ɖy* ‘grind-3SG>3SG.PST’ Weakened: *ɖa-mu* ‘grind-INF’
-r	-r	-r	No alternation
-l	-l	-l	No alternation
-s?	-s	-∅	Full: *jos-ɖa* ‘melt-3SG.PST’ Weakened: *jo-mu* ‘melt-INF’

Table 5. Stem finals according to stem classes

Three main patterns emerge from this exercise:

[8] We saw above that there is no Cf *t* in Thulung (we get *ʈ* instead). These verb stem class labels are the same as used by Allen (1975:62).

[9] We get full stem CVɖ- ~ CVr- in pre-vocalic environments, and full stem CVʈ- pre-consonantally.

a) non-alternating stems: verb stem classes *-V, -n, -r, -l, -m* do not show any alternation in their verb stems, exhibiting a single stem throughout verb paradigms.

b) alternating stems of the *-p/-t/-k* variety: verb stem classes labeled *-p*, *-t*, and *-k* show the same distribution in the verb stem alternations (namely the full and weakened stems occur with identical person/number/tense combinations across the three verb stem classes). They are also similar in the phonological relationship of the two stems: the weakened stem's final is the homorganic nasal corresponding to the full stem's final; the exception is k-stems: the absence of a corresponding CVŋ- stem can possibly be accounted for through acoustic principles which suggest that ŋ is weaker than other nasals.[10]

c) alternating stems of the ŋ variety: the full stem final alternates with an open weakened stem, and patterns distinctly from other verb stem classes. Allen (1975:62) also has an s stem class, patterning in the same way (in the sense that the full and weakened stems appear in the same distribution), but the argument for positing this stem class is, in my opinion, obscured by the existence of a middle voice-marking verbal suffix, something which will be discussed in Section 6 below.

These different stem alternations patterns will now be discussed in turn.

[10] See Ohala and Ohala (1993:234-5) for acoustic explanations of why back nasals are less consonantal than front nasals. This has to do with the shortness of the oral resonating cavity for velar nasals in comparison with labial and alveolar nasals, and the result is that back nasals are often less common, sometimes even alternating with nasalized vowels. I do not find nasalized vowels in the places where an expected velar nasal does not appear, for example in *k* stem class weakened stems, but they may have been nasalized at some earlier time.

5.1. Non-alternating stems

Unsurprisingly considering the term used to describe them, non-alternating stems exhibit a single stem throughout their paradigm. The open-stem paradigm in Table 6 shows a single CV-stem with all person/number combinations.

tsamu ‘to ignite’	NPST	PST
1SG>3SG	tsa-u	tsa-uto
1DI>3SG	tsa-tsi	tsa-ttsi
1DE>3SG	tsa-tsuku	tsa-ttsuku
1PI>3SG	tsa-i	tsa-iɖi
1PE>3SG	tsa-ku	tsa-ttoko
2SG>3SG	tsa-na	tsa-nna
2DU>3SG	tsa-tsi	tsa-ttsi
2PL>3SG	tsa-ni	tsa-nni
3SG>3SG	tsa-y	tsa-iɖy
3DU>3SG	tsa-tsi	tsa-ttsi
3PL >3SG	tsa-mi	tsa-mri

Table 6. Open-stem verb paradigm

While open-stem paradigms such as that in Table 6 show us the full non-past and past endings, consonant-final non-alternating stems are ideal for observing the interaction between past verb endings and stems: they provide an unchanging consonant-final stem environment for the double-consonant initial past endings to interact with. When consonant-final non-alternating stems are combined with past endings, the first consonant of the past verb ending drops, reducing what would otherwise be a triple consonant cluster to a simple cluster. For example:

jal- + -ttoko = jaltoko

‘to strike’ 1PE>3SG.PST ‘We struck him.’

The results of the interaction of the verb stem with past verb endings can be seen in Table 7. The data present transitive forms, but the same reduction is observed with intransitive verbs.

jalmu ‘to strike’	NPST	PST
1SG>3SG	jal-u	jal-to
1DI>3SG	jal-ʦi	jal-ʦi
1DE>3SG	jal-ʦuku	jal-ʦoko
1PI>3SG	jal-i	jal-ɖi
1PE>3SG	jal-ku	jal-toko
2SG>3SG	jal-na	jal-na
2DU>3SG	jal-ʦi	jal-ʦi
2PL>3SG	jal-ni	jal-ni
3SG>3SG	jal-y	jal-ɖy
3DU>3SG	jal-ʦi	jal-ʦi
3PL>3SG	jal-mi	jal-miri

Table 7. Interaction of consonant-final stem and verb endings

The effect of the consonantal reduction is that some of the past endings (namely those marking 1DI, 2SG, 2DU, 2PL, 3DU subjects or agents[11]) look identical to the corresponding non-past forms.[12] This is not a significant fact for non-alternating stems, where the issue of phonological conditioning for stem selection is irrelevant, but it will be important to bear in mind the difference

[11] I use these labels in what is admittedly a somewhat clumsy fashion to distinguish between an intransitive subject (‘subject’) and a transitive subject (‘agent’).
[12] This surface similarity led me to conclude in my earlier work (Lahaussois 2002:155) that there was no phonological basis for the stem alternations, as the same endings were found with different stems.

between underlying and surface forms of the past endings when dealing with verbs with alternating stems in the next section.

For the sake of comparison, a nasal-final non-alternating paradigm is given in Table 8. This will be useful for comparison with *-p* stem verbs (for which one of the possible stems is *-m* final).

demmu 'to step on'	NPST	PST
1SG>3SG	dem-pu	dem-to
1DI>3SG	dem-ʦi	dem-ʦi
1DE>3SG	dem-ʦuku	dem-ʦoko
1PI>3SG	dem-ḍi	dem-ḍi
1PE>3SG	dem-ku	dem-toko
2SG>3SG	dem-na	dem-na
2DU>3SG	dem-ʦi	dem-ʦi
2PL>3SG	dem-ni	dem-ni
3SG>3SG	dem-ḍy	dem-ḍy
3DU>3SG	dem-ʦi	dem-ʦi
3PL>3SG	dem-mi	dem-miri

Table 8. Non-alternating nasal-final verb paradigm

5.2. Stems in *-p/-t/-k*

Tables 9 and 10 below present verb stem distribution patterns for *-p*, *-t*, and *-k* stem classes for transitive and intransitive verbs respectively. Transitive and intransitive verbs pattern differently in terms of the distribution of full and weakened stems throughout the paradigm, and this is, I hope to show, a result of the phonological environment provided by the distinct transitive and intransitive verb endings.

	-p stems, e.g. *wammu* 'to scoop water'		*-t* stems, e.g. *benmu* 'to make'		*-k* stems, e.g. *p^{h}imu* 'to put in'	
	NPST	PST	NPST	PST	NPST	PST
1SG>3SG	wap-u	wap-to	beʈ-pu	beʈ-to	p^{h}ik-pu	p^{h}ik-to
1DI>3SG	wam-tsi	wap-tsi	ben-tsi	beʈ-tsi	p^{h}i-tsi	p^{h}ik-tsi
1DE>3SG	wam-tsuku	wap-tsoko	ben-tsuku	beʈ-tsoko	p^{h}i-tsuku	p^{h}ik-tsoko
1PI>3SG	wap-ɖi	wap-ɖi	beɖ-i	beʈ-ɖi	p^{h}ik-i	p^{h}ik-ɖi
1PE>3SG	wam-ku	wap-toko	ben-ku	beʈ-toko	p^{h}i-ku	p^{h}ik-toko
2SG>3SG	wam-na	wap-na	ben-na	beʈ-na	p^{h}i-na	p^{h}ik-na
2DU>3SG	wam-tsi	wap-tsi	ben-tsi	beʈ-tsi	p^{h}i-tsi	p^{h}ik-tsi
2PL>3SG	wam-ni	wap-ni	ben-ni	beʈ-ni	p^{h}i-ni	p^{h}ik-ni
3SG>3SG	wap-ɖy	wap-ɖy	beɖ-y	beʈ-ɖy	p^{h}ik-y	p^{h}ik-ɖy
3DU>3SG	wam-tsi	wap-tsi	ben-tsi	beʈ-tsi	p^{h}i-tsi	p^{h}ik-tsi
3PL>3SG	wam-mi	wap-miri	ben-mi	beʈ-miri	p^{h}i-mi	p^{h}i-mri

Table 9. *-p/-t/-k* stem class stem distribution for transitive verbs

The verb forms in Tables 9 and 10 can be abstracted to the following alternating stem forms:

(i) *-p* stem verbs alternate between full stem CVp- and weakened stem CVm-[13]
(ii) *-t* stem verbs alternate between full stem CVʈ- (and CVɖ-) and weakened stem CVn-
(iii) *-k* stem verbs alternate between full stem CVk- and weakened stem CV-.

	-p stems, e.g. *k^hrammu* 'to cry'		*-t* stems, e.g. *hunmu* 'to fly'		*-k* stems, e.g. *$ʥ^h$umu* 'to jump'	
	NPST	PST	NPST	PST	NPST	PST
1SG	k^hram-ŋu	k^hrap-ŋoro	hun-ŋu	huʈ-ŋoro	$ʥ^h$u-ŋu	$ʥ^h$u-ŋro
1DI	k^hram-tsi	k^hrap-tsi	hun-tsi	huʈ-tsi	$ʥ^h$u-tsi	$ʥ^h$uk-tsi
1DE	k^hram-tsuku	k^hrap-tsoko	hun-tsuku	huʈ-tsoko	$ʥ^h$u-tsuku	$ʥ^h$uk-tsoko
1PI	k^hrap-ɖi	k^hrap-ɖi	huɖ-i	huʈ-ɖi	$ʥ^h$uk-i	$ʥ^h$uk-ɖi
1PE	k^hram-ku	k^hrap-toko	hun-ku	huʈ-toko	$ʥ^h$u-ku	$ʥ^h$uk-toko
2SG	k^hram-na	k^hrap-na	hun-na	huʈ-na	$ʥ^h$u-na	$ʥ^h$uk-na
2DU	k^hram-tsi	k^hrap-tsi	hun-tsi	huʈ-tsi	$ʥ^h$u-tsi	$ʥ^h$uk-tsi
2PL	k^hram-ni	k^hrap-ni	hun-ni	huʈ-ni	$ʥ^h$u-ni	$ʥ^h$uk-ni
3SG	k^hram-∅	k^hrap-ɖa	hun-∅	huʈ-ɖa	$ʥ^h$u-∅	$ʥ^h$uk-ɖa
3DU	k^hram-tsi	k^hrap-tsi	hun-tsi	huʈ-tsi	$ʥ^h$u-tsi	$ʥ^h$uk-tsi
3PL	k^hram-mi	k^hra-mri/k^hrap-miri	hun-mi	huʈ-miri	$ʥ^h$u-mi	$ʥ^h$u-mri/ $ʥ^h$uk-miri

Table 10. *-p/-t/-k* stem class stem distribution for intransitive verbs

[13] Note how this is distinct from a non-alternating nasal final verb paradigm such as that in Table 8.

The following is a proposed explanation for the verb stem alternations in Thulung, insofar as the phenomena are synchronically accessible:

A full stem is realized in most situations, except when the environment provided by the verb ending triggers lenition (or weakening, in Allen's terms, 1975:65). Lenition occurs when the verb ending has an initial which is a nasal or an affricate.

The salient features of the stem distribution pattern are that the past forms almost exclusively use full stems; non-past forms mostly use weakened stems, except for 1SG, 1PI and 3SG agents (for transitives) and 1PI subjects (for intransitives) which take full stems.[14] I shall discuss each of these features in turn and propose explanations for the stem selection.

As mentioned above, and as is clear from the greyed cells in Tables 9 and 10, past forms for *-p/-t/-k* stem classes almost exclusively take full stems. While this seems counter to the explanation provided above, namely that nasal or affricate initial verb endings trigger stem weakening, remember that the past endings as they occur in Tables 9 and 10 are surface forms, the results of consonant reduction through combination with the stems. In fact, the past verb endings that must be taken into account are those presented in Tables 2 and 3, which are more phonologically complex than the surface forms.

[14] While this might suggest that the basic distribution is simply one of a weakened stem for the non-past and a full stem for the past, such a hypothesis makes it quite challenging to account for the presence of the full stem with specific person/number combinations in the non-past. If one were to imagine that the "past stem" had the form it does as a result of the presence of a past marker that would suggest that the default stem was the "non-past stem". Considering that the relationship between full and weakened is one of lenition, it seems more efficient to claim that the default stem is the full stem, and that phonological processes account for the situations where we find something other than the full stem.

The hypothesis presented here is that the past morpheme, which is not realized in combination with consonant-final stems because of the interdiction against triple clusters, still exerts an influence and acts as a buffer between stem and verb ending, preventing the lenition of the stem and allowing its full realization.

Consider the following combination of stem, followed by a past verb ending:

CVp- + 3DU>3SG.PST *-ttsi* = CVp-tsi

Without the buffer provided by the *-t* of the verb ending *-ttsi*, the affricate would be able to exert a leniting influence on the stem final *p*, reducing it to *m*.

The past forms for *-p/-t/-k* verbs all occur with full stems because of the buffer provided by the initial of the past verb ending (an initial which is, in almost all cases, the reflex of the **t* past marker). The initial does not surface in verb stem and verb ending combinations, because of the interdiction against triple consonant clusters, but its presence blocks the lenition that would otherwise be induced by the affricate and allows the realization of the full verb stem.

Non-past forms occur with full or weakened stems, depending on the relevant person/number combination and the phonological environment provided by these endings. The explanation proposed above applies for non-past forms associated with 1SG, 1PI and 3SG agents, and 1PI subjects: their vowel-initial endings, in being neither nasal- nor affricate-initial, result in the use of the full stem; this is because there is no interference between the vocalic initial of the verb ending and the stem, so that the full stem is realized.[15]

[15] As shown in Section 4.1.3, these endings are vowel-initial, even if their surface form sometimes contains epenthetic material (*-p* for 1SG, *-ɖ* for 1PI and 3SG) and therefore looks consonant-initial.

Consider the following combination of stem, followed by a non-past vowel-initial verb ending:

CVp- + 1SG>3SG.NPST marker *-u* = CVp-u

There is nothing on the verb ending to induce lenition on the stem final, and the stem final is therefore unaltered. The full stem occurs.

The other non-past verb endings, which constitute the majority of the non-past paradigm, are affricate- and nasal-initial. As such, they provide a leniting environment, which weakens the stem final to its homorganic nasal:

CVp- +3DU>3SG.NPST marker *-ʦi* = CVm-ʦi

There are, as might be expected, a number of unresolved issues. The first is an exception to the pattern, namely the transitive and intransitive non-past 1PE verb ending *-ku*: its initial obstruent (which is not a nasal or affricate) should not result any kind of lenition, and yet it occurs with the weakened stem as opposed to the expected full stem. This can possibly be explained as the work of analogy: as a verb ending which is not vowel-initial, it is treated like most other verb endings (which all happen to be nasal- and affricate-initial).

Another issue is that of the variation for 1SG>3SG.NPST between *-u/-pu* (fixed according to the stem class of the verb), and the fact that the *-pu* variant of the ending occurs where it is posited that the ending is vowel-initial (which it is, but only underlyingly so).

Yet another problem is that of the intransitive 3SG.NPST ending, which is zero, and yet it occurs with a weakened stem.[16]

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[16] Descriptions of some Kiranti languages mention a stem distribution whereby a "pause" or "word boundary" is preceded by the pre-consonantal stem, this is the case of Chamling (Ebert 1997b:14), Athpare (Ebert 1997a:20) and Yamphu (Rutgers 1998:103). To quote Ebert's (1997b:14) analysis of Chamling, "[t]he full stem occurs only before vowels. Before a consonantal suffix or a pause most stems

Additionally, there is the problem that this nasal- and affricate-induced lenition is not seen elsewhere in the language. There are a few other Thulung suffixes, other than verb endings, which are nasal- or affricate-initial: dual marker *-tsip*, horizontal-locative marker *-nu*, and in combination with *-p/-t/-k* final words, they do not induce lenition.

One other noteworthy point for which the *-p/-t/-k* paradigms provide insight is the ordering of past and person/number morphemes within the past verb endings. As seen above, 1SG.PST, 3PL>3SG.PST, and 3PL.PST are ordered differently from the other endings: *-ŋoro* and *-miri* (1SG.PST and 3PL>3SG.PST=3PL.PST respectively) have person/number marking preceding the past morpheme (where *-roŋo* and *-rimi* are expected). These three verb endings take full stems, even though logically, lenition should have occurred, considering the past element occurs after the person/number element and thus provides no buffer. Yet these past endings do occur with full stems, which possibly suggests that the past marker at some stage probably preceded the person/number marker, in accordance with what is found for other person/number/tense combinations, before flipping at some later time.

5.3. Stems in *ŋ* (and maybe also in *s*)

Verbs of the *ŋ* stem class pattern differently from the *-p/-t/-k* stem classes discussed above, in that the past forms do not as a whole take full stems.

	ɖamu ‘to grind rice’	
	NPST	PST
1SG>3SG	ɖɑ-u	ɖɑ-uto

are reduced or undergo a morphophonological change.” In these languages, antevocalic stems cannot be realized without a subsequent vowel due to resyllabification. It is nonetheless interesting that in these languages, as in Thulung, it is the weakened stem that occurs in an environment where there is no suffix to condition the weakening.

1DI>3SG	ɖɑ-tsi	ɖɑ-ttsi
1DE>3SG	ɖɑ-tsuku	ɖɑ-ttsoko
1PI>3SG	ɖɑŋ-i	ɖɑŋ-ɖi
1PE>3SG	ɖɑ-ku	ɖɑ-ttoko
2SG>3SG	ɖɑ-na	ɖɑ-nna
2DU>3SG	ɖɑ-tsi	ɖɑ-ttsi
2PL>3SG	ɖɑ-ni	ɖɑ-nni
3SG>3SG	ɖɑŋ-y	ɖɑŋ-ɖy
3DU>3SG	ɖɑ-tsi	ɖɑ-ttsi
3PL>3SG	ɖɑ-mi	ɖɑ-mri

Table 11. Transitive *ŋ* stem class verb

	ŋ-stems, e.g. *swamu* 'to flee'	
	NPST	PST
1SG	swa-ŋu	swa-ŋro
1DI	swa-tsi	swa-ttsi
1DE	swa-tsuku	swa-ttsoko
1PI	swaŋ-i	swaŋ-ɖi
1PE	swa-ku	swa-ttoko
2SG	swa-na	swa-nna
2DU	swa-tsi	swa-ttsi
2PL	swa-ni	swa-nni
3SG	swa	swaŋ-ɖa
3DU	swa-tsi	swa-ttsi
3PL	swa-mi	swa-mri

Table 12. Intransitive *ŋ* stem class verb

Abstracting from the forms in Tables 11 and 12, a full stem CVŋ- is found, which alternates with a weakened stem CV-.

As far as the non-past forms are concerned, as with *-p/-t/-k* verbs, vowel-initial verb endings occur with full stems, and nasal-

and affricate-initial endings (but also 1PE *-ku*, discussed above as a possible case of analogy) occur with weakened stems.
One surprising exception is that 1SG>3SG takes a weakened stem (from Table 11, the forms are *ɖa-u* and *ɖa-uto*, for NPST and PST respectively) as opposed to the expected (considering the vowel-initial ending) full stem (*ɖaŋ-u* and *ɖaŋ-to*, neither of which is found). This would pose a problem for the hypothesis about full stems occurring whenever there are vowel-initial endings. In fact, Allen gives forms that confirm that expected forms used to be attested: He records (1975:64) a form *ɖuŋ-u* 'drink-1SG>3SG.NPST', with a full stem before a vowel-initial ending, whereas *ɖu-u* is the form currently used. He also notes (1975:64-65) for the past form that "AS gives Duŋto", referring to a grammar written by Agam Sing Dewsa Rai in the 1940's, which again provides an expected form for 1SG>3SG.PST (with full stem before vowel-initial ending) even though only *ɖu-uto* is currently found 'drink-1SG>3SG.PST'. Thus the expected forms, which conform with the presented hypothesis about full stem selection with vowel-initial endings, are historically attested, even though currently defunct. This demonstrates again the complexity of historical layers of morphology and variation, which obscure synchronically occurring patterns.

One possible explanation for the current use of a weakened stem (where a full stem is expected) with vowel-initial endings is that the combination of a *ŋ*-final stem with 1SG>3SG.NPST marker -*u* would result in a form identical to the corresponding intransitive form for 1SG.NPST *-ŋu*, and is thus avoided. In other words, speakers perhaps feel that a 1SG>3SG.NPST CVŋ-u might be reinterpreted as an intransitive 1SG.NPST CV-ŋu, and in order to avoid this possible confusion, have preferred to use a weakened stem (CV-u) for the 1SG>3SG.NPST form, even though the ending is vowel-initial.

As far as past forms are concerned, verbs of the ŋ stem type are unusual: unlike *-p/-t/-k* verbs, the full stem is not predominantly found with past forms. Indeed, the weakened stem is used throughout, except with 1PI and 3SG subjects/agents. This can be seen in Tables 11 and 12, where the greyed cells represent full stem distribution.

How can we explain that weakened stems are found for most of the past forms? It seems that it has to do with the inherent weakness of *-ŋ* as a stem final (see Section 5). With other types of verbs, such as *-p/-t/-k* verbs, past forms use full stems. The presence of the stem's final consonant results, because of the triple cluster interdiction, in a reduction of the past verb endings (as presented in Tables 2 and 3), which drop their initial consonant. Instead, the weakened stem here is followed by the full past verb endings. Indeed, the only instances in which the full stem with *-ŋ* final occurs for past forms is when the full past ending has a single initial consonant (namely with 1PI and 3SG agents/subjects, for which the endings are *-ɖi* and *-ɖy* respectively). This suggests strongly that the realization of the full stem in *-ŋ* is only possible when the following ending has a single initial consonant. When the ending has an initial consonant cluster, the inherent weakness of the *ŋ* leads to its loss, resulting in the use of the weakened stem.

There is some question as to whether the *-ŋ* stem class is alone in patterning in this way, or whether an *-s* stem class, patterning in the same way, exists. The reasons for this confusion will be clarified in the following section.

6. COMPLICATIONS: THE MIDDLE SUFFIX

Thulung has what appears to be a middle marker *-s*, which is suffixed to verb stems before the agreement markers. It is found with cross-linguistically valid semantic classes of verbs (Kemmer 1993:53ff), such as body actions (‘to vomit’, ‘to fart’, ‘to urinate’), translational motion (‘to go’, ‘to move’, ‘to fall’).[17]

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[17] Curiously, some other cross-linguistically middle marked semantic situation types, such as grooming and body care, are not marked with *-s* in Thulung but rather with reflexive marker *-si*. Yet note that according to Kemmer (1993:55), “[grooming

It is useful at this juncture to recall Kemmer's (1994:207) definition of the middle marker, which "has the basic function of indicating that the two semantic roles Initiator and Endpoint refer to a single holistic entity without conceptually distinguished aspects."

In Thulung, the s suffix is obligatory with certain verbs, but generally seems to be optional. Note the difference between the non-middle marked verb in (5) and the middle-marked equivalent in (6):

(5)	gu-ka	ʥam	k^{h}rep-ɖy	
	3SG-ERG	rice	cover-3SG>3SG.PST	
	'He covered the rice.'			
(6)	k^{h}uly	p^{h}eri	k^{h}rem-s-ɖa	ʔe
	earth	again	cover-MM-3SG.PST	HS
	'The Earth covered (itself) up again.'			

The middle marker seems to be derived from a reflexive marker *-si*, which occurs productively and throughout verbal paradigms; this is in contrast to the middle marker which is limited to 1PI and 3SG subjects, a distribution confirmed by both elicited paradigms and by concordances across the narrative corpus.

Where this situation is relevant to us is that it is exactly the same distribution pattern as found with ŋ stem class verbs, namely the full stem only surfaces with 1PI and 3SG subjects/agents. This leaves us with the following hesitation: For verbs which alternate between an open stem and an *s*-final stem, with the distribution above, are we looking at an *s* stem class, which patterns in the same way as the *ŋ* stem class, or are we instead looking at a non-alternating open verb (the V stem class of Table 5) which is middle-marked?

lwamu 'to see'

actions] are of central importance as they represent a situation type that is very frequently, if not universally, middle-marked in languages with middle marking.'

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	NPST	PST
1SG>3SG	la-u	lwa-uto
1DI>3SG	lwa-tsi	lwa-ttsi
1DE>3SG	lwa-tsuku	lwa-ttsoko
1PI>3SG	lwas-i	lwas-ɖ̥i
1PE>3SG	lwa-ku	lwa-ttoko
2SG>3SG	lwa-na	lwa-nna
2DU>3SG	lwa-tsi	lwa-ttsi
2PL>3SG	lwa-ni	lwa-nni
3SG>3SG	lwas-y	lwas-ɖ̥y
3DU>3SG	lwa-tsi	lwa-ttsi
3PL>3SG	lwa-mi	lwa-mri

Table 13. Transitive verbs

Tables 13 and 14 illustrate the distribution of stems for some of these unclassified verbs: the pattern is the same as that for ŋ stem class verbs seen in Tables 11 and 12.

	semu 'to fart'	
	NPST	PST
1SG	se-ŋu	se-ŋro
1DI	se-tsi	se-ttsi
1DE	se-tsuku	se-ttsoko
1PI	ses-i	ses-ɖ̥i
1PE	se-ku	se-ttoko
2SG	se-na	se-nna
2DU	se-tsi	se-ttsi
2PL	se-ni	se-nni
3SG	se	ses-ɖ̥a
3DU	se-tsi	se-ttsi
3PL	se-mi	se-mri

Table 14. Intransitive verbs

Both of the verbs in Table 13 and 14 could be middle-marked on semantic grounds ('to see' is a perception verb, and 'to fart' is a bodily action verb, both of which are verb types that cross-linguistically are found to be middle-marked). They are thus potentially open verbs, which take the middle-marker with 3SG and 1PI. But another interpretation is that they are verbs of an s stem class, for which the verb base has a final consonant s which only surfaces in 3SG and 1PI (following the same pattern as seen with *ŋ* stem class verbs). A problem with a category like middle is that it is considerably more difficult to pin down, in terms of its semantics, than, for example, reflexive marking; the result is that it is not clear, especially considering that marking is limited to 1PI and 3SG, whether the middle marker actually exists in Thulung. With verbs such as those in Tables 13 and 14, where there is no final consonant on the stem but we find an *s* in 1PI and 3SG forms, it is not at all clear whether we have a hypothetical *s* stem class, or an *s* suffix.

Allen (1975:62), in his description of the Thulung verbal system, posits an equivalent of the *s*-stem class, with specific stem distribution patterns for verbs with *s*-final stems. Conversely, Michailovksy (Ms) suggests in relation to Dumi that "the phonological syllable final -*s* ... [is] of secondary origin and not reconstructed in verb bases". (The same analysis is also extended to Bahing, Michailovsky, 1975:187). In a similar fashion, Thulung data leave us in doubt as to how to deal with the suffix -*s*. The middle marker is an example of how the layers of morphology in an oral language such as Thulung are difficult to disentangle, resulting in descriptive challenges.

7. CONCLUSION

This paper is an attempt to apply to verb stem alternations in Thulung Michailovsky's analysis of Dumi verb stem alternations, rooted in morphophonological derivations. This is a departure from my earlier analysis of the Thulung verbal system (Lahaussois 2002, 2003) as paradigmatically determined and having no phonological basis.

In present analysis, I assume an underlying default verb form (full stem). The verb stem's final consonant is lenited to its homorganic nasal (for Cf's *-p*, *-t*) or to zero (for Cf's *-k*, *-ŋ*), when followed by a verb ending beginning in nasals or affricates. This produces the so-called 'weakened stem'.

The weakening does not occur in the past forms, because almost all past endings begin with a double initial consonant (one of which is the reflex of the past marker); this consonant cluster serves as a barrier to the weakening, and as a result only full stems are found in the past forms.

One great advantage of a phonological approach is that it allows us to reduce the verb stems to a single form (full stem) which can be further used for comparative purposes. At the same time, it seems clear that the multiple layers of morphology which came into the language at different points make proposing a phonological explanation somewhat challenging. Accordingly, any such analysis, including the present one, is speculative and subject to a number of exceptions. One particular example given in this paper is that of middle voice marking, which somewhat obscures the data on verb stem alternation and verb class assignment.

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