Tonal morphology in Sama Nubri

Case marking and transitivity alternations

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This paper reports on the Tibeto-Burman language, Nubri, of the Himalayan region of northern central Nepal. Specifically data is presented to illustrate the use of tone to mark two morphological features in the language: the use of a H tone suffix to mark the genitive case, and the use of a H tone prefix to mark an increase in transitivity. This is the first account of these phenomena in Nubri and an analysis is presented before contextualizing the phenomena in a typological perspective.

Keywords: Case marking, causatives, transitivity, grammatical tone, tonal morphology

1   Introduction

Nubri is a largely undescribed Tibeto-Burman language spoken in the upper Gorkha district of northern central Nepal. There are about 2000 people across the valley, most of whom speak Nubri (see Donohue 2018, 2019 for discussion of dialectal variation). This paper presents data on the syntax-phonology interface: specifically, data on two tonal morphological phenomena. I introduce the use of tone *in lieu* of case morphology, and the use of tone to mark transitivity alternations in the variety of Nubri spoken in Sama village, upper Nubri.

2   Tone in Nubri

Nubri has five contrasting tones. These have distinct contours on monosyllables, and a set of corresponding contrasts on polysyllables (Donohue & Donohue 2019). Table 1 lists a description of the citation tones, followed by a phonological feature assignment, and a description of the tone using tone numbers (e.g. Chao 1930; 5 is high, 1 is low). An example illustrating the tone follows with a Nubri word in IPA, the (proposed) orthography, and an English translation.

Table 1. Nubri tonal contrasts.

Description	Feature	Tone letters	Nubri illustration		
			IPA	Orthography	Translation
High	H	44	[ɲiŋ$^{44\sim45}$]	*nyīng*	'heart'
High fall	HL	53	[tʂ$^{53\sim52}$]	*tà*	'horse'
Mid	Ø (M)	33	[mi$^{33\sim332}$]	*mi*	'person'
Low fall	L	21	[ɲa^{21}]	*nyǎ*	'fish
Low convex	LHL	231	[tʂo$^{231\sim232}$]	*dô*	'potato'

There is just one high/level tone, so its assignment as H is noncontroversial. The high falling tone, illustrated here by *tà* 'horse' is assigned HL. The two tones in the lower half of the pitch range, the low fall and low convex tones, are often produced with a breathy voice and initial obstruents often show some degree of voicing. The low convex tone is represented as LHL, and corresponds to a [232] or [231] pitch contour. It has been found that some high tones may rise a little and some lower tones may fall a little (e.g. as in Fuzhou; Donohue 2012, 2013). This appears to be true in Nubri as well. It is for this reason that the low fall is represented as simply L, as the gradient is small and the fall may be considered part of the phonetic realization of this tone. Orthographically, this is the only diacritic that is not self-explanatorily matching the pitch contour. Of various possibilities considered, I chose to use the dipping tone marker as it can uniquely identify this tone. In addition, it is often associated with the L tone in the Tibetan literature, as well as in other Sino-

Tibetan varieties such as Mandarin Chinese, which has a low tone that is dipping in citation form, but which is realized as a L with a slight fall (and creaky voice) in a range of contexts (and exclusively as a low/low fall in some dialects).[1] The mid tone is represented as tone-less, which is phonetically realized as a mid tone.

In Nubri, five tonal contrasts are maintained in polysyllabic words, as illustrated by the set of words in Table 2. To a first approximation, these tonal 'shapes' correspond to the contrasts found on monosyllables and can be represented as such using the same tonal features, the initial rise at the beginning of the High tone which is otherwise a H tone sequence, and the Low tone, which is realized as a H tone on the second syllable.

Table 2. Nubri tonal contrasts in disyllables

Description	Feature	Nubri illustration		
		IPA	Orthography	Translation
High	(L)H . H	$[ɲŏŋ^{355} ma^{55}]$	*nyūng mā*	'bamboo'
High fall	H . L	$[l̥a^{55} ma^{22}]$	*lhā mǎ*	'remainder'
Mid	Ø . Ø	$[jŏŋ^{33} t̂ŏŋ^{33}]$	*yung tung*	'swastika'
Low fall	L . (L)H	$[mo^{22} mo^{34\sim44}]$	*mǒ mō*	'dumpling'
Low convex	LH . HL	$[ne^{24} ma^{42}]$	*né mà*	'yarn'

Next, I present and discuss the two phenomena of interest: tonal case and tonal marking of transitivity alternations.

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[1] There is some redundancy in the orthography used here as there is not a three-way VOT contrast in the obstruents. Indeed the voiced stops are seldom fully voiced, but, as noted, they are often produced on syllables with breathy vowels and with low tones. This cluster of 'tonal' properties is common in the region, and in Nubri the voicing/breathiness is most likely predictable from the low tone.

3   Tonal case in Nubri

Typically described as a Tibetic language, the morphological case forms in Nubri are clearly cognate with those in other Tibetic varieties. However, there appears to be a strong dispreference for using the morphological case (Donohue 2018). Consider the examples in (1).[2]

    (1)   a. *Ngă sêi   yin.*

            1.SG eat   AUX

            'I ate.'

        b. Ngă shāu   sêi   yin.

            1.SG apple   eat   AUX

            'I ate the apple.'

        c. *Ngă-ī̄   shāu   sêi   yin.*

            1.SG-**ERG** apple   eat   AUX

            'I ate the apple.'

It is possible to render the transitive sentence in (1b) with the agent beating an ergative case marker as in (1c) but it is not typically heard in natural discourse. Indeed, the overt use of the ergative case in Nubri as in (1c) is said to sound overly formal, likely due to its similarity to Tibetan, the liturgical language of the community. In the excerpt from a Pear Story narrative given in (2), we see that the agent *mẽ* 'grandpa/old man' is not marked by the ergative case as might be expected.

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[2] All examples are the author's own data collected over several fieldtrips in Nepal 2017-2019.

(2)   … *mẽ*   *shĭngtōk*   *ko*   *nu.*

      … grandpa   fruit   pick   AUX

      '… the old man is picking fruit.'

The same holds true for case marking in genitive constructions. In careful, more formal elicitations the genitive was marked by the morphological case, *yī*, as in (3).

(3)   *khò-yī*   *khŏrma*

      3SG.M-GEN   basket

      'his basket'

However, in a less formal context, there was typically no overt case morphology to mark the genitive case. Omitting case is not unusual with inalienable possession, or higher animate possessors, as in (4), but morphological case marking was found to be omitted in natural speech regardless of the degree of animacy of the possessor as the examples in (5) with lower animate possessors show.

(4)   a. *ngă*   *dă.*

         1SG   arrow

         'my arrow'

      b. *khò*   *dă.*

         3SG.M   arrow

         'his arrow'

      c. *ngă*   *tɕê*

         1SG   footprint

         'my footprints'

   d. *khò   tɕê*

       3SG.M   footprint

       'his footprints'

   e. *ngǎ   kē*

       1SG   language

       'my language'

   f. *khò   kē*

       3SG.M   language

       'his language'

(5)   a. *sha   dǎ*

          deer   arrow

          'deer's arrow'

       b. *sha   tɕê*

          deer   footprint

          'deer's footprint

       c. *sha   kē*

          deer   language

          'deer's language'

Given the observed lack of case marking in Nubri to mark core arguments, one might assume that the omission of genitive case morphology was simply an instance of this general morphological case avoidance. However, the output of the juxtaposed NPs in genitive constructions does not have

the anticipated tonal output. Instead of a simple combination of Tone A + Tone B, we may observe new contours. These are given in Table 3, which gives the paradigm for tonal combinations in genitive NPs, including the examples from (4) and (5) above.
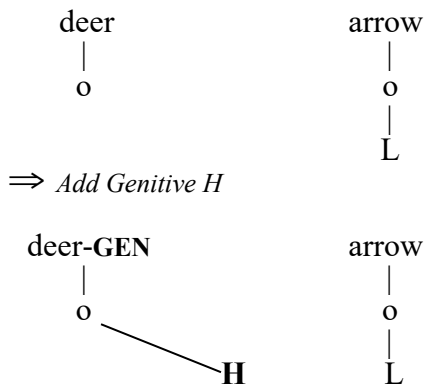
Table 3. Tonal combinations in Genitive NPs

		Possessor N				
		'house' *khim* **H**	3SG.M *kho* **HL**	'deer' *sha* Ø	'mother' *ã* **LHL**	1SG *nga* **L**
Possessed N	'language' *ke* **H**	*khim ke* **H.H⁻**	*kho ke* **H.H⁻**	*sha ke* **H.H⁻**	*ã ke* **LH.H⁻**	*nga ke* **LH.H⁻**
	'dog' *khi* **HL**	*khim khi* **H.HL**	*kho khi* **H.HL**	*sha khi* **H.HL**	*ã khi* **LH.HL**	*nga khi* **LH.HL**
	'deer' *sha* Ø	*khim sha* **H.M**	*kho sha* **H.M**	*sha sha* **H.M**	*ã sha* **LH.M**	*nga sha* **LH.M**
	'footprint' *tɕe* **LHL**	*khim tɕe* **H.LHL**	*kho tɕe* **H.LHL**	*sha tɕe* **H.LHL**	*ã tɕe* **LH.LHL**	*nga tɕe* **LH.LHL**
	'arrow' *da* **L**	*khim da* **H.L**	*kho da* **H.L**	*sha da* **H.L**	*ã da* **LH.L**	*nga da* **LH.L**

The tonal outputs can be readily understood if one assumes that the H tone of the genitive case is preserved and concatenates to the tone of the possessor in the first syllable. Some other factors are readily explained by appealing to simple principles such as the Obligatory Contour Principle when a sequence of two H tones results in a down stepped H (written as H⁻)in the second syllable, and Contour Simplification which, in the examples from Table 3, result in a deleted LH node to simplify contours of more than two tones. Consider the example in (6). We can see how the tonally underspecified 'deer' followed by a L-toned 'arrow' does not result in a [M.L] output, but a [H.L] output due to the H tone from the genitive case that attaches to the first syllable before the default M tone is assigned to the (otherwise toneless) syllable.

(6)   'deer's arrow':   /Ø ^{H} L/ → [H L]

Input:	*sha* [ ] 'deer'		*da* L 'arrow'
Genitive H docking:	H	←··**H: Genitive**	L
Genitive form:	*sha*-GEN H		*da* L
Output:	*sha da* [H.L] 'deer's arrow'		

```
    deer                  arrow
     |                      |
     o                      o
                            |
                            L

⟹  Add Genitive H

  deer-GEN                arrow
     |                      |
     o                      o
      \                     |
       H                    L
```

If 'deer' were underlyingly /M/ and not unspecified for tone (receiving [M] as a default case for phonetic realization), then we would expect to hear [MH.L] as the output tonal combination of 'deer's arrow' if H were concatenative. As we observe [H.L] as the output, we can assume that either the genitive H tone is replacive, or the [M] tone is phonologically underspecified and the genitive H is still concatenative. Here, we will assume that it is unspecified for tone, as the Genitive H would not be completely replacing tones, but rather nodes, requiring a hybrid replacive/concatenative tonal analysis, which would result in an unusual system of partial replacement of the tone.
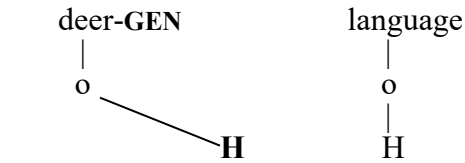
Now consider a combination of two H tones in the output, as in 'deer's language' given below in (7). As in (6), the unspecified tone on 'deer' trivially acquires H from the genitive case. However, the resulting output is not [H.H]; it is in fact [H] followed by a down-stepped [H⁻]. This can be considered an effect of the Obligatory Contour Principle (OCP; Odden 2005), to maintain the tonal distinctions.

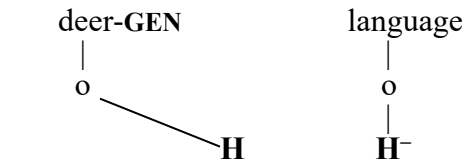(7) 'deer's language':   /Ø ^{H} H/ → [H H⁻]

Input:	*sha* [ ] 'deer'			*ke* H 'language'
Genitive H docking:	H		←··**H: Genitive**	H
OCP:	H		**OCP →**	H⁻
Genitive form:	*sha*-GEN H			*ke* H⁻
Output:	*sha ke* [H.H⁻] 'deer's language'			

```
   deer                language
    |                    |
    o                    o
                         |
                         H
⇒ Add Genitive H

   deer-GEN            language
    |                    |
    o                    o
     \                   |
       H                 H
⇒ OCP

   deer-GEN            language
    |                    |
    o                    o
     \                   |
       H                 H⁻
```

The downstep is also observed following a final H even if it is part of a contour as in (8), where

we see the lowering of H in *kē* to a down-stepped high following *ngá* 'my'.

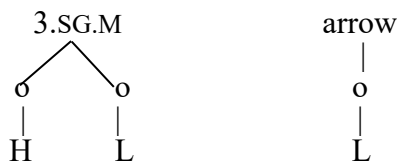(8)   'my language':   /L ^{H} H/ → [LH H⁻]

Input	*nga* 'I' L			*ke* H 'language'
Genitive H docking:	LH		←··**H: Genitive**	H
OCP:	H		**OCP →**	H⁻
Genitive form:	*nga*-GEN LH			*ke* H⁻
Output:	*nga ke* [LH.H⁻] 'my language'			

```
   1.SG                    language
    |                         |
    o                         o
    |                         |
    L                         H
```

⇒ *Add Genitive H*

```
  1-SG-GEN                  language
    |                         |
    o                         o
    | \                       |
    L    \H                   H
```

⇒ *OCP*

```
  1-SG-GEN                  language
    |                         |
    o                         o
    | \                       |
    L    \H                   H⁻
```
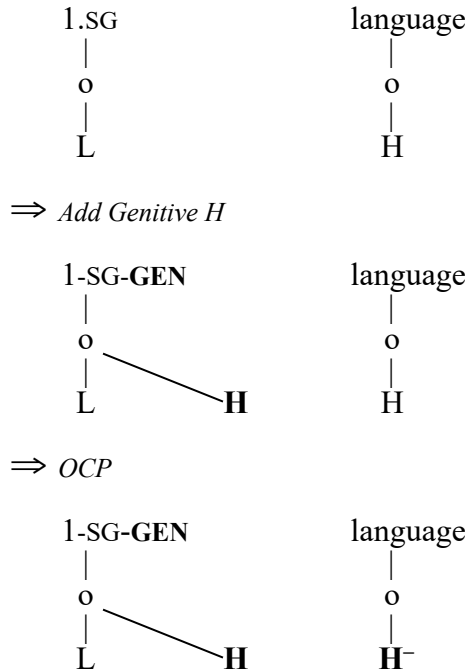
Next, we consider 'his arrow' in (9) below which has a contour tone on the initial syllable. We see that the H tone of the genitive is concatenated to the [HL] contour, but the [LH] contour from the resulting [HLH] is deleted to simplify the cluster.

(9)   'his arrow':   /HL ^{H} L/ → [H L]

Input	*kho 'he'* HL		*da* L 'arrow'
Genitive H docking:	H.LH	←··**H: Genitive**	L
Cluster simplification:	H.~~LH~~	←··**Cluster simpl.**	L
Genitive form:	*kho*-GEN H		*da* L
Output:	*kho da* [H.L] 'his arrow'		

```
   3.SG.M                   arrow
   / \                        |
  o   o                       o
  |   |                       |
  H   L                       L
```

⟹ *Add Genitive H*

3.SG.M   **GEN**   arrow

   o   o   o

   H   L   **H**   L

⟹ *Cluster simplification*

3.SG.M-**GEN**   arrow

  o   o   o

  H   L **H**   L

⟹ *Genitive output*

3.SG.M-**GEN**   arrow

   o   o

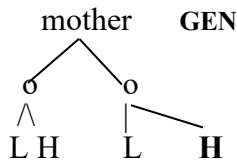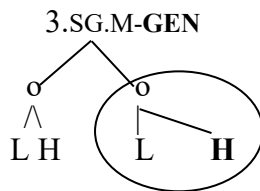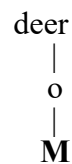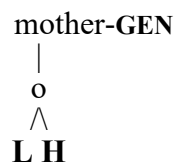 **H**   L
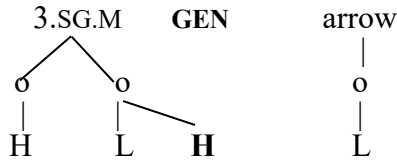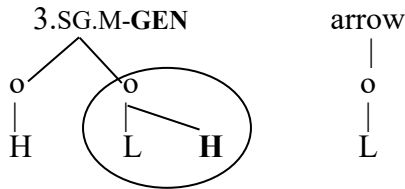
In (9) we see the concatenation of the H tone to *kho* H.L, resulting in a H.LH contour. The H.LH is simplified to lose the final LH, leaving us with in [H L] as the tonal output for 'his'. Cluster simplification also applies to the complex convex tone, LHL, as illustrated by the possessor 'mother' in (10) below.

(10)   'mother's deer': /LHL ^{H} Ø/ → [LH M]

Input	*ã* 'mother' LH.L		*sha* [ ] 'deer'
Genitive H docking:	LH.LH	←··H: Genitive	[ ]
Cluster simplification:	LH.~~LH~~	←··Cluster simpl.	[ ]
Genitive form:	*ã* -GEN LH		*sha* M
Output:	*ã sha* [LH.M] 'mother's deer'		

mother   deer

σ   σ   σ
∧ |
LH   L

⇒ *Add Genitive H*

mother   **GEN**   deer

σ   σ   σ
∧ |
L H   L   **H**

⇒ *Cluster simplification*

3.SG.M-**GEN**   deer

σ   σ   σ
∧ |
L H   L   **H**

⇒ *Genitive output*

mother-**GEN**   deer

σ   σ
∧ |
L H   **M**
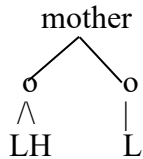
Complex contours (three or more tones) are not permissible on the possessor/initial syllable. We see that the [LH] contour is not problematic in itself, and indeed results from H+L as with 'my' illustrated in (11) below.

(11) 'my footprint':   /L ^H LHL/ → [LH LHL]

Input	*Nga* 'I' L		*tɕe* 'footprint' LHL
Genitive H docking:	LH	⟵‧‧**H: Genitive**	LHL
Genitive form:	*nga* -GEN LH		*tɕe* LHL
Output:	*nga tɕe* [LH.LHL] 'my footprint'		

The Nubri floating H tone is not an unusual way to mark case. Some instances of grammatical tone have been shown to be replacive (e.g. Dogon languages; Heath & McPherson 2013, McPherson 2014, McPherson & Heath 2016) but in many African languages the use of tonal grammatical case is realized through the addition of a floating tone (see e.g. Odden 2005), as we have seen in Nubri.

4   Tonally marked transitivity alternations in Nubri

Next, the second instances of grammatical tone will be discussed. In Nubri, tone is used as the primary indicator of a difference in a pair of verbs differing in their transitivity.[3] Examples of these are given in (12) and (13).

(12) a. *bô* LHL   'to spill (intrans.)'

   b. *pò* HL   'to spill (trans.)'

(13) a. *zhǎ* L   'to tear (intrans.)'

   b. *shà* HL   'to tear (trans.)'

In the above examples we see a pair of related verbs, derived from the same historical root. The intransitive verbs in the (a) examples are realized with a voiced consonant initial and a tone falling

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[3] The exact semantic nature of these corresponding pairs of verbs varies. They are sometimes described as causative/inchoative, sometimes as transitivity or valency alternations. I remain agnostic as to the exact characterization of the semantics involved here, noting its syntactic effect of resulting in a transitive verb.

in the lower half of the pitch range, while the related transitive verbs in the (b) examples are have voiceless consonant initial and a high falling tone.

It is well known that in Sino-Tibetan languages there are voicing differences corresponding to such a transitivity alternation where voiced initials occur with intransitive verbs, and voiceless initials with the transitive verbs (see, e.g., Handel 2012; Jacques 2012, 2015; Hill 2007, 2014; Thurgood & LaPolla 2003, *inter alia*). Indeed, this has been claimed to occur among triplets, as noted by Uray (1953: 50-1, cited in Hill 2014): A voiced intransitive (A), a voice-alternating transitive (B), and a voiceless transitive (C), all from a common root. Examples of the typical voiced intransitive/voiceless transitive, as it is often characterized, include √*gril* 'be twisted' and √*kril* 'wind, coil', and an example of a triplet includes √*grol* 'be free', √*grol* 'unravel', √*krol* 'unravel (trans.)' (Hill 2014: 2).

For the purposes of understanding the related data here, it suffices to note that when there is a voicing difference, the voiced consonant occurs on intransitive verbs, and voiceless on the transitive verb. However, in Nubri, the generalization is not as simple as voiced vs. voiceless, as we also find aspirated/unaspirated pairs as well, illustrated in Table 4. The true generalization for these couplets with obstruent initials in Nubri appears to be that there is a smaller VOT in the lower transitive verb and a greater VOT in the higher transitive verb.

Table 4. Verb alternations: Tone and VOT.

	Gloss	Intransitive **Lower tone** Less VOT		Transitive **Higher tone** Greater VOT	
a.	'spill'	bo̞	LHL	po	HL
b.	'remove'	bi̱	L	pi	HL
c.	'tear'	za̱	L	ɕa	HL
d.	'uncover'	zi̱	LHL	ɕi	HL
e.	'squash'	tɕop	L	tɕʰop	HL
f.	'cut'	tup	LHL	tʰup	HL

In Table 4 we see correspondences that roughly match anticipated Sino-Tibetan reflexes well reported in the literature: for each pair of verbs derived from the same root, the intransitive verbs have lower VOT initials, while the transitive alternants have a greater time from the stop release to vowel onset. This is also found in closely related Tsum (Dhakal & Donohue 2015) and other Sino-Tibetan languages (e.g. various Chinese and Tibetan languages (e.g. Handel 2012; Jacques 2012, 2015; Hill 2014; Thurgood & LaPolla 2003, *inter alia*), Tibeto-Burman languages (e.g. Lhomi (Vesalainen & Vesalainen 1980; Vesalainen 2016), Hmong-Mien (e.g. Ratliff 2010), Tai-Kadai (e.g. Diller et al. 2008; Luo 2014), Hakha Lai and other Kuki Chin languages (e.g. VanBik 2002), to name a few. In Nubri, however, it is also possible for the tones alone to distinguish the pairs as shown in (14) and (15) below.[4]

(14) a. *lăŋ* L   'to wake up (self)'

  b. *làŋ* HL   'to wake up (someone else)'

(15) a. *lŏk* L   'to return (self)'

  b. *lòk* HL   'to return (something)'

The two examples above with sonorant onsets suggest that the primary distinguishing factor may have been reanalysed in Nubri. What has been traditionally a voicing (or even VOT) distinction in other Sino-Tibetan languages, has been reanalysed as a primarily tonal distinction: a floating H prefix to indicate an increase in transitivity.

Consider the examples from (14) in (16) below.

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[4] I refer the interested reader to some of the research on comparable phenomena in Chinese such as 買*măi* 'buy' vs. 賣*mài* 'sell' (e.g. Sagart 1995; Mei 2012).

(16) 'wake.up' + *transitive* / ^{H} L/ → [HL]

Intransitive Input	*lang* 'wake.up'	L
Transitive H-prefix	**H⇢**	**HL**
Transitive Output	*lang* 'wake.up (trans.)'	H.L

wake.up
|
o
|
L

⟹ *Add Transitive H*
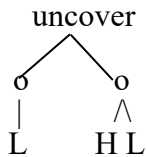
wake.up.TRANS
|
o
|
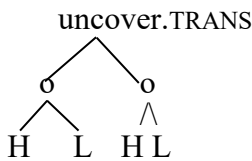H   L

⟹ *Transitive verb output*

wake.up.**TRANS**
|
o
∧
H L

Now consider the example in Table 4 (d) which has the complex tonal contour, /LHL/. The same contour simplification principle necessary for understanding the tonal outputs in the genitive tonal case is also necessary here as well.

(17) 'uncover' + *transitive* /^{H} LHL/ → [HL]

Intransitive Input	*zhi* 'uncover'	LHL
Transitive H-prefix	**H⇢**	**HLHL**
Cluster simplification		**HL.~~HL~~**
Transitive Output	*shi* 'uncover (trans.)'	HL

```
       uncover
       /     \
      o       o
      |      / \
      L     H  L
```

⟹ *Add Transitive H*

```
       uncover.TRANS
       /         \
      o           o
     / \         / \
    H   L       H  L
```

⟹ *Cluster simplification*

```
       uncover.TRANS
       /         \
     (o)          o
     / \         / \
    H   L       H  L
```

⟹ *Transitive verb output*

```
    uncover.TRANS
         |
         o
        / \
       H  L
```
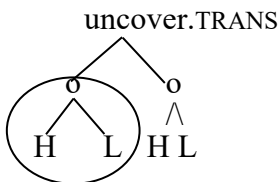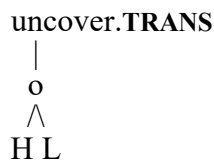
Further examples from Nubri may be called on to support the analysis of the increase in transitivity as a tonal phenomenon. In Table 5 we see consistent tonal effects of the prefixed H tone to increase the transitivity, but the VOT in these examples appears **reversed** from what may be expected in Sino-Tibetan languages.

Table 5. Verb alternations: VOT in reverse

	Gloss	Intransitive **Lower tone** *Aspirated*		Transitive **Higher tone** Voiceless	
a.	'break'	tɕʰa	L	tɕa	HL
b.	'spin'	kʰor	L	kor	HL
c.	'meet'	tʰuk	Ø (M)	tuk	H

Here we see the same correlation between tones transitivity as explained by the H tonal prefix to indicate increased transitivity.[5] However, contrary to the data in Table 4, instead of the typical association of a greater lag in the voice onset time of the consonant release for the transitive set, we now observe the reverse: voiceless aspirated consonants in the intransitive group and voiceless unaspirated consonant initials in the corresponding transitive group. We may thus conclude that the primary marker of this transitivity alternation in Nubri is the H-prefix.[6,7] I leave to future research investigations of the productivity of the transitivity increasing H prefix.

5   Typological distribution of grammatical tone

From a typological perspective grammatical tone is a rare phenomenon. Data from 2300 languages from the World Phonotactics Database (WPD; Donohue et al. 2013, following the methodology in Bickel & Nichols 2013, expanding on the data presented in WALS ed. by Dryer & Haspelmath 2013) for which both phonological and morphosyntactic data are encoded, we see that 586 languages have contrastive lexical tone, one of which is Nubri. The distribution of the languages with contrastive tone is illustrated in Figure 1 (languages without tonal contrasts are not marked).

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[5] In a comparative study on types of causation found in a range of Nepalese languages, Dhakal (2017) provides an example of transitivity alternation in Nubri of the kind shown in Table 4. However, tones are not reported for Nubri in this study.

[6] Matisoff (1973) proposes that this alternation (in Lahu) is likely a reflex of glottalization marking causation in proto Tibeto-Burman (1973: 32).

[7] It could be that the VOT of the initial obstruent may be predictable, but it is not clear now if it is part of a synchronic analysis or simply historical residue that needs to be learned. Further work would be required to test this in Nubri.
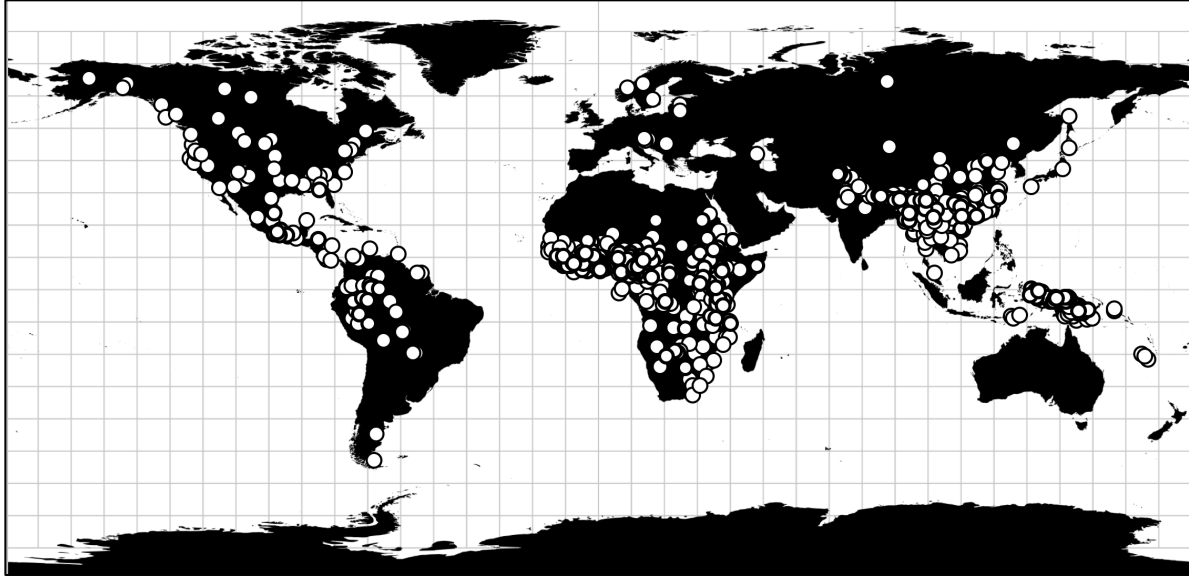
Figure 1.   Languages with contrastive lexical tone.

Of the languages with contrastive lexical tone, only the 205 languages shown in Figure 2 also use tone to mark grammatical features (case, TAM, Agreement). In Figure 2 we can see that the subset of tonal languages with grammatical uses of tone are not evenly distributed, with the majority of languages with grammatical tone being located in Africa.
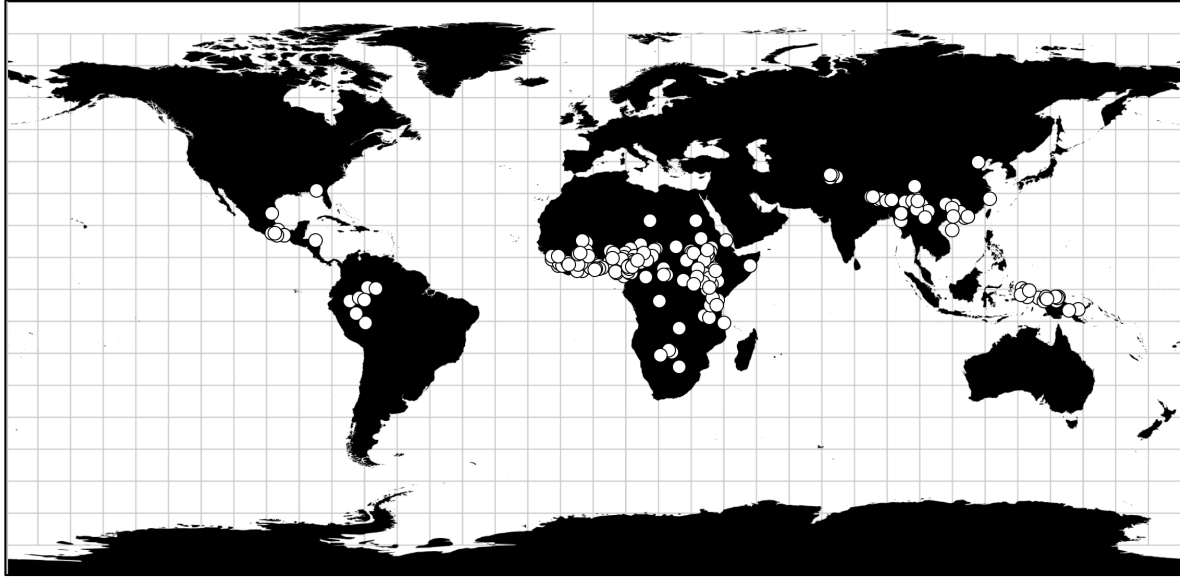
Figure 2.   Languages with grammatical tone.

Of the two grammatical tone phenomena presented here, let us first examine the distribution of tonal marking of case. If we further limit the data showing grammatical tone to only include those languages that use tone to mark case, we can identify only 27 languages illustrated by the white dots on the map in Figure 3.
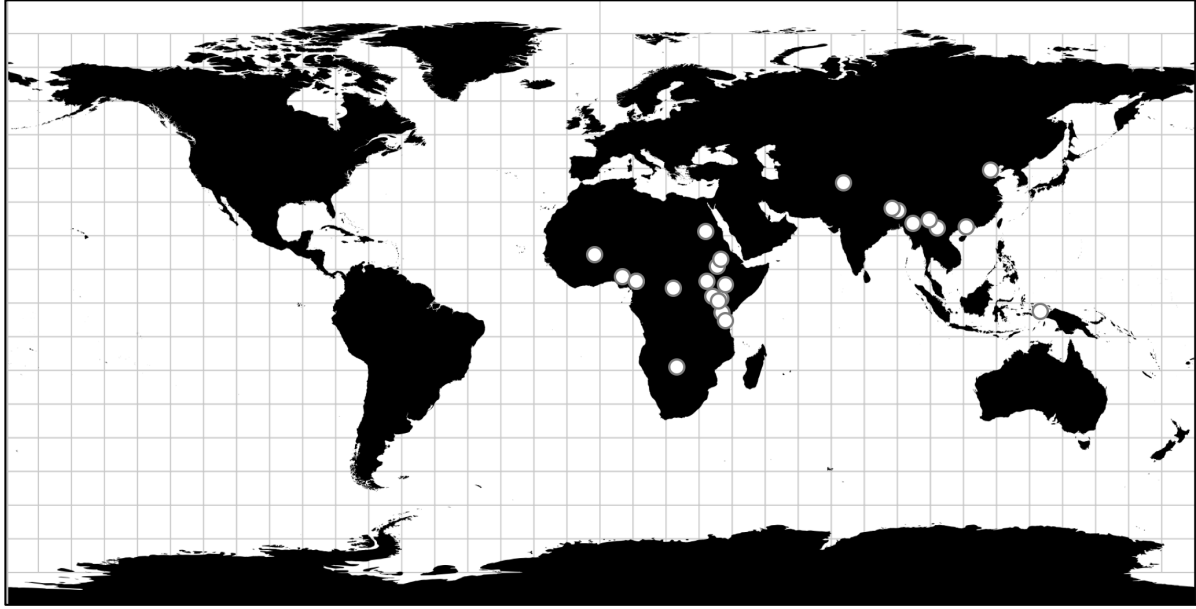
Figure 3.   Languages with tonal case marking.

In sum, of the 2300 sampled languages (about one third of the world's languages), lexical tone occurs in about one quarter of them. Of these 586 tonal languages, about one third have a grammatical use of tone, but only about one eighth use tone to mark case. That is, only ~1% of the 2300 sampled languages use tone to mark case. These also show narrow distribution as shown in Figure 3 with concentrations in Africa and Asia as shown below in Table 6.

Table 6. Languages with tonal case from WPD.

Africa	Ani, Aghem, Akie, Berta, Daats'íin, Endo, Ikaan, Jamsay Dogon, Kumam, Maasai, Nandi, Ngbaka, Ngemba, Nobiin, Shilluk, Ts'amakko, Turkana
Asia	Buyuan Jino, Tiddim Chin, Dilaohua Yongan Bobai, Dzongkha, Kalami, Lhomi, Tianjin Mandarin, Nubri, Zaiwa
Pacific	Iha

The phonotactics database does not have tonal transitivity alternations encoded so I cannot discuss the distribution of tonally encoded transitivity alternations with such a large sample size as for the

case marking. However, this phenomenon has been observed extensively in Sino-Tibetan languages as noted earlier, e.g. Tsum (Dhakal & Donohue 2015), Kuki Chin languages (VanBik 2002), Lahu (Matisoff 1973), Tai-Kadai (e.g. Diller et al. 2008; Luo 2014) and Hmong-Mien (e.g. Ratliff 2010). It is also found in Meso-American languages, such as Yoloxóchitl Mixtec (Palancar et al. 2016) and Coatlán-Loxicha Zapotec (Beam de Azcona 2004), as well as Mande languages (e.g. McPherson 2017, Idiatov 2015). Interestingly it is quite often the case that, as in Nubri, the low(er) tone is found with the intransitive verb form, and the high(er) tone with the transitive verb form, in e.g. Lahu, Yoloxóchitl Mixtec as well as Mande languages. I do not have an explanation for this, but note it as a curiosity.

6   Concluding remarks

In this paper I have illustrated two instances of grammatical tone in Nubri. Both involve a H tone and are concatenative in nature. I first introduced the use of a H tone suffix to mark genitive case, illustrating with examples showing a few simple rules need to be followed (including the OCP and Tonal contour simplification). I next introduced data showing pairs of verbs differing in transitivity. Cognate forms are discussed as stemming from a voicing difference in related languages, but in Nubri I show that it is clearly synchronically a tonal distinction, that there is a H tone prefix to increase the verb's transitivity. This is the first illustration of these tonal data in Nubri.

other phenomena. I am greatly indebted to the anonymous reviewers for their insightful comments and suggested revisions that have greatly improved the analysis and presentation. This research was made possible by research grants from the University of Hong Kong Research Services (Seed Funding 201611159116; 201811159201) and the Faculty of Arts.

Abbreviations

1, 2, 3   first, second, third person

AUX   auxiliary

ERG   ergative

GEN   genitive

M   masculine

SG   singular

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