

Body part terms in Kammu

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Abstract

This article is a study of words for body parts in the Mon-Khmer language Kammu. It contains one descriptive part, presenting some 200 thematically ordered entries of words related to the body, with belonging elucidation and illustrations. In a more theoretical and comparative part, the data are used to relate Kammu to a wider debate concerning the semantic domain of body parts. Cross-linguistic studies from the late 1970's proposed several universals for the hierarchical structure of this semantic domain. These studies have since been criticized for being far too narrow, neglecting the variety of more or less hierarchical relationships that may hold between body parts in a language. Lately, comprehensive cross-linguistic studies has both corroborated this criticism and developed elicitation methods for accessing different relationships and structures in this semantic domain. The results show that Kammu follows most of the proposed universals, save for a few noteworthy exceptions. There are, however, also cases where different elicitation methods reveal slightly different hierarchical structures – a fact which supports many of the ideas put forward in recent studies.

1 Introduction

In terms of how we humans perceive our surrounding world and communicate about it, the human body is unique. We perceive other human bodies mainly through sight and feeling, but every one of us also has a body of our own, and it is perceived in a radically different way.

Humans use their bodies every day for vitally important tasks. Therefore every human culture and language needs to be able to talk about the body and, essential to this study, categorize it.

1.1 Anatomical partonomy

For the categorization of the human body and its parts (the ‘body part terms’ within the ‘body part domain’), a concept called *partonomy* has been particularly popular. Partonomy is a hierarchical classification based on a *part*

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of-relation (also called *meronymy*), i.e. that ‘a finger is *part of* a hand’ (Brown et al 1976).

One difference between a partonomical and a taxonomical classification (based on a *kind of*-relation: ‘a hammer is a kind of tool’ etc.) is the so called *transitivity* between different levels of the hierarchy. A taxonomy is fully transitive: a ball-peen hammer is a kind of hammer, a hammer is a kind of tool, a tool is a physical object, etc. Irrespective of how many levels there are in such a hierarchy, it is always possible to say that objects on the lowest level are ‘a kind of’ object on the highest level, in this case ‘a ball-peen hammer is a kind of physical object’.

The partonomy of body parts seems to be only partly transitive. For example, “teeth are parts of mouths, mouths are parts of faces, but teeth are not parts of faces” (McClure 1975 in Enfield et al 2006:143).

1.2 Simplex and complex terms

Like most other surveys of the body part domain, this one makes a distinction between a *simplex term* and a *complex term*. The name simplex term denotes a body part term that consists of one synchronically unanalyzable morpheme (e.g. English *arm, eye, foot, tongue*). The complex term is usually a compound consisting of several morphemes, dividable into a *head* and a *modifier* (e.g. English *armpit, wing of the nose, ear lobe, knee cap, toenail*). The head of a complex term describes the body part’s appearance, function or similarity to something else, and the modifier expresses something about the location of the body part, e.g. Finnish *sormenpää* ‘fingertip’ lit. ‘head (*pää*) of the finger (*sorm-*)’. See Andersen 1978:355 for more examples.

This distinction is considered especially important in the survey of a partonomical system, since the modifier of a complex term supposedly bears some hierarchical information. A *knee cap* is therefore a ‘cap related to the knee’, and from a partonomical point of view this means that the knee cap is *part of* the knee (Brown et al 1976:74).

1.3 Partonomical surveys and universals

The largest survey in the domain is Cecil H. Brown’s *General principles of human anatomical partonomy and speculations on the growth of partonomic nomenclature* from 1976. Brown examined the anatomical partonomy in 41 languages from different language families from all over the world. He also posited ‘principles’ about their arrangement and naming strategies (Brown 1976).

In 1978, Elaine Andersen published *Lexical universals of body-part terminology* in Joseph Greenberg’s four tome *Universals of Human Language*. Andersen’s study draws much of its data from Brown, but also from other studies on particular languages or language families. (Andersen 1978:346)

Andersen posits nine main “universals of categorization for the domain of human body-parts” (Andersen 1978:351ff), and she mentions that

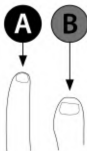
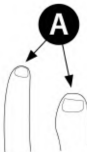
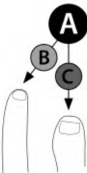
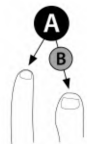
most of them are based on the eleven ‘principles’ posited by Brown (Brown 1976:404ff).

These universals are presented verbatim below, except for a few wordy explanations and examples that were left out or reworded.

The use of SMALL CAPS in this list indicates a *parton* (pl. *parta*), i.e. a part of the body “that may or may not be labeled in any given language” (Brown 1976:401), meaning that the *parta* mentioned below may not always correspond precisely to the English terms bearing the same name.

- a) The BODY is labeled in all body-part partonomies.
- b) Every language includes a term for HEAD in its lexical field of body-parts, and the term is always immediately possessed by BODY. Other categories which usually occur at the second level of the partonomy include TRUNK, ARM (plus HAND) and LEG (plus FOOT).
- c) All languages label EYES, NOSE and MOUTH.
- d) The upper limb, ARM (plus HAND), is named by a distinct term in all languages.
- e) The categories FINGER and TOE are always labeled (by one of four general patterns):

Table 1. Labelling patterns for FINGER and TOE

Pattern	Graphic version	Examples
1. Different basic terms for each category		Finnish <i>sormi</i> and <i>varvas</i> . French <i>doigt</i> and <i>orteil</i> . Swedish <i>finger</i> and <i>tå</i> .
2. One polysemous basic term		To emphasize either meaning, one can usually add either ‘hand’ or ‘foot’ to the polysemous term. Czech <i>prst</i> (<i>prst na ruce</i> , <i>prst na noze</i>). Hebrew <i>etzba</i> (<i>etzba yad</i> , <i>etzba regel</i>). <i>B</i> is usually the term for ‘hand’ or ‘arm’, <i>C</i> is usually the term for ‘foot’ or ‘leg’.
3. Different terms derived from the same root		Mayan <i>aal k’ab</i> and <i>aal ook</i> . Tagalog <i>daliri sa kamay</i> and <i>daliri sa paa</i> .
4. One basic unanalyzable term for FINGER, with TOE derived from it		<i>B</i> is usually the term for ‘foot’ or ‘leg’. Hungarian <i>ujj</i> and <i>lábujj</i> . Malay <i>jari</i> and <i>jari kaki</i> . Tamil <i>viral</i> and <i>kālviral</i> .

- f) All languages name (FINGER)NAIL and (TOE)NAIL by one of two patterns. Languages with the first pattern have one basic term applied to both categories, and the second pattern have different terms derived from a common root, like English ‘fingernail’ and ‘toenail’.
- g) A term for LEG implies a separate term for ARM.
- h) A term for FOOT implies a separate, non-identical term for HAND.
- i) Terms for INDIVIDUAL TOES imply terms for INDIVIDUAL FINGERS.

Finally, earlier studies in the categorization of other domains have found that folk taxonomies and “[b]ody-part partonomies rarely exceed five hierarchical levels and never exceed six” (Andersen 1978:348, Brown 1976:401). This is often referred to as the ‘depth principle’.

1.4 Criticism

The main criticism against Brown and Andersen and their conclusions has concerned the focus on the partonomical relationship.

In 1985, Palmer and Nicodemus published an article with the telling name *Coeur d’Alene Exceptions to Proposed Universals of Anatomical Nomenclature*. In the introduction they state that

[L]inguistic anthropologists [...] have mistakenly assumed that the *part-whole relation* is universally the primary semantic dimension of anatomical domains, [...] The purpose of this paper is to demonstrate that at least one other relation, that of *spatial orientation*, must be considered before cross-cultural or cross-linguistic comparisons can yield valid universals of folk anatomy. (Palmer and Nicodemus 1985:341ff, my emphases).

Their paper exemplifies this spatial relationship with a survey of the body part domain in the Salishan language Coeur d’Alene (Snéicuʔumšcn), spoken in the northwestern USA. Its inventory of body part terms contains for example *s-cin-čém-cən* lit. ‘the surface below the mouth’ for English ‘neck’, and *s-čip-qñ-šən* lit. ‘forward part of the top of the leg’ for ‘knee’.

Such terms “cannot easily be arranged in a taxonomic hierarchy, even one based upon part-whole relations” and consequently “[c]ross-linguistic comparisons which presume the universality of part-whole hierarchies must fail”. The authors’ conclusive opinion is that

the part-whole model is inappropriate to folk anatomical domains based on nontransitive spatial relations [...] Linguistic anthropology needs not one model of folk classification, but several (Palmer and Nicodemus 1985:353f).

Similar ideas were expressed in a 2006 special issue of the journal *Language Sciences* (hereafter abbreviated *LS*), dedicated entirely to descriptions and analyses of the body part domain in languages from all over the world (Majid et al. 2006).

All of the researchers found it difficult to analyze the entirety of their findings as a partonomical system. Many of the investigated languages simply have no word corresponding to English ‘body part’ or even ‘part’. This forces the researcher to use possessive constructions like ‘X has Y’ or locative constructions like ‘X is located on/at/near/etc. Y’ – none of which actually contain any partonomical information (Meira 2006:275, Levinson 2006:233ff, Wegener 2006:357f, Terrill 2006:320, Gaby 2006:218, Burenhult 2006:178f). In some languages, e.g. Punjabi, different body part terms can have different relations to each other: partonomical ‘the leg is part of the body’, possessive ‘the finger has a nail’ or locative ‘the nose is on the face’ (Majid 2006:255ff).

Enfield found a similar system in Lao and ends his article with a conclusion that could have summarized the entire issue:

The semantic relations which pertain between terms for different parts of the body not only include part/whole relations, but also relations of location, connectedness, and general association. Calling the whole system a ‘partonomy’ attributes greater centrality to the part/whole relation than is warranted. (Enfield 2006b:199)

This notion of different coexisting relational systems offers a possible explanation to why the body part partonomy is not always fully transitive: there simply is no continuous path of part-of relations in the partonomical hierarchy between the nail and the body, for instance. The arm might be a *part of* the body, and even the finger a *part of* the hand, but as long as the nail is *on* the finger and the hand is *connected to* the arm, it is impossible to say that the nail is *part of* the body.

2 Kammu

Kammu (also known as Khmu) is a Khmuic language in the Mon-Khmer branch of the Austro-Asiatic language family. The language has about 500,000 speakers, mainly in Laos but also in Thailand, Vietnam, China and Burma.

Kammu is a highly isolating language with no inflectional morphology. There is however an abundance of derivational affixes, e.g. an instrumental infix in *prnɔ* ‘broom’, from *pɔ* ‘to sweep’. Kammu is head-initial and the basic word order is SVO. English adjectives correspond to stative verbs: *saŋ háan* can mean ‘dead pig’ or ‘the pig died’.

My informant speaks the Yùan dialect, which distinguishes high and low tone. These are marked on vowels with ´ and ` respectively. Long vowels are written double. The rest of the alphabet is identical to the IPA, except for <ñ> representing [ɲ] and <y> representing [j]. <ʔw> and <ʔy> are laryngealized approximants (Svantesson 1983).

Kammu has been in contact with the neighboring but genetically unrelated Tai-Kadai language Lao for several centuries, borrowing thousands of words and expressions. Many of these words have become parts of the everyday language, whereas others are used only in more restricted contexts, e.g. prayers and sayings.

Over the last 30 years many of the Kammu populations have been relocated to cities in Laos and to ethnically mixed villages. My informant came to Sweden before this, so he speaks a language that retains words that are no longer used, reflecting the Kammu spoken during his upbringing in the 1940’s.

2.1 Simplex and complex terms in Kammu

There are two types of simplex terms in Kammu. *màt* ‘eye’ is a basic underived noun, the most common kind of simplex term in the body part vocabulary. *sɾɿɛ̀ɛk* ‘area above wrist or ankle’ is a derived noun, in this case derived through prefixation from the verb *ɿɛ̀ɛk* ‘to be thin in the middle’.

These two types both differ from complex terms like *khúul màt* ‘eyelash’, a compound with the head *khúul* ‘(body) hair’ and the modifier *màt* ‘eye’.

3 Aims

The main aims of this study is 1) to survey the inventory of body part terms in Kammu, and 2) to analyze the relations between body parts terms and attempt to categorize them in one or more systems. The results will then be compared with the universals posited by Andersen and Brown.

4 Method

The data for this paper was gathered during several elicitation sessions with a native speaker of Kammu at the department of linguistics at Lund University, Sweden. I used many of the methods explained in the *LS* articles *Elicitation guide on parts of the body* (Enfield 2006a) and *Body colouring task* (van Staden & Majid 2006). Some of the methods were

developed for situations with multiple informants, but their general design was still applicable for me.

The *Kammu Yüan-English Dictionary* (Svantesson et al, forthcoming) served as a secondary source. I used it to compare translations and to look for unusual terms. I noted these and asked about them during the next session.

Once the collected inventory of body part terms had reached a substantial size, I began constructing sentences that could reveal how the different terms relate to each other. Seeing that all the surveys in *LS* support the notion of coexisting categorizational systems, it was necessary to also investigate the *possessive categorization* and the *spatial categorization* of body part terms.

4.1 Partonomical categorization

Early during the elicitation phase it became clear that Kammu has no word for ‘part’, precluding questions like ‘Is X part of Y?’. *Elicitation guide on parts of the body* attends to this rather common situation and suggests that the researcher find “[l]anguage-specific expressions relating various body parts to each other”, like “An arm must have a hand” (Enfield 2006a:156). But again, such phrases do not necessarily convey any partonomical information.

In his article about Lao, Enfield mentions the *entailment test*. The basic method is to attribute mutually exclusive properties to two different body part terms, e.g. as a statement ‘This man has a mosquito bite on his X, but not on his Y’ or as a question ‘Can my X be unscathed if my Y is bleeding?’. Enfield means that this method can provide evidence that one term is *part of* another term or not (Enfield 2006b:197). Two typical ‘frames’ for this test in Kammu were:

- (1) ò àh òh tàa X tèε tàa Y ò pǎə àh
 1SG have wound at X but at Y 1SG NEG have
 ‘I have a wound on my X but not on my Y’
- (2) múuc pók X kǎə tèε pǎə pók Y kǎə
 ant bite X 3SG but NEG bite Y 3SG
 ‘An ant bit his X but not his Y’

4.2 Possessive categorization

The original frame for statements about the possessive categorization was:

- (3) X (ò) àh Y
 X (1SG) has Y
 ‘(my) X has Y’

This frame was not always adequate, since some terms can only be possessed if they occur in pairs (see 6.2 for further detail). The subscript WP in the following frame indicates that the two terms must belong together in a word pair.

- (4) X (ò) àh Y_{WP} àh Z_{WP}
 X (1SG) has Y_{WP} has Z_{WP}
 ‘(my) X has Y_{WP} and (has) Z_{WP}’

4.3 Spatial categorization

There was never any established sentence frame for investing the spatial categorization. Once my informant understood what I was looking for, I would just mention a body part term and he came up with acceptable sentences which described its relations to other terms. Their structure was usually:

- (5) X yèt PREPOSITION Y
 X located PREPOSITION Y
 ‘X is located PREPOSITION Y’

See 6.3 for an overview of the prepositions included in the analysis.

5. Results

5.1 Inventory of body part terms

The inventory of body part terms is divided into categories and presented in tables, then discussed and exemplified. These tables consist of three columns showing 1) the Kammu term, 2) an English translation and 3) possible comments on any particular term and always a gloss for complex terms. Some of the tables are accompanied by drawings showing the scope of different body part terms, based on the results from the body part coloring task.

Throughout this paper the physical extension of a body part term will be called its *scope*, and the corresponding verb is *to cover*.

It is important to notice that in these tables the glosses for complex terms are translated lexically but not syntactically. E.g. ‘nostril’ in Kammu is *hntú mùh*, glossed here as ‘hole nose’, while the translation with English word order would be ‘nose hole’. However, in the running text all glosses are translated both lexically *and* syntactically.

The complex terms all consist of isolated morphemes, but some of them are nevertheless unanalyzable (‘cranberry morphemes’). Such morphemes are simply glossed with the Kammu word. If some part of a complex term is translated into English as several words, these will have periods between them, e.g. *plé plóŋ* ‘fruit lower.leg’.

5.2 Major areas and parts of the body

Kammu has a number of encompassing complex terms for areas of the body, similar to English ‘upper/lower body’. These are created with *li̱aŋ* ‘side, direction’ (from Lao *luang*) and they occur in contrastive pairs (upper ↔ lower, left ↔ right etc.).

Table 2. Encompassing terms for areas of the body

Kammu	English	Details (<i>li̱aŋ</i> plus ...)
<i>li̱aŋ tí / kmpóŋ</i>	upper body	arm / head
<i>li̱aŋ cì̱aŋ / ṯə</i>	lower body	leg / bottom
<i>li̱aŋ knáaŋ</i>	front side	front
<i>li̱aŋ kntṟəŋ</i>	back side	back
<i>li̱aŋ káal</i>	in front of, before	in front of
<i>li̱aŋ knní</i>	behind, after	behind
<i>li̱aŋ w̱è</i>	left side	left
<i>li̱aŋ háam</i>	right side	right
<i>li̱aŋ ṉəŋk</i>	outer (of arm, leg)	outside (Lao <i>nɔ̀k</i>)
<i>li̱aŋ klú̱aŋ</i>	inner (of arm, leg)	inside
<i>li̱aŋ tṟiak</i>	one side	side

The pair *li̱aŋ kmpóŋ* ↔ *li̱aŋ cì̱aŋ* corresponds to English upper body ↔ lower body, and the two meet at the waist, *kù̱aŋ*. As a more easily translatable example, the Kammu say that a bed has *li̱aŋ kmpóŋ* ‘head-end’ and *li̱aŋ cì̱aŋ* ‘foot-end’ (see 5.6 for a discussion about *cì̱aŋ*).

Another indication of which body parts the Kammu consider most significant is the belief in twelve ‘body souls’ (*hṟm̱aal*) living in every human being. The torso, head, nose and mouth house one such soul each. The pairs of ears, eyes, arms and legs house two souls each (Lundström & Svantesson 2006:144ff). A person is healthy as long as these souls are present, but they will leave the body if they become scared or are mistreated. Their absence can result in anything from stumbling and headache to blindness, illness and death. In order to retrieve a lost soul a shaman and the family of the suffering person perform elaborate rituals spanning over several days (Tayanin et al. 2006:37ff).

Several times, my informant also suggested a division of the body into ‘the three important parts’: *kmpóŋ* ‘head’, *ḻəh* ‘torso (and arms)’ and *cì̱aŋ* ‘leg(s)’.

5.3 The head and the neck

Table 3. The head and the neck

Kammu	English	Details
Simplex terms		
<i>kmpóŋ</i>	head	
<i>kntɬar ~ kntúar</i>	neck	
<i>tk'lək</i>	nape of the neck	
<i>rmpòh</i>	face	
<i>ktáh</i>	forehead	
<i>káap</i>	chin	
<i>pɔɔm</i>	cheek	
<i>kéep</i>	side of lower jaw	
<i>stmàat</i>	temple	
<i>kntùur</i>	crown	cf. <i>kntùur pnəm</i> ‘top of a termitary’
<i>klə</i>	hair on the head	
<i>khúul</i>	body hair	
<i>màt</i>	eye	
<i>hrməɔy</i>	ear	
<i>mùh</i>	nose	
<i>tnɔh</i>	mouth	
<i>ráaŋ</i>	tooth	
<i>hntáak</i>	tongue	
<i>kltak</i>	palate	
<i>hɬl</i>	gums	
<i>tróoŋ</i>	throat, voice	
Complex terms		
<i>krwèey klə</i>	bare spot in the center of a whorl of hair	‘left. unsown hair.on.the.head’
<i>hntú mùh</i>	nostril	‘hole nose’
<i>hntú kntùur</i>	fontanel	‘hole crown’
<i>hntú hrməɔy</i>	ear canal	‘hole ear’

<i>hntú tnóh</i>	oral cavity	‘hole mouth’
<i>khúul hmpíir</i>	eyebrow	‘hair pumpkin’
<i>khúul màt</i>	eyelash	‘hair eye’
<i>khúul káap</i>	beard	‘hair chin’
<i>khúul stmàat</i>	hair at the temples	‘hair temple’
<i>khúul kràw</i>	whiskers, sideburns	‘hair whiskers’ (Lao <i>gaw</i>)
<i>khúul tñmùuñ</i>	moustache	‘hair dirty.around.mouth’, from <i>mùuñ</i> ‘dirty face’
<i>hntá kmñàam</i>	hair at the neck	‘tail cricket’
<i>màt klóok</i>	white of the eye	‘eye white’
<i>màt yíay</i>	iris and pupil	‘eye black’
<i>klóoy kók</i>	Adam’s apple	‘stone hogplum’
<i>klóoy màt</i>	eyeball	‘stone eye’
<i>lá hrməəy</i>	ear-conch, pinna	‘leaf ear’
<i>rykóoy mùh</i>	bridge of the nose	‘mountain-range nose’
<i>hmpúur màt</i>	eyelid	‘skin eye’
<i>hmpúur tnóh</i>	lips	‘skin mouth’
<i>ráay túl</i>	wisdom tooth	‘tooth stick.up.through’
<i>ráay túut</i>	molar tooth	‘tooth bottom’
<i>ráay tal</i>	front tooth	‘tooth top’
<i>ráay cntràas</i>	front tooth	‘tooth lightning’
<i>ráay òm pù</i>	milk-tooth	‘tooth liquid.breast’ (= ‘tooth milk’)
<i>tróoy yèl</i>	uvula	‘throat <i>yèl</i> ’
<i>táal hntáak</i>	tip of the tongue	‘top tongue’
<i>hál laŋ pəh</i>	upper gums	‘gum side up’
<i>hál laŋ táal</i>	lower gums	‘gum side down’

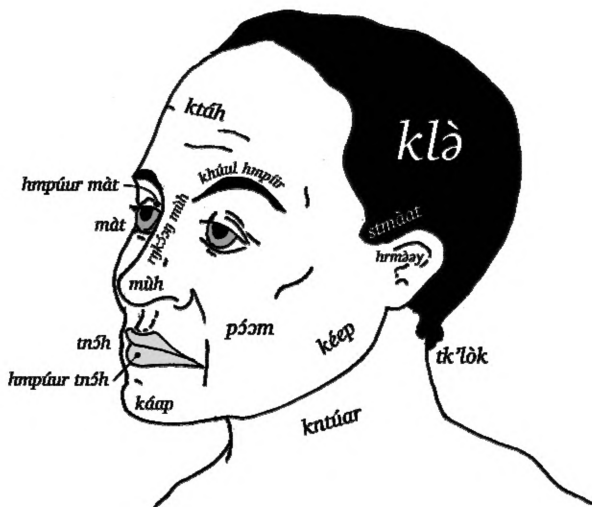


Figure 1. The head and neck (drawing by Jonas Ahlner)

Both *khúul* ‘(body) hair’ and *hntú* ‘hole’ are common as heads in complex terms all over the body. *khúul* refers to any hair except for the hair on the top of one’s head, which is *klà*. The meaning of a complex term with *khúul* as its head is easily inferable (‘shin hair’, ‘armpit hair’ etc.) and will not be listed. There are however two complex terms for facial hair with slightly different modifiers.

The first term is *khúul hmpíir* ‘eyebrow’, lit. ‘pumpkin hair’, a complex term whose origin and meaning defies explanation at this point. The second term is *khúul tīmùuñ* ‘moustache’ where the modifier is originally a derived form of the root *mùuñ* ‘dirty face’.

- (6) tnóh mée cà tīmùuñ yòh raa kòə
 mouth 2SG dirty dirty.face go wash 3SG
 ‘Your mouth is dirty, go and wash it!’

The teeth are divided into ‘back’ and ‘front’ like in many other languages, but the front teeth also have the alternative name *ráaŋ cntràas* ‘lightning teeth’. My informant suggests a metaphoric comparison of how both lightning and front teeth strike down and split things. The term for wisdom tooth, *ráaŋ tùl*, is less poetic and simply states that these teeth ‘come up through’.

One example of a culturally (or maybe ‘genetically’) based term is *màt yáŋ* ‘black of the eye’ covering both the pupil and the iris. The reason for this conflation is simply that all Kammu have dark brown iris with no

perceptually salient border to the pupil. When I showed my informant how my own green iris contrast with the pupil he surprised me by asking “Do you think my (black of the) eye has two parts too?”. This question clearly shows that the ‘black of the eye’ constitutes one conceptual whole in Kammu.

5.4 The torso

Table 4. The torso (back and front)

Kammu	English	Details
Simplex terms		
<i>lǝh</i>	body, torso	see discussion about polysemy below
<i>kntrǝǝŋ</i>	back	
<i>plǝ</i>	shoulder	(possibly from Lao <i>ǝa</i>)
<i>srnǝat</i>	shoulder blade	
<i>kntǝip</i>	upper back	
<i>kǝam</i>	lower back	
<i>lǝuy</i>	stomach, abdomen, belly	
<i>pǝoŋ</i>	area below the navel	
<i>kǝaŋ</i>	waist	
<i>ǝk</i>	chest	
<i>trǝak</i>	sides	approx. from armpit to waist
<i>lmpǝa</i>	flank	
<i>klǝǝk</i>	armpit	
<i>pǝ</i>	breast	
<i>tǝ</i>	rump, behind	
Complex terms		
<i>(hntǝ) kntǝiŋ</i>	navel	‘(hole) navel’
<i>cmǝ kntǝiŋ</i>	navel string	‘thread navel’
<i>pǝom tǝ</i>	buttocks	‘protuberance rump’ (Lao <i>pom</i>)
<i>trǝak cǝar</i>	lower part of side	‘side spaced’, reflecting the space between ribs

The term *pît trîik* ‘frog behind’ is one of two complex terms that compare a structure of the human body to that of an animal. *pît trîik* is the little inward bend right above the buttocks, similar to a structure on a frog’s back where the tadpole’s tail once was attached. The second term is *hntá kmñâam* for neck hair in the shape of a ‘cricket tail’.

5.5 The arm and the hand, measurements

Table 5. The arm and hand

Kammu	English	Details
Simplex terms		
<i>tí</i>	arm	from shoulder-joint to finger tips
<i>kíañ</i>	upper arm	
<i>sɔɔk</i>	forearm	(Lao <i>sɔɔk</i>)
Complex terms		
<i>ktɔ́ tí</i>	(flesh of) forearm	‘bud arm’
<i>tlmñañ tí</i>	segment of the arm	‘segment arm’
<i>srɛ̀ɛk tí</i>	area just above the wrist	‘inward.bend arm’, from <i>ɣɛ̀ɛk</i> ‘bent inwards’
<i>krɛ̀ey tí</i>	wrist	‘joint arm’
<i>krɛ̀ey plà</i>	shoulder-joint	‘joint shoulder’
<i>krɛ̀ey kíañ</i>	elbow	‘joint upper.arm’
<i>krɛ̀ey crkùul</i>	knuckle, finger joints	‘joint digit’
<i>séɣ tí</i>	knuckle, finger joints	‘joint digit’ (less common)
<i>crkùul tí</i>	finger	‘digit arm’
<i>mà tí</i>	thumb	‘mother arm’
<i>kɔ́ɔn (tàam) tí</i>	little finger	‘child (outgrowth) arm’
<i>tmmɔ́ɔɣ tí</i>	finger nail	‘nail arm’
<i>làay tí</i>	wrinkles in hand	‘stripes arm’
<i>ktáak tí</i>	palm of the hand	‘palm arm’, see below for further definition
<i>tʃal crkùul</i>	fingertip	‘top digit’
<i>kɔ́ɔn kné</i>	biceps	‘child mouse’

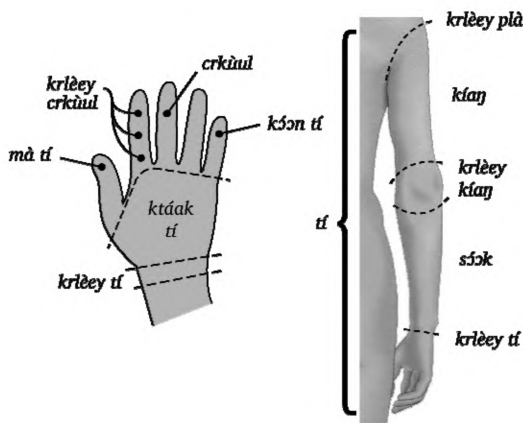


Figure 3. The hand and the arm (body drawings from Enfield 2006a)

The term *tí* covers the entire upper extremity from the shoulder joint to the fingertips. The existence of this encompassing term does not prevent terms that cover smaller parts like ‘upper arm’ and ‘forearm’, but there is no separate term covering only the hand.

When *tí* is used together with certain verbs and adjectives its meaning, however, often corresponds to the English use of ‘hand’. The hand is very versatile, capable of assuming more shapes and performing more actions than any other part of *tí*. Therefore it will be referred to more often and used together with a large variety of other words. A few examples are *rwàac tí* ‘shake hands’, *nòom tí* ‘clench one’s fist’ and *sntúk tí* ‘hold hands interlacing each other’s fingers’. The verbs by themselves translate to ‘grab’, ‘squeeze’ and ‘entwine’ respectively.

The term *ktáak tí* is translated above as ‘palm of the hand’, but it could also be translated as ‘area between knuckles and wrist’. It is for example possible to refer to the back of the hand as the ‘top of *ktáak tí*’.

- (7) ò àh màk hŋàəy ktáak tí
 ISG have tattoo top palm arm
 ‘I have a tattoo on the back of my hand’

The term *crkiul* corresponds to ‘digit’ and is the head of the complex terms for both *crkiul tí* ‘finger’ and *crkiul cìəŋ* ‘toe’. As a simplex term the primary meaning of *crkiul* is ‘finger’. Even in a context involving the foot, the full term *crkiul cìəŋ* is preferred for ‘toe’. This is likely due to the fact that we use our fingers for more purposes than we use our toes.

Since *crkùul* is ambiguous on its own, *tmmṣṓṓ* ‘nail’ is modified by either *tí* or *cìṓṓ*. My informant stresses that *tmmṣṓṓ* is always located on *crkùul*, therefore a complex term such as **tmmṣṓṓ crkùul* would be uninformative.

Some complex terms are however modified by *crkùul*, e.g. *krèey crkùul*, a term that covers the knuckle as well as the finger’s other joints. The reason that the joints of the finger are sufficiently described as ‘digit joints’ is probably because they are mentioned much more often than the joints of the toe. Similarly, English ‘knuckle’ without any modifier never refers to the foot.

If a Kammu speaker wants to refer to the ‘toe joints’ or the ‘toe-tip’ after all, both *tʰal crkùul* and *krèey crkùul* can be additionally modified by *cìṓṓ* in a three-part compound.

5.6 The lower body

Table 6. The leg

Kammu	English	Details
Simplex terms		
<i>cìṓṓ</i>	leg, foot	see discussion about polysemy below
<i>plṣṓṓ</i>	lower leg	from knee to ankle
<i>krwàac</i>	lower leg	from knee to toe, less common
<i>plù</i>	thigh	
<i>knúun</i>	knee	
<i>pltàk</i>	hollow of the knee	
<i>prcòl</i>	heel	
<i>prcèr</i>	area above the heel	
<i>ṓṓṓṓ-ṓṓṓṓ</i>	shin	unanalyzable reduplication
Complex terms		
<i>tʰmʰṓṓ plù</i>	thigh	‘segment thigh’
<i>tʰmʰṓṓ plṣṓṓ</i>	lower leg	‘segment lower.leg’
<i>plé plṣṓṓ</i>	calf muscle	‘fruit lower.leg’
<i>klṣṓṓ liap</i>	knee cap	‘stone liap.fruit’
<i>póom róoy</i>	ankle protuberance (medial malleolus)	‘protuberance spirit’ (Lao <i>pom</i>)

<i>trpàk plám</i>	area where foot meets ankle	‘passing leech’, see below
<i>ktáak cìan</i>	sole of the foot	‘palm leg’
<i>crkùul cìan</i>	toe	‘digit leg’
<i>krìey plù</i>	hip-joint	‘joint thigh’
<i>krìey cìan</i>	ankle	‘joint leg’
<i>srjèek cìan</i>	area just above the ankle	‘inward.bend leg’, from <i>ηèek</i> ‘bent inwards’
<i>tmmṣṣṣ cìan</i>	toenail	‘nail leg’
<i>mà cìan</i>	big toe	‘mother leg’
<i>kṣṣṣ (tām) cìan</i>	little toe	‘child (outgrowth) leg’

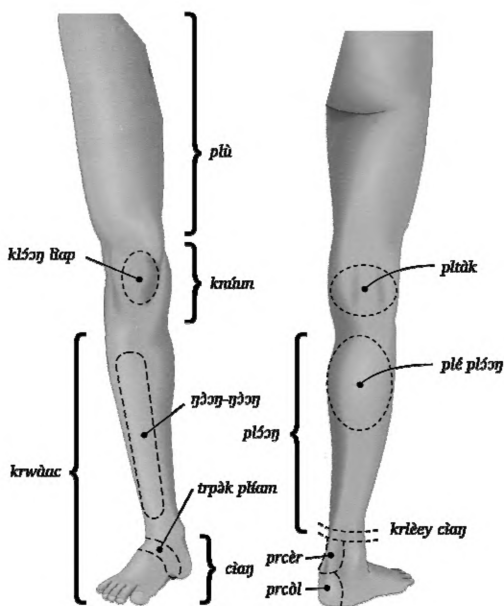


Figure 4. The leg (body drawings from Enfield 2006a)

At first sight, the divisions of the upper and the lower extremities are very similar: they both have two main parts and three main joints, with *ktáak*, *crkùul* and *tmmṣṣṣ* at the tips. However, the term *cìan* is elusive and behaves differently from the supposedly parallel term *ti*.

When my informant was presented with *tí* and *cìàŋ* as context-less isolated words in the body coloring task, he marked them both as covering the entire upper and lower extremity, respectively. But as soon as the words were mentioned in a context that involves a specific location, e.g. ‘he has an antbite/a mole on his *tí/cìàŋ*’ or ‘his *tí/cìàŋ* hurts/burns’, the scope of *cìàŋ* shrunk to cover only the foot. Similar contextual use did not affect the scope of *tí*.

In another kind of drawing task I asked my informant to mark a few antbites on a man’s *cìàŋ*. He began marking a few dots on the foot but stopped at the ankle. At this point I still thought of *cìàŋ* as the entire leg, so I pointed to the calf and asked if that was not *cìàŋ* as well, but he answered “no, that’s his *pḷɔ̌ŋ*”. Again, this ‘contextual narrowing’ applies only to the lower extremity. Antbites on a man’s upper arm can be called antbites on his *tí* if no further precision is needed, but antbites on a man’s thigh are always antbites on his *pḷù*. Antbites on a man’s *cìàŋ* are located below his ankle, and *cìàŋ* cannot be ‘expanded’ to cover the thigh in these contexts. Similarly, ‘to spread one’s legs’ is *cḷṭàh pḷù*.

A telling example of the difference between *tí* and *cìàŋ* is their use together with the word *tḷṃiàŋ* ‘segment’. The *tí* can be divided into two *tḷṃiàŋ tí* ‘arm segments’, i.e. the upper arm and the forearm. There is, however, no **tḷṃiàŋ cìàŋ*. Instead, the thigh and the calf are segments of their own: *tḷṃiàŋ pḷù* and *tḷṃiàŋ pḷɔ̌ŋ*. They are not segments of anything else.

cìàŋ can refer to the entire leg only as long as there is no explicitly mentioned location that could cause a ‘contextual narrowing’ (e.g. place of antbite/mole/pain etc.). The polysemy of *cìàŋ* is one of *vagueness*. This means that *cìàŋ* can be ascribed one quality that activates the ‘contextual narrowing’ and at the same time another quality that applies to the entire leg:

- (8) *cìàŋ* ò cú ḍéɛ skár c̣ŋṇòŋ ḍéɛ
 leg 1SG hurt also straight stiff-legged also
 ‘My *cìàŋ* hurts and is (also) stiff’

Some of the other terms found on the leg also deserve further mentioning. For example the complex term *tṛp̣àk pḷḳam* that covers the perceptually inconsiderable area where the foot meets the ankle. The term translates to ‘leech passing’, simply because leeches often attach themselves to this area.

Table 7. Genitalia

Kammu	English	Details
Simplex terms		
<i>plwà</i>	crotch	
<i>lòk, tlé</i>	penis	
<i>ké, kàn</i>	vulva, vagina	
<i>rám</i>	vulva, vagina	<i>Rðok</i> dialect
<i>kláa</i>	scrotum	
<i>héel</i>	(protruding) labia	
Complex terms		
<i>któnj kláa</i>	testicle	‘egg scrotum’
<i>khúul lòk / ké</i>	pubic hair	‘hair penis / vulva’
<i>kmpónj lòk</i>	head of penis	‘head penis’
<i>kmpónj ké</i>	clitoris	‘head vagina’
<i>hmpúur lòk</i>	foreskin	‘skin penis’
<i>hmpúur ké</i>	labia	‘skin vagina’
<i>prànj plù</i>	crotch	‘between thighs’
<i>tè cmkín / cmrð</i>	privates	‘of woman / man’

Terms for genitalia are used in everyday language and do not always carry the same strong sexual connotations that they often do in English.

[A story] certainly does not become risky, just because the intimate parts of the body are mentioned by name. [...] There seems to be no [equivalent] set of completely neutral, everyday words in English pertaining to sexual life. (Lindell et al 1980:25f)

Nevertheless, many of these words can be used in expressions of frustration e.g. *tlé mǎh?* ‘what the dick?’ or insults *ké mà mène!* ‘your mother’s pussy!’.

5.7 Internal organs

Table 8. Internal organs and skeleton

Kammu	English	Details
Simplex terms		
<i>ríaŋ</i>	intestines, bowels, guts	
<i>hrñ̃̀am</i>	heart, mind, breath	
<i>klán</i>	kidney	
<i>hntáŋ</i>	brain	
<i>ktúh</i>	stomach, abdomen	
<i>kmnùum</i>	urinary bladder	from <i>nùum</i> ‘urine’
<i>lɣàr</i>	bone marrow	
<i>páaŋ</i>	spleen	(Lao <i>paang2</i>)
<i>cʔáaŋ</i>	bone	
<i>krnðon</i>	womb, uterus	from <i>kʰon</i> ‘child’
Complex terms		
<i>cʔáaŋ kmpón</i>	cranium	‘bone head’
<i>cʔáaŋ klʔùŋ</i>	hipbone	‘bone hip’
<i>cʔáaŋ kntrðon</i>	spine	‘bone back’
<i>cʔáaŋ àk</i>	collar-bone, breast bone	‘bone chest’
<i>cʔáaŋ kràp</i>	gristle	‘bone crispy’, from <i>krùp</i> ‘crunching sound’
<i>cʔáaŋ trak</i>	ribs	‘bone side’
<i>(cʔáaŋ) rɣsðon m̀uh</i>	nose cartilage	‘(bone) <i>rɣsðon</i> nose’
<i>hmpúuy kʰon</i>	placenta	‘nest child’
<i>tlðom (ràŋ)</i>	liver	‘liver (<i>ràŋ</i>)’ (Lao <i>raag2</i>)
<i>tlðom túus</i>	lungs	‘liver foam’, see below
<i>ríaŋ cə</i>	large intestine, colon	‘intestine dirty’
<i>ríaŋ sít</i>	large intestine, colon	‘intestine end’ (Lao <i>sut</i>)
<i>ríaŋ tɣkà</i>	appendix	‘intestine forked’

<i>ríaj plia</i>	small intestine	‘intestine clean’
<i>tlhòk hrñiam</i>	heart muscle	‘stalk heart’
<i>tlhòk prcáj</i>	bile duct	‘stalk bile’
<i>hmpúuy prcáj</i>	gall bladder	‘nest bile’
<i>rmmé nám</i>	large sinew	‘sinew large’ (e.g. Achilles’ tendon)
<i>rmmé nè</i>	small sinew	‘sinew small’
<i>rmmé ñêr</i>	thin sinew	‘sinew thin’
<i>rmmé màam</i>	blood vessel	‘sinew blood’
<i>rmmé cñáar</i>	blood vessel	‘sinew green’ (covers Eng. ‘blue’)

The Kammu do not see their own internal organs more often than other people do, so the knowledge about them comes mainly from observations of animal organs from hens, pigs, buffaloes and other animals. When an animal is killed, all of the organs are usually eaten, except for the urinary bladder which can be saved and used as a ball. Some of the inner organs are carefully divided and eaten during certain sacrificial ceremonies (Tayanin 2006:60ff).

The term *hrñiam* is widely used in expressions describing emotion and attitude, either as the head of an adjectival phrase or as an argument to a verb. Some of these expressions can be translated verbatim into English, perhaps with a poetic ring to them, e.g. *hrñiam kəə lə* ‘his heart is good’. Others have a different meaning than their English translation, e.g. *nám hrñiam* ‘big heart’ meaning ‘brave’, and *hrñiam kəə rəən* ‘he has a hot heart’ meaning ‘he is impatient’.

Another aspect of *hrñiam* concerns breathing. This conceptual link is found in many languages, for example between the two originally Latin words *spirit* and *respiration*. The common word for ‘to breathe’ is *tóh hrñiam* lit. ‘to push out breath’, and ‘to hold one’s breath’ can be expressed as *ít hrñiam* lit. ‘to stop (one’s) breath’.

The heart muscle is called *tlhòk hrñiam* ‘heart stalk’, likening the heart to a (fruit with a) stalk. This stalk provides the entire body with *hrñiam*, allowing us to move, think and live. The gall bladder, on the other hand, is called *hmpúuy prcáj* ‘bile nest’ with *tlhòk prcáj* ‘bile stalk’ referring to the bile duct, which leads bile to the digestive system.

The word *tləəm* means ‘liver’ on its own (as do its cognates in other Mon-Khmer languages), but it is sometimes used with an unanalyzable modifier *rəj* in order to contrast the liver with the lungs, *tləəm túus*. The modifier *túus* is understood as ‘foam’, but this meaning is likely a result of folk

etymology. A more plausible origin is that *túus* comes from Proto-Mon-Khmer **təh* meaning ‘breast’. A similar form is found in the closely related Waic languages (Shorto 2006:508).

5.8 Bodily fluids and emissions

Table 9. Bodily fluids and emissions

Kammu	English	Details
Simplex terms		
<i>màam</i>	blood	
<i>hʰal</i>	vomit	
<i>plúŋ</i>	pus	
<i>ʔyíak</i>	shit, residue	
<i>rùk</i>	dirt	e.g. behind the ear
<i>kmháak</i>	phlegm in the throat	
Complex terms		
<i>ʔyíak ráaŋ</i>	plaque	‘shit tooth’
<i>ʔyíak hìr</i>	ear wax	‘shit whirl’
<i>è̀ec pè̀ec</i>	eye matter	‘è̀ec eye.matter’
<i>hmpúut kmpóŋ</i>	dandruff	‘shedded.skin head’
<i>ò̀m mùh</i>	runny snot	‘liquid nose’
<i>ò̀m nùum</i>	urine	‘liquid urine’
<i>ò̀m màt</i>	tears	‘liquid eye’
<i>ò̀m hmlù</i>	sweat	‘liquid sweat’
<i>ò̀m ìn</i>	sweat	‘liquid damp’ (Lao <i>ʔin</i>)
<i>ò̀m tʰá</i>	saliva	‘liquid saliva’
<i>ò̀m kcʰɔr</i>	saliva (running), spittle	‘liquid saliva’
<i>ò̀m kcúh</i>	spittle	‘liquid spit’
<i>ò̀m prcáŋ</i>	bile	‘liquid bile’, possibly from <i>cáŋ</i> ‘bitter’
<i>ò̀m ké</i>	vaginal secretion	‘liquid vagina’

<i>òm ñìir</i>	amniotic fluid	‘liquid slippery’
<i>òm tlé</i>	semen	‘liquid penis’
<i>òm pù</i>	milk	‘liquid breast’

òm is probably the most common head in complex body part terms. It is used about all kinds of fluids, from various kinds of honey to the many rivers and streams meandering through the traditional Kammu homeland.

Some of the compounds with *òm* have a body part as their modifier, but others are seemingly pleonastic combinations of *òm* plus a modifier that translates to a bodily fluid on its own. This might be another case of analogical leveling similar to the one with *khúul* suggested earlier.

6. Categorization of body part terms

My informant often pointed out that the phrases used for this investigation sound strange because of their content. Their syntactical structure is the same as in fully acceptable everyday questions and statements like ‘where is your knife?’ and ‘my basket is in the house’, but the whole scenario is implausible: why would anyone be uncertain about clearly visible traits of something so well-known as our own human body?

Nonetheless, some of these phrases are perceived as wrong and others as correct, allowing me to use them as a basis for the following categorizations.

6.1 Partonomic categorization

As already mentioned, Kammu has no word corresponding to the English ‘body part’ or even ‘part’. This in itself cannot disprove the existence of a body partonomy, but it does make it impossible to prove that other methods of investigation could access the partonomic categorization. The ‘entailment test’ (see 4.1) has been suggested as one such ‘access way’, but in Kammu this method seems to access a possessive categorization. Of course it could be the case that both the entailment test and the possessive test access a partonomic hierarchy, but again: it is impossible to prove. These two categorizations will therefore be described in the section below instead.

6.2 Entailment-possessive categorization

During the analysis of data from the different kinds of tests it soon became clear that the entailment test and the possessive test are merely two ways of accessing the same categorization. Accordingly, this will be called the *entailment-possessive categorization*.

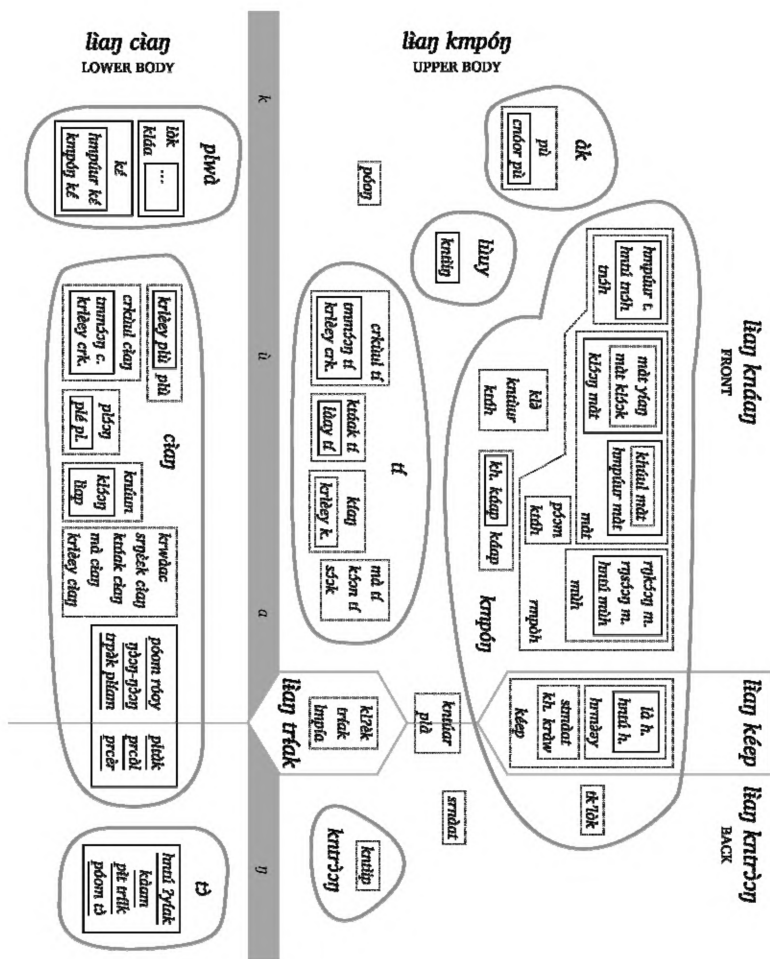


Figure 5. Graphic representation of the possessive hierarchy

The main difference between these ‘access ways’ is that the entailment test allows the categorization to be more transitive. The sentence *‘his finger joints are hurt but his *tī* is not’ is perceived as wrong, indicating a transitivity all the way from the finger joints to *tī*, but the equivalent possessive phrase ?‘my *tī* has finger joints’ sounds odd.

Figure 5 is a graphic representation of the partonomic-possessive categorization. The thin black lines spanning the entire figure are divisions between the upper/lower body and front/back, with special areas for the side of the torso and the side of the head. The waist, *kuaŋ*, divides the upper and lower body and is therefore placed in the middle, pertaining to neither half.

Terms that are possessed by *lǎh* and themselves possess other terms are written in a larger typeface inside areas with smooth grey borders. These constitute the first level of the hierarchy.

The boxes inside the grey borders contain the further levels of the hierarchy. The content of a box is always accessible to the term immediately possessing it. Beyond that, boxes with dotted borders ('dotted boxes') are transitive, and those with solid borders ('solid boxes') are intransitive.

For example, *hrmǎy* is immediately possessed by *kéep* which is immediately possessed by *kmpóŋ*. Since both *hrmǎy* and *kéep* are in transitive dotted boxes, *hrmǎy* is also possessed by *kmpóŋ*. On the other hand, *lá hrmǎy* is placed in a solid box, showing that it is possessed only by *hrmǎy* and not by *kéep* nor *kmpóŋ*. Abbreviated heads in these figure are mainly *kh.* for *khúul* and *kr.* for *krlèey*.

The investigation of the possessive system in Kammu is somewhat obstructed by a phenomenon called *kām kùu* 'word pair'. Its many interesting features could easily fill an entire thesis, but the aspect that is most relevant for this paper is that some terms can only be possessed in pairs! Mentioning only one of the two (or mentioning both but in reverse order) will make the phrase sound incomplete and even ungrammatical. My informant compares it to *tšəm hōŋ háac* 'singing without completing the rhymes'. The closest equivalent in English is idiomatic pairs such as 'leaps and bounds' or 'high and dry'.

The surprising result is that *any* term is immediately possessed by *lǎh* as long as it occurs in a word pair. My informant smiled at the sentence 'a body has nails' since it made him think of a person with nails all over his body 'like a scaly ant-eater'. But he then added 'finger' to get the perfectly acceptable 'a body has fingers, has nails', *lǎh àh crkùul àh tmmǎŋ*.

As an isolated word pair, one could think of this as 'my body has fingers that have nails', but far from all word pairs consist of such adjacent terms. In fact, the other main category of body word pairs consists of spatial or conceptual antonyms such as *kmpóŋ* 'head' ↔ *tǎ* 'rump'. There are even a few pairs in which the second word is a 'buffer word' with no meaning of its own, e.g. *tnǎh* 'mouth' ↔ *kñdor*.

Apart from *lǎh*, the other body part terms do not have the same need for word pairs. It is perfectly acceptable to say 'a head has ears' or 'a foot has a heel'. Some terms do not occur in any word pair and can therefore not be possessed directly by *lǎh*. These terms are underlined in figure 5.

The entailment-possessive system shows a great deal of categorization for the head and the limbs, but the torso is more scattered with many isolated terms encompassing very few other terms.

Figure 5 clearly shows that the naming of complex terms very often reflects their categorization. If the modifier of a complex term is another body part term, that term immediately possesses the complex term. The modifier is usually omitted: *hrmðəy əh lá* (?*hrmðəy*) ‘the ear has a (ear) conch’.

This principle does have its exceptions. For example, fingernails are named *tmmðəŋ tí*, but my informant sees them as possessed by the fingers rather than by *tí* (this is still in line with the discussion about the nails in 5.5, since the non-ambiguous *crkùul tí* is used here). Similarly, wrinkles in one’s hand, *làay tí*, are possessed by the palm, *ktáak tí*. The eyelashes, *khúul mât*, are possessed by the eyelid, *hmpúur mât*, rather than by *mât*.

6.3 Spatial categorization

Figure 6 shows the spatial relations between a subset of external body part terms, superimposed on a cartoon-like human body.

Table 10. Graphic representation of spatial relations in Figure 6

Relation	Kammu reading	English reading
X —○ Y	<i>X yèt tàa Y</i>	X is located on/at Y
X ← Y	<i>X yèt tal Y</i>	X is located at the tip/end of Y
X → Y	<i>X yèt túut Y</i>	X is located at the base of Y
X ↓ Y	<i>Y yèt kntrùm X</i>	Y is located below X
X ↑ Y	<i>X yèt prwðəy Y</i>	X is located above Y (if both ‘below’ and ‘above’ apply to a pair of terms, the two arrows are combined into one)
X — Z — Y	<i>Z yèt trtí X yλλ Y</i>	Z is located between X and Y

Finally, the three terms inside the oval ‘mouth’ are expressed as located *klúəŋ tnəh* ‘inside the mouth’.

In order not to clutter the overview more than necessary, a few relations are expressed through underlining. The underlined terms on the arm can all be expressed as being located *tàa tí*, and the underlined terms on the head as *tàa kmpóŋ*. The marking of *tí* at the shoulder joint is just a technicality – *tí* is an encompassing term. Once again, the fingernails do not have any immediate relationship to *tí* but rather to the fingers.

6.5 *Universals*

With the body part terms listed and their categorization analyzed, it is now possible to see how the body part universals apply to Kammu.

- a) The BODY is labeled in all body-part partonomies.
Yes. The term *l̥h* covers the entire body, see more under b).
- b) Every language includes a term for HEAD in its lexical field of body-parts,
Yes. The term *kmpóŋ* covers the entire head.
 ...and the term is always immediately possessed by BODY.
Yes. The term *kmpóŋ* can be expressed as possessed by *l̥h*.
 Other categories which usually occur at the second level of the partonomy include TRUNK,
No! There is no unique term for 'trunk' or 'torso'. The term *l̥h* is polysemous, meaning both 'body' and 'torso'. However, it is not possible to say that *l̥h* 'body' possesses *l̥h* 'torso'.
 ...ARM (plus HAND) and LEG (plus FOOT).
Yes. The terms *tí* and *ci̯aŋ*, respectively.
- c) All languages label EYES, NOSE and MOUTH.
Yes. The terms *m̥at*, *m̥uh* and *tn̥ɔh*, respectively.
- d) The ARM (plus HAND) is named by a distinct term in all languages.
Yes. The term *tí*.
- e) The categories FINGER and TOE are always labeled (by one of four general patterns).
Yes. But it is unclear whether or not the Kammu system can be restricted to only one of these four patterns. The existence of both *crk̥uul tí* and *crk̥uul ci̯aŋ* suits pattern 3: "Different terms derived from the same root". But *crk̥uul* on its own can also mean 'finger', whereas the modifier *ci̯aŋ* is always preferred for 'toe'. This suggests pattern 4: "One basic unanalyzable term for FINGER, with TOE derived from it". It seems that many languages which follow pattern 3 can use the 'root' term on its own to refer to a finger, so the line between patterns 3 and 4 may be too arbitrary.
- f) All languages name (FINGER)NAIL and (TOE)NAIL by one of two patterns. Languages with the first pattern have one basic term applied to both categories, and the second pattern have different terms derived from a common root, like English 'fingernail' and 'toenail'.
Yes. But again the distinction between the patterns is very vague. *tmm̥ɔŋ* 'nail' *ci̯aŋ* be used on its own if the context is clear, but if a distinction is important, the modifiers *tí* or *ci̯aŋ* are added.
- g) A term for LEG implies a separate term for ARM.
Yes. *ci̯aŋ* can cover the entire leg, and the term *tí* covers the entire arm.
- h) A term for FOOT implies a separate, non-identical term for HAND.
No! There are contexts where *ci̯aŋ* covers the foot and nothing else, but the scope of *tí* is never narrowed in the same way.
- i) Terms for INDIVIDUAL TOES imply terms for INDIVIDUAL FINGERS.

Yes. Fingers and toes have the same level of detail, with separate terms only for the thumb/big toe and little finger/little toe.

Concerning the 'depth principle' there is indeed no documented hierarchical chain stretching beyond six levels. The few terms that are found on this sixth level are the white and the 'black' of the eye, and the eyelashes.

7 Summary

This is the first systematic study of the body part domain in the Kammu language. The relations between body part terms can be ordered in a hierarchical possessive system, similar to the partonomic system proposed in earlier literature. Since Kammu has no word for '(body) part' it is not possible to show that this system is a partonomy. But at the same time, it is not unreasonable to suggest so.

This paper also describes a spatial system in which body part terms relate to each other through prepositions. This supports the more recent claims of several coexisting relational systems.

The modifier in complex body part terms often reflects the term's position in the possessive system. The inconsistencies that do exist show that modifiers can convey semantic information other than 'hierarchical subordination'. A hierarchy cannot be deduced solely from a word list, but requires an investigation of its own.

Kammu adheres to most of the posited body part domain universals. One of the more unusual deviations is that the leg can be divided with more detail than the arm. There are, in other words, situations where the term that usually covers the entire leg only covers the foot, but the term for the arm never shrinks its scope to cover only the hand.

An interesting subject for future studies would be to investigate in what aspects, and to what degree, the ever-increasing Lao influence has changed the Kammu body part domain over the last 30 years.

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