

VERB CLASSIFIERS IN EAST ASIA*

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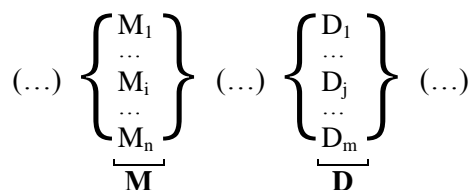
ABSTRACT. Many linguists define classification systems in terms of semantic profiling. The classifier profiles a semantic trait common to all the classified items. This paper rejects semantic profiling in favor of a combinatorial definition of classification and evaluates verb classification in five languages of the Sinitic, Tai-Kadai, Miao-Yao and Tibeto-Burman families. Only sortal verb classifiers in Sinitic, Tai-Kadai, Miao-Yao (not Tibeto-Burman) are classificatory in the combinatorial sense. Sortal verb classifiers stand for a lexical classification technique in which the classifiers are derived from adjunct noun phrases. Cross-linguistically, the technique contrasts with other techniques such as the classification of verbs by incorporated core arguments found in Native American languages. This paper also evaluates mensural verb classifiers and auto-classifiers which are generally not classificatory in the combinatorial sense.

Keywords: Verb classifiers, Mandarin Chinese, Kam, Hmong, Nuosu, Hani

1. Introduction

When two form classes **M** (a set of classifiers) and **D** (a set of classifieds) co-occur in a syntactic construction as the one epitomized in (1), linguists have discussed the definitional properties of classificatory phenomena, i.e. the properties for a classification of **D** by **M**.

(1) Classification in syntactic constructions



Many scholars adopt semantic criteria (Bisang 1999: 116–121; Croft, 1994: 162–163; Greenberg 1972: 7; Silverstein 1986: 509–511): an item of **M** classifies a subset of **D** if it profiles a semantic trait common to all items of that subset. The classifiers of **M** provide together a classification of **D**.¹

Semantic profiling is a problematic criterion. Many classificatory phenomena do not involve profiling, whereas some nonclassificatory phenomena are semantically motivated (Gerner 2009: 704–5, 2011), see (2).

(2) Counterexamples

Phenomenon	Classificatory Principle		Languages	References
Declension classes (M) of nouns (D)	yes	formal	Latin (Indo-European)	Mahoney (2007: 9-32)
Conjugation classes (M) of verbs (D)	yes	formal	Yingkarta (Australian)	Dench (1998: 40-41)
Classificatory verbs (M) select coverbs (D)	yes	formal	Tsafiki (Barbacoan)	Dickinson (2002: 201-210)
Subcategorization of nouns (D) by verbs (M)	no	semantic	almost all	---
Resultative auxiliaries (M) profile verbs (D)	no	semantic	Nuosu (Tibeto-Burman)	Gerner (2013: 264-71)

Linguistic classification is rather a combinatorial phenomenon defined by a proportional relation between **D** and **M**, not by semantic profiling (see earlier work by Gerner 2009: 708; McGregor 2002: 16–22):

(3) Combinatorial definition of classification

- i. There are a finite number of syntactic constructions in which elements of **M** and **D** co-occur in an irreducible and exhaustive way;²
- ii. **M** has more than one element (e.g. excluding **M** = {*the*} as a classifier in English);
- iii. **D** has significantly more elements than **M** (e.g. excluding **M** = class of verbs and **D** = class of nouns);
- iv. at least two classes generated by two classifiers $m_1, m_2 \in M$ must be significantly different from each other (e.g. excluding $m_1 = \textit{this}$ and $m_1 = \textit{that}$ to form a set of classifiers in English).

A combinatorial definition captures the notion of linguistic classification more accurately. Classification systems may involve semantic profiling but do not need to. For verbs (**D**), languages employ grammatical classification techniques or lexical classification techniques. For the second technique, three major subtypes exist (Gerner 2011):

(4) Lexical classification techniques

- i. *Classifiers* are derived from **core** NP-arguments of the classified verbs (e.g. noun-incorporation in native American languages);
- ii. *Classifiers* are derived from **adjunct** NP-arguments of the classified verbs (e.g. instrumental verb classifiers in isolating languages of East Asia);
- iii. *Classifiers* are derived from **generic** verbs (e.g. “coverbs” in Australian languages).

In the isolating languages of East Asia (Sinitic, Tibeto-Burman, Kadai and Miao-Yao), *verb classifiers* are derived from instrumental NPs (subtype 4ii). They form a frequency phrase with selectional restrictions on the verb (Gerner 2009 with a detailed discussion on Kam):

Kam (Tai-Kadai: China)

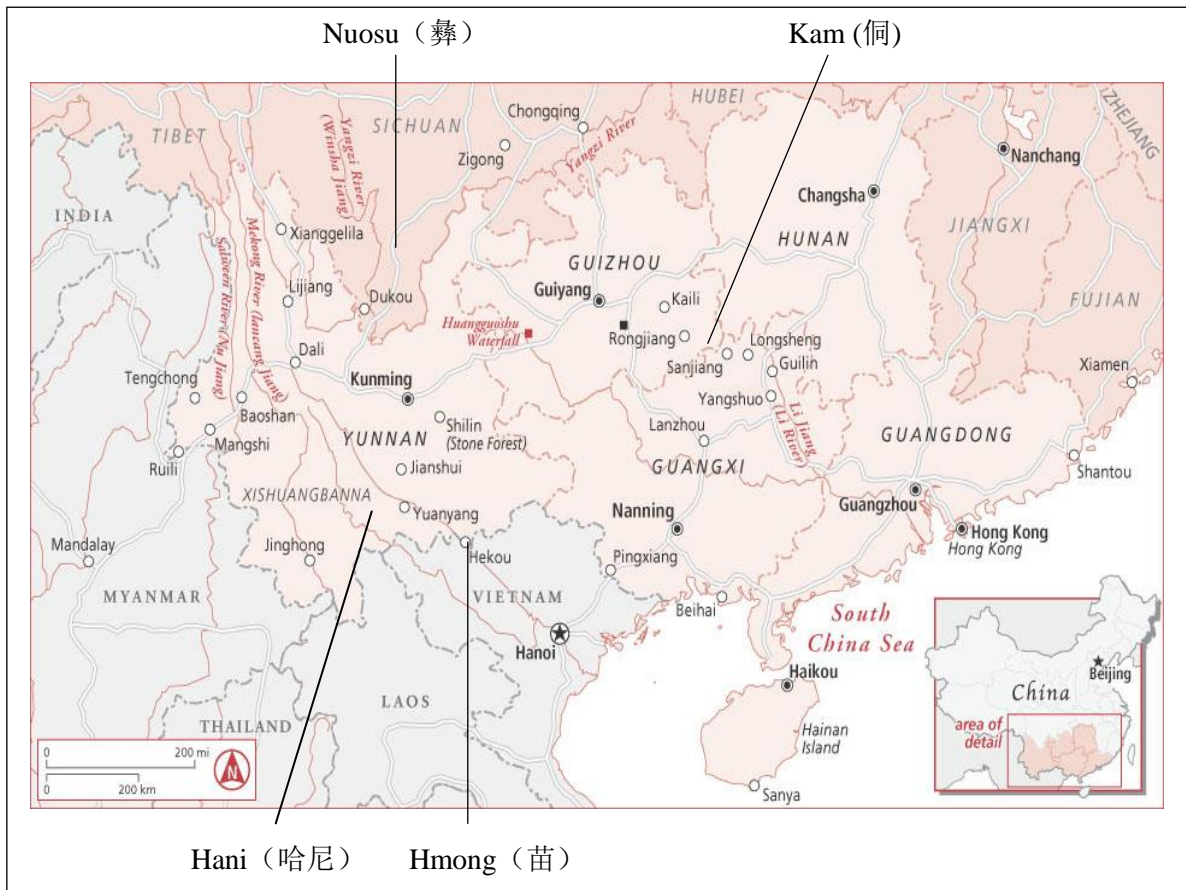
- (5) a. mau³³ au⁵⁵ məi³¹ sat¹³ jau¹¹. | Instrumental NP
 3P.SG COV.take rod, stick whip 1P.SG
 Instrument
 ‘He whipped me with a rod.’
- b. mau³³ sat¹³ jau¹¹ sam³⁵ məi³¹. | Verb classifier
 3P.SG whip 1P.SG NUM.3 VCL.rod
 Verb Numeral Verb classifier
 ‘He whipped me three times with a rod.’

Specialists in East Asian languages also employ the term *classifier* for phenomena that are not classificatory in the sense of definition (3). Both true and pseudo-phenomena are presented in §2-§3 of this paper, which extends the findings of Gerner (2009) to five East Asian languages, see Table 1.

<i>Language</i>	<i>Branch/Family</i>	<i>Place (Province/Prefecture/County)</i>	<i>Number of speakers</i> ³
Mandarin	Sinitic	China	1,183,000,000
Kam	Tai-Kadai	Guizhou/Qiandongnan/Rongjiang	ca. 1,100,000
Hmong	Miao-Yao	Yunnan/Honghe/Hekou...	ca. 400,000
Nuosu	Tibeto-Burman/North. Loloish	Sichuan/Liangshan	ca. 1,100,000
Hani	Tibeto-Burman/South. Loloish	Yunnan/Honghe/Lüchun...	ca. 500,000

Table 1. Profile of East Asian languages surveyed

The following map locates the minority languages surveyed in this paper (Mandarin is omnipresent in China).⁴



Map. Southwest China (Reprinted with permission of John Wiley & Sons, Inc.)

I collected the data and discussed them with native language informants in three steps: identification of verb classifiers; judgement on the co-occurrence of verb classifiers and verbs; identification of double noun and verb classifiers. All minority language informants have linguistic training. For Mandarin Chinese, three informants who grew up in Beijing, Shenyang and Yangzhou provided feedback.

East Asian verb classifiers bear similarity with noun classifiers at a syntactic and conceptual level. Syntactically, verb classifier constructions like that in (5a) resemble noun classifier constructions, as in (6).

- Kam*
- (6) sam³⁵ muŋ³¹ ɲən¹¹
 NUM.3 NCL person
 Numeral Noun classifier Noun
 ‘three people’

Conceptually, it is possible to distinguish sortal and mensural verb classifiers in the same way linguists have done for noun classifiers. We scrutinize sortal verb classifiers in §2, mensural verb classifiers and other minor types in §3.

2. Sortal verb classifiers

Sortal or numeral noun classifiers (Greenberg 1972: 1; Grinevald 2000: 63) categorize count nouns. By analogy, *sortal verb classifiers* are morphemes that categorize activity verbs. Most sortal verb classifiers are monosyllabic and function as instrumental adjuncts of the classified verbs. The five languages surveyed comply with Lehmann (1973: 49, 1978: 178)’s implicational word order universals. Sinitic, Tai-Kadai, Miao-Yao languages have VO and V-VCL order, whereas Tibeto-Burman languages have OV and VCL-V order.⁵

(7) Sortal verb classifier constructions:

i.	Mandarin (Sinitic)	V	(N _o)	NUM/QUA	VCL	
ii.	Kam (Kam-Tai)	V	(N _o)	NUM/QUA	VCL	
iii.	Hmong (Miao-Yao)	V	(N _o)	NUM/QUA	VCL	
iv.	Nuosu (Tibeto-Burman)	{	(N _o)	NUM	VCL	V
			(N _o)	Instr N	NUM	VCL: lɔ ³³
v.	Hani (Tibeto-Burman)	{	(N _o)	NUM	VCL	V
			(N _o)	Instr N	NUM	VCL: ɿa ¹¹

A morphosyntactic difference is that in Mandarin, Kam and Hmong verb classifiers co-occur with numerals *and* quantifiers, while in Nuosu and Hani they only select numerals. Examples in this section are taken from Mandarin, Hmong, Nuosu and Hani.

Mandarin (Sinitic)

- (8) wǒ hǎn le tā hǎo duō shēng.
 3P.SG call DP 3P.SG QUA.many voice
 Verb Quantifier Verb classifier

‘I called him many times.’

- (9) tā kàn le wǒ jǐ yǎn.
 3P.SG watch DP 1P.SG QUA.several eye
 Verb Quantifier Verb classifier

‘He observed me several times.’

Hmong (Miao-Yao)

- (10) k^hi⁴⁴ ni²¹ i²¹ tso³¹ɿua⁴⁴
 bind 3P.SG NUM.1 VCL.rope
 Verb Numeral Verb classifier

‘bind him once with a rope’ [i.e. take the rope around him in one complete turn]

- (11) ɿsua⁵⁵ ɱai³¹ tɕi³⁵ ɿa¹³
 cut meat QUA.several VCL.knife
 Verb Numeral Verb classifier

‘cut the meat with a knife in several moves’

- (12) mi⁵⁵ qua³¹ ɔ⁴³ ɿua⁴³.
 cat meow NUM.2 VCL.voice
 Verb Numeral Verb classifier

‘The cat meowed two times.’

Nuosu lacks many verb classifiers that are available in Mandarin, Kam and Hmong. Nuosu frequency phrases use the general mensural classifier lɔ³³ ‘time’ and an optional instrumental noun, as in (13)-(14). Only a few instrumental nouns can be directly employed as sortal verb classifiers, as in (15). In (16), the verb classifier is a suppletive morpheme of the instrumental noun.

Nuosu (Tibeto-Burman)

- (13) ts^hi³³ (t^hu²¹bu²¹) ɱi²¹ lɔ³³ ɱa⁴⁴ tɕi⁵⁵.
 3P.SG stick NUM.2 VCL.time 1P.SG beat
 Instrument Numeral Verb classifier Verb

‘He beat me twice (with a stick).’

- (14) ts^hi³³ (vi³³mo²¹) ts^hi²¹ lɔ³³ k^hie³³.
 3P.SG axe NUM.1 VCL.time cut
 Instrument Numeral Verb classifier Verb

‘He cut once (with an axe).’

- (15) ts^hi³³ ɱa⁴⁴ ɱi²¹ ba³³ɿɔ²¹ ndzi⁵⁵.
 3P.SG 1P.SG NUM.2 VCL.mouth bite
 Numeral Verb classifier Verb

‘He bit me twice with his mouth.’

(16) a.	ŋa ³³	tsi ⁵⁵	mo ²¹	si ⁴⁴	tsi ⁵⁵ .	b.	ŋa ³³	ni ²¹	tʂ ^h a ³³	tsi ⁵⁵ .	
	1P.SG	pickaxe		COV.take	dig		1P.SG	NUM.2	VCL.pickaxe	dig	
		Instrument			Verb			Numeral	Verb classifier	Verb	
	‘I dug with a pickaxe’						‘I dug with a pickaxe twice’ (<i>lit.</i> I dug two pickaxes)				

In Hani, sortal verb classifiers are derived from instrumental nouns, either in identical form, as in (17)-(18), or by dropping one syllable, as in (19)-(20).⁶

Hani (Tibeto-Burman)

(17) a.	mja ³³	ne ³³	tʂ ^h e ²¹		b.	tʂ ^h i ²¹	mja ³³	tʂ ^h e ²¹			
	eye	COV.use	peek, watch			NUM.1	VCL.eye	peek, watch			
	Instrument		Verb			Numeral	Verb classifier	Verb			
	‘watch with an eye’					‘watch once’ [<i>lit.</i> watch one eye]					
(18) a.	sɔ ⁵⁵	dzo ⁵⁵	ne ³³	di ²¹	b.	ni ²¹	sɔ ⁵⁵	dzo ⁵⁵	di ²¹		
	axe		COV.use	hit		NUM.2	VCL.axe		hit		
	Instrument			Verb		Numeral	Verb classifier		Verb		
	‘hit with an axe’					‘hit twice with an axe’					
(19) a.	a ²¹	la ¹¹	ne ³³	t ^h ɔ ²¹	b.	a ²¹	jo ²¹	ʒɔ ⁵⁵	ni ²¹	la ¹¹	t ^h ɔ ²¹
	hand		COV.use	pound		3P.SG	LOC.to	NUM.2	VCL.hand		pound
	Instrument			Verb				Numeral	Verb classifier		Verb
	‘pound with a hand’					‘pound him twice with the hand’					
(20) a.	tse ³³	ɣu ¹¹	ne ³³	pɛ ³³	b.	ni ²¹	tse ³³		pɛ ³³		
	pickaxe		COV.use	dig		NUM.2	VCL.pickaxe		dig		
	Instrument			Verb		Numeral	Verb classifier		Verb		
	‘dig with a pickaxe’					‘dig twice with a pickaxe’					

For several instrumental meanings, there are two suppletive morphemes: one instrumental noun and one verb classifier morpheme. See examples (21), (22) and also Table 2.

Hani

(21) a.	a ²¹	ɣo ¹¹	ne ³³	pɛ ⁵⁵	χɔ ²¹	ku ¹¹		b.	ts ^h u ³³	ne ³³	ni ²¹	sɔ ²¹	ku ¹¹
	needle		COV.use	clothes		sew			just		NUM.2	VCL.needle	sew
	Instrument					Verb					Numeral	Verb classifier	Verb
	‘sew the clothes with a needle’							‘just have sewn the clothes with two pinpricks’					
(22) a.	bɥ ¹¹	tu ⁵⁵	ne ³³	so ¹¹	mja ³³	bɥ ¹¹		b.	a ²¹	jo ²¹	tʂ ^h i ²¹	kə ²¹	bɥ ¹¹ .
	pen		COV.use	text		write			3P.SG		NUM.1	VCL.pen stroke	write
	Instrument					Verb					Numeral	Verb classifier	Verb
	‘write text with a pen’							‘He wrote one stroke with a pen.’					

The verb classifier **la¹¹** is derived from the noun **a²¹la¹¹** ‘hand’ and counts the number of beatings with a hand, see (19). **La¹¹** also developed into a more general verb classifier. For instruments other than the hand but using the hand, it encodes event counting profiled by the instrument, as in (23) and (24).

Hani

(23)	sɔ ⁵⁵	dzo ⁵⁵	tʂ ^h i ²¹	la ¹¹	di ²¹	(24)	di ²¹	p ^h u ²¹	ni ²¹	la ¹¹	di ²¹
	axe		NUM.1	VCL.hand	hit		hammer		NUM.2	VCL.hammer	hit
	Instrument		Numeral	Verb classifier	Verb		Instrument		Numeral	Verb classifier	Verb
	‘beat once with the axe’						‘hit twice with a hammer’				

Table 2 provides a non-exhaustive list of the more common VCLs in five languages. For Mandarin, compare with Chao (1968: 616–620) and He (2001).

Sortal Verb Classifier	Mandarin	Kam	Hmong	Nuosu	Hani		
					VCL	Instr N	VCL
№ 1 'hand'	shǒu 手	m ⁱ a ¹¹	tɕ ^h ai ³³	---	la ¹¹	la ¹¹	✓
№ 2 'fist'	quán 拳	ɕui ¹¹	ŋji ¹³	---	---	---	✓
№ 3 'palm'	bāzhǎng 巴掌	mak ³²³	si ⁴³ mpua ¹³	---	ba ¹¹ t ^h ɛ ³³	---	✓
№ 4 'foot'	jiǎo 脚	tin ⁵⁵	teu ⁴⁴	---	a ¹¹ k ^h u ⁵⁵	a ¹¹ k ^h u ⁵⁵	---
№ 5 'mouth'	kǒu 口	əp ⁵⁵	lo ⁴⁴	ba ³³ ɬo ²¹	χɛ ¹¹	---	---
№ 6 'tongue'	---	ma ¹¹	mplai ¹³	---	la ⁵⁵ ma ³³	---	---
№ 7 'eye'	yǎn 眼	ta ⁵⁵	mua ¹³	---	mja ³³	mja ³³	---
№ 8 'voice'	shēng 声	---	ɣua ⁴³	---	do ²¹	do ²¹	---
№ 9 'knife'	dāo 刀	m ⁱ a ³¹	ta ¹³	---	t ^h o ³³ dze ⁵⁵	---	✓
№ 10 'gun'	qiāng 枪	ɕoŋ ⁵³	p ^h au ²⁴	---	mi ¹¹ bə ³³	---	✓
№ 11 'hammer'	chuí 锤	ɕui ¹¹	qu ³³	---	di ¹¹ pu ¹¹	---	✓
№ 12 'hoe'	chútou 锄头	t ^h oi ³⁵	ɬou ⁴⁴	tɕ ^h a ³³	tse ³³ ɣu ¹¹	tse ³³	✓
№ 13 'axe'	fūtóu 斧头	k ^w an ⁵⁵	tou ³³	---	so ⁵⁵ dzo ⁵⁵	so ⁵⁵ dzo ⁵⁵	✓
№ 14 'scissors'	jiǎnzi 剪子	miu ¹¹	tsa ⁴³	---	dzø ¹¹ da ⁵⁵	---	✓
№ 15 'rope'	---	lam ³³	tso ³¹ tua ⁴⁴	---	---	---	---
№ 16 'needle'	zhēn 针	ɬɕ ^h əm ³⁵	koŋ ⁴³	k ^h i ²¹	a ²¹ ɣo ¹¹	so ²¹	✓
№ 17 'pen'	bǐ 笔	pjət ⁵⁵	---	---	bɥ ¹¹ tu ⁵⁵	kə ²¹	✓

Table 2. Sortal Verb Classifiers

The number of sortal VCLs varies in the five languages surveyed. Only verbs with the instrumental role, but not all of these verbs, can be modified by sortal VCLs. In Kam, Mandarin and Hmong, there are 50 sortal VCLs categorizing about 70-80 activity verbs. All the classified verbs belong to the basic vocabulary. These classifieds stay with their VCLs in the proportional relation required by definition (3). Nuosu and Hani, however, only number 3-8 sortal VCLs which categorize about a dozen activity verbs. With this low ratio of VCLs and classified verbs, these morphemes could not be verb classifiers in the sense of definition (3), especially in violating (3-iii). For the sake of tradition, we also adopt the term verb classifiers for Nuosu and Hani as the morphemes occupy the same slots as in Mandarin, Kam and Hmong.

The East Asian sortal VCLs involve semantic profiling, which is what Lucy (2000: 326) calls a *classification of experience*. For nominal classifiers, scholars have identified three semantic profiles which they arrange in a hierarchical order (Adams & Conklin 1973; Aikhenvald 2000: 271–290; Allan 1977:299–306; Bisang 1999: 124; Croft 1994: 152; Denny 1976: 125; Grinevald 2000: 72):

ANIMACY > PHYSICAL PROPERTY > FUNCTIONALITY

A language first partitions nouns into animate and inanimate items. Within the inanimate class it distinguishes items for physical properties (shape, dimension). In some of these subclasses it subdivides items further for their functional use.

Verb classes involve other semantic profiles. McGregor (2002: 29–34) proposes three profiles for Australian-style verb classifiers: SPATIAL ORIENTATION, AKTIONSART, VALENCY. These profiles are not applicable to East Asian languages. Gerner (2009: 733–735) suggests three profiles for classified verbs in Kam, re-termed here as:

HIT-type, ATTACH-type, TRANSMIT-type

In HIT-type events, someone hits an object with a physical instrument (*hand, fist, hammer...*). In events of the ATTACH-type, someone attaches something with a physical medium (*needle, pen, rope...*). In TRANSMIT-type events, someone reaches out to an object through an intermediate channel (*eye, voice, fan, gun...*). These types are reminiscent of Levin (1993: 25–42)'s four verb types CUT, BREAK, TOUCH, HIT which she defined by co-occurrence restrictions in three constructions: *middle*, *conative* and *body-part ascension*. Future typological work needs to integrate these profiles into a system.

3. Epiphenomena

Mensural (§3.1), double (§3.2) and auto-classifiers (§3.3) are not verb classifiers in the sense of definition (3). They exhibit loose selectional restrictions and do not stand in the required relation with the verbs they

modify but linguists call them verb classifiers too as they occupy the same slot as sortal VCLs. However, a subset of mensural classifiers in Mandarin and Hani form an exception and are classifiers in the sense of the definition, see §3.1.1.

3.1 Mensural verb classifiers

Linguists distinguish between sortal and mensural noun classifiers (NCLs). Both are sensitive to the existence of *minimal parts* in an object. The existence of minimal parts in count objects and stuff was discussed in the philosophical literature (Bunt 1979: 255–256, 1985: 45–46; Quine 1960: 97). Bunt proposed to view stuff and mass terms as “a way of speaking about things as if they do not consist of minimal parts.”⁷ On this view, sortal NCLs *actualize* minimal parts that belong to the noun referent, while mensural NCLs *create* shape boundaries not belonging to the noun concept (Bisang 1999: 113–121, Croft 1994: 148).

Matthews & Yip (1999) applied the terms of sortal/mensural to verb classifiers. Sortal VCLs *actualize* minimal temporal parts of the referring event, whereas mensural VCLs *create* temporal boundaries which are not inherent to the verb. For example, the verb *beat* has minimal parts provided by the idea of punctual collision. The sortal VCL *fast* actualizes the idea of collision in the same way as a linear noun classifier actualizes the shape boundaries of the noun *river*. On the other hand, a verb such as *wait* has no minimal phase. The mensural VCL *day* imposes artificial temporal boundaries that are alien to *wait*.

For mensural classifiers, another distinction can be recycled from the nominal domain. Some scholars divide mensural NCLs further into *collective* and *measure* NCLs (Bisang 1999: 122; Rijkhoff 1991: 291–301; T’sou 1976). Both impose artificial shape boundaries. Collective NCLs create boundaries for entities that have inherent minimal parts. They erase the minimal part structure and impose a different collective structure: *a group of students, a collection of stamps*. Entities without minimal parts reject collective classifiers: **a group of wine, *a collection of air*. On the other hand, measure NCLs modify noun concepts without minimal parts like *a cup of water, a cubic meter of air*. With objects that have minimal parts, measure NCLs are pragmatically marked as in *#a container of people, #a box of mice*. See Table 3.

	Collective NCLs	Measure NCLs
Objects with minimal parts	group of students, flock of sheep	#container of people, #box of mice
Objects without minimal parts	*group of wine, *collection of air	cup of water, cubic meter of air

Table 3. Collective NCLs and Measure NCLs

This distinction is also available for verb classifiers. *Collective* VCLs modify verbs with minimal parts, erase these parts and set up a new grouping of parts. The collective VCL *round* in *box three rounds* indicates that on three occasions one or several collisions happen. Collective VCLs are natural in events with minimal parts and are pragmatically marked in events without minimal parts. On the other hand, *measure* VCLs such as *hour, year* impose time measures on events. They most naturally modify events without minimal parts such as *wait* or *love* events. In events with minimal parts, measure VCLs are pragmatically marked. See Table 4.

	Collective VCLs	Measure VCLs
Events with minimal parts	box one round, eat three times	(#)box for an hour, (#)eat for ten minutes
Events without minimal parts	#wait one round, #love twice	wait for an hour, love for two years

Table 4. Collective VCLs and Measure VCLs

Example (24) illustrates a collective verb classifier in Hani, and (25) a measure verb classifier in Nuosu.

- Hani*
- (24) a²¹jo²¹ sɔ⁵⁵ t^ha²¹ lo⁵⁵
 3P.SG NUM.3 VCL.time worship
 Numeral Verb classifier Verb
 ‘He worshipped three times.’

Nuosu

- (25) $\eta\alpha^{33}$ hu^{33} $ts^{h_1}i^{21}$ ηi^{21} ηgo^{55} .
 1P.SG fish NUM.1 VCL.day catch
 Numeral Verb classifier Verb
 ‘I have been fishing a whole day.’

3.1.1 Collective verb classifiers

There are 3-6 collective verb classifiers in the five languages surveyed. Some collective VCLs display no selectional restriction (**Nº 18, 19, 22**), whereas others are restrictive (**Nº 20, 21, 23**). In Mandarin and Hani, the classes generated by the VCLs **Nº 21** and **23** significantly differ from each other, in accordance with (3-iv). Collective classifiers in these languages are thus classificatory in the sense of definition (3). In the other languages, however, the collective morphemes fail to form a classificatory system. Some VCLs are historically derived from directional verbs. The Mandarin VCLs *xià* and *huí* mean ‘go down’ and ‘go back’. The directional meaning is bleached but still alive when they are used as VCLs. See Table 5.

Collective Verb Classifier		Mandarin	Kam	Hmong	Nuosu	Hani
Nº 18	‘time’	cì 次	tau ⁵³	za ¹³	vi ⁵⁵	t ^h a ²¹
Nº 19	‘quick time’	xià 下	ɕon ³³	ɲtɕi ³³	lo ³³	χɛ ²¹
Nº 20	‘round’	dùn 顿	tən ⁵³	plua ¹³	dzi ³³	tɕ ^h u ¹¹
Nº 21	‘path’ (mainly motions)	tàng 趟	---	---	tɕo ³³	dzo ⁵⁵
Nº 22	‘turn’	huí 回	---	hua ²⁴	gu ²¹	bo ²¹
Nº 23	‘process’	biàn 遍	---	---	---	do ⁵⁵

Table 5. Collective Verb Classifiers

The generic collective classifier *time/opportunity* (**Nº 18**) categorizes a wide range of verbs in all five languages. It is also a double classifier of verbs and nouns (§3.2). The verbs classified by this classifier refer to events with or without minimal parts:

Kam

- (26) mau^{33} heu^{35} jau^{11} ja^{11} tau^{53} .
 3P.SG beat 1P.SG NUM.2 VCL.time
 Verb Numeral Verb classifier
 ‘He beat me on two occasions.’

The classifier *quick time* (**Nº 19**) originates in Mandarin from the directional verb *go down*. The metaphorical suggestion is that the flow of time is directed downwards (rather than upwards). In Mandarin, Kam, Hmong and Hani, this classifier displays almost no selectional restriction except that the activity must be realizable in a short time period. In Nuosu, this VCL is more selective without any obvious semantic principle.

Mandarin

- (27) $tā$ $kū$ le $yī$ $xià$.
 3P.SG cry DP NUM.1 VCL.time
 Verb Numeral Verb classifier
 ‘He cried once (briefly).’

Hmong

- (28) qai^{43} qua^{44} pe^{43} $ɲtɕi^{13}$.
 hen, rooster crow NUM.3 VCL.time
 Verb Numeral Verb classifier
 ‘The rooster (briefly) crowed three times.’

Nuosu

- (29) $ts^{h_1}i^{33}$ $t\phi i^{33}$ ϕi^{33} n_i^{21} $l\phi^{33}$ tu^{55} .
 3P.SG foot NUM.2 VCL.time stamp on
 Instrument Numeral Verb classifier Verb

‘He stamped with his foot twice.’

- (30) a. * ηa^{33} $ts^{h_1}i^{21}$ $l\phi^{33}$ h_i^{55} b. $ts^{h_1}i^{33}$ n_i^{21} $l\phi^{33}$ so^{55}
 1P.SG NUM.1 VCL.time speak 3P.SG NUM.2 VCL.time calculate
 Numeral Verb classifier Verb Numeral Verb classifier Verb

‘I speak a quick time.’

‘He quickly calculated twice.’

For Mandarin, Kam and Hmong, the VCL *round* (**№ 20**) categorizes only a few verbs, basically *eat*, *say*, *curse*, *shout*, *beat*. The Nuosu morpheme $d\phi i^{33}$ ‘round’ classifies a broader range of verbs: 15 of 122 sample verbs. Most compatible verbs are verbs of appropriation (*eat*, *drink*,...). In Hani, the collective VCL $t\phi^{hu}^{11}$ ‘round’ classifies 96/128 sample verbs but does not profile any common trait of these verbs.

Kam

- (31) mau^{33} heu^{35} jau^{11} ja^{11} $t\phi n^{53}$.
 3P.SG beat 1P.SG NUM.2 VCL. round
 Verb Numeral Verb classifier

‘He battered me on two occasions.’

Nuosu

- (32) tsi^{33} n_i^{21} $d\phi i^{33}$ k^{hu}^{33} o^{44} . (33) * tsi^{33} $ts^{h_1}i^{21}$ $d\phi i^{33}$ k^{vu}^{33} o^{44} .
 3P.SG NUM.2 VCL.round steal DP 3P.SG NUM.1 VCL.round call DP
 Numeral Verb classifier Verb Numeral Verb classifier Verb

‘He took part in two robberies.’

‘He called twice.’

Hani

- (34) $a^{21}jo^{21}$ n_i^{21} $t\phi^{hu}^{11}$ ga^{21} (35) $a^{21}jo^{21}$ $t\phi^{h_1}i^{21}$ $t\phi^{hu}^{11}$ so^{11} .
 3P.SG NUM.2 VCL.round cook 3P.SG NUM.1 VCL.round hate
 Numeral Verb classifier Verb Numeral Verb classifier Verb

‘He cooked on two occasions.’

‘He was in a round of hatred.’

- (36) * $a^{21}jo^{21}$ $t\phi^{h_1}i^{21}$ $t\phi^{hu}^{11}$ si^{33}
 3P.SG NUM.1 VCL.round know
 Numeral Verb classifier Verb

‘He knew once.’

The collective VCL **№ 21** with the meaning *path* is only attested in Mandarin, Nuosu and Hani. It profiles the motion inherent in several activity verbs, sometimes metaphorically as in in (38).

Nuosu

- (37) ηa^{33} m^{33} so^{33} $t\phi o^{33}$ $d\phi^{33}$ o^{44} .
 3P.SG horse NUM.3 VCL.path ride DP
 Numeral Verb classifier Verb

‘I rode a horse on three occasions.’

- (38) ηa^{33} so^{33} $t\phi o^{33}$ ϕu^{55} o^{44} .
 3P.SG NUM.3 VCL.path remember DP
 Numeral Verb classifier Verb

‘I remembered on three occasions (*lit.* I remembered three mental paths).’

The collective VCL **№ 22** with the meaning *turn* is derived from the directional verb *go back*: in Mandarin *huí*, in Hmong *hua*²⁴ which is borrowed from Chinese, and in Nuosu *gu*²¹ (Gerner 2002: 29). The etymology of the Hani VCL *bo*²¹ is uncertain. The Mandarin VCL *huí* is pragmatically conditioned and used in three contexts. Firstly, the clause with *huí* contrasts with an event understood in the context. Secondly, the clause with *huí* refers to an unexpected or rare event. Thirdly, it co-occurs with the experiential marker *guo* and counts the number of times an event was experienced.

Mandarin

- (39) tā nándé ài wǒ yī huí. | Contrast with other event
 3P.SG get chance love 1P.SG NUM.1 VCL.turn
 Verb Numeral Verb classifier
 ‘It was difficult but he loved me once.’
- (40) kěsuàn tā shuō le yī huí zhēn huà. | Contrast with other event
 finally 3P.SG speak DP NUM.1 VCL.turn true word
 Verb Numeral Verb classifier
 ‘He spoke finally the truth on one occasion.’
- (41) tā wā le yī huí dì. | Relatively rare
 3P.SG dig DP NUM.1 VCL.turn soil
 Verb Numeral Verb classifier
 ‘He engaged in a process of soil cultivation.’
- (42) tā chī le yī huí nuòmǐ fàn. | Relatively rare
 3P.SG dig DP NUM.1 VCL.turn glutinous rice
 Verb Numeral Verb classifier
 ‘He ate glutinous rice on one occasion.’
- (43) * tā chī le yī huí fàn. | Highly recurrent
 3P.SG dig DP NUM.1 VCL.turn rice
 Verb Numeral Verb classifier
 ‘He ate rice on one occasion.’
- (44) tā zuótiān wǎnshang shuō guò yī huí mèngguà | Count experiences
 3P.SG yesterday evening say EXP NUM.1 VCL.turn dream word
 Verb Numeral Verb classifier
 ‘Yesterday evening, he talked once in his sleep.’

Finally, the VCL № 23 contributes the meaning of *process* and co-occurs with verbs that have a procedural make-up of phases, typically activities like *write*, *teach* or *read*. The VCL counts the number of times the process is run through. This classifier is only attested in Mandarin and Hani.

Mandarin

- (45) a. tā zhī le yī biàn. |
 3P.SG weave DP NUM.1 VCL.process
 Verb Numeral Verb classifier
 ‘He engaged in one process of weaving (*lit.* he wove once).’
- b. gōngjī jià le yī biàn. |
 rooster crow DP NUM.1 VCL.process
 Verb Numeral Verb classifier
 ‘The rooster crowed once (= extended time).’

Hani

- (46) a. a²¹jo²¹ tɕ^hi²¹ dɔ⁵⁵ ɣa²¹. |
 3P.SG NUM.1 VCL.process weave
 Numeral Verb classifier Verb
 ‘He engaged in one process of weaving (*lit.* he wove once).’
- b. a²¹jo²¹ sa²¹ni⁵⁵ sɔ⁵⁵ dɔ⁵⁵ ɣə⁵⁵. |
 3P.SG meat NUM.3 VCL.process buy
 Numeral Verb classifier Verb
 ‘He bought meat on three occasions.’

3.1.2 Measure verb classifiers

Measure VCLs are time-units that indicate the duration of an event. They are East Asian equivalents of FOR-adverbials in English (*for two hours*) which Vendler (1967) involved to define situation types. They are compatible with any verb whose temporal frame matches theirs but are most naturally used in events without minimal phases. Measure VCLs are not classificatory as their verb classes greatly overlap, in violation of definition (3-iv). See Table 6.

Measure Verb Classifier	Mandarin	Kam	Hmong	Nuosu	Hani
№ 24 ‘instant’ / ‘short moment’	huèr 会儿	ha ³⁵	---	---	---
№ 25 ‘while / hour’	zhèn 阵	ɕən ³³	---	t ^h u ³³ / p ^h u ⁵⁵	mjɔ ²¹
№ 26 ‘one hour’ / ‘two hours’	---	ɕi ¹¹	tɕai ²⁴	---	tɔ ²¹
№ 27 ‘evening and night’	wǎn 晚	nəm ⁵³	ṃau ⁴⁴	hɔ ³³	ja ²¹
№ 28 ‘day’	tiān 天	mən ⁵⁵	ŋo ⁴³	nɪ ²¹	no ³³
№ 29 ‘month’	---	nən ⁵⁵	ɬi ⁴⁴	bu ³³ ɬu ²¹	si ²¹
№ 30 ‘year’	nián 年	nin ¹¹	ɕoŋ ⁴⁴	k ^h v ^u ³³	yu ²¹
№ 31 ‘lifespan’	bèi 辈	səm ³³	ʃi ²⁴ nən ³¹	dzo ³³ zi ³³	zi ⁵⁵

Table 6. Measure Verb Classifiers

The VCL № 24 denotes short moments, as in (47) for Kam. The VCL № 25 refers to indefinite short time intervals, typically less than one hour, see (48) for Hani. The Nuosu VCL t^hu³³ ‘crisis time’ selects verbs which are compatible with this sense, see (49a). The VCL p^hu³³ in (49b) has no selectional restriction.

Kam
 (47) ɕao³⁵ lio³⁵sai³³ i⁵⁵ ha³⁵.
 2P.PL watch out NUM.1 VCL.instant
 Verb Numeral Verb classifier
 ‘Watch out for a moment.’

Hani
 (48) ɣo²¹ ɬɕ^hi²¹ mjɔ²¹ tsa²¹
 food NUM.1 VCL.hour eat
 Numeral Verb classifier Verb
 ‘eat for one hour’

Nuosu
 (49) a. a⁴⁴zɪ³³ ts^hi²¹ t^hu³³ ŋo³³. b. ŋa³³ nɪ²¹ p^hu⁵⁵ nu³³.
 child NUM.1 VCL.vague.hour cry 1P.SG NUM.2 VCL.vague.hour rest
 Numeral Verb classifier Verb Numeral Verb classifier Verb
 ‘The child cries a good while.’ ‘I have rested two periods of time.’

The VCL № 26 refers to the ancient Chinese time concept of shíchen 时辰, a unit that divides a day into twelve portions of 120 minutes (attested in Kam, Hmong and Hani), see (50). The VCL № 27 covers the time of *evening and night* in all five languages, as in (51). Examples (52)-(54) illustrate the other VCLs.

Kam
 (50) mau³³ n.au³³ au³¹ səm³¹ nai³³ nak³⁵ ja¹¹ ɕi¹¹.
 3P.SG COV.be.at LOC.at room DEM.PROX sleep NUM.2 VCL.hour
 Verb Numeral Verb classifier
 ‘He slept in this room for two hours (1 Chinese hour = 120 minutes).’

Hmong
 (51) t^ha⁴⁴teu⁴⁴ i⁴³ ṃau⁴⁴
 dance NUM.1 VCL.evening
 Verb Numeral Verb classifier
 ‘dance for one evening’

Hani

- (52) ga⁵⁵ma³³ tɕ^hi²¹ nɔ³³ zu²¹
road NUM.1 VCL.day walk
Numeral Verb classifier Verb
‘walk for one day’
- (53) a²¹jo²¹ tɕ^ho²¹ ʒɔ⁵⁵ tɕ^hi²¹ yu²¹ ɕɔ⁵⁵lu³³
3P.SG family LOC.to NUM.1 VCL.year protect
Numeral Verb classifier Verb
‘He protects the family for one year.’

Nuosu

- (54) ŋa³³ ts^hi²¹ dzo³³zi³³ m³³ nu⁴⁴ ŋg^vu³³.
1P.SG NUM.1 VCL.lifespan ADVL 2P.SG love
Numeral Verb classifier Verb
‘I love you all my life.’

Measure VCLs or FOR-adverbials are incompatible with accomplishments, as illustrated in (55) for Kam. In the languages surveyed, the equivalent of IN-adverbials also involves measure VCLs but the construction is more marked. IN-adverbials are licensed in quantized events, as shown in (56)-(57).

Kam

- (55) *mau³³ tan⁵⁵ sam³⁵ nen⁵⁵ tui⁵⁵ i⁵⁵ ɕən³³.
3P.SG eat NUM.3 NCL fruit NUM.1 VCL.while
Verb Numeral Verb classifier
(*‘He ate three fruits for a while’)
- (56) mau³³ tan⁵⁵ i⁵⁵ ɕi¹¹ tui⁵⁵ tan⁵⁵ li³²³ sam³⁵ nen⁵⁵.
3P.SG eat NUM.1 VCL.2.hours fruit eat RES.get NUM.3 NCL
Verb Numeral Verb classifier
‘He ate three fruits in two hours.’ {The verb is repeated in a special *extent construction*}

Nuosu

- (57) ts^hi³ ts^hi²¹ ho³³ a⁴⁴ti³³ m³³ ga⁴⁴ su³³ ʒ³³ ndzi⁴⁴ ɕi³³.
3P.SG NUM.1 VCL.evening only ADVL road make, walk river along arrive
Numeral Verb classifier Verb
‘He walked to the river in (only) one evening.’

3.2 Double classifiers of nouns and of verbs

Chinese scholars have found that some morphemes have a double role as NCL and VCL (Matthews & Leung 2001; Matthews & Yip 1999: 11–12; Paris 1989: 4–5; Yang 2001: 129–137; Gerner 2009: 717–719).

3.2.1 At least one verb classifier functions as noun classifier

No sortal VCL but at least one mensural verb classifier also modifies nouns in the five languages surveyed. It is the general mensural verb classifier **N_o 18** (see Yang, 2001: 129–137, on Mandarin *ci* ‘time’).

The mensural verb classifier **N_o 18** categorizes nouns that denote events. There are two kinds of event nouns, nouns that refer to stuff and to events (e.g. *film*, *rainfall*) and nouns that only refer to events (e.g. *work*, *attack*). Nouns that denote stuff and events can be modified by noun classifiers and the VCL **N_o 18**, as illustrated for the Nuosu verb classifier vi⁵⁵.

Nuosu

- (58) a. Weather nouns ma³³ha³³ ts^hi²¹ t^ho⁵⁵ ts^hi³³ ŋa⁵⁵ k^ha³³no³³ ko³³ zo³³.
rain NUM.1 NCL.drop fall 1P.SG.POSS face LOC endure
NCL in subject slot Noun Num NCL Verb
‘One raindrop fell on my face.’

b.	Weather nouns	ŋa ³³ 1P.SG	ma ³³ ha ³³ rain Noun	so ³³ NUM.3 Num	p ^h i ²¹ ndzi ³³ NCL.basin NCL	da ⁵⁵ fill with	ta ³³ o ⁴⁴ . STP DP Verb
	NCL in object slot						
							‘I have collected three basins of rainwater.’
c.	Weather nouns	ma ³³ ha ³³ rain Noun	ts ^h i ²¹ NUM.1 Num	vi ⁵⁵ VCL.time VCL	dzi ²¹ o ⁴⁴ . fall DP Verb		
	VCL in subject slot						‘There was a rain shower.’
d.	Weather nouns	ŋa ³³ 1P.SG	ma ³³ ha ³³ rain Noun	ts ^h i ²¹ NUM.1 Num	vi ⁵⁵ VCL.time VCL	gu ³³ hear	o ⁴⁴ . DP Verb
	VCL in object slot						‘I heard a rain shower.’

Weather nouns that behave like the Nuosu noun *rain* are listed in Table 7. These nouns refer either to the physical entity that is in motion or to the motion itself, e.g. to *rain* or to *rainfall*.

Weather phenomena	Mandarin	Kam	Hmong	Nuosu	Hani
‘snow’	xǔe 雪	nui ⁵⁵	nbo ⁴⁴	vo ³³	χa ²¹ ni ⁵⁵
‘rain’	yǔ 雨	p ^j ən ⁵⁵	naŋ ³³	ma ³³ ha ³³	ɔ ²¹ ze ⁵⁵
‘hail’	báozǐ 雹子	u ³¹	leu ³³	dzi ³³ si ³³	χo ⁵⁵ lu ³³
‘air, steam’	qì 气	so ³³	baŋ ⁴⁴	so ⁵⁵	sa ²¹

Table 7. Nouns that denote masses and events

Event nouns proper can only be modified by the VCL № 18 (or other verb classifiers) but not by noun classifiers, as shown for the mensural classifier t^ha²¹ in Hani.

Hani

(59) a.	Activity nouns	*yə ⁵⁵ la ²¹ business deal Noun	so ⁵⁵ NUM.3 Num	k ^h o ⁵⁵ NCL NCL	mɛ ⁵⁵ la ³³ pja ⁵⁵ all lose Verb	a ⁵⁵ . DP
	NCL in subject slot					
						‘All three business deals were unsuccessful.’
b.	Activity nouns	*ŋa ⁵⁵ 1P.SG	yə ⁵⁵ la ²¹ business deal Noun	zɔ ²¹ NUM.4 Num	k ^h o ⁵⁵ NCL NCL	bə ²¹ ya ³³ a ⁵⁵ . acquire obtain DP Verb
	NCL in object slot					
						‘I have made four deals.’
c.	Activity nouns	yə ⁵⁵ la ²¹ business deal Noun	tɕ ^h i ²¹ NUM.1 Num	t ^h a ²¹ VCL.time VCL	ma ²¹ su ²¹ . NEG smooth Verb	
	VCL in subject slot					
						‘On one occasion, the business was not successful.’
d.	Activity nouns	a ²¹ jo ²¹ 3P.SG	yə ⁵⁵ la ²¹ business deal Noun	tɕ ^h i ²¹ NUM.1 Num	t ^h a ²¹ VCL.time VCL	o ⁵⁵ ts ^h a ²¹ . do successful Verb
	VCL in object slot					
						‘On one occasion, he did not conclude a business deal.’

Event nouns refer to abstract states or relational events but not to physical masses. Several event nouns are listed in Table 8.

Event Nouns	Mandarin	Kam	Hmong	Nuosu	Hani
‘catastrophe’	zāinàn 灾难	ɕo ³³		χi ⁵⁵ vi ³³	tse ⁵⁵ na ³⁵
‘activity’	huódòng 活动	ɕon ³³		gu ²¹ tbu ³³	χo ²¹ do ³⁵
‘deal, business’	shēngyì 生意	wen ⁴⁵³	laŋ ³³ lua ²¹	vz ³³ lo ⁵⁵	yə ⁵⁵ la ²¹

Table 8. Nouns that only denote events

Count and mass nouns can only co-occur with noun classifiers not with verb classifiers. This is illustrated for the general mensural verb classifier *zɑ*¹³ in Hmong.

- Hmong*
- (60) a. Count/mass nouns ɔ⁵⁴ ndi³³ mɔ³⁵ ta²¹ m^wa⁴².
 NUM.2 NCL.bowl rice contain vegetable
 NCL in subject slot Num NCL Noun Verb
 ‘The two bowls of rice contain vegetables.’
- b. Count/mass nouns ko³⁵ nɔ⁴² be³³ ndi³³ mɔ³⁵.
 1P.SG eat NUM.3 NCL.bowl rice
 NCL in object slot Verb Num NCL Noun
 ‘I eat three bowls of rice.’
- c. Count/mass nouns *be³³ zɑ¹³ mɔ³⁵ to⁵⁴ zɔŋ⁴⁴ nɔ⁴²
 NUM.3 VCL.time rice all good.eat
 VCL in subject slot Num VCL Noun Verb
 ‘Three times food are all delicious.’
- d. Count/mass nouns ko³⁵ i⁴³ ɲo⁴³ nɔ⁴² be³³ zɑ¹³ mɔ³⁵.
 1P.SG NUM.1 day eat NUM.3 VCL.time rice
 VCL in object slot Verb Num VCL Noun
 ‘I eat rice three times every day.’

Several count/mass nouns with the same syntactic behaviour are listed in Table 9. (The Hani noun *ga*⁵⁵*ma*³³ ‘road’ differs from equivalent nouns of other languages in that it cannot be modified by VCLs in the object slot.)

Physical nouns	Mandarin	Kam	Hmong	Nuosu	Hani
‘food’	fàn 饭	əu ³¹	mɔ ³⁵	dza ³³	χo ²¹
‘wine’	jiǔ 酒	k ^{hw} au ¹³	tɕeu ³⁵	ŋdʒ ³³	dzi ⁵⁵ ba ²¹
‘water’	shuǐ 水	nəm ³¹	dle ⁴²	ʒ ³³	wu ⁵⁵ tɕy ²¹
‘person’	rén 人	nən ¹¹	nen ⁵⁴	ts ^h o ³³	ts ^h o ⁵⁵
‘ox’	niú 牛	k ^w e ¹¹	ɲo ⁴²	lu ³³	a ²¹ ɲu ²¹
‘road’	lù 路	k ^{hw} ən ³⁵	ge ³⁵	ga ³³	*ga ⁵⁵ ma ³³

Table 9. Count and mass nouns

3.2.2 Postverbal noun classifiers are not verb classifiers

Container nouns can be employed as measure NCLs. Some container nouns can be viewed as instruments of weighing activities, illustrated in (61), but it is not appropriate to view container nouns as verb classifiers since the element modified is a noun not a verb. The noun can be absent or present, see (62)-(63).

- Hmong*
- (61) a. mua⁴³ ʂa⁴³ lo³¹ ɲtʂa⁴³
 COV.use measure weigh rice
 Instrument Verb
 ‘Weigh the rice with a measure’
- b. lo³¹ i⁴³ ʂa⁴³
 weigh NUM.1 NCL. measure
 Verb Numeral Noun classifier
 ‘Weigh one measure’
- c. lo³¹ i⁴³ ʂa⁴³ ɲtʂa⁴³
 weigh NUM.1 NCL. measure rice
 Verb Numeral Noun classifier Noun
 ‘Weigh one measure of rice’

Nuosu

- (62) ts^hi³³ (dza³³) ts^hi²¹ ba³³ɬo²¹ dzu³³.
 3P.SG food NUM.1 NCL.mouth eat
 Object-noun Numeral Noun classifier Verb

‘He ate two mouthfuls of food.’

- (63) ŋa³³ (ɛ³³ɬe^hi⁵⁵) ts^hi²¹ p^hi²¹ndzi³³ ʂa³³.
 1P.SG water NUM.1 NCL.basin pour
 Object-noun Numeral Noun classifier Verb

‘I poured a basin of water.’

3.3. Verbal auto-classifiers

Verbal auto-classifiers are verbs which serve as their own phase and event counter. Auto-classifiers (ACLs) are reminiscent of *cognate objects* as in *He slept a troubled sleep* (Chao 1968: 616; Jones 1988). The term *auto-classifier* was originally coined by Matisoff (1973: 89) for Lahu, a Loloish language of Thailand.

The set **M** of classifiers is the same as the set **D** of classifieds, for which reason ACLs are not classificatory as they violate definition (3-iii). Verbal ACLs are broadly attested in Mandarin, Kam, Hmong and Hani but are unattested in Nuosu. There is variation of the morphosyntactic properties.

(64) Verbal auto-classifier constructions

i.	Mandarin (Sinitic)	V		NUM.1	ACL	(N _o)
ii.	Kam (Kam-Tai)	V	(N _o)	NUM/QUA	ACL	
iii.	Hmong (Miao-Yao)	V	(N _o)	NUM/QUA	ACL	
iv.	Nuosu (Tibeto-Burman)	---	---	---	---	---
v.	Hani (Tibeto-Burman)		(N _o)	NUM/QUA	ACL	V

The ACL forms a close unit with the verb in Mandarin but can be separated from it in Kam and Hmong. In Mandarin, auto-classifiers either use the numeral *yī* ‘one’ or no numeral. Li & Thompson (1981: 232) therefore analyzed auto-classifiers as verb reduplication encoding delimitative aspect. However, given the areal tendency of using other numerals and even quantifiers to count ACLs (Kam, Hmong and Hani), it seems more appropriate to view the Mandarin forms as auto-classifiers that underwent a process of grammaticalization.

Mandarin (Li and Thompson 1981: 233)

- (65) a. wǒ wèn yī wén zài juéding.
 1P.SG ask NUM.1 ACL.ask then decide
 Verb Numeral Auto-classifier
 ‘I’ll decide after I inquire one time / or: ...after I inquire a little).’

- b. wǒ wèn yī wén tā.
 1P.SG ask NUM.1 ACL.ask 3P.SG
 Verb Numeral Auto-classifier
 ‘I’ll ask him once / or: I’ll ask him a little.’

- c. tā shuì le yī shuì.
 3P.SG sleep DP NUM.1 ACL.sleep
 Verb Numeral Auto-classifier
 ‘He slept once / or: He slept a little.’

Kam

- (66) mau³³ t^hik¹³ jau¹¹ oi⁵⁵ t^hik¹³.
 3P.SG kick 1P.SG QUA.many ACL.kick
 Verb Quantifier Auto-classifier
 ‘He kicked me many times.’

Hmong

- (67) n̄.t̄ci¹³ pe⁴³ n̄.t̄ci¹³
 turn NUM.3 ACL.turn
 Verb Numeral Auto-classifier
 ‘turn three turns’

Two subgroups of auto-classifiers exist. In one group there are polysemous words referring to the verbal activity and the instrument involved in the activity (e.g. verb *chisel* and instrument *chisel*). This group has 3-15 members depending on the language.

Kam

- (68) *siu*⁵³ *i*⁵⁵ *siu*⁵³
 chisel NUM.1 ACL.chisel
 Verb Numeral Auto-classifier
 ‘chisel once with a chisel’

Hmong

- (69) *keu*⁴⁴ *pe*⁴³ *keu*⁴⁴
 saw NUM.3 ACL.saw
 Verb Numeral Auto-classifier
 ‘saw three times with a saw’

The second group consists of verbs not cognate with an instrumental noun. The auto-classifier constructions of the languages surveyed are productive to different degrees. They are productive and rule-based in Mandarin and Hani, but unpredictable in Kam and Hmong. In Hani, apart from a few exceptions, all monosyllabic verbs can be involved as auto-classifiers.

Hani

- (70) a. *ni*²¹ *χu*³³ *χu*³³ b. *ni*²¹ *no*²¹ *no*²¹
 NUM.2 ACL.watch watch NUM.2 ACL.stamp stamp
 Numeral Auto-classifier Verb Numeral Auto-classifier Verb
 ‘watch two times’ ‘stamp two times’
- (71) *ʈɕ*^{h;21} *ku*³³ *ku*³³
 NUM.1 ACL.fear fear
 Numeral Auto-classifier Verb
 ‘fear once’
- (72) a. **so*²¹ *do*³³ *do*³³ b. **ʈɕ*^{h;21} *si*²¹ *si*²¹
 NUM.3 ACL.wear wear NUM.1 ACL.know know
 Numeral Auto-classifier Verb Numeral Verb Verb
 ‘wear three times’ ‘know one time’

In Mandarin, only monosyllabic volitional verbs function as auto-classifiers, whereas disyllabic or non-volitional verbs may not. (65a-c) illustrate grammatical examples and (73)-(74) ungrammatical examples.

Mandarin (Li and Thompson 1981: 235)

- (73) **nǐ* *wàng* *yī* *wàng* *tā*.
 2P.SG forget NUM.1 forget 3P.SG
 Verb Numeral Verb
 ‘Forget him a little.’
- (74) **wǒmen* *tǎolùn* *yī* *tǎolùn* *zhèi* *ge* *wèntí*.
 1P.PL discuss NUM.1 discuss DEM.PROX NCL problem
 Verb Numeral Verb
 ‘Let us discuss the problem a little / or: ...the problem once.’

Conclusion

Semantic profiling is not a suitable principle for defining classification systems within and across languages. Classification is rather a proportional relation between a set of classifiers and a set of classifieds. This paper surveys verb classification in five languages of the Sinitic, Kadai, Miao-Yao and Tibeto-Burman families. Only sortal and collective verb classifiers in some of the languages stand with their classified verbs in the

required proportional relation. Sortal verb classifiers are derived from instrumental nouns that modify verbs in frequency constructions.

Mensural classifiers and auto-classifiers share the same syntactic slots as the sortal classifiers but do not stand in proportional relation with their modified verbs. For mensural classifiers one cannot identify two significantly different verb classes violating definition 3-iv (exceptions are the collective classifiers in Mandarin and Hani). For auto-classifiers, the set of classifieds does not have more members than the set of classifiers, in breach of (3-iii). Table 10 summarizes the different proportions and highlights those that are classificatory in the sense of definition (3).

VCL		Mandarin	Kam	Hmong	Nuosu	Hani
Sortal		50/80	42/72 (Gerner 2009: 726)	45/75	3/10	8/20
Mensural	Collective	6/open	3/open (Gerner 2009: 716)	4/open	5/open	6/open
	Measure	9/open	8/open (Gerner 2009: 716)	6/open	7/open	7/open
Auto		most monosyllabic volitional verbs	8/8 (Gerner 2009: 723)	7/7	---	almost all monosyllabic verbs

Table 10. The ratio of **M** (classifiers) and **D** (classifieds)

The paper also informs a cross-linguistic typology of verb classification systems. East Asian verb classifiers represent a lexical classification technique. The classifiers are derived from adjunct (instrumental) noun phrases of the predicate. This technique contrasts with noun incorporation in Native American languages in which classifiers are derived from core arguments.

List of abbreviations

1P.PL	First person plural	EXP	Experiential aspect
1P.SG	First person singular	GnVCL	Generic verb classifier
1P.SG.POSS	First person singular possessive	LOC	Location
2P.SG	Second person singular	LOC.at	Location particle with gloss
3P.SG	Third person singular	N _O	Object noun
ACL	Auto-classifier	NCL	Noun classifier
ADVL	Adverbializer	NP	Noun phrase
CL	Classifier	NUM	Numeral
COV	Coverb	NUM.3	Numeral with its value
COV.take	Coverb with gloss	QUA	Quantifier
DEM.PROX	Demonstrative: proximal	V	Verb
DP	Dynamic perfect	VCL	Verb classifier

Notes

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1. In inflectional languages, there are not necessarily single classifier morphemes but each item of **D** exhibits a form paradigm.

2. *Irreducible* means that no basic construction type can be reduced to another basic construction type; *exhaustive* means that every sentence in which elements of **M** and **D** co-occur can be broken down into one of the basic construction types.

3. According to the 2000 census, the total number of **Mandarin** speakers is 845 million (840 million in China and 5 million outside of China). For the ethnic Dong (selfname: **Kam**) the population is 2,960,000. **Kam** has two unintelligible dialects, Southern Kam (about 1,100,000 speakers) and Northern Kam (endangered and almost replaced by the local Chinese dialect). The number of 400,000 speakers for **Hmong** is derived from discussions with the native Miao linguist Xiong Yuyou (a native of Hekou County). This variety is also understood across the border in Vietnam. There are 2 million ethnic **Nuosu**, (2000 census) but perhaps only 1,100,000 can communicate in Shynra, the official dialect. My informant is a native of this

dialect. There are 1,439,673 members of the Hani nationality (2000 census). Language data for **Hani** originate from the official Hani-Yani dialect spoken in Lüchun County. The native Hani linguist Bai Bibo reported the existence of 10 unintelligible Hani languages clustering around three ‘dialect’ groups: Hani-Yani (850,000 people), Haoni-Baihong (350,000 people) and Biyue-Kaduo (250,000 people). An unknown number of speakers of Hani-like languages live outside of China. About 500,000 Hani are native speakers of the official dialect in Lüchun County.

4. The Loloish languages are more isolating than other Tibeto-Burman languages. With more than 110 languages, the Loloish group represents greater internal variation than the Germanic or Romance groups. This is my personal estimation which differs from reports by Bradley (1997) and Matisoff (2003), who present lists of only 30-40 Loloish languages. Bradley (2007: 175) provides the number of about 60 Loloish (‘Ngwi’) languages. These lists conflate different nVsu groups (V = vowel) into one or two languages although they speak dozens of languages. Pelkey, who collected demographic data on Loloish languages, suggested more than 110 Yi languages in personal communication to me. (He identified 24 “new” Phula languages within the Yi nationality, see Pelkey 2011).

5. Except for the Karenic group (within Tibeto-Burman) whose languages are SVO.

6. The omission of one syllable reverts to the instrumental noun in Proto-Loloish with cognates in many contemporary languages.

7. Bunt uses the term “discrete parts” rather than “minimal parts”.

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