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Celerative: the encoding of speed in verbal morphology

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Abstract: While speed is a secondary parameter in some associated motion systems, some languages have verbal affixes dedicated to the encoding of speed – *CELERATIVE* markers. Celeratives can encode both quick and slow speed and are in some languages even the main or the sole way of expressing this meaning. However, some morphemes not only encode speed, but also other types of *ACTION MANNER*, in particular hurry or suddenness, following colexification patterns also observed in the lexicon crosslinguistically. This paper provides a first overview of this category in the world's languages, and more generally suggests that action manner constitutes a set of comparative concepts that can be encoded morphologically.

Keywords: celerative; speed; associated motion; motion verbs; grammaticalization; action manner

1 Introduction

This work studies the encoding of speed in verbal morphology – *CELERATIVE* morphology – from a crosslinguistic perspective. It comprises five sections.

First, I introduce the issue of the verbal encoding of speed from the point of view of *ASSOCIATED MOTION* (henceforth *AM*), where this parameter has been previously discussed, in particular in Pama-Nyungan languages. Second, I show that some languages have *dedicated* verbal affixes encoding the speed of action, which are not limited to motion verbs. Third, I present cases of languages with verbal affixes encoding both speed and other semantic parameters, i.e., *non-dedicated* celeratives. Fourth, I explore how celerative markers are distributed in the world's languages on the basis of the dataset which I have collected. Fifth, I discuss how celerative fits within a larger set of verbal categories encoding action manner, and its general relevance for linguistic typology.

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2 Speed as a parameter of associated motion

2.1 An example of an AM system encoding speed: Kaytetye

ASSOCIATED MOTION, the encoding of translational motion on the verb,¹ has been recently recognized as a valid crosslinguistic category (Guillaume and Koch 2021b).

Many typological parameters are relevant to the description of AM systems, four of which can be illustrated using data from the Pama-Nyungan language Kaytetye, which has a large AM system with 12 markers (Koch 1984, 2021: 237): temporal relationship between the motion event and the main action of the verb (prior, concurrent, subsequent motion), deixis ('go', 'come', 'return'), argument of motion (subject S/A vs. object) and speed/aspect (see Table 1). Additional parameters (such as elevation) are encoded in other languages (for instance Arrernte, see below).

Table 1: The semantic dimensions of the AM system of Kaytetye (Koch 2021: 237).

Arg.	Temporal relationship	Speed/ aspect	Deixis	
N.SBJ	Prior		'do when <i>X</i> arrives' <i>-yayte</i>	
SBJ	Prior		'go & do' <i>-yene</i>	'return & do' <i>-yalpe</i>
SBJ	Prior	quick	'go quickly & do' <i>-nyeyene</i>	
SBJ	Subsequent		'do & go' <i>-lrrayte</i>	'do & return' <i>-lrralpe</i>
SBJ	Concurrent		'do while going' <i>-rrape(reyne)</i>	'do while coming' <i>-yernalpe</i>
SBJ	Concurrent	once	'do once along' <i>-lpVce</i>	
SBJ	Concurrent	continuous	'do all along' <i>-lVCelarre/ -rrVCerrenye</i>	
SBJ	Prior+ Subsequent		'go & do & return' <i>-nyeyaytne</i>	

¹ For instance, Guillaume (2016: 13) defines an AM marker as "a grammatical morpheme that is associated with the verb and that has among its possible functions the coding of translational motion".

Not all logically possible combinations of the four parameters are attested in Kaytetye. In particular, the encoding of speed is only found on one marker, the prior motion *-nyeyene* ‘go quickly and do’. The speed in question is that of the motion event, not of the main action of the verb (1).

- (1) Kaytetye (Koch 2021: 240)
Aylanthe atne-nyeyene-nhe akngerrake
 1DU.INCL.NOM stand-go.QUICK&DO-PST east
 ‘The two of us went quickly and stood to the east.’

I propose to use the term ‘celerative’ to refer to AM markers encoding speed (whether of the motion event or of the main action). Few celerative AM markers have been described in the literature.

A close relative of Kaytetye, Arrernte, has three celerative subsequent motion markers: *-artn-alpe* ‘do & go back quickly’, *-artn-alhe* ‘do & go quickly’ and *-artn-akerle* ‘do & go down quickly’, which share the element *-artn(e)* ‘do & go quickly’ (Wilkins 1991). These suffixes are not cognate with Kaytetye *-nyeyene* ‘go quickly and do’.

Elsewhere in the Pama-Nyungan family, we find celerative AM markers in Adnyamathanha (*-namene* ‘come quickly & do’, *-navara* ‘go quickly & do’, Koch 2021: 269), and in Kuuk Thaayorre (*-(nh)ic* ‘run & do’, Gaby 2017: 304).

2.2 From celerative AM marker to the encoding of speed

When AM affixes expressing a quick motion (including ‘move quickly’, but also ‘run’ or ‘fly’), are used on motion verbs, speed can become the only semantic feature conveyed by the preverbs. For instance, in the Sahaptian language Nez Percé, the AM preverb *weye-* is a concurrent motion AM marker ‘do while flying’ (2a). However, when used with motion verbs, it can also be interpreted as a marker of speed, without specifying the manner of motion (2b)

- (2) Nez Percé (Aoki 1994: 745, 874)
 a. *weye-timmíyu-ce*
 flying/CELER-plan.strategy-PRS:SG
 ‘I think as I fly’
 b. *weye-wé-yík-se*
flying/quickly-CROSS-PRS:SG
 ‘I am flying across.’
 ‘I am crossing quickly.’

Some languages push this further and have converted verbs of celerative motion (encoding both translational motion and speed) into markers of speed. These refer to the speed of the verbal action, rather than that of a translational motion as in (2b).

For instance, the bound stem *-pahtoo* ‘run’ in Oji-Cree, which keeps its etymological meaning when used with locative preverbs, exclusively expresses speed when suffixed to verb stems (Slavin 2012: 152), ceasing to convey any translational motion meaning. Thus, examples (3a) and (3b) cannot be interpreted as ‘S/he runs to eat’ and ‘I ran singing’, respectively.

- (3) Oji-Cree (Slavin 2012: 152)
- a. *wiihsini-pahtoo*
eat.(VAI)-**run**(VAI):INDEP.3SG
‘S/he eats quickly.’
 - b. *ni-kii-nikamo-pahtoo*
1-PST-sing(VAI)-**run**(VAI):INDEP
‘I sang quickly/hurried to sing.’

Oji-Cree is not isolated in having a marker of speed bleached of its motion meaning grammaticalized from a verb meaning ‘run’. Other examples including the Sepik language Awtuw, where the motion verb *imyá* ‘run’ was grammaticalized as the celerative suffix *-imyá* ‘quickly’ (4), and Ese Ejja (Vuillermet 2012: 496–497).

- (4) Awtuw (Feldman 1983: 122–123)
- a. *rey lape-ke d-imyá-e*
3SG.MASC village-LOC REAL-RUN-PST
‘He ran in the village.’
 - b. *rey aeye rokr’-imyá-e*
3SG.MASC food cook-**quickly**-PST
‘He cooked the food quickly.’

These examples show that some languages, by losing the motion meaning of celerative AM markers, have developed grammaticalized affixes exclusively encoding speed.

3 Celerative

The previous section has introduced the existence of DEDICATED CELERATIVE markers, which can be defined as verbal markers encoding the speed of the action (not restricted to motion speed, but also including the speed of execution of non-motional

actions), to the exclusion of other semantic parameters such as non-celerative manner, motion or aspect.

This section comprises four parts. First, I show that the celerative markers are not restricted to the expression of quick speed, but that some languages also encode slow speed. Second, I discuss the morphological status of the celerative markers. Third, I investigate the scopal effects. Fourth, I address the place of celerative markers among the various ways to express speed.

3.1 Slow versus quick speed

In Oji-Cree, in addition to the final stem *-pahtoo* ‘run’ grammaticalized as a celerative marker when suffixed on a verb stem (3), several preverbs also encode speed, including quick and slow speed.

The pair of preverbs *kishii*- ‘quickly’ and *papeta*- ‘slow’ occur with bound final stems such as *-hamaaso* ‘dance’ (5), which cannot occur on their own. The celerative markers here occupy an obligatory morphological slot, which can also be filled by various directional or manner preverbs.

- (5) Oji-Cree (Slavin 2012: 152, 157)
- a. *papeta-hamaaso*
slowly-sing_{(VAI):INDEP:3SG}
‘S/he sings slowly.’
 - b. *kishii-hamaaso*
fast-sing_{(VAI):INDEP:3SG}
‘S/he sings fast.’

Another pair of preverbs, *kishahtapi*- ‘quickly’ and *pehkaaci*- ‘slow’, are highly productive, and can be prefixed on both bound final verb stems and full verb forms, such as *kikhkentaan* ‘know, learn’ as in (6), a verb which can be used independently.

- (6) Oji-Cree (Slavin 2012: 76)
- Kihci-kishahtapi-kikhkentaan.*
very-fast-learn_{(VAI):INDEP:3SG}
‘S/he learns very fast.’

Despite their high productivity, Slavin (2012: 144;146) documents restrictions on the use of celerative preverbs, in particular their incompatibility with the bound stems *-mo* ‘speak’ or *-kiishiwe* ‘use language’. The restrictions have to be meticulously recorded for each verb root.

Celerative markers of slow speed are rare in the world's languages. Table 2 collects all known examples (excluding cognate systems in Algonquian and Chumashan).²

In languages with celerative morphology lacking a bound marker of slow speed, a free word (adjective, verb or adverb) is used instead to express the meaning 'slowly'. For instance, as Post (2007: 248) points out, in Galo, "*dəməə* 'slow' is a basic adjective, while *-báa* 'fast' is a Manner predicate derivation."

All languages with a marker of slow speed also have a corresponding marker marking quick speed, but the opposite is not true: We find 24 potential cases of dedicated celerative of quick speed without a corresponding slow speed marker (see Section 4), but not a single example of the opposite case. The following implicational generalization (7) can thus be proposed.

- (7) If a language has a bound verbal morpheme encoding slow speed, it also has a bound verbal morpheme encoding quick speed.

Table 2: Celerative systems with a quick/slow speed contrast in the world's languages.

Family	Language	'Slowly'	'Quickly'	Reference
Algic	Oji-Cree	<i>papeta-</i>	<i>kishii-</i>	(Slavin 2012: 152, 157)
		<i>pehkaaci-</i>	<i>kishahtapi-</i>	
Algic	Arapaho	<i>koxo'-</i>	<i>nihí'-</i>	(Slavin 2012: 152)
			<i>-koohu</i>	(Cowell and Moss 2006: 331)
Algic	Blackfoot	<i>iitsiksist-</i>	<i>ikkam-</i>	(Cowell and Moss 2006: 184)
		<i>wayi-</i>	<i>api-</i>	(Frantz 1991: 93, 92)
Chumashan	Shamala	<i>wala-</i>	<i>kil(i)-</i>	(Applegate 1972: 335–337)
		<i>-arki</i>	<i>-eɬ</i>	
isolate	Nivkh			(Panfilov 1965: 31, 65)
Sepik	Alamblak	<i>-yow</i>	<i>-dimandi</i>	(Mattissen 2003: 190)
Lower Sepik	Yimas	<i>mamaŋ-</i>	<i>kaykaykay-</i>	(Bruce 1979: 243)
Tacanan	Ese Ejja	<i>-shono</i>	<i>-kwaji</i>	(Foley 1991: 342)
				(Vuillermet 2012: 496–498)

² Among these examples, Ese Ejja *-shono* 'slowly' is potentially problematic, as it is not a dedicated celerative (§3), since its meaning is not restricted to slow speed, but can also include duration 'take a long time to do' (Vuillermet 2012: 498). Data is lacking on the productivity of the affixes in Shamala and Blackfoot, but seem to be productive in the other languages listed.

3.2 Morphological status of the celerative marker

3.2.1 Celerative affixes in the verbal complex

Celerative markers generally occur in the same slot as other morphemes expressing manner (Section 6), aspect or AM. In Awtuw, for instance, the celerative suffix *-inya* is placed in the same slot as 29 other suffixes, including benefactive, simulative, phasal ('begin', 'finish'), durative and AM ('do & go away') (Feldman 1983: 76), and cannot be combined with them. In Algonquian languages like Oji-Cree, celerative markers belong to a much larger set of bound preverbs, comprising hundreds of members.

In some languages, celerative markers consist of incorporated adverbs of speed. Thus, in Yimas, *kaykaykay* 'quickly' can either occur as an incorporated adverb (8a) or as a free word (8b).

- (8) Yimas (Foley 1991: 342)
- a. *aŋka-kaykaykay-cu-impu-pu-n*
 HORT.DU-**quickly**-out-go.by.water-away-IMP
 'Let us go outside quickly.'
- b. *kaykaykay aŋka-tu-impu-pu-n*
 quickly HORT.DU-out-go.by.water-away-IMP
 'Let us go outside quickly.'

By contrast, the marker of slow speed *mamaŋ-* 'slowly' is obligatorily bound.³

Polysynthetic languages with highly productive incorporation, such as Chukchi, can incorporate adverbs of speed, and combine them with other types of manner adverbs, as in (9), where *əjəq-* 'quickly' co-occurs with *winw-* 'in secret'.

- (9) Chukchi (Skorik 1977: I, 102)
- ТЫ-ВИНВ-ЫЙЫҚ-ЭЙМЭВ-ЫРКЫН
tə-winw-əjəq-ejmew-ərkən
 1SG-in.secret-**quick**-approach-PROG
 'I approach in secret quickly.'

While it is unclear whether incorporated adverbs can be considered to have been grammaticalized, the freedom of incorporation is not unlimited even in a language like Chukchi. In particular, there is no evidence that adverbs of slow speed can be incorporated in this language. For the purpose of crosslinguistic comparison, there is no advantage to be gained in excluding examples of this type from the sample.

³ This fact could suggest that *mamaŋ-* 'slowly' is more bound than *kaykaykay-* 'quick', but it does not constitute a counterexample to generalization (7), since the celerative of quick speed can be affixed.

3.2.2 Boundedness

The degree of boundedness of the celerative markers varies across languages. In some languages, the affixal character of these markers is quite obvious. Yimas for instance, the placement of the celerative prefix between the hortative dual *auka-* and the verb stem shows that it cannot be analyzed as a clitic. In Urarina, the celerative suffix *-uri*, in addition to being closer to the verb stem than indexation suffixes (see 19a below), has a complex and idiosyncratic allomorphy (*-ri*, *-uri*, *-kuri*, *-ɸri*), not shared with any other suffix (Olawsky 2006: 473).

The case of *-eb* ‘fast’ and *-arki* ‘slowly’ in Nivkh (Table 2) is more complicated, due to the long-standing controversy concerning wordhood in Nivkh. Panfilov (1965), in particular, analyses morphemes of this type as independent words. For instance in (10), he writes a space between *vaxʰvaxʰtʰ* ‘tear’ and the celerative *-eb* ‘quickly’. However, morphophonological evidence involving consonant gradation provides strong evidence in favour of analyzing them as bound form (Krejnovich 1958; Mattissen 2003: 82–84).

- (10) Nivkh (Panfilov 1965: 75; Mattissen 2003: 190)
pal-uin *hās* *vaxʰvaxʰtʰ-eb-dʰ*
 mountain.woods-LOC clothes tear-**fast**-IND
 ‘Clothes tear quickly in the woods.’

In addition to Nivkh, other cases of celerative markers in languages where the syntax/morphology distinction is controversial include those in the Tacanan languages (Tallman and Auderset 2023).

This very general issue can only be solved by applying a uniform procedure to measure the degree of boundedness of these morphemes across languages, which would be beyond the scope of the present paper. For the purpose of this paper, since not all sources are explicit in the degree of boundedness of the morphemes expressing speed, I provisionally include as celerative any morpheme that at least one authority describes as being bound.

3.2.3 Celerative and reduplication

Celerative morphology in the languages investigated is almost always strictly affixal, with the exceptions of Mende (Sepik) and Mapundungun.

In Mende, the celerative affix *-ma* occurs inside the reduplicated verbal root, as illustrated by (11). The initial consonant of the verb *ta* ‘come’ undergoes lenition to *-ra* in this form.

- (11) Mende (Hoel et al. 1994: 59)
- a. *u-ma-u*
do-**quick**-do
'do something quickly'
 - b. *ta-ma-ra*
come-**quick**-come
'come quickly'

In Mapudungun, one of the uses of bare reduplication is to express speed, though only with two verbs, *yi-* 'eat' and *püra-* 'get up' (Smeets 2008: 307). Reduplication, however, has many other more prominent functions, including spatial distributivity (Smeets 2008: 306), and Mapudungun is thus a case of non-dedicated celerative (Section 4).

3.3 Interaction with other categories

In polysynthetic languages where verbs can comprise a large number of morphemes, celerative markers can co-occur with a variety of other markers, raising the question of the influence of affix ordering and semantic scope.

Data on the scopal interaction between celerative markers and other affixes is limited. In Oji-Cree, Slavin (2006) shows that the intensive marker *kihci-* 'very, big, a lot' can either precede (12a) or follow (12b) the celerative preverb *kishahtapi-* 'quickly', with a semantic difference.

- (12) Oji-Cree (Slavin 2006)
- a. *Kihci-kishahtapi-wihsini.*
very/a.lot-**fast**-eat(VAI)
'S/he eats a lot quickly.' / 'S/he eats very fast.'
 - b. *Kishahtapi-kihci-wihsini.*
fast-a.lot-eat(VAI)
'S/he eats a lot quickly.'

In (12a), the interpretation of the intensive *kihci-* is ambiguous: it can either have scope over the celerative preverb ('very fast') or over the verb root, focusing on the quantity of the action ('eat a lot'). By contrast, in (12b), when *kihci-* occurs closer to the verb root, the first interpretation is excluded, as it cannot have scope over the celerative.

It is possible that similar scopal effects occur with other manner markers, or even with derivations such as causatives, but none of the sources provide explicit evidence. Future work on celerative markers in individual languages should document the possible combinations and the semantic scope in detail.

3.4 Celerative and the expression of speed

In most languages, celerative markers are an option among other strategies, such as adjectives, nouns or verbs, to express speed. For instance, in Awtuw, alongside the celerative suffix *-imyā* (4), we find an unrelated adjective *kupkwap* ‘fast’ (Feldman 1983: 209).

By contrast, in Yimas, speed is exclusively expressed using *mamanj-* ‘slowly’ and *kaykaykay-* ‘quickly’, which are “adverbs, normally bound morphemes incorporated directly into the verbal complex” (Foley 1991: 100; see also 8a and 8b above).

Thus, in order to express the meaning ‘The canoe is fast’, the only possibility is to employ *kaykaykay-* ‘quickly’ with a motion verb (13), and (Foley 1991: 100) reports that native speakers have refused any attempts at using *kaykaykay* ‘quickly’ as a noun modifier or at conjugating it (14).

- (13) Yimas (Foley 1991: 100)
kay i-na-kaykaykay-ya-n
 canoe CLASS:VIII.SG.S-DEF-**fast**-COME-PRS
 ‘The canoe is fast.’

- (14) Yimas (Foley 1991: 100)
 a. †*kaykaykay kay*
 fast canoe
 b. †*kay kaykaykay-k-i*
 canoe fast-IRR-VIII.SG

Similarly, in Oji-Cree, speed is expressed using one of the various celerative bound stems, but there is no free adverb or intransitive verb meaning ‘fast, quick’. As in Yimas, in order to express meanings such as ‘X is fast’, a celerative marker must be used with a final stem expressing motion as in *kishii-hkaa* ‘s/he goes fast’ (with the final stem *-(i)hkaa* ‘move’).

It is difficult to ascertain how common it is in languages with celerative markers to lack adjectives or verbs with a generic meaning ‘fast’ or ‘slow’, if this information is not stated explicitly in the available grammars.

In some languages, celerative markers are not productive, and may be restricted to a handful of examples: For instance, the suffix *-ga* ‘fast’ in Apātani (Bouchery 2009), *barlok-* in Dalabon (Evans et al. 2004: 15) and *-ʔyam* ‘quickly’ in Chimariko (Jany 2009: 96) are only attested in a single example in the data at hand. In such languages, bound morphology is a very marginal way to express speed.

4 Dedicated versus non-dedicated celerative markers

4.1 Colexification of speed with other semantic notions

Many languages have manner affixes which can encode speed, but also related meanings such as suddenness, hurry, easiness, duration or intensity. A typical example is the Nez Percé prefix *teqe-*, which is translated as ‘quickly’ in some cases (15a) and ‘suddenly’ in other ones (15b), even with the same verb root (here *hi-* ‘say, talk’, with vowel fusion).

- (15) Nez Percé (Aoki 1994: 134)
- a. *hi-né s-teq-e-ne*
3-PL:O-quickly/suddenly-speak-IND.INDEF.PST
‘She quickly told them.’
 - b. *teq-é-ce*
quickly/suddenly-speak-PRS:SG
‘I suddenly speak out.’

In addition, *teqe-* can also convey the senses of brief duration (16a) and early action (16b) in combination with the matutinal prefix *me-y-* (Jacques 2023).

- (16) Nez Percé (Aoki 1994: 249, 927, 211; Coppolani 2018: 268–270)
- a. *teqe-xí-ém-ce*
quickly/suddenly-angry-PRS:SG
‘I am angry (temporarily).’
 - b. *teqe-mé-y-sep-ke?yk-u?*
quickly/suddenly-MATUT-CAUS-MOVE-FUT
‘I will pack early in the morning.’

While Nez Percé *teqe-* does not distinguish between speed and the related notions of suddenness, short duration, and earliness, these notions are also colexified in various languages (Table 3), and the fact that morpheme co-grammatize these meanings is thus unsurprising.

In the same way as AM is expressed in some languages by non-dedicated AM markers also expressing aspect or orientation (Guillaume and Koch 2021b), it may be useful to adopt the notion of *non-dedicated* celerative markers for affixes that include the expression of speed in specific contexts, while encompassing other related notions.

Table 4 illustrates a few representative examples of non-dedicated celeratives, which are described in the sources available with glosses including meanings other

Table 3: Number of colexifications involving the notion ‘fast’ in Rzymiski et al. (2020).

Colexification	Number of examples
Fast-early	21
Fast-immediately	19
Fast-short time	3
Fast-hurry	21
Fast-soon	32
Fast-strong	4

than speed. The range of meaning encompassed by these markers can naturally not be reduced to binary parameters, and probably includes shades of meanings not recoverable without a thorough study of first-hand materials. This simplified representation of the semantic range of these markers should be completed by language-particular studies.

In languages for which only a limited amount of data is available, it is possible that markers briefly glossed as ‘quickly’ (and thus counted as ‘dedicated celeratives’ in Table 5) encode in fact other semantic parameters than speed.

4.2 Derived meanings of celeratives

While in the case of Nez Percé *teqe-* ‘quickly, suddenly, briefly, early’, speed was only one semantic parameter among many others, some languages have markers which mainly encode speed, but have additional meanings in marginal contexts.

In the Tacanan language Cavineña, according to Guillaume (2008: 202), the suffix *-wisha* ‘quickly’ encodes speed, and occurs in the same slot as the suffixes encoding duration *-baka* ‘short time’ and *-siri* ‘long time’.

- (17) Cavineña (Guillaume 2008: 202)
- | | |
|--|--------------|
| <i>Iji-wisha-kwe</i> | <i>e-na!</i> |
| drink- quickly -IMP:SG | DUMMY-Water |
| ‘Drink your water quickly (and let’s go)!’ | |

However, in the Cavineña Bible, we find *-wisha* in a negative sentence used to express long duration, as in (18).⁴

⁴ The exact version of the Bible that was translated into Cavineña is not specified.

Table 4: Examples of colexifications of non-dedicated celerative markers.

Language	Form	Quick	Hurry	Sudden	Easy	Short duration	Early	Strongly	Reference
Nez Percé	<i>teqe-</i> <i>tok'ala-</i>	✓	✓	✓		✓	✓		(Aoki 1970: 84–86)
Hopi	<i>su-/siu-</i>	✓		✓					(Malotki 1983: 228–229)
Yupik	<i>-ger(t)</i>	✓	✓						(Miyaoaka 2012: 1222)
Turkish	<i>-(l)ver-</i>	✓		✓	✓				(Göksel and Kerslake 2005: 157)
Puinave	<i>-mân</i>	✓	✓					✓	(Higuira 2008: 226)
Abau	<i>saw-</i>	✓	✓						(Lock 2011: 25, 133)

Table 5: Attested cases of verbal celebrative markers in the world's languages.

Family	Language	Form	Productive	Person indexation	Incorporation	Reference
Chukotkan	Chukchi	<i>jə-</i>	✓	✓	✓	(Skorik 1977: II, 241)
is.	Nivkh	<i>-es, -arki</i>	✓	✓	✓	(Mattissen 2003: 190)
Eskaleut	Yupik	<i>-lqijr</i>	✓	✓	✓	(Miyaoka 2012: 1181)
Algic	Ojib-Cree	<i>kishi-, papeta-</i>	✓	✓	✓	Slavin (2012)
Algic	Arapaho	<i>nihl'-, koxo-</i>	✓	✓	✓	(Cowell and Moss 2006: 219)
Tucanoan	Wanano	<i>bə-</i>	✓	✓	✓	(Stenzel 2004: 289)
is.	Urarina	<i>-uri</i> (diminutive)	✓	✓	✓	(Olawsky 2006: 462–463)
Arawan	Jarawara	<i>-hiti</i>	✓	✓	✓	(Dixon 2004: 170)
Jê	Xavante	<i>-suʔu</i>	✓	✓	✓	(Estevam 2011: 395)
Tacanan	Cavineña	<i>-wisha</i> (duration)	✓	✓	✓	(Guillaume 2008: 202)
Tacanan	Ese Ejja	<i>-kwaji</i> (late)	✓	✓	✓	(Vuillermet 2012: 496–497)
Sepik	Awtuw	<i>-inya</i>	✓	✓	✓	(Feldman 1983: 122–123)
Sepik	Alablak	<i>-dimandi, -yow</i>	✓	✓	✓	(Bruce 1979: 243)
Lower Sepik	Yimas	<i>kaykaykay-</i>	✓	✓	✓	(Foley 1991: 342)
TH	Galo	<i>-bāa</i>	?	✓	✓	(Post 2007: 248)
TH	Apatani	<i>-ga</i>	1	✓	✓	Bouchery (2009)
Algic	Blackfoot	<i>ikkam, itsiksist-</i>	?	✓	✓	(Frantz and Russell 2017: 92)
is.	Chimariko	<i>-ʔyam</i>	1	✓	✓	(Jany 2009: 96)
Chumashan	Shamala	<i>api-, wala-</i>	?	✓	✓	(Applegate 1972: 335–337)
is.	Purepecha	<i>-ma</i>	?	✓	✓	(Chamorean 2017)
Arawak	Mojeño	<i>-ro'o</i>	?	✓	✓	(Gill 1957: 230)
	Trinitario		?	✓	✓	

Table 5: (continued)

Family	Language	Form	Productive	Person indexation	Incorporation	Reference
Gunwinyguan	Dalabon	<i>barlok-</i>	1	✓	✓	(Evans et al. 2004: 15)
Sepik	Pouye	<i>kw-</i>	?	number		(Dede and Reuter 2011: 104)
Sepik	Mende	<i>ma-</i>	?			(Hoel et al. 1994: 59)
Sepik	May River Iwam	<i>-kuku</i>	?	number		(Foley 2018: 285)

- (18) Cavineña Anonymous (2011)
Ecue patrón-tu ju-eti-huisha-ya ama
 1SG.GEN patron-3SG be-COME&DO-**quickly**-IPFV NEG
 ‘My master is staying away a long time.’ (New International version)
 (literally: ‘My master is not quickly arriving here.’) (Matthew 24:48)

This meaning is not reported in Guillaume (2008), and is presumably a contextual semantic extension of the celerative.

In Urarina, the celerative (‘velocity’) suffix *-uri* (19a) is used to convey diminutive (19b) and politeness when employed in the imperative (Olawsky 2006: 471). The non-celerative meaning in this case is restricted to the imperative, and it is therefore legitimate to regard the basic function of *-uri* as encoding speed.

- (19) Urarina (Olawsky 2006: 473)
- a. *itea-uri-akwa-naha-an*
 do-CELER-DISTR.PL-PL.O-1SG.A
 ‘He quickly made one by one.’
 - b. *basihū kuak-uri*
 a.while wait-CELER-IMP
 ‘Please wait a little while!’

5 Celerative in the world’s languages

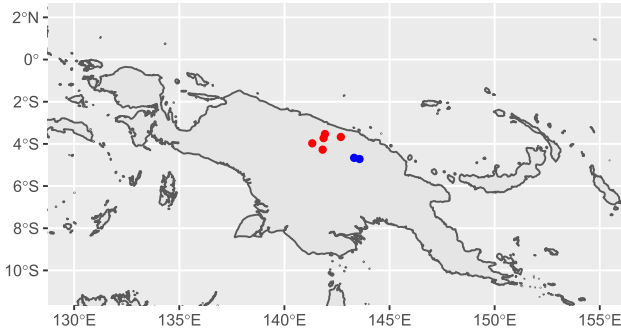
An examination of grammars, dictionaries, text collections and articles on several hundreds of languages from all continents only revealed 24 independent cases of dedicated celeratives (Table 5), of which 11 may be non-productive.

When a number is given in the column ‘productivity’, it implies that the sources only provide one example of that morpheme, which may thus be quite marginal. For some languages (such as Iwam for instance), the data is too limited to have any idea of the degree of productivity. Table 5 also includes two additional typological parameters, the presence of person indexation and of incorporation.

This list excludes celerative AM and non-dedicated celerative (Table 3), except cases where the non-celerative meanings are marginal (Section 4.2).

Oji-Cree and Yupik are taken as representative of Central Algonquian languages and Eskaleut languages respectively, where cognates of these preverbs with similar meaning can be found.

Languages with dedicated celerative markers are rare in Eurasia, apparently absent in Africa, and most common in North America, in the Western Amazon and in



Map 1: Geographic distribution of languages with verbal celeratives in New Guinea.

the Sepik area of New Guinea (Map 1), areas where other unusual grammatical categories, such as periodic tense (Jacques 2023), are also widespread.

Dedicated celerative markers are mainly found in polysynthetic languages with rich verbal morphology and noun incorporation, such as Algonquian or Yimas. However, not all languages with dedicated celerative qualify as polysynthetic.

In particular, the Trans-Himalayan languages Galo and Apatani, and the Sepik languages Pouye, Awtuw, Iwam and Mende, have a moderately rich agglutinative verbal morphology, but lack person indexation (though Iwam, Awtuw and Pouye have number indexation) and incorporation.

6 Celerative as a subcategory of action manner

The comparative concept of *CELERATIVE* discussed in this study is a particular case of the encoding of *ACTION MANNER* in verbal morphology. Semantic parameters other than speed include *QUANTITY* (all/much/half), *INTENSITY* (strongly/softly), *DURATION* (short/long time), *PHASE* (begin/end/recurrence), *CORRECTNESS* (wrongly/properly), *SECRETIVENESS* (in secret/openly), *ASSOCIATIVITY* (together/separately) and others. While some of these meanings overlap with aspect, verbal markers with these functions are not generally described as part of the tense-aspect-modality systems.

Table 6 provides examples of languages with markers encoding a sample of four action manner parameters: *FURTIVE* ('in secret, stealthily'), *REPETITIVE* ('again'), *INTENSIVE* ('strongly, a lot, much') and *ERRATIVE* ('wrongly, incorrectly'). The last three languages have dedicated celerative markers, which occur in the same morphological slot, while the first three do not encode speed.

This table illustrates the fact that action manner, while more frequently encoded in polysynthetic languages, is also attested in languages with more reduced verbal

Table 6: Examples of action manner categories other than celerative in selected languages.

Language	Furtive 'in secret'	Repetitive 'again'	Intensive 'strongly, much'	Errative 'wrongly'	Reference
English		<i>re-</i>		<i>mis-</i>	
Mandarin	偷 <i>tōu-</i>			错 <i>-cuò</i>	
Bininj Kunwok	<i>molk-</i>			<i>warrgah-</i>	Evans (2003)
Oji-Cree	<i>kimooci-</i>		<i>kihci-</i>	<i>wani-</i>	Slavin (2012)
Awtuw	<i>-newta</i>	<i>-okrey</i>		<i>-jypaw</i>	(Feldman 1983: 76)
Yimas	<i>makcmpi-</i>	<i>mampi-</i>	<i>kalcmpi-</i>	<i>kwanan-</i>	(Foley 1991: 341)

morphology. Even a language such as Mandarin, often considered to be a prototypical example of language with impoverished verbal morphology, actually has furtive (偷吃 *tōu-chī* 'eat secretly') and errative (说错 *shuō-cuò* 'speak wrongly') bound morphemes.

Thus, while little crosslinguistic research has been done on the verbal encoding of action manner, it is potentially a much more wide-ranging phenomenon, and systematically studying all of these semantic parameters can contribute to better document the range of meanings that languages can encode grammatically, especially in languages outside of Standard Average European.

7 Conclusions

This study shows that speed can be encoded by verbal morphology, either as the sole meaning of a DEDICATED CELERATIVE marker, or alongside other semantic parameters. Verbal encoding of speed is mainly found in polysynthetic languages in the Americas and New Guinea, but is also attested in a few languages with less rich verbal morphology.

Some languages encode both quick and slow speed (Table 2), but the latter is considerably rarer, and in the data at hand no language only encodes slow speed without also encoding quick speed (7). The robustness of this generalization needs to be tested against a larger set of data.

This paper also shows that in some languages celerative markers are the main or exclusive way of expressing speed, while in other languages they compete with adverbs, adjectives or nouns.

It is likely that celerative marking is unreported in many language descriptions, since speed is not among the parameters usually encoded by verbal morphology that language describers are trained to focus on. It is hoped that this work will bring

attention to this phenomenon and other types of manner marking, and that it lays a basis for the study of how manner encoding on the verb is correlated with other grammatical categories from a cross-linguistic perspective.

Abbreviations

A	transitive subject
CAUS	causative
CELER	celerative
CLASS:N	noun class N (in Roman numerals)
DEC	declarative
DEF	definite
DISTR	distributive
DU	dual
DUMMY	dummy noun prefix
FUT	future
GEN	genitive
HORT	hortative
IC	initial change
IMP	imperative
INCL	inclusive
IND	indicative
INDEF	indefinite
INDEP	independent order
IPFV	imperfective
LOC	locative
NOM	nominative
MASC	masculine
MATUT	matutinal
N	non-
NEG	negation
O	object
PL	plural
PROG	progressive
PRS	present
PST	past
REAL	realis
S	intransitive subject
SBJ	non-subject
SG	singular
VAI	intransitive animate verb
VII	intransitive inanimate verb
VTA	transitive animate verb
VTI	transitive inanimate verb

For Associated Motion markers, the conventions from Guillaume and Koch (2021a) are followed: GO & DO in small capitals for prior translocative motion, for instance.

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