The syntactic constructions and the semantic classifications of Tibetan verbs

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ABSTRACT
This paper represents a departure from traditional Tibetan grammar in terms of the classification of verbs, for it constructs verb types and relevant syntactic rules based on syntax and semantics. The paper further distinguishes twelve types of Tibetan verbs according to the numbers of different arguments and the requirements of different syntactic properties. Therefore, the classification of the syntax and semantics of verbs permits a detailed and overall reflection of the syntactic framework of all sorts of all kinds of Tibetan clause constructions, including word orders, case markers and syntactic particles. All the findings of syntactic and semantic classifications of Tibetan verbs can be applied directly to build a Tibetan grammatical information dictionary which serves as a piece of infrastructure in Tibetan natural language processing.

KEYWORDS
Tibetan; verb classification with semantics and syntax; syntactic structure; syntactic markers
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1 Syntactic and semantic types of Tibetan verbs

This paper discusses the classification of Tibetan verbs in support of an effort to build a Tibetan machine readable dictionary of grammatical properties in accordance with verb types and grammatical constructions of modern Tibetan. Meanwhile, it is anticipated that the framework of clause pattern with verbs will be used to build a system for automatic grammar processing.

A verb in a clause is the core, governing the whole clause. The constituents it dominates comprise subject, object and others. Fundamentally speaking, the verb, the soul of clause structure and feature, builds and decides basic clause structures. Clause structures built by verbs, however, are diverse. What factor ultimately determines them?

Grammarians are aware that numerous grammatical phenomena are closely related to semantic differences. Modern grammarians, therefore, set out to channel their attention to probing the correspondence between syntactic structure and semantic structure. The different construction patterns that different verbs dictate usually are attributable to the meanings of the verbs. Verbs with different meanings yield different syntactic and semantic properties of a clause. Thus, a variety of grammatical structures is constructed. From this perspective, verbs can be classified based on their syntactic and semantic properties and the corresponding different clause patterns.

This paper distinguishes 12 types of verbs in modern Tibetan, including stative verbs, action verbs, mental verbs, verbs of perception, verbs of change, verbs of motion, verba dicendi, copula verbs, verbs of possession, existential verbs, interactive verbs, and causative verbs, which are with their syntactic constructions:

1. Stative verbs (STA): NP+(NP+)VP<sub>(STA)</sub>
2. Copular verbs (COU): NP+NP+V<sub>(COU)</sub>

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1 The grammatical system used in this paper has been represented in a series of papers, in which there are 14 types of syntactic cases, 9 types of syntactic aspects, and 4 types of evidentiality, and other grammatical categories, structural particles, and morphological markers. There is no tense category. Cf. Jiang (2005) and Jiang Lexicon and Morphology of Tibetan Language (In Chinese, Peking University Press, forthcoming).
3. Existential verbs (EXI): NP+NP+[LOC]+VP(EXI)
5. Verbs of Change (CHA): NP+VP(ADV)+[COP]+VP(CHA)
6. Perceptive Verbs (PER): NP+[AG]+NP+VP(PER)
7. Directional Verbs (DIR):
   - NP+VP(DIR)
   - NP+VP +VP(DIR)
   - NP+VP+[TAP]+VP(DIR)
8. Action Verbs (ACT):
   - NP+VP(ACT)
   - NP+NP+VP(ACT)
   - NP+NP+[DAT]+NP+VP(ACT)
   - NP+[AG]+NP+NP+[FAT]+VP(ACT)
10. Verba dicendi (NAR):
   - NP+[AG]+{NP+VP}+VP(NAR)
   - {NP+VP}+NP+[AG]+VP(NAR)
11. Interactive Verbs (REL): NP+NP+[ITP]+VP(REL)

In addition, Tibetan verbs can be classified into a number of subcategories, like receiving verbs, equivalent verbs, addressing verbs, giving verbs and the like, each of which is distinguished by argument and case marking. There are other typical structures relating to the grammar and meaning of a clause, such as comparative clauses and clauses describing the weather etc. The traditional Tibetan grammatical classification of verbs (S.J. Hu 2002), including categories such as transitive and intransitive verbs, automatic and causative verbs, volitional and nonvolitional verbs, is incapable of providing a thorough and detailed reflection of all sorts of clause structures. As a result, they can be used as an overarching classification which applies to both syntactic and semantic types.

2 Types of Tibetan verbs and a description of their grammatical patterns

This section describes verbs and their patterns, providing the basic structures and case marking patterns and illustrating these with examples.

1. Stative Verbs (STA): Stative verbs mainly signify states. In contrast to clauses with adjectival predicates (including descriptive clauses composed of copulative verbs and adjectives) stative verbs are generally used when indicating qualities. Some stative verbs are transitive verbs and others intransitives; the basic construction is NP+(NP+) VP (STA), of which the subject and object are not suffixed with case markers.
The most frequently used stative verbs are ཅན་ (snyun) ‘to be ill’, བཟི་ (bzi) ‘to be drunk’, སྣི། (shi) ‘to be dead’, འེ་ (sky) ‘to be born’, བེ་ (nub) ‘to be sunk’, ཅལ་ (yal) ‘to be gone’, etc. There are numerous such verbs. For example,

(1) ད་ཁོ་ཚོ་བཟི་པ་རེད། da kho-tsho bzi-pa-red.
   ‘Now they are drunk.’

(2) ཊོ་བཟང་ལགས་མྱོན་ཙང། ་དོན་གྲ་ཚོགས་གག་ཕེབས་ལོ་སྤིན་མི་འེག ་ དི་ཁྲོ་བཅོ་ཁྲོ་ལ་བཟི་པ་རེད། ་ གི ཤི་བོ ང་བོ ་ བོ་ཤི་སྨོང། ་ བོ་ཤི་སྨོང་།
   lap-bzhang-lags snyun tsang, vdzin-grwa tshogs gag phebs
   Lopsang was-ill since class meeting TAP come thub-kyi-mi-vdag.
   be-able-NEG-DUR
   ‘Lopsang was ill, so he cannot come to the class.’

There are various subcategories of verbs denoting states. For instance, verbs denoting ‘deficiency’ include ཀན་ (dgon) ‘to lack’, གན་ (dgos) ‘to be in need’, etc.; verbs denoting the meaning of ‘release’ are མཚོན (mtshon) ‘to express, to deliver’, རོང་ (rongo) ‘to turn up, to emerge’, འདོན་ (vdon) ‘to take out’, མངོན་ (mngon) ‘to arise, to be known’, བར་ (zar) ‘to rise, to rise up’; verbs denoting ‘delay’ are འགོར་ (vgor) ‘to postpone, to detain’, འགྱང་ (vgyang) ‘to defer, to retard’, etc. For the purposes of illustration one example suffices,

(3) དེ་རིང་གི་ཉི་མ་དེ་ཤི་སྨོང་ ཤི་སྨོང་་ སོང་ སོང་ དེ་ཤི་སྨོང་། ་ ཆོ་མ་ཡང་ན་ལོ་སྤིན་མི་འེག ་ དི་ཁྲོ་བཅོ་ཁྲོ་ལ་བཟི་པ་རེད། ་ ཤི་བོ ང་བོ ་ བོ་ཤི་སྨོང་། ་ བོ་ཤི་སྨོང་།
   de-rin g gi nyi-ma de shar-nas shar-son ngam yang-na
   Today-GEN sun the-east-ABL rise-PEF INT otherwise

   nub-nas shar-son
   west-ABL rise-PEF
   ‘Did today’s sun rise from the east or did it rise from the west?’

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2 We have compiled quite a big text-database on Tibetan language for more than twenty years, some of which have been tagged with grammatical markers. Cf. Jiang, Long and Zhang (2005), Long (2012). Most of the examples used in the paper are taken from this text-database.


4 In the transcription of Tibetan a hyphen is used to transliterate a specific Tibetan character, called tsheg, which marks the boundary between two syllables. (This punctuation also occurs between words, but it is only transliterated word-internally.) The tsheg often corresponds to morpheme breaks, but some morpheme breaks are not marked. We follow this Tibetan studies convention here, rather than strict morphemic glossing.
2. Copula verbs (COU): Copula verbs mainly equate two noun phrases; the choice of copula is often determined by a subjective judgment or access to information. The two primary copula verbs are ཡིན་ (yin) and རེད་ (red). The clause structure required by a copula verb is NP+NP+V (COU), in which both NPs are zero-marked for the absolutive case (Huang et al. 2003).

(4) དགེ་མས་དེ་ལོ་ག་ཚོད་རེད།

dge-ran de lo ga-tshod red.
‘How old is that teacher?’

(5) དེ་ནི་ཁྱོད་ཀྱི་བདག་གི་ཡིན་འེད་པའི་གནས་བབ་ཤར་ȷ་ཡིན་པའི་རེད།

‘This is a symbol which shows the situation of China’s comprehensive reform.’

The negative forms of ཡིན་ (yin) and རེད་ (red) are མིན་ (min) and མ་རེད་ (ma red) respectively. མིན་ (min) is a contracted form of མ་ཡིན་ (ma yin).

(6) ཇེ་མ་"ཁྱོད་ཀྱི་བདག་གི་ཡིན་"ཞེས་ཟེར།

cchen-ma-s " khyod-kyi bu min bdag-gi yin " zhes zer.
‘(The first) wife said, “he is not your son but mine”.’

(7) དེ་ནི་ཁྱོད་ཀྱི་བདག་གི་ཡིན་འེད་པའི་གནས་བབ་ཤར་ȷ་ཡིན་པའི་རེད།

‘This is a symbol which shows the situation of China’s comprehensive reform.’

3. Existential Verbs (EXI): Existential verbs signify that someone or something is in some place; the subject is in the zero-marked absolutive case and the 2nd NP in the locative case. The basic existential clause structure NP+NP+[LOC]+VP (EXI). In the Lhasa vernacular language the most common existential verbs are ཡོད་ (yod), ངོག་ (vdug), and རེད་ (yovo red). There are also a small number of other existential verbs, such as རྒན་ (gnas) ‘to have, to live, to exist’; བུ་ (bsdad) ‘to reside’, which also call for the same type of clause construction.

(8) དངོས་པོ་མ་ནང་ལ་ཡོད།

nga-vi ama nang-la yod.
1sg-GEN mother home-LOC be ‘My mother is at home.’

(9) བོད་ལུས་ཁུངས་ལུས་པས་ལྷག་ཟེར་གནོད་པ་ཅན་གནོད་པའི་ལུས་

rang rgyal-gyi grangs-nyung-rigs mang-ba-che-ba
Our motherland-GEN minority-ethnics most
mthav-mtshams-la  yovo-red.
border-areas-LOC  be
‘Most minorities of our motherland live in border areas.’

(10) khyod  mtsho-l  gnas,  nga  skam-sa(-r)  bsdad.
2sg  lake-LOC  resides  1sg  land-LOC  reside
‘You reside in the lake, and I live on the dry land.’

4. Verbs of Possession (VOP): In addition to existential verbs, such as དབང་ (dbang) ‘to have, to own’, there are other associated verbs denoting ‘giving’, like འོབ་ (vthob) ‘to obtain’, རག་ (rag) ‘to receive’, འཛམས་ (vdzams) ‘to equip, to possess’ etc.

The clause structure for a verb of possession is NP+[POS]+NP+V(VOP), where the verb of possession requires the subject with a possessive case marker and object with a zero case marker. However, if the subject is an animate noun while the object an abstract one (most nouns), the possessive case marker of the former can be omitted. Similarly, if the subject is marked with a pause particle, again the possessive case marker may be omitted (Jiang 2003).

(11) nga-r  bod-yig-ge  tshig-mdzod  gcig  yod.
1sg-POS  Tibetan  dictionary  one  have
‘I have a Tibetan dictionary.’

(12) rgan-lags  de(-r)  nyams-myong  zhe-drags  yovo-red.
teacher  the(-POS)  experience  much  have
‘That teacher has a lot of experience.’

(13) da-ltar  nga-revi  tang  vdi-ni  tang-yon  bye-ba-gsum
now  1sg-myself-GEN  party  this-PAP  member  thirty  million
dang  sa-yad-gu  yod.
and  nine  million  have
‘Our party now has thirty-nine million members.’

There are other verbs classified into this sort, signifying the quasi-possessive relation, like རེར་ (zer) ‘to name’, གནས་ (gnas) ‘to value’, རིགས་ (rtsis) ‘to equal’, used in clauses whose form is roughly the same as that of the possessive verb.

The clause structure with a verb of change is NP+VP (adj/v) +[COP]+VP (CHA), in which a complement particle ru or la are compulsorily inserted between an adjective or verbal phrase denoting the result of the change in question and the verb of change, forming a resultative complement.

6. Verbs of perception (PER) refer to such verbs as མོང་ (mthong) ‘to see’, རིག་ (go) ‘to hear’, འཛོད་ (ha go) ‘to understand’, རིག་ (sches) ‘to know’, རིག་ (dran) ‘to remember’, རྒྱུད་ (brjed) ‘to forget’, རིག་ (ngo shes) ‘to know, be acquainted with’ etc. Perception is defined as the sense or reaction to a person’s visual, auditory, tactile and cognitive experiences. It is fundamental to such verbs that they are involuntary. The verb རྒྱུད་ (brjed) ‘to forget’ etc., however, has the feature of controllability (actor can consciously conduct or not an action; the verb then is a controllable one), while the results brought about by རྩལ་ (mthong) ‘to see’ etc. cannot be controlled consciously by human, hence a non-controllable verb (Yuan 1993).

The clause structure for verbs of perception is: NP+[AG]+NP+VP (PER); the subject of it is followed by an agentive case marker.
A verb of perception can be followed by an object of a clause with a nominalization markers མིན/མེད (min /med) ‘whether’.

7. Verbs of motion (DIR) refer to those verbs that denote movement or lack of movement. Such verbs include ཤོག (shog) ‘to leave’, བཞག (bzhag) ‘to place’ etc. Such verbs serve three syntactic functions: (1) they can constitute a directional predicate clause (NP+VP), as in example 22 below; (2) they can serve as a dummy directional complement (NP+VP+VP), as in example 23 below; (3) with other verbs they can constitute a serial predicate construction, when a target particle (TAP) interposed. The latter clause structure is NP+VP+[TAP]+VP (DIR), as in example 24 below.

(19) ཞོགུ་མིན་པོ་ཁོང་ཚོའི་ནང་བུ་མོ་འདི་འི་མིང་ངས་གསལ་པོ་ཤེས་ཀྱི་མེད
rgan-lags, da nga-s gzhi-nas ha-go-song.
teacher now 1sg-AG just understand-PEF
‘Teacher, I just now understand.’

(20) བུ་མོ་འདི་འི་མིང་ངས་དངས་གཞི་ནས་ཧ་གོ་སོང
bu-mo vdi-vi ming nga-s dran-byung.
girl this-GEN name 1sg-AG remember-PEF
‘I remembered this girl's name.’

‘I don’t know clearly whether there are many people in their family.’

(21) མིན་/མེད (min /med) ‘whether’.

(22) བུ་མོ་འདི་འི་མིང་ངས་དངས་གཞི་ནས་ཧ་གོ་སོང
bu-mo vdi-vi ming nga-s dran-byung.
girl this-GEN name 1sg-AG remember-PEF
‘I remembered this girl's name.’

You two go in a hurry.’

(23) བུ་མོ་འདི་འི་མིང་ངས་གསལ་པོ་ཤེས་ཀྱི་མེད
bu-mo vdi-vi ming nga-s dran-byung.
girl this-GEN name 1sg-AG remember-PEF
‘I remembered this girl's name.’

I can’t wait, since I need to go back first.’

(24) བུ་མོ་འདི་འི་མིང་ངས་གསལ་པོ་ཤེས་ཀྱི་མེད
bu-mo vdi-vi ming nga-s dran-byung.
girl this-GEN name 1sg-AG remember-PEF
‘I remembered this girl's name.’

He has gone to chop the bamboo.’
8. Action Verbs (ACT) can be subdivided into various types, including intransitive verbs, transitive verbs, ditransitive verbs and verbs that take a resultative as object. The objects of a transitive action verb may permit a patient object, indirect object (dative object), and resultative object. Whether transitive or not, the subject is always followed by an agentive case marker. Action verbs are the major verb category in Tibetan. A full discussion is not feasible here.

The basic clause construction with an intransitive action verb is NP+[AG]+VP (ACT). The basic clause construction with a transitive action verb is NP+[AG]+NP+VP (ACT).

\[(25)\text{ nga-s} \text{ phyn chog.} \]
\[1\text{sg-AG go be-able} \]
‘I can go.’

\[(26)\text{ nga-s} \text{ zha-mo gcig nyos-pa-yin.} \]
\[1\text{sg-AG hat one buy-REA} \]
‘I bought a hat.’

The basic construction for a ditransitive clause is NP+[AG]+NP+[DAT]+NP+VP.

\[(27)\text{ am-chi-s} \text{ nga-r khab gcig bgyab-byung.} \]
\[\text{Doctor-AG 1sg-DAT needle one hit-PEF} \]
‘A doctor has given me an interjection.’

The basic construction for a transitive clause with a resultative object is NP+[AG]+NP+[FAT]+VP(ACT).

\[(28)\text{ khyed-rang-gyis} \text{ rgya-yig bod-yig-la bsgyur-rogs-gnang.} \]
\[2\text{sg-self-AG Chinese Tibetan-FAT translate-HON} \]
‘Please (you) translate Chinese into Tibetan.’


The basic clause structure for psychological verbs is NP+[AG]+NP+[OBJ]+VP (COG), namely, the subject of psychological verb clause is followed by an ergative case marker, while the target object is followed by a target case marker.
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10. *Verba dicendi* (NAR) include verbs of speech (to say) and verbs of thought (to talk with oneself), such as ལབ་ (lab) ‘to talk, to speak’, བཤད་ (bshad) ‘to say’, བསམ་ (bsam) ‘to think’, མེད་ (med) ‘to answer’, སེ (shes) ‘to realize’, མིན་ (min) ‘whether’. The syntactic feature of this sort of verbs is that they are followed by a clausal object or a nominalized verbal phrase serving as an object.

The basic clause structure for *verba dicendi* is NP+[AG]+{NP+VP}+VP (NAR), or {NP+VP}+NP+[AG]+VP (NAR), among which the clause object of verbs of speech is often suffixed by a clause particle (OCP) (Jiang 2007).

Verba dicendi can also be followed by clause with nominalizational marker མིན་/མེད་ (min/med) ‘whether’.

The syntactic feature of this sort of verbs is that they are followed by a clausal object or a nominalized verbal phrase serving as an object.

The basic clause structure for *verba dicendi* is NP+[AG]+{NP+VP}+VP (NAR), or {NP+VP}+NP+[AG]+VP (NAR), among which the clause object of verbs of speech is often suffixed by a clause particle (OCP) (Jiang 2007).
11. Interactive Verbs (REL) are a special class of verb, whose meanings are relevant to two logically or conventionally corresponding or subordinating matters or events. In syntactic form, the interactive verbs usually require an interactive case marker following the correlated noun. དང་ (dang)(ITP).

The basic clause structure for interactive verbs is NP+NP+[ITP]+VP(REL). The oft-used interactive words are མȬན་ (mthun) ‘to agree, to fit, to correspond’, བȫན་ (stun) ‘to coincide, to adapt, to accord’, རེ་ (sre) ‘to compound, to mingle’, མȬན་ (mthun) ‘to mix, to interblend’, བȫན་ (stun) ‘to resemble, to be alike’, འ昀་ (vdre) ‘to mix, to interblend’, བȫན་ (stun) ‘to resemble, to be alike’, འ昀་ (vdre) ‘to mix, to interblend’, བȫན་ (stun) ‘to resemble, to be alike’.

12. Causative Verbs (CAV) in Tibetan include བȬག་ (bcug) ‘to allow, to make’, བȫད་ (byed) ‘to let, make’, བཛོ་ (bzo) ‘to ask that’.(Jiang D. 2006) The subject of a causative verb is suffixed with an agentive case marker, and the object is often a clause or a verb phrase with a causative particle (CAU) རི་ (ru) before the causative verb. The subject of the clause is followed by a possessive case marker or an agentive case marker.

The basic clause structure for causative verbs is NP+[AG]+NP+[POS]+ (NP +) VP+[CAU]+VP (CAV).
The preceding discussion of Tibetan syntactic and semantic categories provides an elementary sketch of the syntactic frames of modern verbs, which can serve as a foundation for the automatic word segmentation of Tibetan texts. In practical applications, however, there may be other special verb categories, including specific clause constructions, or various clause structures with alternative word orders, forming much more complicated grammatical constructions. We hope the discussion here is a feasible starting point, and recently, some research has borne out this hope (Jiang 2011; Li et al. 2013; Kang et al. 2015).

3 Functions of Tibetan verbs in syntactic and semantic categories

This article classifies verbs into syntactic and semantic categories, in an attempt to build a machine readable dictionary of grammatical properties. In such a dictionary, each of the verbs (and other parts of speech) is provided with grammatical information distinguishing it from other verbs, noting morphology, meaning, morphological variants and syntactic/semantic category etc. Once the verb category is identified, analysis of its syntactic frame, argument valency and relevant word order becomes possible, the property of various kinds of homomorphic syntactic markers can be specified and then a comparatively accurate classification and analysis can be made (Yu 1998). We take as an example the clause ང་ཁྱེད་གཉིས་དང་ཁ་ɐལ་འདོད་མི་འȭག with the interactive verb ཁ་ɐལ་(kha bral) ‘to separate’. In the clause, དང་(dang), an interactive marker, is homomorphic with a coordinating conjunction. Therefore, two different possible segmental results A or B may be produced. Furthermore, དང་(dang) and ཁ་(kha) are exactly combined into another word form: དང་ཁ་(dang kha)’taste(s)’, the clause will be tagged into

A: ང་(1sg)ཁྱེད་གཉིས་(2dl)ཇོ་(ITP)ཐེ་(separate) སྐྱེན་(AUX)ཐེ་(NEG-RST)
‘I am not willing to be parted from you two’,
or B: ང་(1sg)ཁྱེད་གཉིས་(2dl)ཇོ་(taste)ཐེ་(part)སྐྱེན་(AUX)ཐེ་(NEG-RST)
‘We two need not part tastes.’

However, since we can extract from the dictionary information on the interactive verb ཁ་ɐལ་(kha bral), it is known that its basic grammatical frame requires the interactive marker དང་(dang). Thus, taking advantage of an identification method based on rules, we can ascertain the validity of segmental path A.

![Fig 1 two different segmentation](image-url)

Up till now, whether based on rules or statistics for natural language processing, a machine readable dictionary or a corpus-based knowledge representation system has always been always necessary, with abundant grammatical information required in the design of word classifications and
syntactic rules available for text analyses (Jiang 2005). The coding described in this article is a preliminary step in the service of projects underway for the compilation of a Tibetan grammatical information dictionary. As regards the methods of verb classification, predecessors have conducted a great variety of studies worthy of reference (Hu 1984; Zhou et al. 2002; Chen et al. 2003; Jiang et al. 2008). The verbs in syntactic and semantic categories mainly involve syntactic facts and the construction of dictionary information. Certainly, a Tibetan machine readable dictionary should have much more information about verbs. For example, relative verbs, verbs of possession and existential verbs interact with the grammatical person of the subject, while other verbs maybe involve willingness (volitional and nonvolitional), transitivity (transitive and intransitive), causativity (causative or automatic) and commonly-matched labels of nominalization etc. In grammar, most verbs undergo morphological change (da lta ba basic form, ma vongs pa future tense, vdas pa past tense, skul tshig imperative mood), particular negative form, syllabicity (monosyllable/disyllable/multisyllable) and allomorphic form etc. It is hoped that the accumulation of information for such a dictionary will be progressively advanced in further research.

**ABBREVIATIONS**

| ABL | ablative case                        | INT | interrogative word          |
| ACT | action verb                           | LOC | locative case                |
| AG  | agentive case                         | MER | merely past aspect          |
| ALA | allative case                         | NAR | narrate verb                |
| AUX | auxiliary                             | NEG | negative                    |
| CAU | causative particle                    | NMZ | nominalization marker      |
| CAV | causative verb                        | OBJ | object case                 |
| CHA | verb of change                        | PAP | pause particle              |
| COG | cognition verb                        | PEF | perfect aspect              |
| CON | contextual aspect                     | PER | perception verb             |
| COP | complement particle                   | POS | possessive case             |
| COU | copula particle                       | PRM | preliminary aspect         |
| COU | copula verb                           | PRO | prospective aspect         |
| DAT | dative case                           | REA | reality aspect              |
| DIR | directional verb                      | REL | interactive verb           |
| DUR | durative aspect                       | RST | resultative aspect          |
| EXI | existential verb                      | STA | stative verb                |
| FAT | factual case                          | TAP | target particle             |
| GEN | genitive case                         | TP  | interactive particle        |
| HOP | honor particle                        | VOP | verb of possession          |
| IMM | imminent aspect                       |     |                             |

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