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Semantic representation of grammaticalization: A case study of the verb 'bei²𢦏' in Cantonese within the RRG framework¹

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1. Introduction

The verb “give” is frequently attested as a passive marker or agent marker in passive constructions. This phenomenon is commonly found in Chinese languages, where the verb “give” undergoes grammaticalization and changes from a major to a minor category (deverbalization) (Yap and Iwasaki 2007; Hashimoto 1988; Matthews, Xu and Yip 2005; Xu 1994). The deverbalized morpheme is referred to as a “coverb” (Li and Thompson 1974; Yin 2023). The grammaticalization process is sometimes found to be complicated by occurrences of bridging contexts or intermittent variants.

The prevalence of the phenomenon may shed light on the relationship between sense shift in grammaticalization and cognition. Focusing on the dative verb *bei² 𢦏* in (Yue) Cantonese, I aim to address the following two questions:

- i. Should the source verb GIVE and its grammaticalized variants be represented as multiple entries in the lexicon, or should they be represented as a single lexical construct?
- ii. How can this relation be captured in the lexicon?

The rationale for choosing the dative verb *bei² 𢦏/俾* in Cantonese as the case study is twofold: First, besides the more commonly attested passive use, grammaticalized variants of the Cantonese dative verb *bei² 𢦏* exhibit a broader range of uses, including permissive and prepositional use. Second, ambiguous interpretation between permissive and passive uses of *bei² 𢦏* provides linguistic evidence for the development of the morpheme from a lexical to a grammatical form. This supports the construction of a lexical representation of the verb that not only denotes the polysemous uses but also captures the internal linkage among them.

The rest of the paper is structured as follows: Section 2 provides a brief review of the representation of lexical structure in the Role and Reference Grammar theory (Van Valin, 2023). In Section 3, explanations for why the verb “give” is a favorable candidate for consideration as the source verb in the process of grammaticalization will be presented. Section 4 describes, with examples, the polysemous use of grammaticalized variants of the dative verb *bei² 𢦏* from Cantonese and propose lexical structures for each use. Drawing on the idea of parallel architecture of lexicon from Jackendoff and Audring (2020), I will propose the use of lexical schemas within Role and Reference Grammar to capture the relatedness of grammaticalized variants in Section 5. Finally, a conclusion will be provided in Section 6.

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2. Lexical representation in RRG

Role and Reference Grammar (RRG) adopts the system of lexical decomposition proposed by Dowty (1979). Following the formalization of Aktionsart categories, meaning is represented in logical structures (LSs). Built on the four basic Aktionsart categories, namely states, activities, achievements and accomplishments, changes have been made to the decomposition system to better capture the internal structure of predicates and the contrast between different types of actions. The revised lexical representations for Aktionsart categories, cited in Van Valin (2023, p.100), are shown below:

Verb class	Logical Structure
STATE	predicate' (x) or (x, y)
ACTIVITY	do' (x, [predicate' (x) or (x, y)])
ACHIEVEMENT	INGR predicate' (x) or (x, y)
SEMELFACTIVE	SEML do' (x, [predicate' (x) or (x, y)])
PROCESS	PROC being.consumed'/created' (y) or (x, y)
	PROC becoming.higher/lower.on.[a]scale' (x)
	PROC moving(.direction)' (x)
	PROC covering.path.distance' (x, (y))
ACCOMPLISMENT	BECOME predicate' (x) or (x, y), where BECOME = PROC $\wedge$ FIN
ACTIVE ACCOMPLISMENT	
	do' (x, [pred' (x, y)]) $\wedge$ PROC being.consumed' (y) $\wedge$ FIN consumed' (y)
	do' (x, [pred' (x, y)]) $\wedge$ PROC being.created' (y) $\wedge$ FIN exist' (y)
	do' (x, [pred' (x, y)]) $\wedge$ PROC covering.path.distance' (x, (y)) $\wedge$ FIN be-loc' (z, x)

Table 1. Lexical representations for Aktionsart classes

Several key points are worth noting in this approach. First, meaning is constructional in nature. The lexical semantic content of verbs is fundamentally composed of state and activity predicates. Achievement, accomplishment, and other more complex meanings are constructed by adding elements to state and/or activity predicates. An important feature of state and activity predicates is that each takes more than two arguments. Accordingly, three-placed argument predicates such as *put*, *teach*, and *tell* are represented with more than one basic predicate.

Second, causation, which is one of the lexical primitives in Dowty's lexical decomposition system (1979), has been factored out as an independent parameter. According to Van Valin (2005), causatives are constructional; usually consisting of an (unspecified) activity as the first argument and combining with another LS to represent the full meaning. Therefore, causation is understood as a variation of Aktionsart types instead of a basic one on its own.

3. "Give" — A favorable candidate for grammaticalization

Central to the idea of RRG is the view that language is a cognitive construct. The representation of any linguistic phenomenon should address the cognitive aspects of the human mind and seek to maximize the psychological adequacy of the account. In this section, I will explain, from both cognitive and semantic perspectives, why the verb *GIVE* is a favourable candidate as the source of sense shift in grammaticalization.

3.1 Cognitive motivation

From a cognitive perspective, the change of possession of objects involves manipulation of objects and transferal of energy from one participant to another. Langacker (1991) proposed the model of energetic interactions to account for the motivation behind using transfer verbs as grammatical markers to indicate interactive relations between participants. In this model, the two ends of transferal—referred to as the HEAD and TAIL—correspond to the canonical agent (AG) and patient (PAT), respectively. Energy is transferred from the agent to the patient via an instrument.

The motion of energy transfer (transitivity) involved makes dative verbs like *GIVE* favourable candidates for the extraction of abstract image-schematic structures (Sweetser 1988). This process results in meanings such as permissive (where possession of control is transferred from one participant to another), and functions as prepositions denoting direction of transferal, as well as case markers denoting relations and status of participants (Rice 1987).

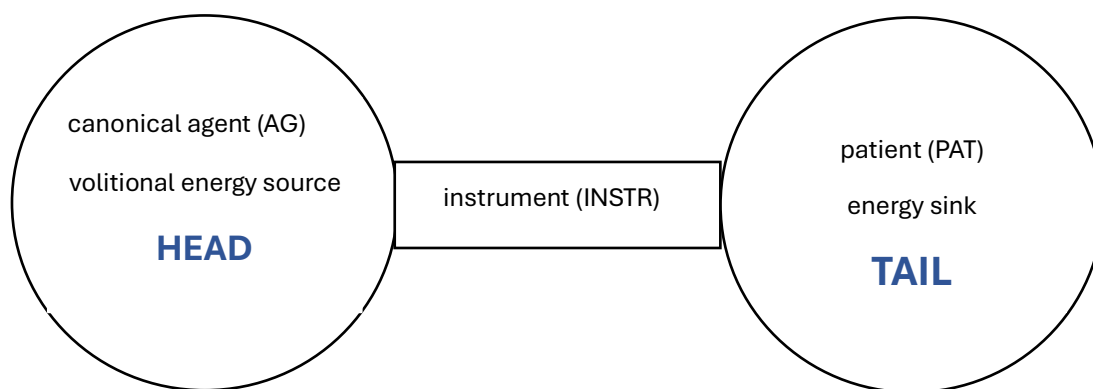


Fig 1. Energetic interaction (Langacker, 1991)

3.2 Semantic motivation

Brugman (1988) (cited in Sweetser (1988)) suggests that verbs with more specific semantic content are less likely sources of grammaticalization: “verbs which highlight areas of semantic of motion which cannot be mapped onto time would be less likely sources for tense markers ...”. This is evidenced by the contrast between *go* and *lumber*. *Lumber*, denoting movement in a slow and effortful manner, is less likely to be a source of grammaticalization because its meaning highlights more specific features of traversal, compared with *go*, which denotes only a traversal between two points.

Bybee, Perkins and Pagliuca (1994) make a similar claim about the requirement of the semantic content of a possible grammaticalization source, pointing out that “it is lexical items of the degree of generality...that enter into grammaticalization”. Lexical items with more general meaning are more suitable candidates for grammaticalization. A similar generalization is also made by Hopper and Traugott (1997), i.e. “action morphemes with more general meaning or action morphemes which are generic terms of a hypernym relation to other action morphemes are more likely to be grammaticalized”.

*Bei*² 畀, meaning *give*, denotes a change in possession. The entities involved in the change of possession are usually physical objects, though abstract nouns such as *seon*³ *sam*¹ 信心 (confidence) and *jung*⁵ *hei*³ 勇氣 (courage) are also possible objects in a *bei*² 畀 (give) construction.

The action predicate *bei² 畀* (give) is a hypernym of the members of its class. Other ‘transfer’ predicates in Cantonese include *gei³ 寄* (mail), *sung³ 送* (give something as a gift), *cyun⁴ 輸* (pass), *je² 借* (lend/borrow), *zou¹ 租* (rent), *mai⁶ 賣* (sell), etc. Though they are all dative verbs, these predicates are semantically more specific than *bei² 畀* (give). Their meaning carries certain connotations. The semantic ‘non-specificity’ of *bei² 畀* provides a suitable ground for semantic bleaching (Sweetser 1988), resulting the radiation of various meanings and uses which include serving as the lexical verb ‘let’ (i.e. permissive), the benefactive marker/preposition, and the passive marker.

Accordingly, the lexical structure of the verb *bei² 畀* should capture the meaning of the predicate and the favorable semantic features for grammaticalization. It should also illustrate the different ways in which subparts of the literal meaning of GIVE is extracted or metaphorically extended to apply other semantic fields (Fagerli 2001).

4. The many uses of *bei² 畀* and their lexical representations

In this section, I will describe, with examples, the polysemous uses of *bei² 畀* in Cantonese and provide a lexical structure for each use.

i. Dative use

Bei² 畀 is originally a ditransitive dative verb, taking an indirect object (i.e. the object being transferred) and a direct object (i.e. the patient or recipient). (1) illustrates the dative use of *bei² 畀*, followed by its corresponding lexical representation based on lexical decomposition in (2).

- (1) *Roger bei² bun² syu¹ Sophia*
Roger 畀 本 書 Sophia
 Roger give CL book Sophia
 Roger gave Sophia a/the book.

- (2) Lexical structure of dative use:
 [do' (x, [act.on' (x, y))] CAUSE (y, [go' (y, [from' (x) to' (z)])]) ^ (z, [have' (z, y)])]

The lexical representation involves three core arguments (x, y and z), comprising of the arguments from the action predicate *act.on'* and the state predicate *have'*. x is the active participant responsible for the change of possession, indicated by *do'* in the representation; in other words, the ACTOR. y is the UNDERGOER, i.e., the affectee. The lexical structure can be read as: x volitionally acts on y (usually an object) and causes y to go from x to z, resulting in z possessing y.

ii. Permissive use

The change-of-possession verb *bei² 畀* carries the meaning of permission as a result of sense shift, more specifically, metaphorical mapping of the general image-schematic topological structure. To grant permission for someone to do something implies possession or control over the decision. Sense shift from *bei² 畀* to permissive-*bei² 畀* is made possible through metaphorical inferences mapping:

- (i) Possession of an object is mapped onto possession of permission.

- (ii) Transferral of an object between two participants is mapped onto the transferral of permission between two participants.

(3) shows the permissive use of *bei²* 畀, followed by the corresponding lexical representation shown in (4):

- (3) *ngo⁵ bei² zek³ gau² sik⁶ saai³ di¹ faan⁶*
 我 畀 隻 狗 食 晒 啲 飯
 1stsg let CL dog eat all Det rice
 I let the dog eat all the rice.

- (4) Lexical structure of permissive use:
 [**do'** (x, $\emptyset$) CAUSE (y, [**have'** (y, right-of-[**do'** (y, [**pred'** ...])])])]

Like (1), the action involves an active agent, as denoted by **do'**, and the unspecified action $\emptyset$ brings about a change in possession, as indicated by CAUSE. However, unlike (1), the possession of entity is now changed to possession of the right of doing something, represented by *right-of-[do' (y, [pred' ...])]*. The lexical structure can be read as *x actively causing y to possess the right or permissive to do something*.

iii. Passive marker

As mentioned, the passive use is one of the commonly attested grammaticalized functions of *bei²* 畀. In Cantonese, the meaning of passive is expressed by the structure *bei²* 畀 + *agent* + *verb*. Unlike English, there is no auxiliary verb or verb inflection. Additionally, there is no valance reduction, i.e. the agent is not suppressed, see (5) and (6):

- (5) *Roger bei² lou⁵po⁴ naau⁶*
 Roger 畀 老婆 鬧
 Roger PASS wife scold
 Roger was scolded by his wife.
- (6) **Roger bei² naau⁶*
 Roger 畀 鬧
 Roger PASS scold
 (intended meaning: Roger was scolded.)

While the permissive use of *bei²* 畀 retains its verbal status, its verbal features of *bei²* 畀 as a passive marker are lost. This is evidenced by the ungrammaticality of *bei²* 畀 in a V-NEG-V structure in formation of yes-no interrogative constructions (see (7) and (8)). Formation of yes-no questions with *bei²* 畀 as a passive marker requires the insertion of “*yau⁵-mou⁵*”, literally means “have-not have”.

- (7) *Roger yau⁵-mou⁵ bei² lou⁵po⁴ naau⁶*
 Roger 有無 畀 老婆 鬧?
 Roger have-not have PASS wife scold
 Was Roger scolded by his wife?

- (8) *Roger bei²-m⁴ bei² lou⁵po⁴ naau⁶
 *Roger 畀-唔-畀 老婆 鬧?
 Roger PASS -NEG- PASS wife scold

An important feature of the passive use of bei² 畀 is its potential ambiguity with the permissive use. Consider (3) again (repeated below). The sentence allows two possible interpretations:

- (3) ngo⁵ bei² zek³ gau² sik⁶ saai³ di¹ faan⁶
 我 畀 隻 狗 食 晒 啲 飯
 1st sg let CL dog eat all DET rice

Permissive reading: I let the dog eat all the rice.

Passive reading: I suffered from the event that all my rice was eaten by the dog.

The ambiguity reflects a bridging stage between the lexical meaning GIVE and the more grammaticalized passive meaning of the word. An account for this sense shift is proposed below.

In the permissive use, when x permits y (i.e. **do'** + CAUSE) to do something, x is the HEAD of the energetic interaction (Langacker 1991). From the perspective of 'transferral,' x is negatively affected by giving away or losing control. The action that is given permission to perform becomes the action that acts upon x. Take (3) as an example, in the permissive reading, i.e., I let the dog eat all the rice, by granting the dog permission to eat all the rice, 'I' am also affected by the action 'the dog eaten all the rice.' In the passive reading, the 'permitted' event becomes the action negatively imposed on x. Thus, x functions as the argument of a state indicated by *affected'*; and the action becomes the cause of x's suffering.

The proposed lexical structure of the passive meaning of bei² 畀 is shown below.

- (9) Lexical structure of passive use:
 [**affected'** (x) BY **do'** (y, **act.on'** [y, x])]

It is worth noting that *do'* which denotes the meaning of volitional action is absent in the lexical representation of passive use.

iv. Preposition

The fourth use of bei² 畀 illustrates a case of deverbalization as a result of semantic bleaching. The verbal meaning of change-in-possession is lost, retaining only the semantic component of direction derived from the transferral action. Examples of bei² 畀 as a preposition meaning *TO* and as a preposition meaning *FOR* (or as a beneficiary marker) are shown in (10) and (11), respectively.

The lexical structure of this use is shown in (12). (13) shows the semantic representation of (11) in which bei² 畀 functions as a preposition meaning *FOR*.

- (10) Roger gei³ bun² syu¹ bei² Sophia
 Roger 寄 本 書 畀 Sophia
 Roger mail CL book TO Sophia

Roger mailed a book to Sophia.

- (11) *Roger coeng³ sau² go¹ bei² Sophia teng¹*
Roger 唱 首歌 畀 Sophia 聽
 Roger sing CL song FOR Sophia listen
 Roger sang a song for Sophia.

- (12) Lexical structure of preposition use:
 (y, [**go'** (y, [**from'** (x) **to'** (z))])

- (13) Representation of constructional meaning of (11):
 [**do'** (Roger, [**sing'** (Roger, song)]) CAUSE (song, [**go'** (song, [**from'** (Roger) **to'** (Sophia))])] ^ (Sophia, [**listen'** (Sophia, song)])]

5. Constructing the Lexical Schema of GIVE

Grammaticalization from GIVE → CAUSATION/PERMISSIVE → PASSIVE in Chinese dialects and South Asian languages has been widely attested in the literature (Lord et al. 2002, Chappell 2015; Szeto 2019). Despite the prevalence of the phenomenon, discussions often focus on the reasons why it is cognitively favourable. However, this observation has seldom been, if ever, formally represented. One possible reason for this missing piece of puzzle is that the occurrence of the phenomenon seems occasional and accidental, and meaning of the grammaticalized variants are often viewed as idiosyncratic (Spencer 2013; Chomsky 1965). The study of the polysemous uses of *bei² 畀*, however, suggests otherwise.

In this section, I am going to address this gap in the study of grammatical structure. Borrowing from the idea of lexical schema proposed by Jackendoff and Audring (2020), I propose a non-productive schema to capture the conceptual-semantic relatedness of grammaticalized variants of *bei² 畀*. These schemas are not used generatively to produce novel forms like the plural schema. Rather, they express the commonalities within the lexicon. The schema functions in a relational role to link the lexical structures of the variants shown below:

The lexicon structures of polysemous *bei² 畀*:

- (15) GIVE
 [**do'** (x, [**act.on'** (x, y)]) CAUSE (y, [**go'** (y, [**from'** (x) **to'** (z))])] ^ (z, [**have'** (z, y)])]
- (16) PERMISSIVE
 [**do'** (x, ∅) CAUSE (y, [**have'** (y, right-of-[**do'** (y, [**pred'** ...])])])]
- (17) PASSIVE
 [**affected'** (x) BY **do'** (y, **act.on'** [y, x])]
- (18) PREPOSITION
 (y, [**go'** (y, [**from'** (x) **to'** (z))])

i. Linking GIVE and PERMISSIVE

Compare the lexical structure of GIVE and PERMISSIVE below ((15) and (16) repeated below).

- (15) GIVE
 $[\text{do}'(x, [\text{act.on}'(x, y)]) \text{ CAUSE } (y, [\text{go}'(y, [\text{from}'(x) \text{ to}'(z)])]) \wedge (z, [\text{have}'(z, y)])]$
- (16) PERMISSIVE
 $[\text{do}'(x, \emptyset) \text{ CAUSE } (y, [\text{have}'(y, \text{right-of-}[\text{do}'(y, [\text{pred}' \dots])])])]$

Instead of a concrete object, the entity being transferred is permission, i.e., right-of- $[\text{do}'(y, [\text{pred}' \dots])]$. Moreover, the action of transferal in PERMISSIVE use is lost. Instead of the ACTOR volitionally acting on an object in GIVE and causing a change of possession, the action in PERMISSIVE is unspecified, i.e., $\text{do}'(x, [\text{act.on}'(x, y)]) \rightarrow \text{do}'(x, \emptyset)$.

Despite the above differences, the core meaning of transferal is retained in PERMISSIVE. The relation is evident in the shared components in the two lexical structures. To represent this relation, the shared components are indicated by co-indexation, forming a relational link between the lexical items. (17) shows a combined representation of the two meanings. The lexical structure of GIVE is shown in full structure, indicating the source of this grammaticalization process. In PERMISSIVE, only the differing components are spelt out, while shared components are indicated with "...", and under scripted co-index "...₁". The parts not marked with any co-indexes represent the meaning lost in sense shift.

- (17) Give: $[\text{do}'_1(x, [\text{act.on}'(x, y)])_1 \text{ CAUSE}_1(y, [\text{go}'(y, [\text{from}'(x) \text{ to}'(z)])]) \wedge (z, [\text{have}'(z, y)])_1]$
 Permissive: $[\dots_1(\dots, \emptyset)_1 \dots_1(\dots, [\dots(\dots, \text{right-of-}[\text{do}'(y, [\text{pred}' \dots])])_1)]_1]$

ii. Linking PERMISSIVE and PASSIVE

As discussed in Section 3, the ambiguous interpretation of the PERMISSIVE and PASSIVE reading suggests that PERMISSIVE serves as a bridging context along the grammaticalization path from GIVE to PASSIVE, i.e. $\text{GIVE} \rightarrow \text{PERMISSIVE} \rightarrow \text{PASSIVE}$. Similar to above, the shared constituents of the two lexical structures are indicated by the co-index "₂", as shown in (18).

- (18) Permissive: $[\dots_1(\dots, \emptyset)_1 \dots_1(\dots, [\dots(\dots, \text{right-of-}[\text{do}'_2(y, [\text{pred}' \dots])_2])_1)]_1]$
 Passive: $[\text{affected}'(x) \text{ BY } (\dots_2(\dots, [\dots]_2)]_2]$

iii. Linking GIVE and PREPOSITION

Unlike PASSIVE, there is no evidence indicating that the PREPOSITION use of *bei*² 界 results from further grammaticalization of other grammaticalized variants. Therefore, the relational link between PREPOSITION *bei*² 界 and the source meaning GIVE is established directly. The PREPOSITION use of *bei*² 界 is extracted from the lexical structure of GIVE. These two lexical structures are related by co-indexing the extracted component from GIVE and the PREPOSITION meaning, i.e. the co-index "₃", as shown in (19).

- (19) Give: [**do'**₁ (x, [**act.on'** (x, y))]₁ CAUSE₁ (y, [**go'** (y, [**from'** (x) **to'** (z))])₃ ^ (z, [**have'** (z, y))]₁)
Preposition: ...₃

iv. The unified lexical schema of *bei*²𢦏

Central to the idea of a lexical scheme is that meanings derived from grammaticalization (or other morphological processes) are also part of the lexicon and should be adequately represented. Hence, the lexical representation of *bei*²𢦏 should be conceived as an interrelated multi-structure construct, rather than as independent structures. By combining the sub-structures above, a unified lexical schema of *bei*²𢦏 is shown in (20) below:

- (20) [Give: [**do'**₁ (x, [**act.on'** (x, y))]₁ CAUSE₁ (y, [**go'** (y, [**from'** (x) **to'** (z))])₃ ^ (z, [**have'** (z, y))]₁)
Permissive: [...₁ (... , $\emptyset$)₁ ...₁ (...₁(..., [... (... , right-of-[**do'**₂ (y, [**pred'** ...])₂])₁)]₁)
Passive: [**affected'** (x) BY (...₂ (... , [...]₂)]
Preposition: ...₃]

6. Conclusion

The paper aims to propose a structural representation for a widely acknowledged and long-studied linguistic phenomenon in South Asian languages, particularly among Chinese dialects, namely grammaticalization. Instead of representing the grammaticalized forms with independent lexical structures, I propose a lexical representation in the form of a lexical schema. The advantages of a lexical schema are twofold. First, it captures the relatedness among grammaticalized forms and delineates the sense shift along the grammaticalization path of the lexical item. Second, it facilitates cross-linguistic comparison, which may contribute to a deeper understanding of the interaction between language use and conceptualization of the world. Using the Cantonese verb *bei*²𢦏 as an example, it is hoped that the proposed lexical schema will enrich the descriptive adequacy of the modular structure of grammar.

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