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Denominal location and locatum verbs in Kavalan*

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1 Introduction

The present paper investigates the morphology, syntax, and semantics of denominal locative verbs in Kavalan, an Austronesian language in Taiwan. Clark and Clark (1979) classify denominal locative verbs into two types. A location verb denotes a location where its direct object is moved to (e.g. *to cage a bird*), whereas a locatum verb denotes a theme that is moved to a location expressed by its direct object (e.g. *to saddle a horse*). Locative verbs such as *to cage*, *to shelve*, *to saddle*, and *to butter* can be roughly paraphrased as ‘to put X in/on Y’. Other locative verbs describe the opposite relation and can be roughly paraphrased as ‘to remove X from Y’. For instance, *quarry* in *to quarry the marble* is a location verb meaning ‘to remove/extract the marble from a quarry’; *pit* in *to pit the cherries* is a locatum verb meaning ‘to remove the pit from the cherries’. Locative verbs meaning ‘to put X in/on Y’ are termed ornative verbs, whereas those that depict a removal scenario are termed privative verbs (Buck, 1993). More English examples of location, locatum, ornative, and privative verbs are listed in (1).

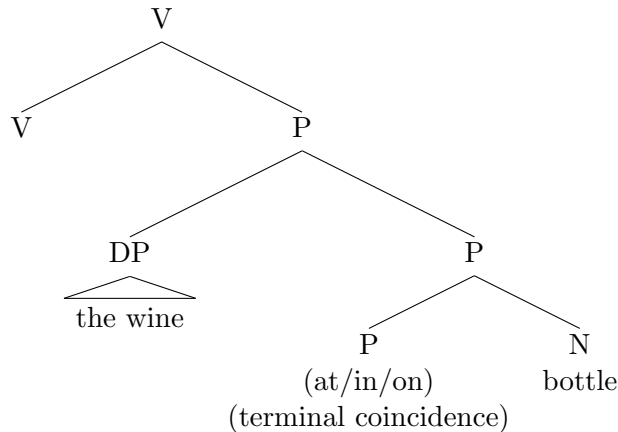
- (1) *English location and locatum verbs (examples from Buck 1993, p. 140)*

	Location	Locatum
Ornative	to BAG the groceries	to SUGAR the tea
	to SHELVE the books	to GREASE the pan
	to BOTTLE the wine	to BUTTER the bread
	to DOCK the boat	to LABEL the jars
Privative	to MINE the gold	to PIT the cherries
	to QUARRY the marble	to SKIN the rabbit

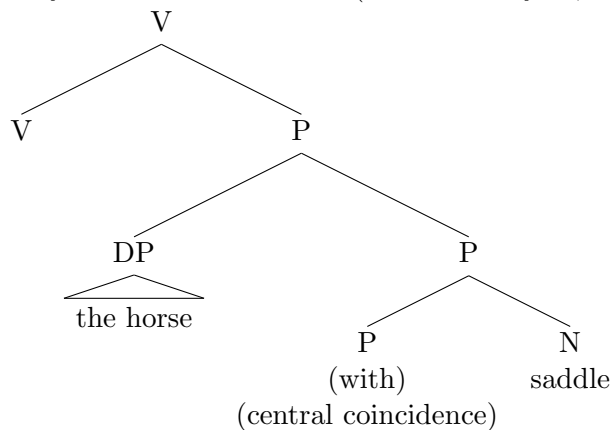
There is still no consensus on the structure of denominal locative verbs. The theoretical analyses of location and locatum verbs revolve around the issue of whether these verbs are grammatically indistinguishable or distinct from each other. Acedo-Matellán and Real-Puigdollers (2015), Hale and Keyser (1993, 2002), and Labelle (2000) analyze location and locatum verbs as two distinct classes of verbs. On Hale and Keyser’s (1993; 2002) analysis, their L-syntactic representations are identical in structure with a P projection below V, as shown in (2). Both are derived through ‘conflation’ (or incorporation) of N to (phonologically covert) P and V. The crucial difference lies in the nature of their P heads. The P head of a location verb is identified as P of terminal coincidence, which roughly corresponds to such English prepositions as *at*, *in*, or *on*. In contrast, the P head of a locatum verb is P of central coincidence, which is comparable to the preposition *with* in English.

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- (2) a. L-syntax of location verbs (Hale and Keyser, 1993, 2002)



- b. L-syntax of locatum verbs (Hale and Keyser, 1993, 2002)



Labelle's (2000) semantic analysis posits a similar contrast between location and locatum verbs, as shown in (3).

- (3) Semantic representations of location and locatum verbs (Labelle, 2000)

- a. location verb: CAUSE (x, [INCH (AT **location** (y))])
 b. locatum verb: CAUSE (x, [INCH (WITH **locatum** (y))])

However, Mateu (2001) and Harley (2005) argue that there is no grammatically-encoded distinction between location and locatum verbs. On their analysis, the two types of locative verbs are grammatically indistinguishable and both are derived from the same structure with a P head that denotes a terminal coincidence relation. Their argument is based on the empirical observation that the telicity of both types of verbs is contingent on the boundedness of their incorporated root. A locative verb is telic (e.g. *to shelve*), if its root is bounded (e.g. $\sqrt{\text{SHELF}}$); a locative verb is atelic, (e.g. *to butter*), if its root is unbounded, (e.g. $\sqrt{\text{BUTTER}}$). Any supposed differences between the two types of locative verbs should be attributed to external encyclopedic knowledge instead of grammar.

Theoretical research on the structures of location and locatum verbs has been limited to a small subset of Indo-European languages so far, especially English (Hale and Keyser, 1993, 2002), Catalan (Acedo-Matellán and Real-Puigdollers, 2015; Mateu, 2001), and French (Labelle, 2000). The present paper extends this line of research to Kavalan, an Austronesian language in Taiwan, and aims to scrutinize the two opposing theoretical proposals against the morphology, syntax, and semantics of denominal locative verbs in this language. It will be argued that the two types of

locative verbs are derived from two distinct structures. They exhibit not only morphosyntactic but also semantic differences.

Section 2 will give a brief introduction to the clause structure of Kavalan. Section 3 will discuss the morphosyntactic differences between denominal location and locatum verbs in this language. Their semantic differences will be delineated in Section 4. Section 5 will then explore how to account for the differences theoretically. Section 6 concludes the study.

2 A sketch of the Kavalan language

Kavalan is an Austronesian language in eastern Taiwan and belongs to the East Formosan subgroup of the language family (Blust, 2008; Li, 2004). Most Kavalan people currently live in Hsinshe Village, Hualien County and Changyuan Village, Taitung County. According to the census conducted by the Council of Indigenous Peoples, Executive Yuan, Taiwan, in October 2015, the Kavalan population is 1,401.¹ Nevertheless, owing to the adaptation of most Kavalan descendants to the dominant languages in Taiwan, (i.e. Mandarin Chinese and Taiwanese Southern Min) the actual number of fluent Kavalan speakers is estimated to be less than 100 (Hsieh and Huang, 2007). The Kavalan data for analysis in the present paper all belong to the Hsinshe variety and were collected during my fieldwork in Taiwan in the summers of 2014 and 2015. Unless otherwise indicated, the Kavalan examples presented here are elicited data from my fieldwork notes.

The basic word order of Kavalan is verb- or predicate-initial. The case-marking system follows the ergative-absolutive pattern (Liao, 2004). Verbs, but not non-verbal predicates, feature the Philippine-type voice system, which ‘promotes’ or ‘advances’ different thematic arguments to the absolutive subject position.² In an agent voice (AV) sentence with a semantically transitive verb, the highest DP argument, usually an agent or experiencer, receives absolutive case, while the theme or patient is marked with oblique case. The linear order between the absolutive DP and the oblique DP in an AV clause is not fixed. In an AV sentence with an intransitive verb (e.g. an unergative or unaccusative verb), the only DP argument receives absolutive case instead of oblique case. This pattern is illustrated in (4).³ Note that (4b) is an anti-passive construction despite the presence of a theme argument (Liao, 2004). In a patient voice (PV) sentence, the agent receives ergative case and must immediately follow the verb, while the theme or patient is ‘promoted’ to the absolutive subject position and usually occurs at the end of the clause. The PV pattern is exemplified in (5).

- (4) **Agent Voice:** *m-*; *mu-*; *<m>*; *∅-*
 [AV-verb (OBL-patient/theme) ABS-agent/experiencer]
- a. *maynep* [*ya sunis-ku*]
 AV.sleep ABS child-1SG.GEN
 ‘My child is sleeping.’
- b. *t<m>anuz=ti* [*tu wasu*] [*ya tuliq a yau*]
 <AV>chase=PFV OBL dog ABS wasp LNK that
 ‘That wasp chased a dog.’

¹<http://www.apc.gov.tw/portal/index.html>

²The absolutive subject is, in fact, more akin to a topic. For more detailed discussion on its properties as opposed to the oblique object in terms of definiteness and discourse functions, readers are referred to Huang and Tanangkingsing (2011), Liao (2004), and Lin (2016).

³Glossing conventions in this paper follow the Leipzig Glossing Rules. Additional glossing conventions are as follows: AV=agent voice; EXIST=existential; NCM=non-common noun marker; NHUM=non-human; PV=patient voice.

- (5) **Patient Voice:** *-an*
 [verb-PV ERG-agent/experiencer ABS-patient/theme]
 tanuz-an-na=ti [na tuliq a yau] [ya wasu 'nay]
 chase-PV-3ERG=PFV ERG wasp LNK that ABS dog that
 'That wasp chased that dog.'

3 Kavalan location and locatum verbs: Morphosyntactic differences

Location and locatum verbs in English are derived from nouns through conversion. On Hale and Keyser's (1993; 2002) L-syntactic approach, the P heads of both types of verbs in English must be phonetically null, although two different P heads are posited. Denominal location and locatum verbs in Catalan and French do not differ morphologically either, as illustrated in (6) and (7). Some location and locatum verbs in these languages are derived from nouns through conversion as in (7a) and (7c), while others take the same preposition-like prefix *em-/en-* as in (6a), (6b), (7b), and (7d). There is no correlation between conversion or affixation with either type of locative verb.

- (6) Catalan (Acedo-Matellán and Real-Puigdollers, 2015)
- a. En Jan ha em-botellat l'aigua.
 Jan has in-bottle.ed the=water
 - b. L'Elna ha en-sellat el cavall.
 Elna has in-saddle.ed the horse
- (7) French (Labelle, 2000)
- a. On remise les échelles (dans cette salle).
 one [[shed]-s] (=puts away) the ladders in this room
 - b. Jean em-poche l'argent.
 Jean em-pockets the=money
 - c. Eva cadenasasse les grilles.
 Eva [[padlock]-s] the gate
 - d. Eva em-paille des chaises.
 Eva em-straw the chairs

In contrast, denominal location and locatum verbs in Kavalan do exhibit overt morphological differences. They take distinct prefixes. In fact, their sub-classes based on the distinction between ornative and partitive verbs are morphologically marked as well.

- (8) *Prefixes of Kavalan location and locatum verbs*

	Location	Locatum
Ornative	<i>pi-</i>	<i>pu-</i>
Privative	? ⁴	<i>su-</i>

An ornative location verb is derived via *pi-* prefixation, as illustrated in (9); an ornative locatum verb takes *pu-*, as illustrated in (10); a privative locatum verb is prefixed with *su-*, as illustrated in (11). These prefixes are all obligatory.

⁴The prefixes in (8) cannot be further decomposed into *p-*, *s-*, *i-*, and *u-*, as *si-* is not used to derive a privative location verb. The prefix *si-* means 'wear' when it is attached to a noun (e.g. *si-qubu* 'wear-hat', *si-qudus* 'wear-clothes', and *si-itus* 'wear-necklace').

- (9) Ornative location verbs
- a. pi-beRasku-an-ku ya z anum
PI-bottle-PV-1SG.ERG ABS water
'I bottled the water.'
 - b. *beRasku-an-ku ya z anum
bottle-PV-1SG.ERG ABS water
 - c. pi-subuq-an-na ni imuy ya kelisiw-ku
PI-backpack-PV-3ERG ERG Imuy ABS money-1SG.GEN
'Imuy put my money in a backpack.'
 - d. *subuq-an-na ni imuy ya kelisiw-ku
backpack-PV-3ERG ERG Imuy ABS money-1SG.GEN
- (10) Ornative locatum verbs
- a. pu-waneng-an-ku ya z anum
PU-sugar-PV-1SG.ERG ABS water
'I sugared the water.'
 - b. *waneng-an-ku ya z anum
sugar-PV-1SG.ERG ABS water
 - c. pu-mian-an-ku ya baut
PU-salt-PV-1SG.ERG ABS fish
'I salted the fish.'
 - d. *mian-an-ku ya baut
salt-PV-1SG.ERG ABS fish
- (11) Privative locatum verbs
- a. su-lisli-an-ku ya baut
SU-scale-PV-1SG.ERG ABS fish
'I scaled the fish.'
 - b. *lisli-an-ku ya baut
scale-PV-1SG.ERG ABS fish
 - c. su-lubung-an-ku ya taquq
SU-skin-PV-1SG.ERG ABS chicken
'I skinned the chicken.'
 - d. *lubung-an-ku ya taquq
skin-PV-1SG.ERG ABS chicken

Moreover, as illustrated by the contrast between (12a) and (12b), a *pi*-marked location verb is ungrammatical without the patient voice (PV) marker. It cannot be \emptyset -marked for agent voice (AV). In contrast, ornative and privative locatum verbs are grammatical in either AV form (\emptyset -marked) or PV form (*-an*). The examples are given in (13). The contrast between location and locatum verbs in voice marking suggests that the location prefix, *pi-*, by itself does not derive a verb from a noun, whereas the locatum prefixes, *pu-* and *su-*, function as genuine verb-creating affixes. How to account for this difference in voice marking will be explored in Section 5.

- (12) a. pi-subuq-an-ku ya kelisiw
PI-backpack-PV-1SG.ERG ABS money
'I put the money in a backpack.'

- b. *pi-subuq=iku tu kelisiw
 PI-backpack=1SG.ABS OBL money
 ‘I put money in a backpack.’
- (13) a. pu-waneng-an-ku ya zanum
 PU-sugar-PV-1SG.ERG ABS water
 ‘I sugar the water.’
- b. pu-waneng=iku tu zanum
 PU-sugar=1SG.ABS OBL water
 ‘I sugar water.’
- c. su-lisli-an-ku ya baut
 SU-scale-PV-1SG.ERG ABS fish
 ‘I scale the fish.’
- d. su-lisli=iku tu baut
 SU-scale=1SG.ABS OBL fish
 ‘I scale fish.’

4 Kavalan location and locatum verbs: Semantic differences

Kavalan location and locatum verbs also differ in their aspectual properties. A location verb is inherently telic and non-durative, whereas the telicity and durativity of a locatum verb are contingent on the boundedness of its nominal root. Section 4.1 and Section 4.2 will discuss these two Aktionsart properties. The third semantic difference concerns the integration of the theme with the location. Details and evidence will be presented in Section 4.3.

4.1 Aktionsart: Telicity

Acedo-Matellán and Real-Puigdollers (2015) investigated the aspectual properties of locative verbs in Catalan and found that a location verb is inherently telic regardless of the boundedness of the incorporated root. As illustrated in (14a), a location verb is compatible with a time-frame adverbial. If it co-occurs with a durative adverbial, the adverbial must be construed as a temporal modifier of a result state or a sequence of identical events (SIE, MacDonald 2008) instead of a single event or process. For example, *durant un minut* in (14b) can modify the final state of the bird (i.e. being caged) but not the entire single event. The sentence can also receive an SIE interpretation where the agent kept repeating the same action for one minute.

- (14) Catalan (Acedo-Matellán and Real-Puigdollers, 2015; Mateu, 2001)
- a. Ell en-gabià el seu ocell preferit en u minut.
 he in-cage.ed the his bird favorite in one minute
- b. Ell en-gabià el seu ocell preferit durant un minut.
 he in-cage.ed the his bird favorite for one minute
 (result state interpretation or SIE interpretation; no single event interpretation)
- c. Els pirates en-terraren el tresor durant tres dies.
 the pirates in-earth.ed the treasure for three days
 (result state interpretation or SIE interpretation; no single event interpretation)

In contrast, a Catalan locatum verb can be either telic or atelic. Its telicity corresponds to the boundedness of its nominal root. For example, *fabrinà* ‘flour’ is unbounded and thus the derived locatum verb is atelic. A co-occurring durative adverbial can be construed as a temporal modifier of the entire process, as illustrated in (15a). A locatum verb derived from a bounded noun is telic and compatible with a time-frame adverbial, as illustrated in (15b).

- (15) Catalan (Acedo-Matellán and Real-Puigdollers, 2015)
- a. En Joan en-farinà el pastís durant deu segons.
Joan in-flour.ed the cake for ten seconds
(process, single-event interpretation)
- b. La Jana en-vinagrà els cogombres en cinc minuts (amb vinagre de poma).
Jana in-vinegar.ed the cucumbers in five minutes with vinegar of apple

There is no designated morpheme for either durative or time-frame adverbials in Kavalan. A temporal adverbial is invariably marked by *-an*. Whether it is interpreted as a durative or time-frame adverbial is conditioned by the semantics of the co-occurring verb phrase. This is illustrated in (16).

- (16) a. u-zusa duki-an s<m>aqay ti-utay
NHUM-two hour-AN <AV>walk NCM-Utay
‘Utay walks for two hours.’
- b. u-zusa duki-an niz-an-na=ti ni utay m-liyam ya sudad
NHUM-two hour-AN all-PV-3ERG=PFV ERG Utay AV-read ABS book
‘Utay read all the books in two hours.’

When a temporal adverbial co-occurs with a Kavalan location verb, it can be interpreted as a time-frame adverbial, as illustrated in (17a). It can receive a durative reading only when it modifies the result state instead of the entire event. For instance, *u-zusa dedan-an* in (17b) can be interpreted as ‘for two days’, as it depicts the temporal duration of the final state of the theme (i.e. being in the backpack for two days). The sentence cannot receive a process or single-event interpretation. Just like a Catalan location verb, a Kavalan location verb is inherently telic.

- (17) a. u-zusa pun-an pi-subuq-an-na ni imuy ya kelisiw
NHUM-two minute-AN PI-backpack-PV-3ERG ERG Imuy ABS money
‘Imuy put the money in the backpack in two minutes.’
- b. u-zusa dedan-an pi-subuq-an-na ni imuy ya kelisiw
NHUM-two day-AN PI-backpack-PV-3ERG ERG Imuy ABS money
result state interpretation: ‘Imuy put the money in the backpack and it’s been there for two days.’

In contrast, a Kavalan locatum verb is not necessarily telic or atelic. A temporal adverbial that co-occurs with a locatum verb can receive either a time-frame or durative interpretation. The examples in (18) are for illustration.

- (18) a. u-zusa pun-an pu-waneng-an-ku ya z anum
NHUM-two minute-AN PU-sugar-PV-1SG.ERG ABS water
‘I have been adding sugar to the water for two minutes.’
- b. u-zusa pun-an su-lisli-an-ku ya baut
NHUM-two minute-AN SU-sugar-PV-1SG.ERG ABS water
‘I scaled the fish in two minutes.’

As with English degree achievements like *lengthen* and *widen* illustrated in (19) (Hay, Kennedy, and Levin, 1999), the telicity of a Kavalan locatum verb is contingent on contextual factors, especially whether the degree of change that the location noun undergoes is bounded or unbounded. In (18a), there is no upper limit on the degree of sweetness and thus the locatum verb derived from *waneng* ‘sugar’ is atelic. In (18b), by contrast, the number of scales on one single fish is limited and thus the locatum verb derived from *lislis* ‘scale’ is telic, unless the theme refers to an indefinite number of fish.

- (19) Hay, Kennedy, and Levin (1999, p. 127)
- a. Kim is lengthening the rope. \Rightarrow Kim has lengthened the rope.
 - b. Kim is straightening the rope. \nRightarrow Kim has straightened the rope.
 - c. The soup cooled for/in an hour.

4.2 Aktionsart: Durative

The second semantic difference between Kavalan location and locatum verbs is whether they must be durative or not. The diagnostic I will use is the existential marker *yau*. When it precedes a verb, it is ambiguous between two readings. It can mark polarity emphasis or indicate progressive aspect (Sung, Sung, and Yeh, 2006).

- (20) a. *yau q<m>an tu esi na babuy ti-utay*
 EXIST <AV>eat OBL meat GEN pig NCM-Utay
 ‘Utay DOES eat pork.’ or ‘Utay is eating pork.’
- b. *yau talin-an-na ni utay ya qinpan*
 EXIST move-PV-3ERG ERG Utay ABS bed
 ‘Utay DOES move the bed.’ or ‘Utay is moving the bed.’

When *yau* precedes a location verb, only the emphatic reading is available, as exemplified in (21). However, it is ambiguous between the emphatic and progressive interpretations when it precedes a locatum verb, as exemplified in (22). The contrast suggests that a location verb is inherently non-durative, whereas a locatum verb can be either durative or non-durative.

- (21) a. *yau pi-subuq-an-na ni imuy ya kelisiw*
 EXIST PI-backpack-PV-3ERG ERG Imuy ABS money
 ‘Imuy DID put the money in the backpack.’
- b. *yau pi-tati-an-na ni buya ya kanas*
 EXIST PI-outside-PV-3ERG ERG Buya ABS basket
 ‘Buya DID put the basket outside.’
- (22) a. *yau pu-suRna-an-ku ya z anum*
 EXIST PU-ice-PV-1SG.ERG ABS water
 ‘I DID put ice cubes in the water.’ or ‘I am/was adding ice cubes to the water.’
- b. *yau su-lislis-an-ku ya baut*
 EXIST SU-scale-PV-1SG.ERG ABS fish
 ‘I DID scale the fish.’ or ‘I am/was scaling the fish.’

4.3 Theme and location: Integration or independence

Another interpretive difference between location and locatum verbs concerns the integration of the theme with the location (Buck, 1993). A location verb in English depicts a locative relation. The theme and location still remain independent and do not form one unit. However, as pointed out by Buck (1993), although a locatum verb in English can be paraphrased as ‘put X in/on Y’, it does not simply encode a locative relation. Instead, it describes a scenario where the theme is integrated into the location as its descriptive or characteristic property. For instance, the phrase *to sugar the tea* as in (23a) not only expresses ‘to add sugar to the tea’ but also implies that the property of sugar (i.e. sweetness) becomes a descriptive property of the tea. The phrase *to sugar the cup* as in (23d) is unacceptable, as the action of putting sugar in a cup lacks this additional meaning regarding the integration of the theme with the location. Likewise, the appropriate use of a privative locatum verb presupposes that the location and theme used to be one integrated unit. The unacceptability of (24e) can be attributed to the lack of this additional meaning. Groceries are not an essential or descriptive property of a bag and thus it is impossible to use *grocery* as a privative locatum verb.

- (23) Ornative locatum verbs (Buck, 1993, p. 143-144, 151)
- a. Dave sugared the tea.
 - b. Dave spiced the food.
 - c. Dave hemmed the garment.
 - d. *He sugared the cup. (intended meaning: to put sugar in the cup)
 - e. Bill beaded the string. (cf. Bill strung the beads.)
 - f. to string the guitar (cf. to string the beads)
- (24) Privative locatum verbs (Buck, 1993, p. 145-149)
- a. to scale the fish
 - b. to peel the apple
 - c. to pit the cherry
 - d. to milk the cow
 - e. *to grocery a bag (intended meaning: to remove groceries from a bag)

The same interpretive contrast between location and locatum verbs can be observed in Kavalan as well. A Kavalan location verb describes a purely locative relation where the theme and location remain independent and do not form one unit, whereas a Kavalan locatum verb depicts a scenario where the theme is integrated into the location as its descriptive or characteristic property. The interpretive contrast between (25a) and (25b) or between (25c) and (25d) offers the first piece of empirical evidence. Both (25a) and (25b) describe a locative relation between the feathers and backpack. However, only the use of a locatum verb derived through *pu-* prefixation as in (25b) implies that the feathers are placed on the backpack as an ornament. That is, the theme becomes a descriptive property of the location. A location verb derived through *pi-* prefixation lacks this additional meaning.

- (25) a. pi-subuq-an-ku ya panuz
 PI-backpack-PV-1SG.ERG ABS feather
 ‘I put the feathers in a backpack.’
- b. pu-panuz-an-ku ya subuq
 PU-feather-PV-1SG.ERG ABS backpack

- ‘I put feathers on the backpack (as an ornament).’ (‘I decorated the backpack with feathers.’)
- c. pi-subuq-an-na ni imuy ya kelisiw
 PI-backpack-PV-3ERG ERG Imuy ABS money
 ‘Imuy put the money in a backpack.’
- d. pu-kelisiw=iku tu subuq
 PU-money=1SG.ABS OBL backpack
 ‘I put coins on a backpack (as an ornament).’ (‘I decorated a backpack with coins.’)

The following examples further corroborate this analysis. Both (26a) and (26c) contain a location verb prefixed with *pi-*. In principle, it should be possible to depict the same locative relation expressed by these two sentences with a locatum verb prefixed with *pu-*. This is, however, not true. The examples in (26b) and (26d) are ungrammatical. The use of a locatum verb implies that the theme is integrated into the location as its descriptive or characteristic property. The unacceptability of (26b) and (26d) can be attributed to the lack of this additional meaning. Based on our encyclopedic knowledge, in an unmarked context, when a cup is placed on a table, the two objects still remain independent and do not become an integrated unit; if we put salt in a cup, the two entities are not fused in the sense that the cup does not become salty.

- (26) a. pi-takan-an-ku ya awa’
 PI-table-PV-1SG.ERG ABS cup
 ‘I put the cup on a table.’
- b. *pu-awa’-an-ku ya takan
 PU-cup-PV-1SG.ERG ABS table
 Intended: ‘I put a cup on the table.’
- c. pi-awa’-an-ku ya mian
 PI-cup-PV-1SG.ERG ABS salt
 ‘I put the salt in a cup.’
- d. *pu-mian=iku tu awa’
 PU-salt=1SG.ABS OBL cup
 Intended: ‘I put salt in a cup.’

Likewise, the use of Kavalan privative locatum verbs prefixed with *su-* presupposes that the location and theme used to be one integrated unit. Compare (27a) with (27b). Bones are an essential part of fish and thus it is possible to use *tines* ‘bone’ as a privative locatum verb in (27a). In contrast, imagine a scenario where you put bones in a cup while eating fish and afterwards you remove them from the cup. You cannot express this by using *tines* ‘bone’ as a privative locatum verb prefixed with *su-*, as shown by the ungrammaticality of (27b). This is because bones cannot be construed as a characteristic property of a cup.

- (27) a. su-tines-an-ku ya baut
 SU-bone-PV-1SG.ERG ABS fish
 ‘I boned the fish.’
- b. *su-tines-an-ku ya awa’
 SU-bone-PV-1SG.ERG ABS cup
 Intended: ‘I removed bones from the cup.’

4.4 Summary

Previous sub-sections have shown that Kavalan location and locatum verbs exhibit both morphosyntactic and semantic differences. Not only do they take distinct affixes but they also differ in the grammaticality of their AV forms. Location verbs are inherently telic and nondurative, while the telicity and durativity of locatum verbs are conditioned by the boundeness of their root or other contextual factors. Finally, the use of locatum verbs implies that the theme is integrated into the location as its descriptive or characteristic property, whereas location verbs lack this additional meaning. More examples of denominal locative verbs are listed in (28). Section 5 will propose a syntactic account to explain these properties of location and locatum verbs.

(28) *Kavalan location and locatum verbs: Examples and differences*

	Location	Locatum
Ornative	<i>pi-X Y: put Y in/on X</i> pi-tati ‘outside’ pi-teRaq ‘inside’ pi-ngayaw ‘front’ pi-tuRuz ‘back’ pi-teqeb ‘backyard’ pi-kanas ‘basket’ pi-teqiyaR ‘shoulder’ pi-subuq ‘backpack’ pi-beRasku ‘bottle’ pi-takan ‘table’ pi-qRawa ‘cage’ pi-kungkung ‘bucket’ pi-punku ‘dustpan’ pi-insung ‘mortar’	<i>pu-X Y: put X in/on Y</i> pu-mian ‘salt’ pu-suRna ‘ice’ pu-waneng ‘sugar’ pu-zanum ‘water’ pu-pa:n ‘bait’ pu-lawa ‘cloth’ pu-panuz ‘leather’ pu-laten ‘bead’
Privative	?	<i>su-X Y: remove X from Y</i> su-lisli ‘scale’ su-tines ‘bone’ su-lubung ‘skin’ su-panus ‘fur’
Properties	1. PV form only (<i>-an</i>) 2. telic, non-durative 3. a locative relation (The theme and location remain independent.)	1. either AV (\emptyset) or PV (<i>-an</i>) 2. telic or atelic, durative or non-durative 3. not simply a locative relation (The theme is integrated into the location as its descriptive or characteristic property.)

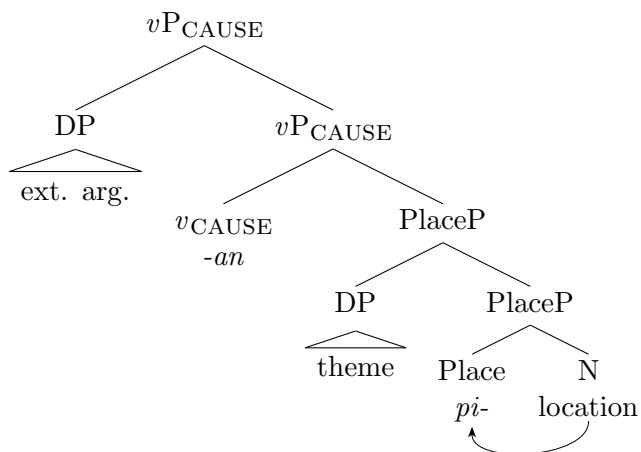
5 Functional structures of location and locatum verbs

The differences between Kavalan location and locatum verbs suggest that the two types of locative verbs are structurally distinct. The different affixes they take are overt morphological evidence for Hale and Keyser’s (1993; 2002) analysis, which posits distinct P heads for them. The following two sub-sections will elaborate on their structural differences.

5.1 Location verbs

A Kavalan location verb is derived via the incorporation of a location noun to a Place head and v_{CAUSE} , as represented in (29). Its obligatory telic and locative interpretation can be attributed to the Place component in its structure, which constitutes its end-point and establishes its boundedness. The Place head $pi-$, however, only specifies a locative relation. The contrast between (12a) and (12b) shows that a location verb must take both $pi-$ and $-an$. This indicates that $pi-$ does not function as a verb-creating head v .

(29) Functional structure of Kavalan location verbs



What assigns the external argument and turns a location noun into a verb is the PV marker, $-an$. Lin (2015) shows that the PV marker $-an$ can turn an unaccusative verb into a transitive verb. As indicated by the ungrammaticality of (30b), *sabiqbiq* ‘boil’ cannot be used as a transitive verb with an external argument in an agent voice construction. It can co-occur with an external argument only when it is suffixed with $-an$, as exemplified in (30c). Transitive interrogative verbs with an external argument are also derived through $-an$ suffixation, as illustrated in (31) (Lin, 2012, 2015). Adopting Harley’s (2009) classification of v heads, Lin (2015) thus argues that the PV marker $-an$ should be analyzed as v_{CAUSE} , which contains the features of [+dynamic], [+change of state], [+cause]. The ungrammaticality of the AV form of a denominal location verb can be attributed to the obligatory v_{CAUSE} head in its structure.

- (30) a. *sabiqbiq=ti ya z anum*
 boil=PFV ABS water
 ‘The water has boiled.’
- b. **sabiqbiq=ti=iku tu z anum*
 boil=PFV=1SG.ABS OBL water
 Intended: ‘I boiled water.’
- c. *sabiqbiq-an-ku=ti ya z anum*
 boil-PV-1SG.ERG=PFV ABS water
 ‘I boiled the water.’
- (31) a. *tanian-an-su ya kelisiw-su?*
 where-PV-2SG.ERG ABS money-2SG.GEN
 ‘Where do you put your money?’
- b. **tanian=isu tu kelisiw-su?*
 where=2SG.ABS OBL money-2SG.GEN

(Lin, 2015, p. 267)

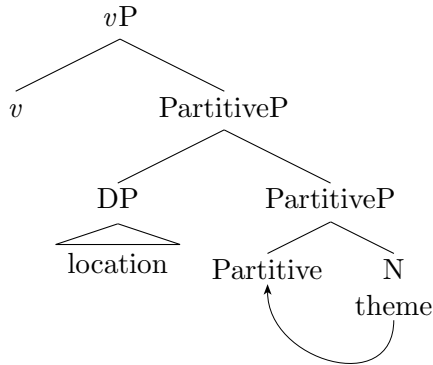
Intended: ‘Where do you put your money?’

(Lin, 2015, p. 274)

5.2 Locatum verbs

As discussed in Section 4.1, the telicity of a Kavalan locatum verb is contingent on contextual factors, especially whether the degree of change that the location noun undergoes is bounded or unbounded. This suggests that its derivation involves the incorporation of the theme noun into a non-locative P head that does not influence the telicity of the derived verb. Following Acedo-Matellán and Real-Puigdollers’s (2015) analysis of Catalan, I call this P head Partitive. The structure of a Kavalan locatum verb is represented in (32).

(32) Functional structure of Kavalan locatum verbs



While a Kavalan location verb strictly denotes a locative event due to the Place head, the Partitive head of a locatum verb induces a connotation where the theme and the location are integrated as a unit. Moreover, as the locatum prefix *pu-* by itself can turn a noun into a verb without any overt voice affixes, it should not be identified as the Partitive head only. Within the framework of Nanosyntax, a morpheme does not necessarily correspond to one single terminal, but can be the spell-out of syntactic sub-trees (Starke, 2009). Due to its dual function as both a verb-creating head and a locatum prefix, *pu-* should be construed as the spell-out of a syntactic sub-tree that contains both *v* and Partitive. Any voice marker on a *pu-*marked locatum verb should be analyzed as an additional *v* or Voice head above the functional structure in (32).

6 Conclusion

Kavalan denominal location and locatum verbs exhibit different morphosyntactic and semantic properties. Denominal locative verbs do not constitute a homogeneous class. First of all, location and locatum verbs take distinct affixes. Within the latter class, ornative and privative verbs are also morphologically distinguished. Secondly, a *pi-*marked location verb must take the PV marker *-an*, whereas there is no such voice restriction on a locatum verb. This contrast suggests that the location prefix *pi-* does not function as a verb-creating *v* head, but the locatum prefixes *pu-* and *su-* do. Thirdly, while a location verb is inherently telic and non-durative, the telicity and durativity of a locatum verb is conditioned by the boundedness of the incorporated root or nonsyntactic contextual factors. Finally, a location verb denotes a purely locative relation, whereas a locatum verb depicts a scenario where the theme is integrated into the location as its descriptive or characteristic property. These morphosyntactic and interpretive differences suggest that the derivations of location and locatum verbs involve distinct functional projections. The functional structure of a location verb contains a Place head and a *v*_{CAUSE} head, while that of a locatum verb contains a Partitive head and an underspecified *v* head.

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