



Degree Possession Is a Subset Relation (As Well)

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Abstract. The structure and meaning of possessive verbs have received several competing analyses in the literature. Almost all the analyses were developed based on the English ‘have’ and were intended to apply crosslinguistically. In this paper I consider the peculiar degree use of the Chinese possessive verb *yǒu*, in the ‘X+ *yǒu* + Y + G(radable predicate)’ construction. This degree use of *yǒu* takes a covert small clause as the underlying object that specifies a subset relation between two degree intervals. In this use, *yǒu* does not make semantic content contribution, and only provides a formal mechanism for its subject to bind a variable in the covert small clause object. The degree use of *yǒu* shares the same structure and meaning as its other uses. In addition, I argue that no existing alternative analysis of possessive verbs can capture the degree use of *yǒu*. In this sense, the paper locates among several analyses of possessive verbs the most explanatorily adequate one, through examining a language-specific phenomenon.

1 Introduction

The structure and meaning of possessive verbs have received a considerable amount of discussion in the literature. It is well-accepted that they can appear in a variety of surface constructions and have a rather unconstrained range of meanings. Intuitively, the meanings of the English verb ‘have’, for example, range from being very clear (1a-c), to being less clear (1d-e), to being very vague (1f-g) (Cowper 1989, Belvin 1993, Ritter & Rosen 1997).

- (1) a. John **has** a new car. (possession)
- b. John **has** a headache today. (experience)
- c. John **had** a talk with his son. (event)
- d. John **had** many visitors today. (experience?)
- e. John **had** a guy shouting at him. (event?)
- f. The baby often **has** a story at bedtime. (?)
- g. The shirt **had** a button pop off of it. (?)

This heterogeneous range of surface meanings of ‘have’ is not unique to English (see Gutiérrez-Rexach 2006 for similar data in Spanish). In Chinese, the exact meaning of the possessive verb *yǒu*, often taken to be the equivalent of the English ‘have’, can too fall anywhere between being very clear and being pretty murky, as illustrated below.

- (2) Zhāngsān **yǒu** yī liàng xīn chē. (possession)
Zhangsan have one CL new car
 ‘Zhangsan has a new car.’
- (3) hěnduō difang dōu **yǒu** zhè zhǒng qíngkuàng. (existence)
many place all have this CL situation
 ‘This kind of situation exists in many places.’
- (4) Wáng yīshēng jīntiān **yǒu** hěnduō bìngren. (experience?)
Wang doctor today have many patient
 ‘Dr. Wang has many patients today.’
- (5) tā guāng běijīng jiù qù le **yǒu** hǎojǐ tàng. (?)
he alone Beijing EMP go ASP have quite a few round of trip
 ‘He went to Beijing quite a few times, (let alone other places.)’
- (6) tāde chèn yī **yǒu** ge niǔkòu diào le. (?)
his shirt have CL button pop off ASP
 ‘His shirt has a button pop off of it.’

Given the divergent surface meanings that possessive verbs like ‘have’ and *yǒu* can express, it is reasonable to ask Question 1 below. On the intuitive level, the different uses of possessive verbs appear to be related in terms of the structure and meaning. Therefore, it is an interesting research topic to explore whether and how they are reducible to a common syntactic representation and semantic derivation.

Question 1: Do possessive verbs in the variety of surface patterns have a single underlying structure and a single core meaning?

There have already been several competing proposals in the literature that attempt to give a unified analysis of possessive verbs (Freeze 1992, Landman 2004, Partee 1999, Ritter & Rosen 1997, Sæbø 2009, Iatridou 1996, among others). Almost all of the analyses were developed based on the English ‘have’. They were nevertheless intended to apply crosslinguistically. Though empirical evidence within English probably can help pick one

analysis over the others, language-specific patterns from other languages may be of more immediate use for the purpose. In this paper, I discuss the degree use of the Chinese possessive verb *yǒu*. While using Chinese data to address Question 1, I also hope to answer another related question given below.

Question 2: Is there any independent, crosslinguistic evidence to validate one analysis of possessive verbs and rule out the others at the same time?

In Chinese there exists a construction – what I call the possessive degree construction – where the possessive verb *yǒu* takes a degree-denoting object. The construction provides an essential clue to answering the two questions raised above. In the next section, I present the general pattern and properties of the possessive degree construction. Then, in section 3 I discuss some non-degree uses of *yǒu* to motivate the small clause-based analysis of possessive verbs (Sæbø 2009, Iatridou 1996). This is the analysis that I adopt for non-degree uses of *yǒu* and that I hope to extend to its degree use. In section 4, I analyze the possessive degree construction and argue that the overt degree-denoting object of *yǒu* in the construction is always supplemented by an appropriate covert predicate. The predicate specifies a subset relation between two intervals of degree, and contains a variable that is eventually bound by the subject of *yǒu*. *Yǒu* does not have any semantic content. Rather, it only provides a formal mechanism to make the binding possible. Moreover, the binding is necessary because otherwise the subject would be redundant (Sæbø 2009). In this sense, the degree use of *yǒu* is not different from its non-degree uses, in that for all the uses the verb embeds a small clause as the underlying object. In section 5, I discuss three existing alternative analyses of possessive verbs and show that they all face some empirical or theoretical challenges when being extended to the possessive degree construction.

2 Chinese data

The Chinese possessive verb *yǒu* can embed a similar variety of linguistic expressions to its English counterpart ‘have’. In addition, the Chinese verb can appear in the construction in (7), to express that X exceeds or equals Y in terms of the dimension specified by the gradable predicate G.

(7) X + *yǒu* + Y + G

The sentence in (8) is a concrete illustration of the general pattern. Here *zhāngsān* corresponds to the X element, *Lìsì* the Y element, and *gāo* the G element. The sentence means that, to put it a bit verbosely, Zhangsan exceeds or equals Lisi in terms of the dimension specified by ‘tall’ (i.e. height).

- (8) Zhāngsān **yǒu** Lǐsì gāo.
Zhangsan have Lisi tall
 ‘Zhangsan is at least as tall as Lisi.’

It is worth some space to discuss a few essential restrictions on the individual components in the construction. First, the construction expresses comparison between X and Y along the dimension specified by G. For the comparison to be meaningful, the referents of X and Y must be comparable with respect to the dimension. Otherwise, pragmatic infelicity would arise. The infelicity of (9) is due to the mundane fact that sunlight cannot be measured along the dimension specified by *zhòng* ‘heavy’ (i.e. weight)¹.

- (9) %yángguāng méi **yǒu** zhuōzi zhòng.
sunlight not have table heavy
 ‘%The sunlight is not as heavy as the table.’

Second, in addition to being an entity- or event-denoting expression, the Y element also can be a measure phrase. In this case, G can be omitted if the context is clear regarding the dimension for the measure phrase. For example, if the speaker and hearer are explicitly discussing the height of individuals and excluding width and thickness, the adjective *gāo* ‘tall’ in (10) is optimal:

- (10) Zhāngsān **yǒu** liù yīngchǐ (gāo).
Zhangsan have six foot tall
 ‘Zhangsan is at least six feet tall.’

Third, because the G element specifies a dimension against which X and Y are measured, G must be an element that expresses a gradable notion. Non-gradable predicates cannot characterize a dimension and thus cannot act as G. The sentence in (11) is ungrammatical, because something is either imported or not, and there is nothing in between. When the gradability requirement is met, G can be an adjective, adverb, or verb phrase ((8), (10), (12), (13)).

- (11) *zhè ge páizi **yǒu** nà ge páizi jìnkǒu.
this CL brand have that CL brand imported
 ‘*This brand is at least as imported at that one.’
- (12) Zhāngsān pǎo de **yǒu** Lǐsì kuài.
Zhangsan run DE have Lisi fast
 ‘Zhangsan runs at least as fast as Lisi does.’

¹ The ‘%’ symbol indicates pragmatic infelicity, and ‘*’ indicates ungrammaticality.

- (13) Zhāngsān méi **yǒu** Lǐsì zūnjìng lǎoshī.
Zhangsan not have Lisi respect teacher
 ‘Zhangsan does not respect teachers as much as Lisi does.’

Fourth, a demonstrative pronoun such as *zhème* ‘this’ and *nàme* ‘that’ can intervene between Y and G, without affecting the meaning. The sentence in (14) contains *nàme* between *Lǐsì* and *gāo* and has the same meaning as (8).

- (14) Zhāngsān **yǒu** Lǐsì *nàme* gāo.
Zhangsan have Lisi that tall

The possessive degree construction has been discussed in many Chinese grammar books and descriptive linguistics literature (Lü 1980, Zhu 1982, *inter alia*). However, as far as I know, it has received no theoretical analysis so far, despite the fact that possessive verbs in general have drawn considerable theoretical attention over the past two decades. In particular, there exist four major groups of analyses of possessive verbs. The gist of each group is given in (15). Because almost all the discussion is based on the English ‘have’, in (15) I use ‘have’ to represent possessive verbs. None of the analyses explicitly address the question of whether they are applicable to the possessive degree construction, probably because English does not have the exact equivalent of the construction. In this sense, the possessive degree construction deserves serious consideration. It is likely that it can be used as a test to tell which analysis or which analyses of possessive verbs is/are on the right track. In this paper I show that the construction does indeed endorse the small clause analysis over the three alternative analyses. In the next section, I will first cite some non-degree uses of *yǒu* as empirical motivations for the small clause analysis.

- (15) a. **Locative existential** (Freeze 1992)
 ‘Have’ sentences and existential sentences have the same underlying structure and are similarly derived.
- b. **Semantic incorporation** (Landman 2004):
 ‘Have’ denotes a ‘contentless’ relation saturated by its relational object.
- c. **Type-shifting analysis** (Partee 1999):
 ‘Have’ specifies some relational property to its object.
- d. **Small clause analysis** (Sæbø 2009, Iatridou 1996):
 ‘Have’ embeds a small clause that links the subject and the object.

3 Motivating the small clause analysis

Sæbø (2009) and Iatridou (1996), among several others, proposed that the underlying object of possessive verbs is a small clause (SC), which can be either pronounced or unpronounced. The SC object consistently contains a variable, either in the argument or in the predicate of the SC. Possessive verbs make no content contribution. They only make it possible and necessary for their subject to bind a variable in the SC object.

It is a legitimate question to ask at this point whether the SC analysis, originally developed based on English ‘have’, can be extended to the Chinese possessive verb *yǒu*. Because of the similar behaviors of non-degree uses of *yǒu* and ‘have’, as evident from the example sentences in (1-6), the analysis can be maintained (at least) for non-degree uses of *yǒu*. Out of space consideration, in this section I discuss just a few pieces of evidence from Chinese to support this claim².

First, non-degree uses of *yǒu* can take an explicit SC as the object. In this case, the SC must contain a variable which the subject of *yǒu* can bind. This variable is usually the internal argument of a relational noun in the SC. For example, in (16) the overt object of *yǒu*, *yīxiē língjiàn huài le* ‘some parts broken’, expresses a proposition on its own and is an SC. The noun *língjiàn* ‘a (mechanical) part’ expresses a relational notion because a part is always a part to some host (a computer, a car, etc.). The internal argument of the relational noun *língjiàn* behaves like a variable which needs to be bound by the matrix subject. The sentence can be paraphrased as (17), which does not contain the verb *yǒu* and has the internal argument of *língjiàn* ‘a part’ filled by *jīqì* ‘a machine’. The equivalence of meaning indicates that in the original sentence (16) *yǒu* has no semantic role to play. It only provides a mechanism such that the matrix subject can fill the internal argument of the relational noun. Sæbø (2009) has explicitly argued that the saturation is achieved through the matrix subject binding a variable in the SC object.

- (16) *jīqì yǒu yīxiē língjiàn huài le.*
machine have some part broken ASP
 ‘The machine has some parts broken.’

- (17) *yīxiē jīqì língjiàn huài le.*

² Chinese has no morphological tense or semantic tense (Lin 2005). Thus in Chinese it is difficult to tell small clauses from regular clauses. For simplicity I stick to using the term ‘small clause’.

Second, when non-degree uses of *yǒu* take a definite phrase in its object, the phrase must be followed by an overt predicate. The overt predicate has to include a covert variable for the matrix subject to bind. For example, in (18) *xià chǎng bǐsài* ‘the next competition’ refers to one particular competition and is a definite expression. Its presence in the sentence is ungrammatical unless it is supplemented by a predicate such as *yào cānjiā* ‘has to attend’. Crucially, the predicate itself contains a variable which corresponds to the agent role for *cānjiā* ‘attend’. The matrix subject binds the covert variable. *Yǒu* makes the binding possible and necessary. The sentence, just like in (16), can be paraphrased as (19) without the verb *yǒu* but with the subject of *yǒu* filling the subject position of the resulting clause. Again, the equivalence of the two sentences suggests that *yǒu* makes no semantic contribution to the meaning of the sentence, except for providing a formal mechanism whereby the subject of *yǒu* binds a variable in the SC object.

(18) tā hái **yǒu** xià chǎng bǐsài *(yào cānjiā).
he still have next CL competition must attend
 ‘He still has the next competition *(to attend).’

(19) tā hái yào cānjiā xià chǎng bǐsài.

The two cases that I have considered both involve an overt SC as the object of *yǒu*. There exist many cases in which *yǒu* embeds a surface DP object without an overt supplementing predicate. For such cases, the surface DP can be understood to be supplemented by an implicit predicate. For instance, for the ‘canonical’ possessive use of *yǒu*, its surface object is a DP (20). With the SC analysis of possessive verbs, the possessive interpretation does not come from the verb *yǒu* per se. Rather it is contributed by a covert predicate which requires the referent of the subject to be in possession of the referent of the object. Crucially, the predicate cannot be a random one, but is restricted by an essential attribute of the object with respect to the subject. A person and a book, for example, are essentially related by the possessor-possessee relation (Gutiérrez-Rexach 2006). On the other hand, the predicate contains a variable for the matrix subject to bind; otherwise the subject would be redundant. Given all the considerations, the covert predicate for the canonical possessive interpretation of possessive verbs is something like ‘belonging to *e*’, with the variable *e* being bound by the matrix subject.

(20) Mǎlì **yǒu** yī běn shū [shǔyú *e*].
Mary have one CL book belong to
 ‘Mary has a book.’

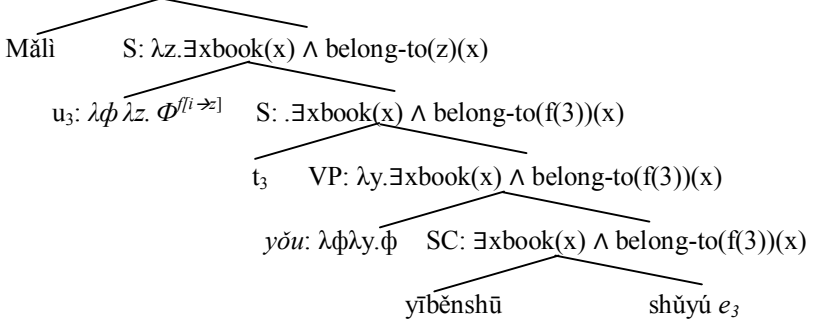
To cast the above discussion in a more formal manner, I follow Sæbø's (2009) syntactic specification and semantic representation of possessive verbs. In his analysis, possessive verbs assume the semantic role of abstraction. They transform the SC object into a predicate by abstracting over a variable x_i co-indexed with the matrix subject. However, in order to avoid *yōu* making counter-intuitive direct reference to variable indexing, the matrix subject undergoes Quantifier Raising ((21), from Büring 2004). The predicate transformed out of the SC absorbs the trace of the QR-ed subject. The trace variable binder introduced by the QR, via variable assignment, makes the variable coming from the SC bound by the subject (23). The matrix subject has to bind the variable in the SC, to avoid the fate of being redundant. As an illustration, the Logical Form and semantic derivation of the sentence in (20) is given in (24), with some irrelevant details omitted.

- (21) i. substituting a trace t_i for a DP Q_i ;
 ii. adjoining Q (without the index) to a dominating node;
 iii. adjoining a trace binding operator u_i to the sister of Q.

$$(22) \llbracket \text{have} \rrbracket = \lambda\phi_{(st)} \lambda x_e. \phi \quad (s \text{ is the type of states})$$

$$(23) \llbracket u_i \rrbracket^f = \lambda\phi \lambda z. \llbracket \Phi \rrbracket^{f[i \rightarrow z]} \quad (f \text{ is a variable assignment function.})$$

$$(24) \text{ S: } \exists x \text{book}(x) \wedge \text{belong-to}(\text{Mary})(x)$$



Hopefully, thus far I have established that the SC analysis of possessive verbs can provide a successful account of non-degree uses of Chinese *yōu*. The most natural next step is to examine whether this analysis can be maintained for the possessive degree construction. This step is a logical variant of Question 1 raised in section 1. In the next section, I show that the SC analysis indeed can be extended to the possessive degree construction.

4 Analyzing the degree use of *yǒu*

One essential component of the SC analysis of possessive verbs is, obviously, that their underlying object is consistently an SC. In an attempt to apply the analysis to the possessive degree construction, the first task should be to determine the SC for the construction. For convenience of reference I will use (8) as my example sentence.

- (8) Zhāngsān **yǒu** Lìsì gāo.
Zhangsan have Lisi tall
 ‘Zhangsan is at least as tall as Lisi.’

It is worth pointing out that *Lìsì gāo* in the overt object position of (8) cannot be an SC. Here is some evidence for the claim. First, suppose it is an SC, then it would express some proposition. Because *yǒu* does not affect entailment, one would then expect (8) to entail the proposition expressed by *Lìsì gāo*, whatever it is³. However, the entailment does not go through.

Second, as discussed in section 2, a demonstrative pronoun such as *nàme* ‘that’ and *zhème* ‘this’ can optionally intervene between *Lìsì* and *gāo*, without affecting the meaning. In Chinese, these demonstrative pronouns cannot make reference to a proposition. This is another piece of evidence that *Lìsì gāo* does not denote a proposition and cannot be an SC.

Third, a limited number of dimension nouns can act as G. For example, in (25) the Y element *zúqiú* ‘a soccer ball’ is followed by the dimension noun *dàxiǎo* ‘big-small, size’. It is obvious that *zúqiú dàxiǎo* is not an SC. Rather it denotes a degree, the size of a soccer ball.

- (25) nà ge mógū **yǒu** zúqiú dàxiǎo.
that CL mushroom have soccer ball size
 ‘The mushroom is at least as big as a soccer ball.’

From the evidence discussed above, I conclude that the ‘Y + G’ chunk itself is not an SC. Instead it denotes a degree, viz. Y’s degree on the dimension specified by G. For example, in (8) *gāo* provides the dimension (i.e. height) against which Lisi is measured. *Lìsì gāo* denotes Lisi’s height, not the proposition ‘Lisi is tall’ or some other proposition.

We have already seen that the possessive degree construction expresses some comparative relationship. For a comparison to make sense, the two comparison items have to be comparable in the first place. For the possessive

³ I deliberately remain vague here, because, if used as a clause, *Lìsì gāo* can mean ‘Lisi is tall’ or ‘Lisi is taller’, depending on the context in which it is used.

degree construction, one comparison item is Y's degree on the dimension specified by G (e.g. Lisi's height for (8)); the other comparison item has to be some degree associated with X.

Furthermore, the degree denoted by the other comparison item cannot be just any random degree associated with X (e.g. Zhangsan's width for (8)). Rather, it is X's degree along the dimension specified by G (e.g. Zhangsan's height for (8)). This restriction is guaranteed by the fact that Chinese does not allow cross-dimension comparison using a comparative construction. For example, while (26) is perfect in English, its Chinese equivalent is not grammatical. The interested reader can refer to Kennedy (2007) for discussion on this crosslinguistic contrast.

(26) The door is taller than the table is wide.

(27) *mén gāo bǐ zhuōzi kuān.
door tall than table wide

Thus, the two comparison items of the possessive degree construction are degrees on the same dimension. Independently, a degree on a dimension is modeled as an interval that ranges from the minimum point on that dimension to where the degree ends. It is not the maximum point of the degree interval (Seuren 1978, von Stechow 1984, Kennedy 1997, 2001). One motivation for this representation of degree comes from the Cross-Polar Anomaly (CPA) as illustrated by (28), which involves positive and negative pairs of adjectives. Treating degrees as points cannot explain the anomaly. In addition, in the interval-based representation, degrees are classified into two types: positive degrees vs. negative degrees. The CPA is anomalous because it involves comparison of degrees of opposite polarity (Kennedy 1997, 2001).

(28) *The computer is more expensive than the book is cheap.

It follows that the possessive degree construction compares two degree intervals. Moreover, the two degree intervals fall on the same dimension and have the same starting point. I assume that possessive verbs generally characterize essential relations (e.g. possession, kinship, part-whole, etc.) between the subject and the object. Only when an essential relation is impossible will an 'accidental' relation (e.g. location, custody) come to rescue (Gutiérrez-Rexach 2006). The most essential relation that can exist between two intervals as specified above is one interval being the sub-interval of the other. But which one is the sub-interval, and which one is the super-interval? To answer this question, it is helpful to look at some other uses of possessive verbs for hints.

Possessive verbs can express the part-whole relation. On the intuitive level, the part-whole relation coincides with the subset relation. For example, (29) says that the three relevant doors exist as part of the house. It is equivalent to saying that the set whose elements are the three doors is a subset of the set that contains all the constituents of the house. Possessive verbs can characterize the kinship relation as well. The kinship relation can also be construed as a subset relation. For (30), the set that contains the cousins is a subset of the set that contains, say, all John's relatives. In addition, the locative use of possessive verbs, as exemplified in (31), characterizes a 'part-whole' relation that is restricted to a location (e.g. 'on his left leg') (Gutiérrez-Rexach 2006). Hence the locative use can be understood as involving a subset relation, too. For space consideration, I will not discuss how other non-degree uses of possessive verbs characterize the subset relation. The discussion based on the English 'have' applies to (at least the non-degree uses of) the Chinese *yǒu*.

(29) The house has three doors.

(30) John has cousins.

(31) John has a birthmark on his left leg. (Gutiérrez-Rexach 2006)

It is clear that the set associated with the object is the subset, and the set associated with the subject is the superset. That is, the subject of possessive verbs is 'super-ordinate' to the object. I assume that the same consideration applies to the possessive degree construction. In addition, the subinterval relation is tantamount to the subset relation⁴. Therefore, for the possessive degree construction 'X + *yǒu* + Y + G', X's degree on the dimension specified by G is the superinterval/superset; Y's degree on the dimension is the subinterval/subset. My analysis thus far predicts that for the possessive degree construction to be true, X's degree on the dimension specified by G is a superinterval/superset of Y's degree on the same dimension. More concretely, for (8) to be true Zhangsan's height has to be a superinterval of Lisi's height. This prediction conforms to native intuition.

Under the SC analysis of possessive verbs, *yǒu* cannot directly set up the subinterval/subset relation between the two degrees in the possessive degree construction. Moreover, the 'Y + G' chunk explicitly contributes one of the two comparison items, but there is nothing in the surface construction that contributes the other comparison item, viz. X's degree on the dimension

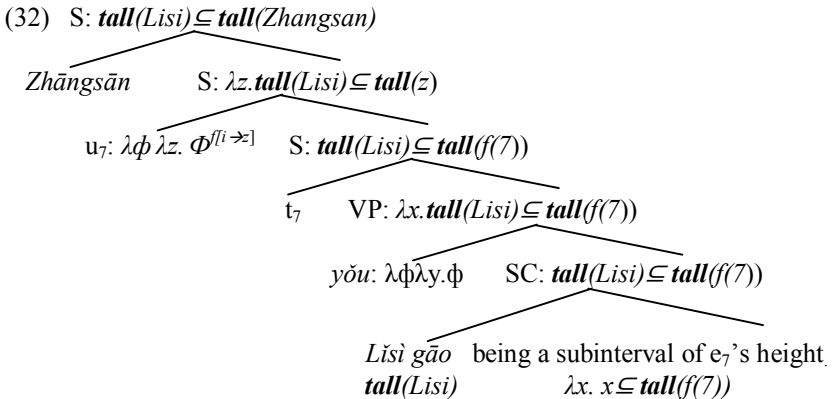
⁴ In this paper, I chose to use 'subinterval' rather than 'subset' when discussing the possessive degree construction, simply because I think it more intuitive to use the former.

specified by G. Under the SC analysis of possessive verbs, both the second comparison item and the subinterval relation should have an independent place in the representation.

More explicitly, the second comparison item and the subinterval relation are given by the covert predicate supplementing the overt object of *yǒu* and the binding of a variable in the covert predicate by the matrix subject. In general, the covert predicate supplementing the ‘Y + G’ chunk is something like ‘being a subinterval of *e*’s degree on the dimension specified by G’, with the variable *e* being bound by the subject. For (8), the covert predicate is ‘being a subinterval of *e*’s height’.

Under this specification, the degree use of *yǒu* also takes a covert SC as its underlying object, which contains a variable in the predicate for the matrix subject to bind. Just like its non-degree uses, the degree use of *yǒu* makes no content contribution to the semantics of the sentence in which it appears. It provides a formal means to make not only possible but also necessary the binding of the variable in the SC object by the matrix subject.

The formal syntactic representation and semantic derivation for (8) are given in (32). Here I assume *gāo* ‘tall’ to be a function from an individual to the height of that individual. Obviously, (32) is exactly parallel to (24). This suggests that the degree use of *yǒu* is not different from the non-degree uses in terms of the syntax and semantics. All the verb accomplishes is abstraction: it indirectly contributes a lambda for a variable in its object, which is always an SC on the underlying level.



As an interim summary, the SC analysis of possessive verbs not only explains the non-degree uses but also the degree use as exemplified by the Chinese possessive degree construction. Hence, the analysis is explanatorily

adequate in treating all uses of possessive verbs. The adequacy of the SC analysis suggests that possessive verbs have a single underlying structure and a single core meaning in the variety of surface patterns where they appear. The discussion so far has answered Question 1 raised in section 1.

As pointed out earlier in this paper, the SC analysis is just one of the proposals that are available in the literature regarding the syntax and semantics of possessive verbs in general (see (15)). Can any of the three competing analyses provide an equally satisfactory account of the possessive degree construction? If the answer is negative, then the possessive degree construction is a good test to endorse the SC analysis and rule out the alternative analyses. The next section shows that this is indeed the case.

5 Competing analyses

In section 2, I divided the analyses competing against the SC analysis into three groups: Locative Existential (Freeze 1992), Semantic Incorporation (Landman 2004), and Type-shifting Analysis (Partee 1999). In this section I give a brief summary of each proposal and explain why it cannot be extended to the Chinese possessive degree construction.

According to the Locative Existential analysis, possessive sentences of various kinds are existential sentences with a locative argument in the subject position. Extending the proposal to the possessive degree construction, it amounts to saying that, just like existential sentences in Chinese, the construction has an underlying structure in which the matrix subject starts as a preposition phrase of some form. This runs afoul of native intuition. More explicitly, if the subject of the possessive degree construction is a preposition phrase in the underlying structure, it would have to predicate of the location of the degree denoted by the ‘Y + G’ chunk (e.g. *Lìsì gāo*). A degree is not an individual but an interval on a dimension. It cannot be predicated of or restricted by a preposition phrase. This is evident from the ungrammaticality of the sentence in (34), as compared to (33).

(33) *yī běn shū zài zhuōzi shàng.*
one CL book at table on
 ‘There is a book on the table.’

(34) * *wǔ mǐ zài zhuōzi shàng*
five meter at table on

The semantic incorporation analysis proposed by Landman (2004) holds that ‘have’ denotes a ‘contentless’ relation between two entities and a state. The object of ‘have’ denotes a ‘contentful’ counterpart of such a relation.

After the object intersects with ‘have’, the result is exactly the same as the object. The rest of the proposal does not matter for the purpose of this paper. As Landman himself admitted, the analysis is restricted to cases where ‘have’ embeds relational nouns. It cannot be extended to the possessive degree construction, because the ‘Y + G’ chunk does not express a relational notion of any sort. Lisi’s height (*Lìsì gāo*), for example, is a degree that exists on its own right and does not have to relate to anything else for it to be degree.

The type shifting analysis by Partee (1999) differs from Landman’s in that there is a division of labor between ‘have’ and its object. Both are ascribed relational denotations. In addition, in its semantics ‘have’ specifies some property for its object. One general drawback of this analysis is an unnatural prediction it makes, viz. that ‘have’ is lexically ambiguous among all the possible properties that it can establish for its object. There is another more specific problem with the analysis when extending it to the Chinese possessive degree construction. Because the semantics of ‘have’ is defined with reference to what object it takes, the analysis requires the degree use of *yǒu* to include in its semantics the gradable predicate G. Intuitively, it is undesirable for a possessive verb to incorporate an adjective, an adverb or a verb in its semantic denotation.

6 Conclusions

The degree use of *yǒu* is not different from its other uses in terms of the structure and meaning. They all take a small clause as the underlying object, which can be either overt or covert. *Yǒu* is a functional item that does not have semantic content on its own. It just provides a formal mechanism for its subject to bind a variable in its small clause object. The small clause analysis provides a satisfactory explanation of the degree use of *yǒu*. I have shown that other alternative proposals available in the literature all face empirical or theoretical challenges. The discussion suggests that the small clause analysis best captures the whole range of uses of possessive verbs.

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