



Universiteit
Leiden
The Netherlands

Transitive psych-predicates

Cheng, L.L.; Sybesma, R.P.E.; Li, H.Y.A.; Simpson, A.; Tsai, W.T.D.

Citation

Cheng, L. L., & Sybesma, R. P. E. (2014). Transitive psych-predicates. In H. Y. A. Li, A. Simpson, & W. T. D. Tsai (Eds.), *Chinese syntax in a cross-linguistic perspective* (pp. 207-228). Oxford: Oxford University Press. doi:10.1093/acprof:oso/9780199945658.003.0008

Version: Publisher's Version

License: [Licensed under Article 25fa Copyright Act/Law \(Amendment Taverne\)](#)

Downloaded from: <https://hdl.handle.net/1887/3245252>

Note: To cite this publication please use the final published version (if applicable).

Transitive Psych-Predicates

LISA LAI-SHEN CHENG AND RINT SYBESMA

1. Introduction: Chinese Objects

In Chinese languages we find a number of interesting phenomena when we look at objects. First of all, verbs in Mandarin (as well as in other Chinese languages) seem to have a lot of freedom in taking non-thematic objects, that is, locative, temporal, instrumental and reason objects, as shown in (1). Huang (2006) attributes this freedom to the high degree of analyticity that Chinese is supposed to have: lexical verbs in Chinese are not conflated in the lexical structure, and this allows them to have more freedom in the type of objects they take. Barrie and Li (Chapter 7 of this volume) link this property to the lack of Case morphology in Chinese.

- (1) a. tā kāi-le yī-liàng tǎnkèchē. (data from Huang 2006; tones added)
 he drive-PERF one-CL tank
 'He drove a tank.'
- b. tā kāi zuǒbiān, wǒ kāi yòubiān.
 he drive left-side, I drive right-side
 'He drives [on] the left side, I drive [on] the right side.'
- c. tā kāi báitiān, wǒ kāi wǎnshang.
 he drive day, I drive night
 'He drives [in] daylight, I drive [at] night.'
- d. tā kāi jiàzhào, wǒ kāi shēnfènzhèng.
 he drive license, I drive ID-card
 'He drives [with] a driver's license, I drive [with] an ID card.'
- e. wǒ kāi hǎo-wán.
 I drive good-play
 'I drive [for] fun.'

Second, there are verbs (generally counterparts of unergative verbs in English) that have a “dummy” object, that is, an object that does not seem to contribute much meaning (Cheng and Sybesma 1998). Here are some examples:

- (2) *chī-fàn* 'eat-rice = eat'
kāi-chē 'drive-car = drive'
bān-jia 'move-house = move'
pǎo-bù 'run-step = run'
zǒu-lù 'walk-road = walk'

For a more complete discussion of these VO-combinations, we refer to Cheng and Sybesma (1998), but here we want to stress, first, that the dummy objects are syntactically active objects (they are, for instance, in complementary distribution with other, more referential or more contentful objects, as illustrated in (3), order irrelevant) and, second, that in the relevant meaning these verbs require an object. In relation to the latter point, it must be noted that this class of dummy objects falls into two categories: for some, deletion of the object leads to a change in meaning. For instance, whereas *pǎo-bù* means 'run, jog,' *pǎo* by itself means 'run away, escape.' The other class keeps its original meaning when there is no overt object but, significantly, it is interpreted as if there is an empty object, which, in Chinese, is automatically referential (Huang 1982). Thus, while *chī-fàn* means 'eat,' *chī* by itself is interpreted as *chī* $\emptyset$ 'eat it.' We return to this point below.

- (3) a. *pǎo* (**bù*) *shāngdiàn*
 run step shop
 'run from shop to shop'
- b. *zǒu* (**lù*) *hòu-mén*
 walk road back-door
 'go through the (unofficial) backdoor'
- c. *chī* (**fàn*)/*yī-wǎn* *chǎo-miàn*
 eat rice/one-bowl fried-noodles
 'eat a bowl of fried noodles'

The third interesting phenomenon involving objects, and the topic of this chapter, is illustrated by the following examples (for *hěn* glossed as 'very,' see the following examples):

- (4) a. *tā hěn dānxīn*
 he very worried¹
 'He is (very) worried.'
- b. *tā hěn dānxīn xiǎoháir*
 he very worried child
 'He is (very) worried about his child.'
- (5) a. *tā hěn gāoxìng*
 he very happy
 'He is (very) happy.'

¹ *Dānxīn* will be glossed as 'worried' or as 'worry.' This is to acknowledge that in some uses, it has a more "verby" activity sense than in other contexts, when it is more stative, in correlation with the fact that English has two lexical items for these. Nothing hinges on the gloss, but we come back to it, briefly, in the final section.

- b. tā hěn gāoxìng zhè-jàn shì
 he very happy this-CL affair
 'He is (very) happy about this.'

What these examples show is that there are stative predicates, which can appear, in the same meaning, as intransitive as well as transitive. What we will discuss in this chapter is how the objects are licensed, both formally and qua content. We argue that the phenomenon is limited to psych-predicates and that they can take an object complement because of the presence of an applicative projection in the structure.

In the following discussion, we first discuss a number of properties associated with the Mandarin psych-predicates, the objecthood of the objects following the psych-predicates, as well as the different types of psych-predicates. In section 3, we take some preliminary steps toward an analysis by examining structures with experiencers. We take into account comparable data in Bantu languages and explore an analysis of adding an applicative layer in Mandarin to accommodate the “extra” object with psych-predicates in section 4, and we discuss the implications of this analysis with respect to analyticity as well as the differences between Cantonese and Mandarin in section 5.

2. Properties

2.1. PRELIMINARIES

In this section we present and discuss a number of properties associated with the psych-predicates in (4) and (5). A recurrent theme in this section will be that the predicates we may lump together under the label “psych-predicates” for semantic reasons (they describe a mental state²) actually constitute a mixed bag if we look at the properties they have. In addition to *dānxīn* ‘worried’ and *gāoxìng* ‘happy,’ elements we will be taking into consideration in this chapter include *fán* ‘annoyed,’ *hàipà/pà* ‘afraid,’ *hàoqí* ‘curious,’ *mǎnyì* ‘satisfied,’ *shēngqì/qì* ‘angry,’ *xiǎoxīn* ‘careful,’ and *xǐhuān* ‘like.’

The bi-syllabic elements among them are also bi-morphemic, but the internal structure is not the same. While some are VO compounds, for example, *dānxīn* ‘worried’ (‘carry’ + ‘heart’) and *hàoqí* ‘curious’ (‘like’ + ‘strange’), others are AN compounds, such as *gāoxìng* ‘happy’ (‘high’ + ‘mood’) and *mǎnyì* ‘satisfied’ (‘full’ + ‘desire’). *Xǐhuān* ‘like’ consists of two A’s: ‘happy’ + ‘merry’. However, as we will see, the differences in internal structure do not correlate systematically with any of the other differences we will discuss.³

We will not go into a discussion regarding the categorial status of these elements, whether they are verbs or adjectives. In the literature, there is discussion on the

² Or, in the words of Landau (2010, 137): “A psych verb is any verb that carries psychological entailments with respect to one of its arguments (the experiencer). A psychological entailment involves an individual being in a certain mental state.”

³ Later in the chapter, we also discuss cases such as *gǎn-dòng* ‘feel-move: touch,’ which have a verb-result makeup.

question of whether Chinese has a separate category comparable to adjective at all; see Chao (1968) and McCawley (1992), who say there is not; and S. Huang (2006) and Paul (2005, 2010), for the opposite view. One argument for treating stative predicates as verbs is that in their predicative use, they do not need a copula. On the other hand, most stative predicates when used as a predicate in a non-comparative environment require the presence of the element *hěn* ‘very’ (which is generally unstressed, in which case it does not mean *very*).

- (6) a. Zhāngsān hěn gāo
 Zhangsan very tall
 ‘Zhangsan is tall.’
 NOT: ‘Zhangsan is *very* tall’ unless *hěn* is stressed.
- b. Zhāngsān gāo
 Zhangsan tall
 ‘Zhangsan is taller (than someone known from context).’
 NOT: ‘Zhangsan is tall.’

S. Huang (2006) treats *hěn* as a type-raiser: it raises in principle non-predicative elements to the status of predicate. Grano (2012) proposes that *hěn* has both a semantic and a syntactic role. On the one hand, *hěn* approximates positive semantics (see also Sybesma 1999).⁴ On the other, syntactically, *hěn* allows an adjective to be a complement of T⁰ (which comes close to what S. Huang says). Grano (2012) claims that T⁰ in Mandarin only selects for a verbal element, and *hěn* is a functional morpheme that allows an adjective to combine with T⁰.⁵ In other words, for S. Huang and Grano, there is a class of elements we may call adjectives, separate from verbs. As mentioned earlier, we will not get involved in this discussion here. We do, however, want to point out that *hěn* can be seen as an element that is only compatible with predicative elements that are gradable and have an open range, and it closes that range. We see that it is no longer acceptable with words whose open range has been closed in another way. Consider the following examples. In sentences such as (7a, b) the presence of *hěn* is strongly preferred.

- (7) a. tā hěn dānxīn (wǒ)
 he very worried me
 ‘He is very worried (about me).’
- b. tā hěn hàoqí (zhè-jian shì)
 he very curious this-CL matter
 ‘He is very curious (about this matter).’

⁴ Kennedy and McNally (2005) and Kennedy (2007) propose that degree adjectives used in non-comparative environments have “positive predication”: what is predicated of stands out along the dimension with respect to a contextually determined comparison class.

⁵ Grano (2012) proposes the “T [+V] constraint”: “In Mandarin, the direct complement to T(ense) (or something like Tense) must either be (an extended projection of) a verb or a functional morpheme that can in principle combine with (an extended projection of) a verb.” (p. 518) In the case of comparatives, a null morpheme does this job.

However, when we close the open range using a structure that is generally used for resultatives (which have the same function: providing an end to an open-ended predicate), *hěn* cannot be present:

- (8) a. zhè-jiàn shì (*hěn) dānxīn-sǐ wǒ le
 this-CL matter very worry-dead I LE
 'This matter makes me worried to death.'
- b. tā (*hěn) qì-huài wǒ le
 he very angry-broken I LE
 'He makes me angry to the extent that I'm broken.'

On the other hand, we note that it is not the case that all predicates that combine with *hěn* would fall in the category of adjective if there were such a category. Certain modal verbs are also compatible with *hěn*, including *yuànyì* 'want' and *xiǎng* 'would like.'

In any case, we treat the psych-predicates we will be discussing in this chapter as predicative elements, without worrying about their categorial status.

2.2. TRUE OBJECTS

The examples presented so far illustrate transitive use of *dānxīn* 'worried,' *gāoxìng* 'happy,' *qì* 'angry,' and *hàoqí* 'curious.' Here are some more examples, with different predicates.

- (9) a. tā hěn fán zhè-jiàn shì
 he very annoyed this-CL matter
 'He is (very) annoyed by this matter.'
- b. tā hěn mǎnyì tā de chéngjī
 he very satisfied he DE result
 'He is (very) satisfied about his result.'
- c. nǐ yào xiǎoxīn zhè-ge rén
 you need careful this-CL person
 'You should be careful about this person.'

The first thing to note about these objects is that the thematic role they have is that of what we will call, following Pesetsky (1995), "the subject matter": it is what we are happy, worried, careful, or curious about. This is true for all psych-predicates discussed in this chapter. Although it is clear from the examples, we do want to point out that these predicates are not causative like transitive de-adjectival verbs in English, such as *clear* in *they cleared the screen* (more on this later).

Second, we need to establish the syntactic status of these objects. Just like Cheng and Sybesma (1998) show that dummy objects are real objects, Barrie and Li (Chapter 7 of this volume) provide a list of properties of canonical, thematic

objects, and show that non-thematic objects such as the ones in (1) also have these properties. We briefly discuss a number of the properties they mention here and apply them to our objects.⁶

First, the object noun phrase can be any type of nominal expression. This is illustrated in (10).

- (10) a. *tā hěn qì suǒyǒude xuéshēng* –quantificational
 he very angry all student
 ‘He is angry at all the students.’
 b. *tā hěn pà nèi-ge rén* –definite
 he very afraid that-CL person
 ‘He is afraid of that person.’
 c. *tā bù dānxīn rènhe shì* –indefinite
 he NEG worried any matter
 ‘He doesn’t worry about anything.’

Second, we observe that their distribution differs from adverbials. This is shown in (11).

- (11) **tā hěn qì chángcháng*
 he very angry often

Furthermore, reduplication of the predicate is possible with the addition of a *de*-expression to the second copy, just like predicates with canonical objects:

- (12) a. *tā dānxīn nèi-jiàn shì dānxīn de chí bu xià fàn*
 s/he worry that-CL matter worry DE eat not down rice
 ‘S/he worries about that matter to the extent that s/he can’t eat.’
 b. *tā qì nèi-ge rén qì de jiǎng bu chū huà lái*
 he angry that-CL person angry DE speak not out word come
 ‘S/he is so angry at that person that s/he can’t say a word.’

The object complement of psych-predicates can also appear in elided contexts:

- (13) *tā chángcháng dānxīn tā de jiànkāng, wǒ bìng bù nème dānxīn*
 he often worry he DE health I rather NEG so worry
 ‘He often worries about his health, but I don’t worry much (about that).’

Finally, just like canonical objects, the object of psych-predicates can also be relativized:

- (14) *tā zuì pà de lǎoshī shì Huáng lǎoshī*
 he most afraid DE teacher COP Huang teacher
 ‘The teacher that he is most afraid of is Teacher Huang.’

This overview shows that the post-adjectival object is on a par with a canonical object of a transitive verb. This applies to all objects of all predicates under discussion here.

⁶ Some of the properties do not apply to the case of the stative predicates discussed here, for instance, the property of being in complementary distribution with a canonical object. We only take those that apply to our cases straightforwardly.

2.3. OBLIGATORY TRANSITIVITY

After having presented some properties that all predicates have in common, we will now look at two properties that divide the psych-elements in different groups. The first has to do with the transitivity of these elements, the second, in the next section, with *duì* 'towards.'

In (4) and (5) we illustrate the intransitive and transitive use of *dānxīn* 'worried' and *gāoxìng* 'happy.' What we mean with intransitive use is the use with no object at all, also no covert, phonologically empty "understood" object. When we discussed the verbs with dummy objects, we noticed that a verb like *chī* 'eat' is obligatorily transitive in the sense that when no overt object is present, the utterance is understood as if there is a (referential) empty object present. As a result, such utterances are only understandable in context. If someone bursts into a room and cries *wǒ chī le!*, this sentence is uninterpretable unless the hearers know what he was supposed to be eating, as it means 'I ate it!' The sentences in (4a) and (5a) with intransitive *dānxīn* 'worried' and *gāoxìng* 'happy' are perfect even without a context providing a referent for an empty object. One may wonder why someone is worried or happy, but the sentences are interpretable. In other words, *dānxīn* 'worried' and *gāoxìng* 'happy' are not obligatorily transitive. Other such elements are *fán* 'annoyed,' *hàoqí* 'curious,' *mǎnyì* 'satisfied,' *shēngqì* 'angry,' and *xiǎoxīn* 'careful.' (Note that they can have empty objects as well: this was illustrated in (13).) On the other hand, other psych-predicates are just like most other predicates in Chinese, obligatorily transitive. Thus, one cannot burst into a room saying *tā xǐhuān* 'he likes' if there is no previously established referent for the empty object of *xǐhuān*. *Pà* 'fear, afraid' is also like this.

2.4. DUÌ 'TOWARD'

The second property that divides the psych-predicates into different groups is the co-occurrence with the preposition/coverb *duì* 'toward.'⁷ Most of the elements listed above allow the "object" to appear preverbally preceded by *duì* 'toward.' Here are some examples:

- (15) a. tā duì xiǎoháir hěn dānxīn
 he to child very worried
 'He is (very) worried about his child.'
- b. tā duì zhè-jàn shì hěn gāoxìng
 he to this-CL matter very happy
 'He is (very) happy about this matter.'
- c. wǒ duì zhè-jàn shì hěn fán
 I to this-CL matter very annoyed
 'I am (very) annoyed about this matter.'
- d. tā duì nǐ hěn mǎnyì
 he to you very satisfied
 'He is (very) satisfied about you.'

⁷ There may be three groups: no *duì* (that is, they only allow for VO), optional *duì*, and obligatory *duì* (there is no VO variant). We leave this uninvestigated.

Not all elements allow for this alternation. As far as we have been able to establish (but more empirical investigation is necessary), the predicates that are obligatorily transitive resist co-occurrence with *dùl*. In our analysis we will capitalize on the alternation and try to explain why not all types of predicates allow for it.

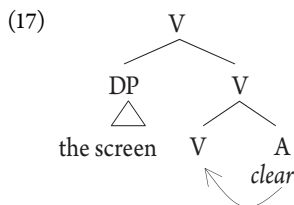
3. Toward an Analysis: Preliminaries

3.1. DE-ADJECTIVAL VERBS?

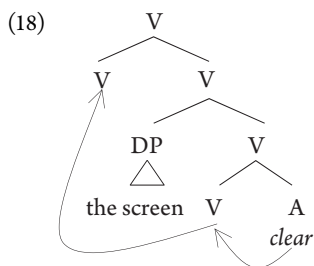
The central question we would like to answer is how the objects of psych verbs (especially the optionally transitive ones) are licensed, both formally and qua content (Rizzi 1986).

Since the psych-elements under consideration here are stative predicates, it seems reasonable to explore the option of treating them as transitive adjectives, that is, like de-adjectival verbs such as *clear* and *tighten* in English. Hale and Keyser (1993) argue that intransitive de-adjectival verbs such as (16a) result from a conflation process as shown in (17).

- (16) a. The screen cleared.
b. I cleared the screen.



The transitive version (16b) involves a higher level of verb (causative or little *v*), in which the de-adjectival verb is incorporated, as follows:



Importantly, the object in (16b) is the original single argument in (16a); the argument that is added through the process of adding the *v*P-layer is the external argument.

As we noted above, the cases at hand, like *dānxīn* 'worried,' are different in their semantics: they are not causative. Importantly, another, no doubt related, difference is that when we compare the transitive-intransitive pairs in (4) and (5), it is the object

that is added, not the subject. In short, the cases at hand cannot be analyzed in a fashion parallel to *clear* (others may be, see later discussion).

3.2. EXPERIENCERS

Since we are dealing with psych-predicates, it is reasonable to look at Belletti and Rizzi's (1988) influential analysis of psych-verbs in Italian. Belletti and Rizzi show that there are two types of psych predicates: for some the subject is the experiencer; for others the object is. The former is exemplified by (19a), the latter by (19b).

- (19) a. Gianni teme questo (Experiencer subject)
 Gianni fears this
- b. questo preoccupa Gianni (Experiencer object)
 this worries Gianni
- c. questo piace a Gianni
 this pleases to Gianni

In fact, there is a third type, exemplified in (19c), with the experiencer introduced by the preposition *a* 'to' (and with an alternative order: *A Gianni piace questo*). Belletti and Rizzi argue, however, that both (19b) and (19c) have the same underlying structure (though we ignore (19c) in our subsequent discussion).

Under their analysis, experiencer object sentences have the base structure given in (20a). Thus, (19b) has the base structure in (20b). In other words, in their view, an element such as *preoccupare* 'worry' has two internal arguments, though one is an argument of the V, while the other is an argument of V-bar.

- (20) a. [_{VP} [verb theme] experiencer] (2 argument-unaccusatives)
 b. [_{VP} [worry this] Gianni]

In the subsequent derivation, the theme object (*this* in the case of (20b)) moves to the subject position for Case assignment, just like *the door* in (21) is supposed to have moved from the underlying complement position (since the verbs *open* and *preoccupare* are both unaccusative, they do not assign Case to the object). Crucially, in their analysis, it is not possible for the experiencer to raise to the subject position as it has inherent Case, predicting that **Gianni preoccupa questo* (intended to mean: 'Gianni worries about this') is ungrammatical.

- (21) the door opened

As for experiencer subject sentences as in (19a), under Belletti and Rizzi's analysis, the subject is base-generated. In other words, there are transitive psych-verbs and unaccusative psych-verbs.

Coming back to Mandarin psych-predicates, especially in comparison with Italian and English, what we would like to point out is that (i) the Mandarin counterpart of (19b) is ungrammatical—thus an experiencer-object sentence like (19b) is not

possible, as shown in (22a, b); and (ii) that in all Chinese cases, as illustrated in (4) and (5), the experiencer is generated in subject position, just like (19a).

- (22) a. *zhè-jiàn shì dānxīn-le wǒ
 this-CL matter worry-PERF I
 Intended: 'This matter worries me.'
- b. *tā gāoxìng-le wǒ
 he happy-PERF I
 Intended: 'He made me happy.'

Note that the intended meaning of (22a) can only be expressed using a periphrastic causative, as in (23).

- (23) zhè-jiàn shì ràng wǒ dānxīn
 this-CL matter let I worry
 'This matter makes me worry.'

This brings us to Pesetsky's (1995) analysis of psych-verbs. He argues that experiencer-object sentences such as (19b) are not derived from the structure in (20b), as suggested by Belletti and Rizzi; instead, experiencer-object sentences are causatives. That is, these sentences are basically transitives, that is, experiencer-objects are objects. Thus, for an experiencer-object sentence such as (24a), we can have a passive counterpart, as in (24b).

- (24) a. Your remark frightened John.
 b. John was frightened by your remark.

Under Pesetsky's analysis that experiencer-object sentences are causatives, we expect Mandarin to have experiencer-objects since aside from periphrastic causatives such as (23), Mandarin allows causatives such as (25a, b), and, as we will see below, the only type of "experiencer-objects" we find in Mandarin are in causative-resultative sentences. In Chinese, a straightforward object is never an experiencer.

- (25) a. zhè-píng jiǔ hē-zui-le Zhāngsān
 this-bottle wine drink-drunken-PERF Zhangsan
 'This bottle of wine made Zhangsan drunk.'
- b. zhè-běn shū kàn-lèi-le wǒ-de yǎnjīng
 this-CL book read-tired-PERF I-DE eye
 'This book makes my eyes tired (by my reading it).'

In contrast to what we have indicated above in (22), Cheung and Larson (2006) claim that Chinese does have experiencer-objects, illustrating this claim with the following examples (from Chen 1995, ex. (8b)):

- (26) a. Zhāngsān gǎn-dòng-le Lǐsì.
 Zhangsan touch-PERF Lisi
 'Zhangsan touched Lisi.'

- b. Zìjǐ_i de chénggōng zhènfèn-le Fāngfāng_i,
 self's success excite-PERF Fangfang
 'Her_i (own) success excited Fangfang.'

Note that both examples involve resultative compound verbs. Both verbs consist of a V-R combination, V denoting an activity of some sort, R the result (e.g., for (26a): *gǎn* 'feel' with *dòng* 'moved'). They are in this respect the same as the sentences we presented in (8), repeated here:

- (27) a. zhè-jiàn shì dānxīn-sǐ wǒ le
 this-CL matter worry-dead I PERF
 'This matter worried me to death.'
- b. tā qì-huài wǒ le
 he angry-broken I SFP
 'He makes me angry to the extent that I'm broken.'

The questions we need to address are: Why is there a contrast in (28)? Why does the addition of a resultative verb make the experiencer-object sentence licit?

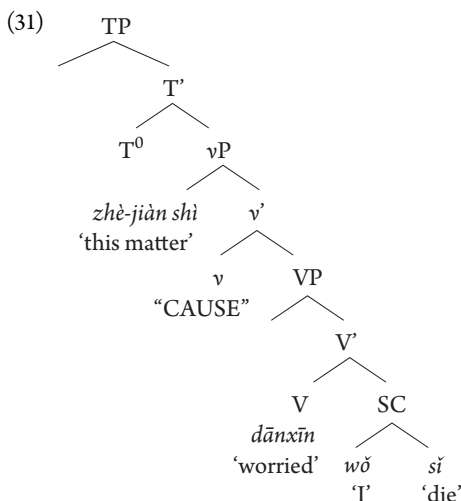
- (28) a. *zhè-jiàn shì dānxīn-le wǒ (= (22a))
 this-CL matter worry-PERF I
 'This matter worries me.'
- b. zhè-jiàn shì dānxīn-sǐ wǒ le (= (27a))
 this-CL matter worry-dead I PERF
 'This matter worried me to death.'

To answer these questions, we need to have a look at resultative structures. We adopt the analysis for such structures that was developed in Sybesma (1992, 1999; for the full account, the reader is referred to these works; see also Shen and Sybesma 2006). In this analysis, intransitive resultative structures such as the ones in (29) have the underlying structure in (30): a V with as its complement a small clause consisting of a subject and a predicate; the sole argument of the sentence is the subject of the small clause.

- (29) a. Zhāngsān hē-zuì-le
 Zhāngsān drink-drunk-PERF
 'Zhang San drank himself drunk/is drunk from drinking.'
- b. wǒ-de yǎnjīng kàn-lèi-le
 I-DE eye read-tired-PERF
 'my eyes tired from reading'
- c. Lìsì gǎn-dòng-le
 Lìsì feel-move-PERF
 'Zhangsan touched Lisi.'
- d. wǒ dānxīn-sǐ-le
 I worried-die-PERF
 'I'm worried to death.'

- (30) a. [hē [_{SC} Zhāngsān zuì]]
 drink Zhāngsān drunk
- b. [kàn [_{SC} wǒ-de yǎnjīng lèi]]
 read I-DE eye tired
- c. [gǎn [_{SC} Lǐsì dòng]]
 feel Lǐsì move
- d. [dānxīn [_{SC} wǒ sǐ]]
 [worried I s die

One of the things that happen subsequently so as to derive the surface order is that the subject of the small clause moves out of the small clause to the matrix subject position for licensing reasons. Transitive resultatives in this analysis are formed by incorporating the structures in (30) under a *vP*, which provides the external agentive-causative argument. The base structure is given in (31), with the lexical elements of (32d) (which is the same as (28b)).



To derive (32d), *zhè-jìàn shì* 'this matter' moves to the matrix subject position for Case (SpecTP); *wǒ* 'I' moves to SpecVP for the same reason, and the V-R cluster *dānxīn-sǐ* 'worried to death' forms a complex head and subsequently moves to the head of *vP* (for discussion, see Sybesma 1992). The transitive counterparts of the sentences in (29) are:

- (32) a. zhè-píng jiǔ hē-zuì-le Zhāngsān
 this-CL wine drink-drunk-PERF Zhangsan
 'This bottle of wine made Zhangsan drunk.'
- b. zhè-běn shū kàn-lèi-le wǒ-de yǎnjīng
 this-CL book read-tired-PERF I-DE eye
 'This book makes my eyes tired (by my reading it).'

- c. Zhāngsān gǎn-dòng-le Lǐsì. (= (26a))
 Zhangsan feel-move-PERF Lisi
 'Zhangsan touched Lisi.'
- d. zhè-jìan shì dānxīn-sǐ wǒ le (= (27a))
 this-CL matter worry-dead I LE
 'This matter worried me to death.'

In this analysis, transitive resultatives have a variant with *bǎ*. The derivational difference with the sentences in (32) is that *bǎ* is inserted in v^0 as a kind of dummy instead of the V-R cluster moving into it. Here are the *bǎ*-variants of the sentences given in (32):

- (33) a. zhè-píng jiǔ bǎ Zhāngsān hē-zuì-le
 this-CL wine ba Zhangsan drink-drunk-PERF
 'This bottle of wine made Zhangsan drunk.'
- b. zhè-běn shū bǎ wǒ-de yǎnjīng kàn-lèi-le
 this-CL book ba I-DE eye read-tired-PERF
 'This book makes my eyes tired (by my reading it).'
- c. Zhāngsān bǎ Lǐsì gǎn-dòng-le.
 Zhangsan ba Lisi feel-move-PERF
 'Zhangsan touched Lisi.'
- d. zhè-jìan shì bǎ wǒ dānxīn-sǐ le
 this-CL matter ba I worry-dead PERF
 'This matter worried me to death.'

These sentences show that the experiencer in (32c, d) and (33c, d) behave in exactly the same way as the "objects" (underlyingly the subject of the resultative small clause) in other resultative sentences. In other words, Mandarin does have experiencer objects, but only with resultatives.

Turning now to the question of why there is a difference between the sentences in (28), the answer is that only unaccusative predicates can be subsumed under vP , and V-R compounds are unaccusative, as they have no external argument. The V-R compound in (28b), *dānxīn-sǐ* 'worry to death,' is thus compatible with a causative structure, while *dānxīn* 'worry' alone, as an unergative, with its own external argument, is not. We return to this question later, after we have discussed in more detail the structure we have in mind for Chinese transitive psych-predicates in the next section.

In any case, what we have established in this section is that the experiencer subject of psych-predicates like *dānxīn* 'worry' are base-generated subjects.

4. The Proposal: An Applicative Layer

One well-known way of adding an argument to a verbal argument structure is the use of applicatives. Pylkkänen (2008) distinguishes two types of applicative heads.

The low applicative head is situated within the VP, and denotes a relation between two individuals (with a transfer-of-possession relation). The high applicative head, on the other hand, is positioned above the VP, adds another participant to the event described by the verb, and denotes a relation between an event and an individual. Given this distinction, applicatives added to a verb that does not already have an argument must be high applicatives. Indeed, Pylkkänen (2008) shows that unergatives and statives combine with high applicatives, not low applicatives. Example (34) illustrates an example of a high applicative in Luganda with an unergative verb (data from Pylkkänen 2008).

- (34) High applicative (Luganda)
 Mukasa ya-tambu-le-dde Katonga
 Mukasa 3SG.PAST-walk-APPL-PAST Katonga
 'Mukasa walked for Katonga.'

The typical participant discussed in the literature for high applicatives is a benefactive, as in (34), though locatives and instrumentals are also mentioned. However, in the literature on Bantu languages, other types of participants can be easily found. For instance, aside from locations and instruments, such participants can be goals, purposes, and reasons (see Du Plessis and Visser 1992). In fact, the addition of a subject matter or theme can also easily be found with psych-adjectives/verbs. Consider the following examples from Xhosa; the applicative affix *-el* precedes the final vowel *a*:

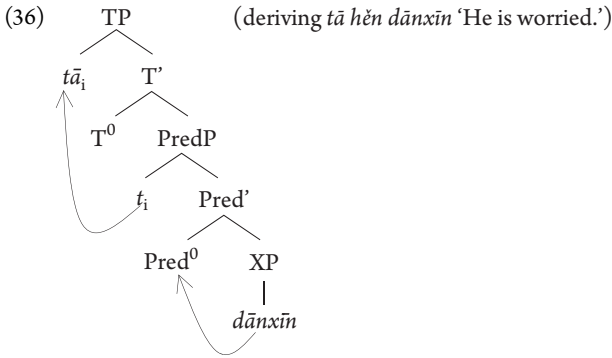
- (35) Xhosa (data from Du Plessis and Visser 1992)
 a. úmqhúbi úkhálázèlà úmqéshì
 1.driver 1.complain.APPL 1.employer
 'The driver complains about the employer.'
 b. ísíbóndà síkròkrélà émzini
 7.headman 7.suspicious.APPL village.LOC
 'The headman is suspicious of the village.'

Pylkkänen proposes that the high applicative projection is projected above the lexical VP (and below VoiceP (i.e., *vP*)), thus it is projected between the *vP* and the VP.

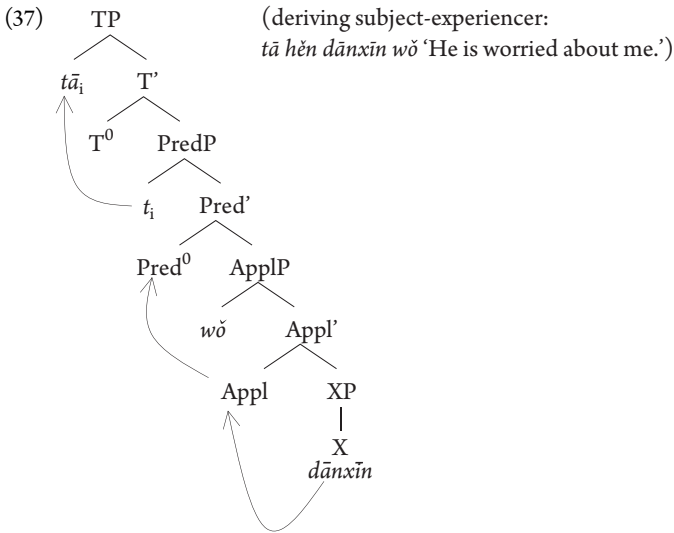
Recall that psych-predicates in Mandarin like *dānxīn* 'worried' are in principle intransitive, and that an object can be added. This is comparable to the Xhosa data in (35).

We thus propose that the addition of the object in these cases is also through the addition of a high applicative layer.⁸ Consider first the structure of an intransitive adjective in (36).

⁸ See Paul and Whitman (2010) for an analysis of Mandarin double object sentences as having an applicative structure, though they argue for making no distinction between a high and a low applicative.



In this structure, we assume along the lines of Bowers (1993) that predicates have a functional layer.⁹ Assuming that a high applicative head is merged above the VP, introducing an extra argument (e.g., the subject matter), a subject-experiencer sentence with an object complement can have the structure in (37).



In (37), the Applicative head is projected above the lexical projection¹⁰ and below the PredP, which hosts the subject of the predicate. The structure is thus quite similar to a high applicative structure in other languages with high applicatives.¹¹

Given a structure such as (37), the fact that a psych-predicate can take an object complement seems to be straightforward. We propose to connect this to the fact

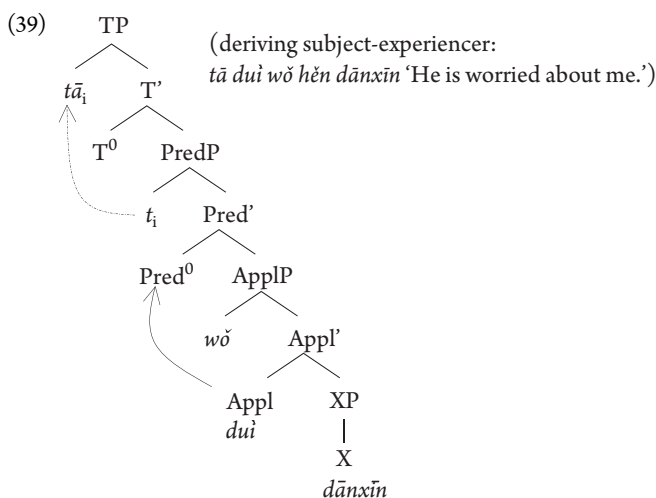
⁹ As indicated above, Grano (2012) considers *hěn* to be an Adjective-to-Verb shifter. His structure for the same sentence will only be different in that PredP will be a VP.

¹⁰ We have not provided a category label for the psych-predicates, leaving the question of whether they are adjectives or verbs outside the discussion.

¹¹ We haven't indicated where *hěn* is inserted in this structure. We consider this to be a point that, though very interesting, is not directly relevant to the transitivity issue at hand.

mentioned earlier, that the non-obligatorily transitive psych-predicates (and only those!) can also add the subject matter argument in preverbal position preceded by *duì* ‘toward.’ More specifically, we propose that the sentences in (38) have the same underlying structure. The derivation of (38b) was given in (37), and that of (38a) is given in (39), which is the same as (37) except that the lexical head does not raise to Appl^0 and that, instead, *duì* ‘toward’ is inserted (just like *bǎ* was inserted in v^0 in (33)) into this position, after which it moves to Pred^0 .

- (38) a. *tā duì xiǎoháir hěn dānxīn*
 he to child very worried
 ‘He is (very) worried about his child.’
 b. *tā hěn dānxīn xiǎoháir*
 he very worried child
 ‘He is (very) worried about his child.’



This is almost identical to the analysis proposed for *yǐ* in pre-modern Chinese in Aldridge (2012): she proposes to put *yǐ* in the head of ApplP .

The fact that only the non-obligatorily transitive psych-predicates display this alternation between [*duì* O X] and [X O] suggests that the addition of the object is indeed due to the addition of an extra layer. Intrinsically, and consequently obligatorily, transitive predicates do not derive their transitivity from an extra layer.

Given the above analysis, the question arises of when a high applicative projection is available. Can it be added to all stative predicates? The answer is no. It cannot, for instance, be added to non-psych-predicates like *zhòng* ‘heavy’:

- (40) *zhè-běn shū hěn zhòng* (*Zhāngsān)
 this-CL book very heavy Zhangsan
 ‘This book is (very) heavy (for Zhangsan).’

Note that the addition of a *duì* phrase is possible with non-psych predicates:

- (41) zhè-běn shū duì Zhāngsān hěn zhòng
 this-CL book to Zhangsan very heavy
 ‘This book is (very) heavy for Zhangsan.’

However, in cases like this, the complement of *duì* is not the subject matter. In other words, *duì* in these cases is not the head of an ApplP. It should be noted that (41) can be paraphrased with (42).

- (42) zhè-běn shū duì Zhāngsān lái shuō hěn zhòng
 this-CL book to Zhangsan come say very heavy
 ‘This book is (very) heavy for Zhangsan/in the perspective of Zhangsan.’

This means that the applicative layer can only be added to predicates that allow for a “subject matter” interpretation of the extra argument, which limits it to psych-predicates. Note that Landau (1999) makes a distinction between psych-adjectives and non-psych-adjectives: psych-adjectives are relational and minimally dyadic, while non-psych-adjectives are monadic.

In contrast to high applicatives, according to Pylkkänen, in our case, the applicative layer cannot be added to just any predicate; instead it is limited to predicates that, thematically speaking, have room for an internal argument.

As far as the formal licensing is concerned, it is either the case that the extra layer, just like *v*P, not only provides an extra argument but also an extra Case, or the psych-predicates, being unergatives, can license these objects by themselves.

5. Conclusions and Discussion

In this chapter we have put forth a proposal to account for the occurrence of an object with unergative, stative, and in principle intransitive psych-predicates in Mandarin. The proposal involves the postulation of an applicative-like layer between XP (a lexical projection) and *v*P, the head of which is filled either by the verb (via movement) or the element *duì*. In this section we discuss a number of consequences of the different aspects of the proposal, which can be used, among other things, to evaluate it.

One of the assumptions that underlie the proposal is that transitivity can be derived in different ways, leading to different structures. In this chapter we have discussed transitive/causative resultatives, the object in which is underlyingly the subject of the resultative small clause. Second, we have also assumed the existence of “obligatorily transitive” predicates, which have an object even if there is no resultative phrase: they may be subcategorized for one. And finally, we have the psych-predicates whose object is added through the addition of an applicative type of projection. (And these three situations do not even include the “non-thematic” objects in (1), discussed in more detail in Barrie and Li (Chapter 7 of this volume).) The question here is whether these differences are related to the nature of the lexical elements involved or to the nature of the structures they are inserted into (e.g., (31) or (37)). With Marantz (2013), we think the latter is the case (see Sybesma 1992,

1999 for discussion of similar ideas), if only because we see that certain elements can appear in different structural environments. Insertion in different slots in different structures possibly leads to different additional semantics (e.g., more active or more stative). This may explain what we mentioned in footnote 1: that sometimes *dānxīn* seems more like an activity verb, while at other times it is more like a stative; it is simply in a different structure in each case.

Another consequence of our proposal, mentioned earlier, is that there are two different *duì*'s, or, phrased differently, that, as a consequence of being inserted into different positions, *duì* has a different relationship with the nominal element following it. Sometimes (as in (41)) it is like a preposition and forms a constituent with the noun it precedes, while in our applicative cases, it does not.

Another consequence we also already mentioned is that our applicative is not entirely the same as Pylkkänen's in the sense that, in our case, whether an applicative can be added or not is determined by the thematic nature of the lexical element. This may, however, also be the case in (some) Bantu languages. In Zulu (which, like Luganda and Xhosa, also uses the applicative morpheme *-el* for the addition of an argument),¹² the applicative morpheme *-el* can be added to psych-predicates such as *dabuka* 'sad' and *thukuthela* 'angry,' as shown in (43) and (44).

- (43) a. u-dabuk-ile
 ISM-break-DISJ.PAST
 'He was sad.'
- b. u-dabuk-el-a iz-ingane
 ISM-break-APPL-FV 10-child
 'He's sad about the children.'
- (44) a. ngi-thukuthel-e
 1SG-be.angry-FV
 'I am angry.'
- b. ngi-thukuthel-el-e uSipho
 1SG-be.angry-APPL-FV 1.Sipho
 'I am angry with Sipho.'

However, preliminary results (based on Cheng's own field notes) show that the use of applicatives with psych-predicates is not without restrictions. Some psych-predicates allow an object to be added directly (e.g., *afraid*), while others (e.g., *anxious*, *worried*, *happy*) require a preposition kind of element. More research is needed to determine the nature of the difference.

Next, Huang (2012) argues that there are macro-parametric properties of modern Chinese that are linked to a high degree of analyticity. The properties range from having light verb constructions (e.g., *dǎ yú* 'do/hit fish: to fish'), generalized classifiers for count nouns, to *wh*-in-situ. Holmberg and Roberts (2010) and Huang (2012) suggest that the cluster of properties can all be connected to the lack of head movement. This can be in the lexical structure, leading to the lack of denominal verbs

¹² We would like to thank Meritta Xaba for her patience and wisdom in discussing the Zulu data.

(and having “light” verbs instead, as in *dǎ yú* ‘do/hit-fish: to fish’). In the inflectional functional domain, head movement is also missing, yielding the lack of V to T to C movement.

However, the above analyses of transitive resultatives and transitive psych-predicates involve V/Adj to *v*/Pred/Apl movement. In other words, though there is no V/*v* to T movement, there is movement within the projection below TP. Note that we think that Huang (2012) is right in saying that there is no conflation type of process in lexical syntax in Chinese, yielding the lack of denominal verbs. This means that in Chinese, head-movement is limited to the lower (i.e., more lexical) end of the extended projection in the sense of Grimshaw (1991/2005), including V-to-*v* and A/V-to-Pred, but excluding (a) N-to-V, N being the thematic complement of V, because VP is not part of the extended projection of N, and (b) *v*/V to T, as this involves movement to the higher, functional end of the extended projection of V.

Talking about parametric and cross-linguistic considerations in relation to the proposals presented in this chapter, we would like to point out the following. First, positing a high applicative projection raises the question of whether such a projection is available cross-linguistically. We have seen from Pylkkänen (2008) that Bantu languages, for example, have high applicatives, but languages such as English do not. It is, however, unclear why such projections are not available in some languages. In Barrie and Li (Chapter 7 of this volume), a similar question is asked: Why are non-canonical objects so easily available in Chinese? Their answer is that Chinese has no Case morphology, though they state this in connection to objects without functors (i.e., licensors such as applicatives). We think that the availability of Case and the presence of functors should in principle be treated separately: arguments must be formally licensed as well as content-licensed. That is, the presence of a high applicative head allows the introduction of an extra argument (e.g., a subject matter argument). However, the applicative head itself is not necessarily a Case-marker. Thus, it may be the case that the lack of Case morphology allows languages like Chinese and Bantu to accommodate extra arguments with applicatives, and it is not possible for English and other Case languages to do that, unless extra Case markers are available.¹³

When we compare Cantonese and Mandarin in the light of our analysis of transitive psych-predicates, we note that Cantonese differs in an interesting way from Mandarin. Like Mandarin, it has transitive psych-predicates, with the object denoting the subject matter (as in (45)), but unlike Mandarin, it does not have a variant with *duì* (as illustrated in (46)).

- (45) a. keoi⁵ hou² daam¹ sam¹ keoi⁵ go³ zai²
 he very worry he CL son
 ‘He’s worried about his son.’
 b. keoi⁵ hou² lau¹ li¹-gin⁶ si⁶
 he very angry this-CL matter
 ‘He’s angry about this.’

¹³ See Diercks (2012), who argues that Bantu languages lack abstract Case.

- c. lei⁵ jiu³ siu²sam¹ go²-go³ jan⁴
 you need careful that-CL person
 'You need to be careful about that person.'
- (46) a. *keoi⁵ deoi³ keoi⁵ go³ zai² hou² daam¹sam¹
 he to he CL son very worry
 Intended: 'He's worried about his son.'
- b. *keoi⁵ deoi³ li¹-gin⁶ si⁶ hou² lau¹
 he to this-CL matter very angry
 Intended: 'He's angry about this.'
- c. *lei⁵ deoi³ go²-go³ jan⁴ jiu³ siu²sam¹
 you to that-CL person need careful
 Intended: 'You need to be careful about that person.'

Under our analysis, this means that in Cantonese the verb invariably moves into the Pred⁰-position. Note, however, that Cantonese does have prepositional *deoi*⁶ in other contexts, comparable to *dui* illustrated in (41).

- (47) a. keoi⁵ deoi³ ngo⁵ hou² hou²
 he to me very good
 'He is very good to me.'
- b. hoeng¹gong²-jan⁴ deoi³ bat³gwaa³ san¹man² hou² jau⁵ hing³ceoi³
 Hongkong-people to gossip news very have interest
 'Hong Kong People are very interested in gossip.'
- (adapted from Matthews & Yip 1994)

Thus, as was pointed out by a reviewer, both Cantonese and Mandarin have the true preposition *dui/deoi*⁶, but only Mandarin has the Applicative *dui*, which can be seen as support for the claim that there are two different (positions for) *dui*'s.

What may be significant as well in this context is that colloquial Cantonese also lacks a counterpart of the *bǎ* construction (we say "colloquial Cantonese" because there *is* a counterpart in the Mandarin/Mandarinized more formal/written registers). This means that in all such cases, Cantonese opts for head-moving V, instead of inserting a dummy in some target position.¹⁴

Incidentally, underscoring the differences between the nominal and verbal domain, we see the opposite in the nominal domain. At least, according to Cheng and Sybesma (1999, 2005, and 2012) Mandarin bare nouns (N⁰) undergo movement to the classifier head (Cl⁰) to generate a definite bare noun, while in Cantonese, the classifier head has to be filled and a classifier is inserted.

¹⁴ See Tang (2006), who argues that in Cantonese, the verb moves higher than the verb in Mandarin (and other Chinese languages). Note that under our analysis, Mandarin verbs can move but don't have to.

Acknowledgement

We would like to thank Norbert Corver, Roberta D'Alessandro, Audrey Li, Jane Tang, and Dylan Tsai, as well as the audience in the Institute of Linguistics at Academia Sinica, TEAL 8 in Tsing-Hua University and Utrecht University for their comments and suggestions.

References

- Aldridge, Edith. 2012. PPs and applicatives in Late Archaic Chinese. *Studies in Chinese Linguistics* 33(3), 139–164.
- Belletti, Adriana, and Luigi Rizzi. 1988. Psych verbs and theta-theory. *Natural Language and Linguistic Theory* 6, 291–352.
- Bowers, John. 1993. The syntax of predication. *Linguistic Inquiry* 24, 591–656.
- Chen, Dong-dong. 1995. UTAH: Chinese psych verbs and beyond. In *Proceedings of the North American Conference on Chinese linguistics*, ed. J. Camacho and L. Choueini, 15–29.
- Cheng, Lisa Lai-Shen. 2007. Verb copying in Mandarin Chinese. In *The Copy Theory of Movement*, ed. Norbert Cover and Jairo Nunes, 151–174. Amsterdam: John Benjamins.
- Cheng, Lisa Lai-Shen, and Rint Sybesma. 1998. On dummy objects and the transitivity of run. *Linguistics in the Netherlands 1998*, ed. R. van Bezooijen and R. Kager, 81–93. Amsterdam: AVT/John Benjamins.
- Cheng, Lisa L.-S., and Rint Sybesma. 1999. Bare and notso-bare nouns and the structure of NP. *Linguistic Inquiry* 30, 509–542.
- Cheng, Lisa L.-S., and Rint Sybesma. 2005. Classifiers in four varieties of Chinese. In *Handbook of Comparative Syntax*, ed. G. Cinque and R. S. Kayne, 259–292. Oxford: Oxford University Press.
- Cheng, Lisa Lai-Shen, and Rint Sybesma. 2012. Classifier and DP. *Linguistic Inquiry* 43(4), 634–650.
- Cheung, Candice, and Richard Larson. 2006. *Chinese Psych Verbs and Covert Clausal Completion*. Paper presented at the Chicago workshop on Chinese Linguistics.
- Grimshaw, Jane. 1991/2005. Extended projection. In *Words and Structure*, ed. J. Grimshaw, 1–73. Stanford, CA: CSLI.
- Grano, Thomas. 2012. Mandarin *hen* and universal markedness in gradable adjectives. *Natural Language & Linguistic Theory* 30(2), 513–565.
- Hale, Kenneth, and Samuel Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In *The View from Building 20*, ed. K. Hale and S. J. Keyser, 53–110. Cambridge, MA: MIT Press.
- Hoekstra, Teun, and René Mulder. 1990. Unergatives as copular verbs: Location and existential predication. *The Linguistic Review* 7, 1–79.
- Holmberg, Anders, and Ian Roberts. 2010. Introduction: Parameters in minimalist theory. In *Parametric Variation: Null Subjects in Minimalist Theory*, ed. T. Biberauer, A. Holmberg, I. Roberts, and M. Sheehan, 1–57. Cambridge: Cambridge University Press.
- Huang, C. T. James. 1982. *Logical Relations in Chinese and the Theory of Grammar*. Doctoral dissertation, Massachusetts Institute of Technology.
- Huang, C. T. James. 2006. Resultatives and unaccusatives: A parametric view. *Bulletin of the Chinese Linguistic Society of Japan* 253, 1–43.
- Huang, C. T. James. 2012. On macrovariations and microvariations in parametric theory. In *Proceedings of the 13th International Symposium on Chinese Language and Linguistics*, ed. Yung-O Biq and Lindsey Chen, 1–18.

- Huang, Shi-Zhe. 2006. Property theory, adjectives, and modification in Chinese. *Journal of East Asian Linguistics* 15, 343–369.
- Kennedy, Christopher. 2007. Vagueness and grammar: The semantics of relative and absolute gradable adjectives. *Linguistics and Philosophy* 30, 1–45.
- Kennedy, Christopher, and Louise McNally. 2005. Scale structure, degree modification, and the semantics of gradable predicates. *Language* 81, 345–381.
- Landau, Idan. 1999. Psych-adjectives and semantic selection. *The Linguistic Review* 16(4), 333–358.
- Landau, Idan. 2010. *The Locative Syntax of Experiencers*. Cambridge, MA: MIT Press.
- Matthews, Stephen, and Virginia Yip. 1994. *Cantonese: A Comprehensive Grammar*. London: Routledge.
- McCawley, James. 1992. Justifying part-of-speech assignments in Mandarin Chinese. *Journal of Chinese Linguistics* 20(2), 211–246.
- Marantz, Alec. 2013. Verbal argument structure: Events and participants. *Lingua* 130, 152–168.
- Paul, Waltraud. 2005. Adjective modification in Mandarin Chinese and related issues. *Linguistics* 43, 757–793.
- Paul, Waltraud. 2010. Adjectives in Mandarin Chinese: The rehabilitation of a much ostracized category. In *Adjectives: Formal Analyses in Syntax and Semantics*, ed. Patricia Cabredo-Hofherr and Ora Matushansky, 115–152. Amsterdam: John Benjamins.
- Paul, Waltraud, and John Whitman. 2010. Applicative structure and Mandarin ditransitives. In *Argument Structure and Syntactic Relations*, ed. M. Duguine, S. Huidobro, and N. Madariaga, 261–282. Amsterdam; Philadelphia: John Benjamins.
- Pesetsky, David. 1995. *Zero Syntax: Experiencers and Cascades*. Cambridge, MA: MIT Press.
- Pylkkänen, Liina. 2008. *Introducing Arguments*. Cambridge, MA: MIT Press.
- Rizzi, Luigi. 1986. Null objects in Italian and the theory of *pro*. *Linguistic Inquiry* 17: 501–557.
- Shen, Yang, and Rint Sybesma. 2006. 结果补语小句分析和小句的内部结构 Jiéguǒ pǔyǔ xiǎojiù fēnxī hé xiǎojiù de nèibù jiégòu. [Small clause results and the internal structure of the Chinese resultative small clause]. 华中科技大学学报 (社会科学版) *Huázhōng kējì dàxué xuébào (shèhuikēxué bǎn)* [Journal of the Huazhong University of Science and Technology (Social Sciences volume)] 20(4), 40–46.
- Sybesma, Rint. 1992. *Causatives and Accomplishments: The Case of Chinese ba*. Doctoral dissertation, Leiden University.
- Sybesma, Rint. 1999. *The Mandarin VP*. Dordrecht: Kluwer.
- Tang, Sze-Wing. 2006. “汉语方言受事话题句类型的参数分析 Hanyu fangyan shoushi huatiju leixing de canshu fenxi [A parametric approach to the typology of subtopics in Chinese dialects]. *Yuyan Kexue* 5–6, 3–11.