De-constructing small clauses: The case of Mandarin Chinese

Waltraud Paul
CRLAO, CNRS-EHESS-INALCO
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wpaul@ehess.fr

Abstract Taking up an early observation by Y.-H. Audrey Li (1985) stating the systematic lack of Chinese equivalents for English small clauses (SC) with *nominal* predicates (*They elected John president*), this article demonstrates that Chinese lacks SCs *altogether*. This holds independently of the approach adopted, be it the analysis of SCs as lexical projections with different category labels (cf. Stowell 1981, Matushansky 2019) or the uniform analysis of SCs as PredP (cf. Bowers 1993). In Chinese, there is no root vs non-root asymmetry for predicates: If a category X is not licit as an autonomous predicate in matrix sentences, then it is not licit as predicate elsewhere, i.e. in non-root clauses, either. Furthermore, Chinese has no *exceptional case marking* verbs, i.e. verbs selecting SC-complements. Claims to the contrary in the literature are based on Chinese translations of English SCs and involve completely different structures. Given the lack of SCs in non-root contexts in Chinese, an analysis postulating SCs for non-verbal predication in matrix sentences does not seem to be warranted.
Keywords: Mandarin Chinese, non-verbal predication, copula, ECM verbs, root vs non-root, secondary predicate

1 Introduction

Recently, Marejl & Matushansky (2015) and Bruening (2018) have demonstrated that a number of constructions so far analysed as involving small clauses (SCs) are in fact amenable to alternative analyses. Against this background, this article takes up an early observation by Y.-H. Audrey Li (1985; 1990), who stated the systematic lack of Chinese equivalents for English SCs with *nominal* predicates (compare (1) with (2a-b)):

(1) Wǒmen xuǎn Zhāngsān *(dāng) zǒngtǒng. (Y.-H. Audrey Li 1985: 271)
1PL elect Zhangsan act.as president
'We elected Zhangsan to act as president.'

(2) a. John *(is) president.
b. We elected [SC John president].

Taking this as a starting point, Chinese will be shown to lack SCs altogether, be it in the form of lexical projections with different category labels (cf. Stowell 1981; Matushansky 2019) or as a uniform PredP (cf. Bowers 1993). Clausal projections in non-root contexts which have been presented as SCs in the literature are in fact full-fledged clauses acceptable on their own in matrix contexts, as also evidenced by the possible presence of negation, auxiliaries and aspect, i.e. of material which in general is not expected in SCs as "bare" or "reduced" clausal structures.[1] In Chinese, there is thus no root vs non-root asymmetry for predicates: if a category X is not licit as an autonomous predicate in matrix sentences, then it is not licit as predicate elsewhere, i.e. in non-root clauses, either. (For the dichotomy root vs non-root, cf. Emonds 1970; also cf. Heycock 2006 for extensive discussion and references.) Since there is no evidence for SCs in non-root contexts, it seems implausible to postulate SCs in root contexts, i.e. as complement of the copula *shì* 'be' and copula-like verbs.

Given that the window on alleged SCs in Chinese currently offered in the literature is much too limited, first of all the set of representative data needs to be established. This in turn requires discussion of very basic issues such as the repertoire of lexical categories in Chinese and their (un)ability to function as predicate, in order to make explicit and to correct tacit misconceptions with farreaching consequences. Importantly, in the course of the investigation, Chinese will also be shown to lack *exceptional case marking* (ECM) verbs (i.e. verbs selecting *inter alia* SCs as complements), thus lending additional evidence to the claim defended here that Chinese has no SCs.

The article is organized as follows. Section 2 presents an overview of the phenomena identified as SCs in English and of the different analyses proposed for SCs in the past, from Stowell (1981) over Bowers' (1993) PredP theory to the minimalist analysis proposed in Matushansky (2019). Against this backdrop, the remaining sections provide ample evidence that alleged SCs in Chinese bear at most a superficial resemblance with SCs in e.g. English and are not as "reduced" as expected for SCs; on the contrary, they represent full-fledged clauses likewise acceptable in matrix contexts. Section 3 briefly examines how the array of non-root SCs established for English are rendered in Chinese, in order to illustrate the variety of constructions encountered here and to show that they all involve structures different from

[1] Given the controversial status of tense and finiteness in Chinese (cf. a.o. Sun Hongyuan 2014; Grano 2017; C.-T. James Huang 2017; Law & Ndayiragije 2017; Paul 2018; Niina Zhang 2019) it is difficult to define SCs as predicational projections lacking inflectional material such as tense. There is, however, evidence for a syntactic projection hosting the subject, IP/TP (cf. Ernst 1994; Victor Junnan Pan 2019: 13). The head of IP/TP is always covert (cf. Ernst 1994), as evidenced by the fact that adverbs and adjunct XPs follow the subject and precede the highest head in the extended verbal projection (auxiliaries, aspectual head) as well as negation, when present.

SCs. It then discusses two phenomena mis-presented as involving (VP-)SCs in Chinese, i.e. causative structures and resultative verb compounds. Section 4 investigates which categories can serve as autonomous predicates in matrix contexts and compares them with those allowed in non-root contexts, something studies claiming the existence of SCs have failed to do. Accordingly, they have not seen that these categories are identical. Section 5 turns to the issue of ECM verbs as one of the contexts *par excellence* for SCs and shows them not to exist in Chinese. It demonstrates that it was *inter alia* the misparsing of double object constructions and of sentences where the matrix verb selects a clausal complement that led to postulating SCs for Chinese (cf. a.o. Sybesma 1999; Tang Sze-Wing 1998; Niina Zhang 2016). Section 6 examines the consequences that the lack of SCs in Chinese has for the claim that in matrix sentences with non-verbal predicates, the copula and copula-like verbs (e.g. *become*) select SCs with either adjectives, nouns or adpositions as predicates (cf a.o. Partee 1986; Heycock 1992; Moro 1997; Bowers 2001; den Dikken 2006). Section 7 concludes the article.

2 The phenomenon of *small clauses*

This section basically follows Matushansky's (2019) overview of the major steps in the analysis of SCs, starting with Stowell (1981).

2.1 *Definition of* small clauses (cf. Stowell 1981)

Lexical projections other than verbs can have specifiers that function as their subjects. This constituent, lacking any functional projection [$_{SC}$ Subject XP], was called a *small clause* (SC) because unlike matrix clauses (cf. (2a) above), SCs in English allow for NPs, Adjectival Phrases (AdjP) and PPs as predicates *without* the copula:[2]

(3) a. I consider [$_{SC=AdjP}$ John/him [$_{A'}$ very intelligent]].
b. I expect [$_{SC=PP}$ that sailor/him [$_{P'}$ off my ship]].
c. John *(is) [$_{AdjP}$ very intelligent]/ *(is) [$_{PP}$ off the ship].

An analysis involving SCs was likewise proposed for matrix sentences with copular verbs such as *be, become, seem* in combination with NPs, AdjPs or PPs as predicates, by among others Partee (1986), Heycock (1992), Moro (1997), Bowers (2001), den Dikken 2006 (cf. Citko 2011 and Balazs 2012 for detailed discussion and references). This led to a structure where the matrix copular verb selects an SC complement:

(4) a. John *(is) [$_{SC}$ t_i [$_{A'}$ very intelligent]/ [$_{P'}$ off the ship]].
b. Jenny$_i$ became [$_{SC}$ t_i [$_{N'}$ president/a taxi driver].
c. This proposition is/seems [$_{SC}$ t_i [$_{A'}$ preposterous]/[$_{P'}$ out of the question].

Returning to the main focus of this article, i.e. SCs in non-root contexts, examples (5) – (10) provide the complete array of non-root SCs postulated for English, in general subdivided into the following types:

(5) They elected [$_{SC}$ him president]. (denominative)
(6) [With Peter sick/out of office], we'll never get the job done in time. (absolute constr.)
(7) We painted [$_{SC}$ the barn red] (resultative)
(8a) He$_i$ ate the meat$_k$ [$_{SC}$ PRO$_k$ raw]. (object depictive)
(8b) He$_i$ ate the meat$_k$ [$_{SC}$ PRO$_i$ nude]. (subject depictive)

[2] The abbrevation AdjP (instead of AP) is used here to distinguish it more clearly from Adpositional Phrases (AdpP) introduced further below.

(9) [SC Me mad]?! Ridiculous ("Mad magazine" sentence, also called "root" SC)
(10) Paul heard [SC Peter scream] (perception)

While included here for the sake of exhaustiveness, constructions with bare VPs (cf. (10)) are in general not subsumed under SC, because they show important differences with respect to the other types of SCs (cf. Matushansky 2019, section 2).[3] First, bare VPs in English are restricted to complements of *let, have, help, make*, and of modals as well as perception verbs, thus contrasting with the many environments allowed for non-verbal SCs. Second, bare VPs are unacceptable with copular verbs, and third, the external argument of a verb can be absent in passives or middles. Nothing similar is observed for the subject of non-verbal predicates. These properties of bare VPs and the properties of the external argument of verbal predicates are captured by the introduction of *v*/Voice. The head *v*/Voice is to be distinguished from the functional head Pred° postulated to accommodate the non-verbal predicates in SC (cf. Baker 2003: 37-39 for further arguments against unifying *v*/Voice and Pred°).

2.2 *Introduction of* Pred° (Bowers 1993)

Stowell's (1981) initial hypothesis that an SC corresponds to the projection of the lexical category serving as its predicate, with the subject in its specifier, was *inter alia* challenged by data involving movement of an apparent non-maximal projection (cf. (11a) and (12a) from Svenonius 1994) and an already occupied specifier position for non-bare SC predicates, given the prohibition of multiple specifiers (cf. (13a) from Williams 1983):

(11) a. How do you want [AdjP your eggs [A' ~~how~~]]?
b. How do you want [PredP your eggs [Pred' [AdjP ~~how~~]]]?

(12) a. How famous did the incident make [AdjP the criminal [A' ~~how famous~~]]?
b. How famous did the incident make [PredP the criminal [Pred' [AdjP ~~how famous~~]]?

(13) a. I consider [DP Josiah [DP [her father] [D' 's [NP best friend]]]]
b. I consider [PredP Josiah [Pred' [DP [her father] [D' 's [NP best friend]]]]

This led to proposals postulating a functional head in SC such as Pred° mediating the predicational relation (cf. Bowers 1993). As a result, small clauses no longer involved different lexical projections, but a unique functional projection (headed by Pred°).

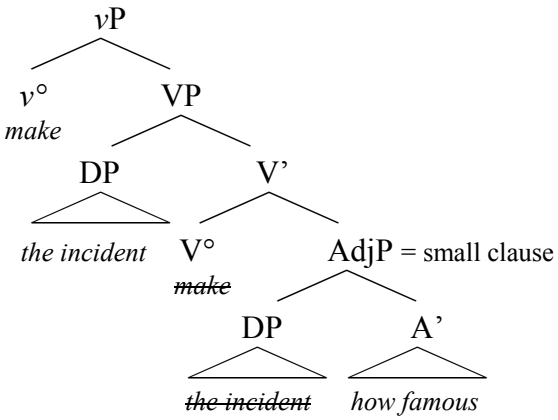
2.3 *Small clauses in the Minimalist Program*

As demonstrated by Matushansky (2019), current minimalist theory can account for the cases in (11) - (13) without postulating any functional category in SCs such as Pred° resulting in the same categorial identity for all SCs.

(11-12) can be analysed as *raising-to-object* (Johnson 1991; Lasnik & Saito 1991 a.o.): the subject in the SC complement of a verb moves to SpecVP, and the verb raises to a higher head. The sentence can then be derived via moving the entire AdjP SC, a maximal projection, containing the subject trace:

[3] In fact, with the exception of Bowers (1993) and den Dikken (2006), the tacit assumption in the literature was that Pred° is present for non-verbal predication only, hence no conflation of *v*°/Voice° with Pred°.

(14)



Concerning (13), the prohibition of multiple specifiers has been abandoned in the meantime for theoretical and empirical reasons (cf. Matushansky 2019, section 2.3) and can thus no longer serve as evidence for the PredP-analysis of SCs.

In general, as argued for extensively by Matushansky (2019), the theoretical and semantic considerations adduced as arguments in favour of the obligatory presence of Pred° (or other functional head) in SCs do not bear further scrutiny or are amenable to alternative analyses (cf. section 4 below for Marelj & Matushansky's (2015) analysis of 'take NP_1 *for* NP_2' in English, Serbo-Croatian and Russian as ditransitives). The identical distribution predicted by a uniform PredP analysis of SC is not observed, either (cf. Matushansky 2019: 67-73). As a consequence, Matushansky (2019) rejects the idea that SCs are headed by the same functional head and returns to Stowell's original analysis of SCs as lexical projections.

Recast into the Minimalist Program, Matushansky (2019) proposes to treat predication as the last thematic merge to an extended projection of a lexical head:

(15) a. [$_{VP}$ consider [$_{DP}$ Elise [$_{DP}$ Anna [$_{D'}$'s [$_{NP}$ best friend]]]]]
b. [$_{VP}$ become [$_{NP}$ Elise [$_{NP}$ a good sister]]]
c. [$_{VP}$ seem [$_{DegP}$ Elise [$_{DegP}$ [4 times] [$_{Deg'}$ as [$_{AdjP}$ intelligent]]]]]
'Elise seems four times as intelligent.'
d. [$_{VP}$ make [$_{AdjP}$ Elise [French]]] (Matushansky (2019: 95-96; (77a-d))

Given the now heterogeneous syntactic status of SCs (DP, NP, AdjP, DegP etc.), it is the semantics which acts as common denominator, i.e. the predication relation with its resulting propositional denotation.

Taking a different angle, Bruening (2018) likewise challenges an SC analysis of resultative constructions (*She hammered the metal flat*), caused motion constructions (*Jerome waltzed Matilda across the room)*, particle verb constructions (*They sponged the water up*), and double object constructions (*Melinda wrapped her friend a present*). His main argument is that an SC analysis predicts wrong semantics, because it uncouples the object DP from the verb event by representing it exclusively as the subject of the SC: *hammer* [$_{SC}$ *the metal flat*]. Bruening (2018) thus confirms Marelj & Matushanky's (2015) approach and removes further constructions from the domain originally claimed to involve SCs.[4]

While for Marelj & Matushanky (2015), Matushansky (2019) and Bruening (2018) there still remain genuine SCs in English and other languages, Chinese will be shown to lack SCs altogether, i.e. non-root clauses licensing the predicative function of an XP in a form

[4] There has been a recent revival of [Pred] as an obligatory "supercategory" feature of predicative lexical categories (cf. Bruening & Al Khalaf 2020). This does, however, not concern us here, because SCs will be shown not to exist in Chinese, be it as lexical projections or as a uniform PredP.

unacceptable for the same XP when in a matrix context.[5] This is independent of the approach chosen, SCs as a unique functional projection (e.g. PredP) or as extended projections of a lexical head.

3 Chinese translations of English SCs and alleged VP-SCs in Chinese

This section first examines how the different types of non-root SCs established for English are translated into Chinese and shows them to involve structures completely different from SCs. It then challenges the alleged existence of VP-SCs, still postulated in Chinese linguistics, despite the general consensus in the literature on SCs to exclude them (cf. Section 2.1 above).

3.1 *Chinese translations of English SCs*

Given the lack of SCs in Chinese, the reader might ask how the English sentences with non-root SCs in (5-9) are translated into Chinese. The more so as proponents of SCs in Chinese focus on adjectival SCs as in *They consider [SC John intelligent]* (cf. (17a) below), for the simple reason that the lexical items in the Chinese translation show the same linear order as in English. However, when going beyond the surface, we see that a different construction must be used for translating each type in (5-9), none of which involves an SC.

The Chinese equivalents of the English sentence (16a) with a denominative SC are given in (16b) and (16c):

(16) a. They consider [SC John/him a genius].

b. Tāmen rènwéi [cl.compl. Zhāngsān *(shì) tiāncái].
3PL think Zhangsan be genius
'They think that Zhangsan is a genius.'

c. Tāmen [vP bǎ Zhāngsān dāng tiāncái].
3PL BA Zhangsan consider genius
'They consider Zhangsan a genius.'

(16b) shows the verb *rènwéi* 'think, assume' that selects a clausal complement, with the obligatory copula *shì* 'be' and the nominal predicate. Unlike English *John/him a genius*, *Zhāngsān shì tiāncái* is a well-formed independent sentence: 'Zhangsan is a genius', hence not an SC. (Cf. Section 6 below for discussion of matrix sentences with copular verbs in Chinese). (16c) features the ditransitive verb *dāng* 'take sb. for, treat as, consider as', which requires the *bǎ* construction (also cf. Sections 5.2 and 5.3 below).

The Chinese equivalent (17b) of an adjectival SC in English (17a) does not feature an SC, either. For in Chinese, adjectives such as *cōngmíng* 'be intelligent' function as autonomous predicates, both in matrix clauses (cf. (17c) and in complement clauses (cf. (17b)) (cf. Section 4.2 below for further discussion):

(17) a. They consider [SC John intelligent].

b. Tāmen rènwéi [cl.compl. Zhāngsān hěn cōngmíng].
3PL think Zhangsan very be.intelligent
'They think that Zhangsan is intelligent.'

[5] "Reduced" size as a property of SCs is not generally agreed upon, given the proposals by a.o. Starke (1995) and Sportiche (1995) claiming CP status for SCs (cf. Cardinaletti & Guasti 1995: 9-10 for discussion).

c. Zhāngsān hěn cōngmíng.
Zhangsan very be.intelligent
'Zhangsan is intelligent.'

Concerning the English absolute construction *[SC With Peter sick/out of office], we'll never get the job done in time*, it has has no Chinese equivalent.

For the English resultative SC in (18a), the Chinese equivalent (18b) once again features the *bǎ* construction with a ditransitive compound verb, selecting two nominal complements:

(18) a. We painted [SC the barn red].

b. Wǒmen [Ba-*v*P bǎ [*v*P gǔcāng [V° shuā-chéng] [N° hóngsè]].
1PL BA barn paint-become red.colour
'We painted the barn red.'

Turning to subject and object depictives, the adjectival SC predicate in English subject depictives (19a) must be encoded in Chinese as a preverbal adverb or a preverbal adjunct clause (whose null subject is co-indexed with the matrix subject).

(19) a. He$_i$ ate the meat$_k$ [SC PRO$_i$ nude].

b. Tā$_i$ [adj.cl. PRO$_i$ guāng -zhe shēnzi] chī ròu.
3SG be.bare-IMP body eat meat
'He eats meat nude.'

By contrast, there is no systematic correspondance in Chinese for English object depictive SCs as in (20a):

(20) a. He$_i$ ate the meat$_k$ [SC PRO$_k$ raw].

b. Tā [V° shēng-chī] niúròu.
3SG raw -eat beef
'He eats beef raw.'

(21) a. %Tā rèrède hē yī bēi chá (Zhu Dexi 1961: 4, footnote 3, slightly changed;
3SG hot drink 1 cup tea also cf. Sobelman 1982)[6]
'She drank a cup of tea very hot.'

b. Tā hē -le yī bēi rèrè de chá
3SG drink-PERF 1 cup hot SUB tea
'She drank a cup of very hot tea.'

(22) Tā (*nóngnóngde) qī -le yī hú nóngnóng de chá
3SG strong brew-PERF 1 pot strong SUB tea
'She brewed a pot of strong tea.' [7]

[6] Not all speakers accept (21a), cited as acceptable in the literature. The same holds for the examples of preverbal *object*-depicting adverbs in Xiong Zhongru (2013) and Yang Yongzhong (2014). By contrast, the structure in (21b) is acceptable for all, with the object depicting quality encoded as an adjectival modifier of the object DP.

(20b) features a verb compound *shēng-chī* 'raw-eat' ='eat sth. raw', while in (21a) the object depicting 'hot' is rendered as an adverb, hence in preverbal position. The fact that this possibility is not available in (22) shows the idiosyncratic nature of this case; instead, *nóngnóngde* 'strong' must be encoded as a modifier of the object DP.

The so-called "mad magazine" sentences *[SC Me mad]?! Ridiculous* are irrelevant for Chinese, given that adjectives can in any case function as predicates without the copula in both root and non-root contexts (cf. (17b-c) above).

To summarize, the Chinese translations of English sentences with non-root SCs display very different constructions, none of which involves an SC. While it is in principle possible that languages might have some cases of SCs without showing the entire array known from English, this is not the case in Chinese, which lacks SCs altogether..

3.2 *VPs as SCs in Chinese?*

Concerning constructions with bare VPs as complements of a small set of verbs (modals, perception verbs and causative verbs) such as *Paul saw [SC Peter cross the street]*, they are in general not subsumed under SCs in English, because they show important differences, linked to *v* and the dichotomy external vs internal argument (cf. Section 2.1 above), with respect to the other types of SCs.

Notwithstanding this important insight, we encounter claims to the contrary in Chinese linguistics, a.o. in Yang Daran (2003) and Shen & Sybesma (2006), discussed below as per the request by an anonymous reviewer.

3.2.1 Causative constructions as VP-SCs (Yang Daran 2003)

Yang Daran (2003) is a good example to show that VP-SCs can only be postulated when taking the surface at face value and when completely glossing over the well-known existence in Chinese of null subjects, the absence of an embedding complementiser equivalent to English *that* and the lack of systematic overt differences between a finite and a non-finite form in Chinese. Without providing any arguments, he declares the causative structure (23) to be on a par with English *Mary considers [AP Bill intelligent]* and stipulates that *shǐ* 'cause' is a not further specified "light" ECM verb selecting a VP-SC, with the subject DP in SpecVP.

(23) Xūxīn [$_{vP}$ t$_{xuxin}$ [$_{V'}$ shǐ [$_{VP\text{-}SC}$ rén [$_{V'}$ jìnbù]]]]. (Yang Daran 2003: 368-369; bracketing)
modesty make people advance his
'Modesty makes people advance.'

Yang Daran (2003) omits to mention that the alleged SC *Rén jìnbù* 'People advance.' is a perfectly well-formed independent sentence. Nor does he discuss the prediction made by his structure in (23), viz. that nothing can intervene between the subject DP in SpecVP and the V-bar projection inside the alleged SC, a prediction straightforwardly invalidated by (24a-b) below. Furthermore, in contrast to what is suggested by his choice of examples with exclusively (surface) bare VP complements, *shǐ* and the other causative verbs mentioned, i.e. *ràng*, *yào* and *lìng* (not discussed here for reasons of space) all allow for adverbs, negation and aspect in their clausal complement:

(24) a. Shǐ [$_{DP}$ xiānjìn de [$_{NP}$ Ø]] [PRO *gèngjiā* xiānjìn]. (Lü Shuxiang 2000: 494; bracketing added)
make advance SUB more advance
'Make the progressive ones advance even more.'

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[7] In (22), *de* in preverbal *nóngnóngde*, is part of the reduplicated form of the adverb; when preceding the subordinator *de*, the two *de*'s are phonetically fused into one *de* (haplology).

b. Zhěme wǎn cái dédào tōngzhī, shǐ wǒ *méi* bànfǎ.
so late only receive information make 1SG NEG solution
'I received the information only very late, this leaves me without any way out.'
(literally: '…this makes me not having a solution.') (Lü Shuxiang 2000: 303)

(25) Zhè piān wénzhāng […] shǐ wǒ gǎibiàn-*le* zhǔyì.
this CL article make 1SG change-PERF opinion
'This article made me change my mind.' (Liu Yuehua, Pan Wenyu & Gu Wei 2001: 711)

Examples of the type illustrated in (24) – (25) can be easily found in every good grammar manual. Once again, the complement clause is well-formed on its own, be it with a covert or an overt subject.

Accordingly, the causative construction can *not* be analysed as involving an SC complement with the causee as SC subject. Instead, the causative construction is a type of object control construction where *shǐ* 'make, cause' selects two arguments, the causee DP and a clausal complement with a covert subject co-indexed with the causee.[8] In other words, causative verbs are *not* ECM verbs case-marking the subject DP of the embedded clause (cf. Y.-H. Audrey Li 1990: 133).

3.2.2 Resultative verb compounds as VP-SCs (Sybesma 1999; Shen & Sybesma 2006)

VP-SCs have also been invoked in the analysis of resultative verb compounds, viz. by Shen & Sybesma (2006), implementing Sybesma's (1999) analysis.

(26) a. Zhāng Sān cā -gān-le bōli.
Zhang San wipe-dry-LE glass
'Zhangsan has wiped the glass dry.'
(Sybesma 1999: 76, (21a); his glosses and translation, tones added by me)

b. [VP *cā* 'wipe' [XP=SC [X° *le*] [YP=SC [NP *bōli* 'glass'] [Y° *gān* 'dry']]]]
(Sybesma 1999: 76, (35))[9]

Sybesma (1999: 76) assigns the perfective aspect suffix *-le* (called "Realization" *le*) a function akin to that of Pred°: "[…] this [i.e. *-le*; WP] establishes a relationship between the two entities X and YP which is comparable to a predicational relationship, expressing that *[boli gan]* 'the glass dry' has realized".[10] As shown in (26b), Sybesma (1999: 75-76) postulates as many as two SCs here, without, however, providing any evidence in favour of this derivation: the head of the SC complement XP to the verb *cā* 'wipe' selects another SC, i.e. YP:

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[8] The object control construction is illustrated in (i):
(i) Wǒ quàn tā [PRO jiè yān / bù yào zhōngduàn xuéyè].
1SG persuade 3SG abstain smoke/ NEG want interrupt studies
'I persuaded her to give up smoking/ not to interrupt her studies.'

[9] Sybesma (1999: 76) gives the following explanation of how to avoid the incorrect output "Y-le V" based on this structure when applying head raising with uniform left adjunction: "It seems to be the case that in order to derive the correct surface order we need to stipulate that in the lexicon it is somehow determined and recorded that *le* is a suffix: it has to come last. So the derivation involves raising of the head of YP to incorporate into the immediately dominating head X, i.e. Realization *le*, and the cluster Y-*le* moves on to incorporate into the V." Accordingly, in (26b), *gān* 'be dry' first *left*-adjoins to *-le* and the resulting *gān-le* then *right*-adjoins to the verb *cā* 'wipe'. This contrasts with the standard way of obtaining the correct surface position of verbal suffixes, i.e. to analyse them as heads selecting a VP complement.

[10] Note immediately that *gān* 'be dry' can function as a predicate, hence *bōli gān* is acceptable as an independent sentence 'The glass is dry/drier.' (cf. the discussion in Section 4.2 below).

While the analysis of an SC as complement of AspP is already very unusual, it leads in addition to postulating SCs with a *covert* predicate (cf. (27b)), which is assigned the meaning of 'finished', given that (27a) "clearly involves an endpoint" (Sybesma 1999: 77):

(27) a. Zhāng Sān kàn -le zhèi-běn shū.
Zhang San read-LE this -CL book
'Zhang San has read this book.'
(Sybesma 1999: 77, (22e); his glosses and translation, tones added)

b. [VP *kàn* 'read' [XP=SC [X° *le*] [YP [NP *shū* 'book'] [Y° Ø 'finished']]]]
(Sybesma 1999: 79, (38))

Sybesma & Shen (2006) apply the same analysis to resultative verb compounds with a *verb* as second element (instead of an adjective as in (26b)):

(28) a. Akiū chàng-kū-le.
Akiu sing -cry-PERF
'Akiu sang himself to tears.'

b. [V' *chàng* 'sing' [SC=AspP [Asp° *Ø*/*le*] [SC=XP *Akiū kū* 'cry']]]
(Sybesma & Shen 2006: 44, (18))

The structure (28b) – like (26b) and (27b) – not only requires left adjunction for the first step of head movement and then right adjunction for the second step, but in addition the SC subject *Akiu* must raise to Spec of the matrix TP. The head of the highest SC may again be either realized by *-le* or remain covert.

Besides the purely technical feasibility of this analysis and references to Hoekstra (1988) and Guéron & Hoekstra (1995), no independent empirical evidence from other phenomena in Mandarin Chinese is provided; the main motivation seems to be to implement Sybesma's idea of "realization *le*" as the predicational head of a SC selecting another SC. Also note that the alleged lower SC in both (26) and (28) has a full-fledged predicate acceptable as such in root contexts, i.e. an adjective (*gān* 'be dry') in (26) and a verb (*kū* 'cry') in (28)).

The various ad hoc stipulations required for an analysis of resultative verb compounds in terms of SCs appear unnecessary, given that alternative analyses exist (cf. a.o. Cheng & Huang 1995; Basciano 2010 and references therein)..

To summarize, in Chinese as well, VP-SCs should be excluded as potential SC candidates, both for the empirical reasons outlined in this section and for the theoretical considerations involving the *v*/Voice head and the dichotomy external vs internal argument (cf. Section 2.1 above).

4 The repertoire of predicative XPs in Chinese

This section investigates which XPs can serve as autonomous predicates in Chinese matrix clauses and compares them with the XPs acceptable as predicates in non-root contexts, especially in secondary predicates. The result will be that if a category X is not licit as an autonomous predicate in matrix sentences, then X is *not* licit as predicate elsewhere, i.e. in non-root contexts, either.

4.1 *Nominal projections: NPs, DPs, Number Phrases*

4.1.1 NPs and DPs

In general, NPs and DPs (i.e. projections containing *de* instantiating different heads on the D-spine and proper names), require the copula *shì* 'be':

(29) Tā shì {tiāncái /fǎguórén /xuésheng/Lì jiàoshòu / wǒ de péngyou}.
3SG be genius/ French.person/student /Li professor/ 1SG SUB friend
'She is a genius/French/a student/professor Li/ my friend.'

The *absence* of the copula is the exception and restricted to NPs in affirmative *root*-clauses (for non-root clauses, cf. (33a) – (33c) below): [11]

(30) a. Tā fǎguórén , wǒ yīngguórén.
3SG French.person 3SG English.person
'She is French, I am English.'

b. Sìchuān [$_{NP}$ hǎo dìfāng].
Sichuan good place
'Sichuan is a good place.'

In the presence of negation, the copula is obligatory (cf. (31a-c)), whereas it is reported to be optional with adverbs (cf. Zhu Dexi 1984: 7), a judgement not shared by all speakers (cf. (32a-b)):

(31) a. Tā bù *(shì) fǎguórén.
3SG NEG be French.person
'She is not French.'

b. Sìchuān bù *(shì) hǎo dìfāng.
Sichuan NEG be good place
'Sichuan is not a good place.'

c. Tā bù *(shì) tiāncái/ xuésheng/ Lì jiàoshòu / wǒ de péngyou.
3SG NEG be genius/ student / Li professor/ 1SG SUB friend
'She is not a genius/ a student/professor Li/ my friend.'

(32) a. Nǐ jiǎnzhí %(shì) dà shǎguā.
2SG simply be big fool
'You're simply a big fool.'

b. Tā yě %(shì) guǎngdōngrén.
3SG also be Cantonese
'He is Cantonese, too.' (Zhu Dexi 1984: 7)

[11] While the conditioned optionality of the copula in affirmative sentences and its obligatoriness under negation are well-known in the literature (cf. Chao Yuen Ren 1968: 90ff.; Zhu Dexi 1982: 102-103), the asymmetry root vs non-root has so far not been noted.

In non-matrix contexts, by contrast, the copula is always required for a nominal predicate; this holds for non-root clauses such as sentential subjects (33a) and complement clauses (33b) as well as for secondary predicates (33c):

(33) a. [Tā *(shì) fǎguórén / Sìchuān *(shì) hǎo dìfāng] (compare with (30a-b))
3SG be French.person / Sichuan be good place
shì dàjiā dōu zhīdao de yī jiàn shì.
be everybody all know SUB 1 CL matter
'That she is French/that Sichuan is a good place is something everybody knows.'

b. Tā shuō/ yǐwéi [nǐ %(shì) fǎguórén / Sìchuān %(shì) hǎo dìfāng].
3SG say / think 2SG be French.person/ Sichuan be good place
'He says/thinks that you are French/that Sichuan is a good place.'

c. Wǒ yǒu yī ge xuéshēng$_i$ [PRO$_i$ *(shì) tiāncái/ bǎiwànfùwēng].
1SG have 1 CL student be genius/ millionaire
'I have a student who is a genius/a millionaire.'

Note that some native speakers marginally accept the absence of the copula in complement clauses (cf. (33b)), but at the same time point out that in general the copula is obligatory here. Importantly, this root vs non-root asymmetry is exactly the opposite of the one expected under an SC scenario, where the *non*-root context should be the one with a reduced predicational structure, hence an optional copula, not an obligatory one. (Cf. English: *John *(is) a genius* vs *They consider [John a genius]*.).

The copula is, however, always required in secondary predicates (cf. (33c)). While the precise structure of sentences with secondary predicates is discussed in Section 4.5 below, for the time being it suffices to know that the secondary predicate – notwithstanding its translation as a relative clause – is not a DP-internal modifier of the matrix object, but a separate constituent (cf. C.-T. James Huang 1984; 1987). Since secondary predicates on the object DP, also called *descriptive clauses* (cf. Li & Thompson 1981: 611; C.-T. James Huang 1987: 228), are the closest equivalent of object depictive SCs we have in Chinese, in the remaining sections secondary predicates will serve as testing ground for the (un)ability of XPs to function as predicates in non-root contexts.

4.1.2 Number Phrases

Number Phrases (NumP), i.e. phrases of the form 'number classifier NP', in general occur without the copula in affirmative clauses and are compatible with adverbs. This holds both for root clauses ((34a) – (36a)) and non-root clauses ((34b) – (36b)) (cf. Zhu Dexi 1982: 102-103):

(34) a. Zhè tái diànnǎo liùbǎi kuài qián.
this CL computer 600 CL money
'This computer costs 600 dollars.'

b. Wǒ zhīdao [zhè tái diànnǎo liùbǎi kuài qián].
1SG know this CL computer 600 CL money
'I know that this computer costs 600 dollars.'

(35) a. Tā (zhènghǎo) liǎng mǐ.
3SG exactly 2 meter
'He's (exactly) 2 meters tall.'

b. [Tā zhènghǎo liǎng mǐ] shì dàjiā dōu zhīdao de yī jiàn shì.
3SG exactly 2 meter be everybody all know SUB 1 CL matter
'That he's exactly 2 meters (tall) is something everybody knows.'

(36) a. Tā shíqī suì.
3SG 17 year
'She's seventeen.'

b. Wǒ yǒu yī ge xuéshēng$_i$ [PRO$_i$ cái shíqī suì]
1SG have 1 CL student just 17 year
'I have a student who is only seventeen.'

Unlike NPs, NumPs are fine as autonomous predicates in complement clauses (cf. (34b)), sentential subjects (cf. (35b)) and secondary predicates (cf. (36b)).

When negated, NumPs require either *méi yǒu* 'not have' or *bù shì* 'not be', the same holds for non-root clauses:

(37) Zhè tái diànnǎo bù shì liùbǎi kuài qián, nǐ gǎocuò-le.
this CL computer NEG be 600 CL money 2SG err -PERF
'This computer doesn't cost 600 dollars, you got it wrong.'

(38) Tā méi yǒu liǎng mǐ.
3SG NEG have 2 meter
'He's not 2 meters (tall).'

(39) Tā hái méi yǒu wǔshí sui, tóufǎ dōu bái-le.
3SG still NEG have 50 year hair all white-PERF
'He's not yet fifty, and his hair is all white.'

The obligatory presence of the copula under negation with *bù* already observed above with NP predicates (cf. (31a-c)) confirms that *bù* requires a VP complement.

4.2 ***Adjectival Phrases***

There are two classes of intersective adjectives in Chinese. (40a) – (40c) illustrate the adjectives functioning as autonomous predicates (labeled *predicative adjectives* by Chinese scholars) and corresponding to *scalar* adjectives:

(40) a. Tā fēicháng cōngmíng / bù cōngmíng.
3SG very be.intelligent/ NEG be.intelligent
'She is very intelligent/is not intelligent.'

b. Tā yě bù tài mǎnyì.
3SG also NEG too be.satisfied
'She is not really satisfied, either.'

c. Wǒ jīntiān tèbié máng.
1SG today particularly be.busy
'I'm terribly busy today.'

(41a-c) feature the so-called *non-predicative adjectives*, corresponding to absolute adjectives, which occur in a "nominalized form" (cf. Paris 1979) and therefore require the copula *shì*. Recast in an analysis where the subordinator *de* instantiates different heads on the D-spine, among them Det°, this nominalized form is tentatively analysed as a DP with a covert NP complement: [$_{DP}$ adj [$_{De'}$ *de* [$_{NP}$ Ø]]. (Cf. Paul 2012, 2017a for discussion of the subordinator *de* and the structure of DP.)[12]

(41) a. Pánzi shì [$_{DP}$ fāng [$_{De'}$ *de* [$_{NP}$ Ø]].
plate be square SUB
'The plate is square.'

b. Zhè ge shāndòng *(shì) tiānrán *(de).
this CL cave be natural SUB
'This cave is natural.'

c. Tā de yáchǐ *(shì) jiǎ *(de).
3SG SUB tooth be artificial SUB
'His teeth are artificial.'

Note that so far the literature has not provided a more precise analysis than Paris' (1979) nominalization approach; *shì* 'be' …. *de* is often presented as a "discontinuous" constituent, given that both are obligatory (cf. (41b-c)).

Returning to *predicative* adjectives, since, as their name suggests, they are autonomous predicates, they combine directly with negation and adverbs (cf. (40a) – (40c) above) and are incompatible with the copula *shì* 'be':[13]

(42) Tā (*shì) { fēicháng cōngmíng / bù cōngmíng}.[14]

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[12] The existence of these two classes of adjectives seems at first sight reminiscent of the opposition "verbal vs nominal adjectives" as observed e.g. in Japanese. However, *predicative*, i.e. scalar adjectives in Chinese pattern with *non-predicative*, i.e. absolute adjectives, not with stative verbs, as evidenced by the acceptablity of both adjectival classes in the so-called *de*-less modification: [$_{NP}$ adjective N°] (cf. (30b) above), precisely exluded for stative verbs (cf. Paul 2005; 2010 for discussion and references). In addition, the situation in Chinese is different from Japanese, where the same (nominal vs verbal) form shows up in predicative and attributive function alike (cf. Yamakido 2000 cited in Matushansky 2019: 88-89). Because in Chinese, *non-predicative* adjectives exclude the copula when being DP-internal modifiers (cf. (i)) and are then on a par with *predicative* adjectives (cf. (ii)):

(i) sān ge [$_{DP}$ (*shì) fāng de pánzi]
3 CL be square SUB plate
'three square plates'

(ii) sān ge [$_{DP}$ cōngmíng de xuésheng]
3 CL intelligent SUB student
'three intelligent students'

Given that *non-predicative* adjectives have been largely neglected in the literature on adjectives in Chinese (including recent studies such as C.-S. Luther Liu 2010 and Grano 2012) and that no more precise structural analysis than the one in Paris (1979) has been proposed, the fact in (i) has so far not been accounted for, either.

[13] For adjectives as a lexical category distinct from (stative) verbs, cf. a.o. Huang, Li & Li 2009: 21-26; Paul 2005; 2010 and the references therein to the numerous works by Chinese structuralists in the fifties and sixties of the last century, who all considered adjectives as a separate part of speech. Works proposing to conflate adjectives with stative verbs can only do so because they do not take into account a representative array of data (cf. a.o. Larson 1991; Mc Cawley 1992; Tang Sze-Wing 1998).

[14] The sequence 'NP *shì* adjective' is only acceptable when *shì* is not the copula 'be', but the so-called *emphatic shì*, which – obligatorily stressed – strengthens the assertion, similar to English *do* :

(i) Tā SHÌ zǒu-le.
3SG SHI leave –PERF
'He did leave.' (Lü Shuxiang 2000: 499)

3SG be very be.intelligent/ NEG be.intelligent
'She is very intelligent/is not intelligent.'

By contrast, with *non-predicative* adjectives, it is the copula *shì* as verbal head that is negated or modified by adverbs (cf. (43), (44)). Requiring a nominal projection as complement, the copula is incompatible with an adjectival complement (cf. (45)):

(43) Pánzi yě shì [DP fāng de].
plate also be square SUB
'The plate is square, too.'

(44) Zhè ge shāndòng bù shì [DP tiānrán de].
this CL cave NEG be natural SUB
'This cave is not natural.'

(45) Tā de yáchǐ shì [DP jiǎ de] / *[Adj° jiǎ].
3SG SUB tooth be artificial SUB artificial
'His teeth are artificial.'

When functioning as secondary predicates for object DPs, the same facts hold: *predicative* adjectives are acceptable on their own and exclude the copula *shì* 'be' (cf. (46)), whereas *non-predicative* adjectives appear in the nominalized form and require the copula *shì* 'be' (cf. (47)), exactly as in matrix contexts:

(46) Tā yǒu [sān ge xuésheng]$_i$ [PRO$_i$ (*shì) fēicháng cōngmíng / lǎnduò].
3SG have 3 CL student be very be.intelligent/ be.lazy
'She has three students who are very intelligent/lazy.'

(47) Tā yǒu /mǎi-le [jǐ ge pánzi]$_i$ [PRO$_i$ *(shì) fāng *(de)].
3SG have/ buy-PERF several CL plate be square SUB
'He has/bought several plates which are square.' [15]

(ii) Tā SHÌ cōngmíng.
3SG SHI be.intelligent
'She IS intelligent [for sure].'
(iii) Tā (*bù) SHÌ (bù) cōngmíng.
3SG NEG SHI NEG be.intelligent
'She is NOT intelligent [for sure].'
Given that emphatic *shì* cannot be negated and must be higher than negation when present (cf. (iii)), it might be plausibly analyzed as a sentential adverb. It is thus different from the (negatable) copula *shì* 'be' (cf. (31a – 31c) above)), which likewise occurs in focus clefts and assocation-with-focus structures (*pace* C.-S. Luther Liu 2010: 10; Grano 2012, section 4.3; cf. Paul & Whitman 2008).

[15] An anonymous reviewer observes the optionality of *shì* 'be' here and the associated possibility of construing *fāng de* 'square SUB' and *jiǎ de* 'false SUB' as an afterthought. Although native speakers consulted had difficulties replicating this judgement, the intended afterthought structure would probably feature a DP with a covert *pánzi* 'plate':
(i) [TP Tā mǎi-le [jǐ ge pánzi]], [DP fāng de ~~pánzi~~]
3SG buy-PERF several CL plate square SUB plate
'He bought several plates, square ones.'
The precise structure of the secondary predicate is discussed in Section 4.5 below and shown not to involve an afterthought.

(48) Tā yǒu [sān ge yáchǐ]$_i$ [PRO$_i$ *(shì) jiǎ *(de)].
3SG have 3 CL tooth be artificial SUB
'He has three teeth which are artificial.'

Incidentally, the obligatoriness of *shì* 'be' in (47) – (48) substantiates Matushansky's (2019: 84) stand against the presence of a null Pred° in SCs. If indeed there were a null Pred°, it should be capable of turning any intersective adjective into a predicate, which is visibly not the case. Instead, an overt copula is required for the class of non-predicative intersective adjectives.

The situation for adjectives thus confirms our observations for nominal projections, viz. that there are no differences between root and non-root contexts for their predicative function.

However, an anonymous reviewer points to a possible *semantic* asymmetry between root and non-root contexts and suggests this as potential evidence in favour of adjectival SCs. The starting point is the well-known fact that in Chinese, a *bare* scalar adjective as predicate in general conveys the comparative degree:

(49) Tāmen shéi gāo? Lǎo Èr gāo. (Chao Yuen Ren 1968: 683)
3PL who tall Lao Er tall
'Which of them is taller? Lao Er is taller.'

Accordingly, the same bare form occurs with an explicit standard of comparison:

(50) Lǎo Èr [AdjP [PP bǐ Lǎo Lǐ] gāo].
Lao Er compared.with Lao Li tall
'Lao Er is taller than Lao Li.'

When modified by degree adverbs (*hěn* 'very', *tèbié* 'particularly', *tài* 'too'), adjectives only give rise to the positive degree interpretation. Furthermore, when *hěn* 'very' is not stressed, it does not add any lexical meaning and therefore remains untranslated, in contrast to the other degree adverbs (cf. Paul 2015: 151-156 for discussion and references; also cf. C.-S. Luther Liu 2018).

(51) Lǎo Èr hěn gāo/ tèbié gāo.
Lao Er very tall/ particularly tall
'Lao Er is tall/particularly tall.'

Interestingly, in some non-root contexts such as complement clauses and conditional clauses, a *bare* adjective can be interpreted in the positive degree:

(52) a. Wǒ rènwèi/zhīdao [claus.cpl. zhōngguó dà].[16]
1SG think /know China be.big
I think/know that China is big [not: 'bigger'].'

b. Zhāngsān yàoshì lìnsè dehuà, jiù bù huì qǐng nǐ chī fàn.
Zhangsan if stingy SFP then NEG will invite 2SG eat food
'If Zhangsan is stingy [not: 'more stingy'], he will not treat you to dinner.'
(C.-S. Luther Liu 2010: 1019, (26d))

[16] Some of the native speakers consulted only marginally accepted the reviewer's (52a) and preferred the presence of *hěn* 'very' for the positive degree interpretation. With negation, *bù dà* 'NEG be big' the sentence was acceptable for all, meaning 'China is not big', thus again mirroring the situation in root clauses.

However, bare adjectives in matrix clauses can likewise indicate the positive rather than the comparative degree. This is the case in coordinations (53), in *yes/no* questions (54a) and under negation (54b):

(53) Zhèi běn shū guì , nèi běn piányi. (Paris 1989: 113, (54))
this CL book expensive that CL cheap
'This book is expensive, that one is cheap.'
(Not: 'This book is more expensive, that one is cheaper.')

(54) a. Zhèi běn shū guì ma? b. (Zhèi běn shū) bù guì.
this CL book expensive SFP this CL book NEG expensive
'Is this book expensive? This book is not expensive.'
(Not: 'Is this book more expensive? This book is not more expensive.')

Accordingly, the occasional possibility of a positive degree interpretation for bare adjectives in some non-root contexts can *not* be (mis)taken as evidence in favour of a systematic root vs non-root asymmetry and hence as evidence for the existence of adjectival SCs.

4.3 *Adpositional Phrases*

There is ample evidence for the existence of both prepositions and postpositions in Chinese (*pace* a.o. Huang, Li & Li 2009; Cheng & Sybesma 2015). For detailed discussion and references, cf. Djamouri & Paul (1997; 2009); Djamouri, Paul & Whitman (2013); Paul (2015, chapters 3 and 4).

4.3.1 Prepositional Phrases

In general, PPs cannot function as predicates. Accordingly, they are unacceptable as secondary predicates as well:

(55) a. *Tā [PP cóng Běijīng].
3SG from Beijing
(Intendend: She is from Beijing.')

b. *Tā yǒu sān ge xuésheng [PROi [PP cóng Běijīng]].
3SG have 3 CL student from Beijing
(Intendend: She has three students who are from Beijing.')

(56) a. *Tā [PP gēn yǐngxīng].
3SG with movie.star
(Intended: 'He is with, i.e. in the company of movie stars.')

b. *Wǒ yǒu yī ge péngyoui [PROi [PP gēn yǐngxīng]].
3SG have 1 CL friend with movie.star
(Intended: 'He has a friend who is with movie stars.')

Instead, a PP is licit e.g. as an *v*P-adjunct (cf. (57a), (58a)) with the entire vP evidently acceptable as secondary predicate (cf. (57b), (58b)):

(57) a. Tā [$_{vP}$ yīzhí [$_{vP}$ [$_{PP}$ gēn yǐngxīng] zài yīqǐ]]].
3SG always with movie.star be.at together
She is all the time with movie stars (i.e. in their company).'

b. Wǒ yǒu yī ge péngyou [PRO$_i$ [$_{vP}$ yīzhí [$_{vP}$ [$_{PP}$ gēn yǐngxīng] [$_{vP}$ zài yīqǐ]]]].
3SG have 1 CL friend always with movie.star be.at together
'I have a friend who is all the time with movie stars.'

(58) a. Tā [$_{vP}$ [$_{PP}$ cóng Běijīng] huílái].
3SG from Beijing return
'She has returned from Beijing.'

b. Tā yǒu sān ge xuésheng [PRO$_i$ [$_{vP}$ [$_{PP}$ cóng Běijīng] huílái]].
3SG have 3 CL student from Beijing return
'She has three students who have come back from Beijing.'

Finally, the presence of the copula *shì* 'be' has no influence on the non-predicative function of spatial prepositions such as *cóng* 'from', *gēn* 'with, in the company of':

(59) a. *Tā (shì) [$_{PP}$ cóng Běijīng].
3SG be from Beijing
(Intendend: She is from Beijing.')

b. *Tā (shì) [$_{PP}$ gēn tāmen]].
3SG be with 3PL
(Intended: She is with them, i.e. in their company.')

The situation is more complex for prepositions such as *yīnwèi* 'because of', *wèile* 'for (the sake of)', *guānyú* 'about, concerning' (tentatively characterized as "abstract" prespositions here). While they are again illicit as autonomous predicates, they are acceptable as complement of the copula:

(60) a. *Zhè dōu [$_{PP}$ yīnwèi nǐ /wèile nǐ].
this all because.of 2SG /for 2SG

b. Zhè dōu [shì [$_{PP}$ yīnwèi nǐ / wèile nǐ]].
this all be because.of 2SG / for 2SG
'This is all because of you/for your sake.'

(61) a. *Zhè běn shū [$_{PP}$ guānyú Chomsky].
this CL book concerning Chomsky

b. Zhè běn shū [shì [$_{DP}$ [$_{PP}$ guānyú Chomsky] de]].
this CL book be concerning Chomsky SUB
'This book is about Chomsky.'

c. Tā yǒu hěn duō shū [shì [$_{DP}$ [$_{PP}$ guānyú Chomsky] de]].
3SG have very much book be concerning Chomsky SUB
'She has a lot of books about Chomsky.'

Importantly, the presence of the universal quantifier *dōu* is required by some speakers for the acceptability of (60b), for unknown reasons. In (61b), the PP appears in the same structure as the *non-predicative* (intersective) adjectives (cf. (43) – (45) above), i.e. it must be embedded in a DP which in turn is selected as complement of the copula. As to be expected, *shì guānyú Chomsky de* 'be about Chomsky' is fine as a secondary predicate as well (cf. (61c)).[17]

4.3.2 Postpositional Phrases

Like PPs, Postpositional Phrases (PostPs), can *not* function as predicates; instead, spatial PostPs must be selected as complement by a stance verb such as *zài* 'be at' (not to be confounded with the homophonous preposition *zài* 'at').[18] Again, the presence of the copula *shì* 'be' does not "save" the sentence.

(62) a. *Fángzi (shì) [$_{PostP}$ cónglín páng/ sān gōnglǐ wài].
house be forest near / 3 km beyond

b. Fángzi [$_{vP}$ zài [$_{PostP}$ cónglín páng/ sān gōnglǐ wài]].
house be.at forest near / 3 km beyond
'The house is near the forest/more than three km away.'

(63) a. *Tā yǒu yī ge fángzi$_i$ [PRO$_i$ [$_{PostP}$ cónglín páng/ sān gōnglǐ wài]].
3SG have 1 CL house forest near / 3 km beyond

b. Tā yǒu yī ge fángzi [PRO$_i$ [$_{vP}$ zài [$_{PostP}$ cónglín páng/ sān gōnglǐ wài]]].
3SG have 1 CL house be.at forest near / 3 km beyond
'He has a house near the forest/more than three km away.'

By contrast, temporal PostPs such as [*sān nián*] *yǐqián* '[three years] ago', *sān tiān yǐhòu* '[three days] later' can neither be the complement of the verb *zài* 'be at' nor of the copula *shì* 'be':[19]

(64) *Zhè jiàn shì {zài /shì} [$_{PostP}$ [sān nián] yǐqián] / [$_{PostP}$ [sān tiān] yǐhòu].
this CL matter be.at/be 3 year ago 3 day later
(Intended: 'This matter was three years ago/three days later.')

Interestingly, PostPs with a NumP complement are acceptable as predicate for some speakers, on par with the acceptability of NumPs as autonomous predicates discussed in Section 4.1.2 above and illustrated in (65a-b) below. As to be expected, when for a given

[17] It is difficult to construe a plausible sentence with *shì [yīnwèi/wèile nǐ]* 'be because of you/for you' as secondary predicate.

[18] For a set of diagnostic tests to distinguish between (homophonous) verbs and preposition, cf. Djamouri & Paul (1997, 2009); Paul (2015, ch. 3 and references therein). One criterion is the ban on preposition stranding, which holds in Chinese as well (cf. (i)), whereas verbs are perfectly acceptable with a covert complement (cf. (ii)):

(i) Tā měitiān [$_{vP}$ [$_{PP}$ zài jiā] [$_{vP}$ shuì wǔjiào]], wǒ yě měitiān [$_{vP}$ [$_{PP}$ zài *(jiā)] [$_{vP}$ shuì wǔjiào]].
3SG every.day at home sleep nap 1SG also every.day at home sleep nap
'He takes a nap at home every day, I also take a nap at home every day.'

(ii) Wǒ gāngcái qù-le yī tàng, tā méi [$_{vP}$ zài (jiā)].
1SG just go-PERF time 3SG NEG be.at home
'I just went there, he wasn't at home/he wasn't in.'

[19] The unacceptability of 'NP *shì* PostP' provides further evidence against the conflation of PostPs with NPs (*pace* a.o. Huang, Li & Li 2009).

speaker such a PostP is accepted or rejected as autonomous predicate in a matrix sentence (cf. (66a)), then it is likewise accepted or rejected as secondary predicate (cf. (66b)):

(65) a. Tā jiǔshí fēn yǐshàng.
3SG 90 point above
'She has more than 90 points.'

b. Tā yǒu yī ge xuéshēng$_i$ [PRO$_i$ jiǔshí fēn yǐshàng].
3SG have 1 CL student 90 point above
'She has a student who has more than 90 points.'

(66) a. Tā {Ø/zài} [$_{PostP}$ [$_{NumP}$ jiǔshí fēn] yǐshàng].
3SG be.at 90 point above
'She's above 90 points.'

b. Tā yǒu yī ge xuéshēng$_i$ [PRO$_i$ {Ø/zài} [$_{PostP}$ [$_{NumP}$ jiǔshí fēn] yǐshàng]].
3SG have 1 CL student be.at 90 point above
'She has a student who is above 90 points.'

Like temporal PostPs, PostPs with a (non-temporal) NumP complement are incompatible with the copula *shì* 'be':

(67) a. Tā [$_{PostP}$ [$_{NumP}$ sānshí suì] zuǒyòu]].
3SG 30 year approximately
'He is about 30 years old.'

b. *Tā [$_{vP}$ shì [$_{PostP}$ [$_{NumP}$ sānshí suì] zuǒyòu]]].
3SG be 30 year approximately

Again, the same incompatibility holds for secondary predicates.

4.4 *Interim summary*

We have seen that like verbs, scalar adjectives function as predicates, exclude the copula and are directly negated with *bù*. This holds both for root and non-root contexts (e.g. sentential subjects, complement clauses, secondary predicates).

Among the nominal projections, NumPs are licit predicates in root and non-root contexts. When negated, however, NumPs either require the copula *bù shì* 'not be' (*bù shì* NumP) or the negated form of the verb *yǒu* 'have', i.e. *méi yǒu* 'not have' (*méi yǒu* NumP). NPs, but not DPs, may sometimes function as predicates on their own, but this constrained possibility is limited to root contexts. In non-root contexts, the copula *shì* 'be' is obligatory.[20] The copula is also required for negation, irrespective of root or non-root context.

The predicative function is in general excluded for Adpositional Phrases (AdpPs), notwithstanding the presence of the copula *shì* 'be'. More precisely, there are only very few

[20] While complex DPs with demonstrative pronouns and modifiers subordinated with *de* always require the copula, the predicative function of proper names is controversial and restricted to *hic and nunc* contexts such as presentation situations where the person involved is actually present. Accordingly, in (i) below *tā* 'he' must be identifiable by being pointed at:

(i) Wǒ/Tā Zhāng Pīng.
1SG:3SG Zhang Ping
'I am/he is Zhang Ping.'

cases of well-formed PP-predicates involving the copula *shì* 'be', and the conditions at work here are unclear. Concerning PostPs, they are incompatible with the copula *shì*. Some native speakers accept PostPs with a NumP complement as autonomous predicates in both root and non-root contexts, treating them on a par with NumPs.

Crucially, the constraints holding for a given XP as predicate in a non-root context are the same as those holding in root contexts, i.e. an XP unacceptable as predicate in root contexts is likewise unacceptable as predicate in non-root contexts. NP predicates are an exception here, insofar as the copula is *required* in *non-root* contexts, while sometimes *optional* in *root* contexts. Importantly, this asymmetry is exactly the opposite of what is observed for SC predicates in e.g. English, where an NP is licit without a copula only in the non-root SC context, but requires the copula in root contexts.

4.5 *The structure of sentences with secondary predicates*

So far, secondary predicates have served as the non-root context *par exellence* when checking the possible predicative function of lexical XPs in root and non-root contexts. The analysis of the constitutent XP following the matrix object in structures such as (68a) – (68d) as a secondary predicate goes back to C.-T. James Huang (1984; 1987). He provides three arguments against the analysis of this XP as a DP-internal modifier; while some of his observations have been questioned in the meantime, his overall analysis still remains unchallenged.

First, Huang (1987: 231-232) observes that the acceptability of a secondary predicate depends on the properties of the matrix VP. Besides *yǒu* 'have', other transitive verbs are allowed when suffixed with the perfective aspect *-le* or the experiential aspect *-guo*. Verbs with the progressive aspect *zài* in general exclude a secondary predicate on the matrix object (cf. (68d-e)):[21]

(68) a. Tā yǒu yī ge mèimei$_i$ [PRO$_i$ zài měiguó xuéxí / fēicháng cōngmíng].
3SG have 1 CL younger.sister at USA study/ extremely be.intelligent
'He has a younger sister, who studies in the USA/who is extremely intelligent.'

b. Tā chǎo-le yī ge cài [PRO$_i$ fēicháng hǎochī].
3SG fry -PERF 1 CL dish extremely be.delicious
'He prepared a dish, which is extremely delicious.'

c. Tā jiāo -guo yi ge xuéshēng$_i$ [PRO$_i$ fēicháng cōngmíng].
3SG teach -EXP 1 CL student extremely be.intelligent
'He has taught a student, who was extremely clever.'

d. Tā zài jiāo yī ge xuéshēng$_i$ (*[PRO$_i$ fēicháng cōngmíng]).
3SG PROGR teach 1 CL student extremely be.intelligent
(Intended: He's teaching a student, who is extremely clever.')

e. Tā zài chǎo yī ge cài (*[PRO$_i$ fēicháng hǎochī]).
3SG PROGR fry 1 CL dish extremely be.delicious
'He is preparing a dish (which is extremely delicious.')

[21] The secondary predicate is translated as a non-restrictive relative clause, in order to highlight its optionality. The reader should keep in mind, though, that in Chinese, the secondary predicate is precisely *not* part of the object DP. Restrictive and non-restrictive relative clauses both occupy SpecD(e)P: [$_{DP}$ [$_{rel.cl.}$ ….] [*de* NP]].

Huang (1987: 231) tries to capture the common factor of these different VP formats by stating that "the verbs used all have to do with 'existence' of some sort", while being very well aware of existing counterexamples.[22] For the purpose of this article, his approximation is sufficient, because the aim is to show that the format of the predicate is the same in both matrix and secondary predicates, independently of the conditions under which a secondary predicate is possible. Note that no more accurate analyses have been proposed since Huang (1987).

Second, there is also a constraint on the object DP itself in order to be compatible with a secondary predicate: it must be specific indefinite, to the exclusion of definite DPs and non-referential bare nouns (cf. Huang 1987: 249):[23]

(69) Wǒ jiāo -guo {yī ge xuéshengᵢ/*nà ge xuéshengᵢ/*xuéshengᵢ}
3SG teach-EXP 1 CL student / that CL student / student
[PROᵢ fēicháng cōngmíng].
extremely be.intelligent
'I have taught a student/this student/students, who was/were very clever.'
(Huang 1987: 248, (82a-b); combined with his (74), p. 244))

Third, a secondary predicate is excluded from *wh*-questions (Huang 1987: 249, (86)):

(70) *Nǐ shénme shíhou jiaō -guo yī ge rén [PROᵢ fēicháng cōngmíng] ?
2SG what time teach-EXP 1 CL person extremey be.intelligent
('When did you teach a certain person, who was very clever?')

Note, finally, that only postverbal DPs allow for a secondary predicate.

None of these constraints hold for DP-internal modifiers followed by *de*; a DP-internal modifier XP does not depend on the aspectual nature of the VP nor on the specificity of the DP and the position (pre- vs postverbal) it occurs in, and a modified DP is naturally acceptable in a *wh*-question:

(71) a. Tā {zài jiāo /jiāo -guo} {yī ge/ nà ge}
3SG PROGR teach/teach-EXP 1 CL/ that CL
. [DeP [tèbié cōngmíng] de xuésheng].
particularly be.intelligent SUB student

---

[22] Huang (1987: 248) notes the following counter-example to this claim:
(i) Wǒ zhèng zài kàn yī běn shū hěn yǒuyìsì.
1SG just PROGR see 1 CL book very be.interesting
'I'm right now reading a book which is very interesting.'
As Tsai (1994:171-172) suggests, the type of verb involved nevertheless seems to presuppose the existence of the object, hence the acceptability of (i). If these 'use' type verbs (in the sense of Diesing 1992) are replaced by 'create' type verbs, e.g. *xiě* 'write', sentence (i) becomes unacceptable.

[23] NumPs in Chinese are generally specific, as evidenced by their unacceptability in the scope of negation:
(i) *Wǒ méiyou kànjian [yī ge rén].
1SG NEG see 1 CL person
('I did not see a certain person.') (Huang 1987: 249, (85))
As indicated by an anonymous reviewer, the "Specificity Effect" advocated by Huang (1987: 249) for DPs with a secondary predicate again seems too strong a generalization:
(ii) Wǒ cónglái méiyǒu jiāo-guo rènhé xuéshengᵢ [PROᵢ bǐ tā cōngmíng].
1SG ever NEG teach-EXP any student compared.to 3SG be.intelligent
'I have never taught a student smarter than him.'
(iii) Wǒmen yào xùnliàn xuésheng néng jiějué suǒyǒu de wènti.
1PL want train student can solve all SUB problem
'We should train students who can solve all problems.'

'He {is teaching/taught} {a/that} particularly clever student.'

b. Tā {zài chǎo/ chǎo-le } yī ge [DP [fēicháng hǎochī] de cài].
3SG PROGR fry / fry -PERF 1 CL extremely delicious SUB dish
'He is preparing/has prepared a dish which is extremely delicious.'

For all these reasons Huang (1984; 1987) adopts an analysis of the XP following the matrix object DP as a secondary predicate, which does not form a constituent with the object DP. Instead, the matrix verb, the matrix object DP and the secondary predicate are "dominated by VP", hence are "sisters to the verb" (Huang 1987: 232-233).[24] This also allows him to maintain the robust generalization that in Chinese, the modifier always precedes the modifiee in the nominal projection.

Taking up Chomsky's (1980) observation that a purposive clause is a predication on a main clause NP, Huang (1984: 569; 1987: 252: fn 5) proposes an analysis of the secondary predicates in Chinese on a par with purposive clauses and analyses them as CPs. The empty category in object position is analysed as a variable bound by an abstract operator in the embedded C, which in turn is coindexed with the matrix object by the *Generalized Control Rule* (GCR).[25]

(72) Zhāngsān [VP yǒu [yī běn shū]$_i$ [CP OP$_i$ [TP wǒ kàn-bù -dǒng *ec*$_i$]]]
Zhangsan have 1 CL book 1SG see -NEG-understand
'Zhangsan has a book, which I don't understand.'
(Huang 1984: 569, (94); labelled bracketing added)

Huang's (1984; 1987) structure in (72) has basically remained unchallenged up to today, as witnessed by a.o. Lin Jo-wang & Tsai Wei-tian (2015: 117) who maintain his operator analysis and treat secondary predicates as "integrated non-restrictives of some sort". Note that they do not address at all the internal structure and label of the projection including the verb, the matrix object DP and the secondary predicate, although it is evident that Huang's analysis from back in the 1980's with a ternary-branching VP can no longer hold. Before addressing this latter issue, let us first examine the size/projection of the secondary predicate.

The CP analysis of purposive clauses raises a number of problems. It is unclear what the status of abstract operators is within the *Minimalist Program* (Chomsky 1995 and his subsequent works). On the empirical side, as argued for by Wei Haley Wei & Y.-H. Audrey Li (2018), the size of purposive clauses with a null subject in Chinese cannot be CP, given that e.g. topicalization is only possible to a position in the matrix clause, not within the purposive clause:

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[24] Huang (1987: 236) dismisses an analysis of the 'NP XP' sequence as small clause, because inter alia the class of verbs observed with secondary predicates is the open class of transitive verbs, to the exclusion of verbs such as *consider*, which in Chinese are ditransitive verbs selecting two DPs, not a clausal (SC-) complement as in English. Cf. Section 5 below for the non-existence of ECM verbs in Chinese.

[25] "The GCR is basically Chomsky's (1980) rule of control, extended to cover both and PRO and *pro*:
(61) Coindex an empty pronominal with the closest nominal element." (Huang 1984: 352, (61))
Huang (1984, 1987) does not say whether this analysis likewise holds for secondary predicates with a *covert* subject, PRO, as in all the examples of secondary predicates discussed above. This is, however, what Tsai Wei-tian (1994: 180, (103a)) proposes. He leaves, however, completely open the hierarchical relationship between the verb, the matrix object and the secondary predicate, providing bracketing for the object DP and the secondary predicate only:
(i) Wǒ jiāo -guo [yī ge xuésheng]$_i$ [CP OP$_i$ [*ec*$_i$ fēicháng cōngmíng]].
1SG teach-EXP 1 CL student extremely be.intelligent
'I have taught a (certain) student, who is very clever.'

(73) a. Wǒmen huì jìn yīqiè lìliàng [lái wánchéng [zhè ge jìhuà]].
1PL will invest all effort in.order.to accomplish this CL plan
'We will make all efforts to accomplish this project.'

b. *Wǒmen huì jìn yīqiè lìliàng [lái [zhè ge jìhuà] wánchéng].
1PL will invest all effort in.order.to this CL plan accomplish

c. Wǒmen [zhè ge jìhuà] huì jìn yīqiè lìliàng [lái wánchéng].
1PL this CL plan will invest all effort in.order.to accomplish
'We will make all efforts to accomplish this project.'
(Wei & Li 2018: 318, (45))

In addition, while manner adverbs and adjunct PPs and NPs are allowed, higher adverbs and auxiliaries are excluded from purposive clauses:[26]

(74) a. Wǒ yào mǎi yī ge hànbǎo [(lái) [zài jiālǐ] mànmànde chī].
1SG want buy 1 CL hamburger in.order.to at home slowly eat
'I want to buy a hamburger to eat slowly at home.' (Wei & Li 2018: 319, (49b))

b. *Wǒ mǎi hànbǎo [(lái) {ǒu'ér / yào } chī].
1SG buy hamburger in.order.to occasionally/ will eat
(Wei & Li 2018: 319, (44a) combined with (50))

Wei & Li (2018) show that these constraints hold for purposives irrespective of the presence or absence of *lái* 'in order to'. While a purposive headed by *lái* projects a PredP (with *lái* as Pred°), a "bare" purposive without *lái* 'in order to' projects a *v*P. Importantly, both types of purposives are first merged with the verb, just like control complements. The resulting projection merges with the matrix object DP:

(75) [$_{vP}$ V [$_{VP}$ DP [~~V~~ [$_{\text{purposive clause}}$ (*lái*)…….]]]] (Wei & Li 2018: 321, (54))

Purposives thus correspond to infinitival complements of control verbs such as *kāishǐ* 'begin', *jìxù* 'continue', which have the size of *v*P according to Huang (2017), not to the larger projection selected as complement of control verbs such as *jìhuà* 'plan', *zhǔnbèi* 'prepare', which allow topicalization *within* their control clause (Wei & Li 2018: 317, (41)):

(76) %Zhāngsān jìhuà [$_{\text{WollP}}$ [nà mén kè] míngnián zài xuǎn [~~nà mén kè~~]] [27]
Zhangsan plan that CL course next.tear then choose that CL course
'Zhangsan plans to take that course next year.

While topicalization in (76) is subject to variation among native speakers, the contrast with (73b) above nevertheless demonstrates that topicalization can serve as a diagnostic for

[26] Adjunct PPs and NPs may behave as low VP-level adverbs, on a par with (strict) manner adverbs, as evidenced by their acceptability *below* auxiliaries (cf. Paul 2017b for further discussion):
(i) [$_{\text{TopP}}$ {[$_{\text{PP}}$ zài túshūguǎn]} [$_{\text{TP}}$ nǐ {[$_{\text{PP}}$ zài túshūguǎn]} néng {[$_{\text{PP}}$ zài túshūguǎn]} fùyìn]].
at library 2SG at library can at library xerox
'You can make photocopies in the library.'

[27] Whether the complement clause in (76) corrresponds to WollP, i.e. an IP (cf. Wurmbrand 2014) as claimed by Huang (2017) or whether it is rather a TopP with a null subject *pro* goes beyond the scope of this article.

different types of complements. Also note that according to Huang (2017), the acceptability of topicalization inter alia patterns with the presence of auxiliaries such as *yào* 'will'.

As demonstrated below, while disallowing topicalization (cf. (77b)), secondary predicates can feature auxiliaries (cf. (77a)), aspectual suffixes (cf. (78)) and negation (cf. (79)) and thus differ both from purposives (excluding auxiliaries) and the WollP control complements (allowing for topicalization):[28]

(77) a. Wǒ pèngdào-le yī ge rén$_i$ [PRO$_i$ *néng* jiějué [nèi ge wèntí]].
1SG meet -PERF 1 CL person can solve that CL problem
'I met someone who can solve that problem.'

b. *Wǒ pèngdào-le yī ge rén$_i$ [[nèi ge wèntí] PRO$_i$ néng jiějué ~~nèi ge wèntí~~].
1SG meet -PERF 1 CL person that CL problem can solve that CL problem

c. [Nèi ge wèntí] wǒ pèngdào-le yī ge rén$_i$ [PRO$_i$ néng jiějué ~~nèi ge wèntí~~].
that CL problem 1SG meet -PERF 1 CL person can solve that CL problem
'That problem, I met someone who can solve [it].'

(78) Tā yǒu yī ge érzi [PRO$_i$ jīnnián kǎoshàng *-le* Běidà].
3SG have 1 CL son this.year pass.exam-PERF Peking.University
'He has a son, who succeeded in the entrance exam for Peking University this year.'

(79) Tā yǒu ge érzi [PRO$_i$ *bù* xǐhuān xuéxí].
3SG have CL son NEG like study
'He has a son, who doesn't like to study.'

Allowing for auxiliaries and aspectual suffixes, a secondary predicate is thus clearly larger than purposives (*v*P or PrdP according to Wei & Li 2018). At the same time, it lacks a projection able to host a topicalized DP, unlike the WollP complement. The secondary predicate can therefore be plausibly assumed to project a TP with an always covert subject.

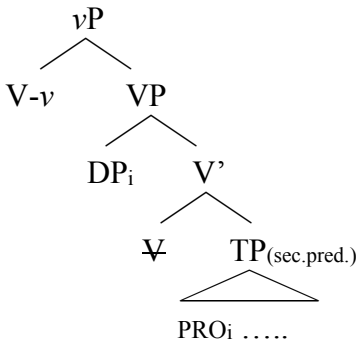
Concerning the hierarchical position of the secondary predicate in the sentence, it must be merged with either VP or *v*P. Merging with a higher projection in TP is excluded by the overall syntax of Chinese, where due to the systematic head-initiality of the extended verbal projection (including TP), postverbal material must be merged within the VP, as emphasized by Huang (1987: 232) himself: "That the XP [i.e. the secondary predicate; WP] when it appears, is under VP, but not immediately under S, is assumed in all discussions."[29]

Two scenarios are possible: either the secondary predicate is merged with the verb, as proposed for purposive clauses by Wei & Li 2018 (cf. (80a)), or it is merged with the VP (cf. (80b)). Merging with *v*P (or AspP) is not an option, because it would make it difficult to rule out adjunction of adverbial XPs, which are completely excluded from the postverbal position, a very robust fact of Chinese syntax known since Huang (1982) (cf. Paul 2017b for discussion and references).

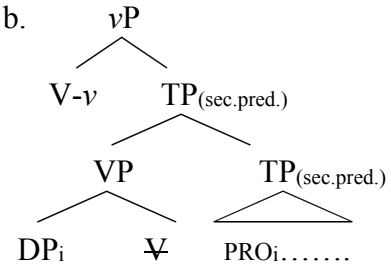
[28] We concentrate here on secondary predicates with a PRO subject and leave aside secondary predicates with an overt subject and covert object, as in Huang's example (72) above.

[29] To be more precise, postverbal material must either be merged "downstairs" in the *v*P or "high up" with TP; this is the case for sentence-final particles (SFP) as C-elements: [$_{CP}$ [$_{TP}$ S V O] SFP]. Cf. Paul (2014; 2015, ch. 7). Adjunction of the secondary predicate to TP or CP (when an SFP is present), would incorrectly present the secondary predicate as an "afterthought".

(80) a.



(80) b.



Concerning (80a), it is not clear whether the secondary predicate should be likened to a purposive control clause, i.e. to a *complement* of the verb (cf. (75) above), complementation and predication not being the same.

This potential problem does not arise for (80b), where the secondary predicate TP is merged with VP (also cf. Irimia 2005). PRO within the secondary predicate TP is coindexed with the matrix object via "cyclic" or "weak" c-command and a predicative relation is established. (For the relevance of "weak" c-command in Chinese, cf. Huang, Li & Li 2009: 335). For the resulting projection, the label TP seems plausible, thus leading to a configuration where the matrix verb (raised to *v*) now combines with a clausal complement.

It is correct that Huang (1987) rejected such an analysis on the grounds of problems with subcategorization, because the open class of transitive verbs would have to be stipulated to select a clausal complement instead of a DP, provided the latter is followed by a secondary predicate. However, he also noted that the various constraints holding for the aspect type in the VP allowing for a secondary predicate on its object DP (cf. (68) above) as well as the unacceptability of secondary predicates in *wh*-questions (cf. (70) above) can in any case not be captured by the selectional restrictions imposed by a transitive verb. Last, but not least, for sentences with the existential verb *yǒu* 'exist' as matrix verb, Huang (1987: 236; 1988: 57) himself tentatively suggested an analysis of the secondary predicate and the matrix object as constituting a clause:

(81) Yǒu [IP [yī ge rén] [zài jiàoshì lǐ]]. Huang (1988: 57)[30]
exist 1 CL person be.at classroom in
'There is someone in the classroom.'

Further research must decide between the configurations (80a) and (80b), because the few studies on secondary predicates after Huang (1987) (cf. a.o. Tsai 1994; Lin & Tsai 2015) never address the precise hierarchical position of secondary predicates on the clausal spine.

[30] I do not follow Huang's (1988: 57) stipulation that *yǒu* 'exist' is an auxiliary located in Infl. Auxiliaries and lexical verbs alike never leave the *v*P; accordingly, the head of the projection hosting the subject (Infl or T°) always remains covert in Chinese (cf. Ernst 1994).

Looking at (81) one might question the necessity of the covert subject PRO in the secondary predicate as assumed so far. However, as shown in (83), a secondary predicate requires an *overt* matrix object in postverbal position, not a silent copy thereof.

(82) Wǒ zhǎodào-le [[sān ge xuésheng] [PRO$_i$ néng jiějué nèi ge wèntí]].
1SG find -PERF 3 CL student can solve that CL problem
'I found three students, who can solve that problem.'

(83) *[TopP [Sān ge xuésheng] [matrixTP wǒ zhǎodào-le
3 CL student 1SG find -PERF
~~[sān ge xuésheng]~~ [PRO$_i$ néng jiějué nèi ge wèntí]]].
3 CL student can solve that CL problem
(*'Three students, I found who can solve that problem.')

This is different from complement clauses:

(84) a. Wǒ zhīdao [TP [sān ge xuésheng] néng jiějué nèi ge wèntí].
1SG know 3 CL student can solve that CL problem
'I know that three students can solve that problem.'

(84) b. [TopP [Sān ge xuésheng], [matrixTP wǒ zhīdao [TP [~~sān ge xuésheng~~]
3 CL student 1SG hope 3 CL student
néng jiějué nèi ge wèntí].
can solve that CL problem
'Three students, I know that [they] can solve that problem.'

The contrast between (83) and (84b) indicates that the secondary predicate indeed features a PRO. Since PRO is subject to the GCR (cf. footnote (25)), this leads to the undesired co-indexation with the nearest DP, i.e. the matrix subject *wǒ* 'I' in (83), given the lack of an overt matrix object.[31]

Finally, as already demonstrated by Huang (1987), the projection consisting of the secondary predicate TP and the matrix object can *not* be a DP, because this would wrongly predict the acceptability of the resulting DP elsewhere than in the postverbal object position, i.e. in all the other positions available for DPs, such as the subject position, complement of adposition position or as object in the *bǎ* construction.

To conclude, while secondary predicates clearly involve a non-root context, they cannot be analysed as SCs, because they contain material (auxiliaries, aspect, negation, adverbs) normally said to be excluded from (genuine) SCs and thus project a TP with an always covert subject. Furthermore, the XPs allowed as predicates here are identical with those in matrix

[31] This is not an isolated phenomenon; Wei & Li (2018: 320-321) likewise observe the required overt nature of the matrix object in sentences with bare purposives.
An anonymous reviewer points to the wellformedness of *These oysters, I will eat ~~these osyters~~$_i$ [PRO$_i$ raw]* where the matrix object has been topicalized, and refers to object depictives SC in (8a) above with a PRO subject in the SC *He$_i$ ate the meat$_k$ [$_{SC}$* PRO$_k$ *raw]*, which look similar to secondary predicate structures in Chinese. The difference observed between the two languages might be taken as an additional argument to show that the secondary predicate in Chinese is precisely not an SC. Note that Stowell (1981: 263) observed the acceptability of a PRO subject in adjunct SCs (cf. (i), ((ii)) vs its unacceptability in a subcategorized complement-SC (cf. (iii)):
(i) Scott wandered home [PRO drunk].
(ii) The farmer loaded the truck [PRO full of hay].
(iii) *I expect [PRO off this ship (by midnight)].

clauses.[32] As a consequence, secondary predicate TPs are likewise acceptable as root clauses on their own, Chinese being a *pro*-drop language. In Chinese, there are thus no non-root contexts where otherwise non-predicative XPs are licit as predicates, a situation which was the very reason to postulate SCs to begin with. The non-existence of ECM verbs in Chinese, discussed in the next section, further supports the lack of SCs.

5 The non-existence of ECM verbs in Chinese

The complement position of ECM verbs is among the contexts *par excellence* for SCs:

(85) a. I consider [SC John/him [AdjP very intelligent]/ [NP a genius]].
b. I expect [SC that sailor/him [PP off my ship]].

5.1 *Verbs selecting a clausal complement*

However, the Chinese translations corresponding to (85a-b), often cited as illustrating ECM verbs with an SC complement, turn out to simply involve verbs selecting a clausal complement (for *rènwéi* 'think', cf. already Huang 1987: 235):

(86) Wǒ rènwéi [compl.cl. tā bù tài cōngmíng / tā hěn bèn].
1SG think 3SG NEG too be.intelligent/ 3SG very be.stupid
'I think he is is not too bright/he is stupid.'
NOT: 'I consider him not too bright/ stupid.'

This error is partly due to the fact that mainly English *adjectival* SCs were chosen and translated into Chinese (c. a.o. Tang Sze-Wing 1998), despite the well-known caveat by Y.-H. Audrey Li (1985: 270-72, note 8; 1990: 130-134). She argued against ECM verbs in Chinese, emphasizing the well-formedness as an independent clause of *tā hěn bèn* 'He is stupid.' in sentences such as (86), given the predicative nature of scalar adjectives in Chinese. This contrasts with English *him foolish* in *I consider [him foolish]* which is not an independent clause (also cf. Tang Ting-chi 2000: 209, fn 34).[33]

As soon as nominal predicates are included, this is obvious, because the copula *shì* 'be' is obligatory here, as is the case in matrix contexts:

(87) a. Wǒ rènwéi [compl.cl. tā *(shì) tiāncái].
1SG think 3SG be genius
'I think she is a genius.'

b. [[Wǒ yǐwéi [compl.cl. tā *(shì) fǎguórén]] ne], yuánlái tā *(shì) déguórén.
1SG believe 3SG be French SFP in.fact 3SG be German
'I thought she was French, but in fact she is German.'

The verbs *rènwéi* 'think, assume', *yǐwéi* 'believe' etc., often presented as ECM verbs on a par with English *consider*, *believe* etc., in fact select a full-fledged clausal complement, perfectly acceptable as an independent root clause, featuring *inter alia* negation (cf. (86) above) and

[32] Given this non-distinctness, an anonymous reviewer raises the possibility that the secondary predicate is an independent sentence with a pronominal null subject. Evidence against this view and in favour of the one-sentence analysis are the constraints observed for the matrix VP and object DP as well as the unacceptability of secondary predicates in *wh*-questions. These constraints would be difficult to explain if two independent sentences were involved.

[33] Tang Ting-chi (2000: 209) is in general more cautious concerning the existence of SCs in Chinese and explicitly states the controversial nature of this issue. However, like many others, he misanalyses double object verbs (e.g. *jiào* 'call sb. something') as ECM verbs (cf. Section 5.2 below).

auxiliaries (cf. (88) below). Accordingly, this clause is not as "bare" as expected for a SC, characterized by the absence of tense, aspect, modality.

(88) Wǒ rènwéi [$_{compl.cl.}$ tā yīnggāi cǎiqǔ dìyī ge fāng'àn].
1SG think 3SG must choose first CL project
'I think he needs to choose the first project.' (Lü Shuxiang 2000: 464)

Importantly, the subject (*tā* 's/he' in (86-88)) is case-licensed *within* the embedded clause, not via the matrix verb *rènwéi*, hence the unacceptability of the *bǎ* construction in (89), which presents *tā* 'he' as object of the matrix verb *rènwéi* 'think':[34]

(89) *Wǒ bǎ tā rènwéi fēicháng cōngmíng.
1SG BA 3SG think very be.intelligent
(Intended: 'I consider her very intelligent.')

Furthermore, if *rènwéi* and other alleged ECM verbs such as *xiāngxìn* 'believe', *xián*, *tǎoyàn* 'dislike, mind' etc. indeed selected SC complements (as claimed by a.o. Niina Zhang 2016), these alleged SCs should also feature non-predicative intersective adjectives (cf. (90)), PostPs (cf. (91)) and PPs (cf. (92)), in addition to predicative AdjPs, licit as autonomous predicates. As shown below, this prediction is not borne out by the data:

(90) a. *Wǒ yǐwéi /shuō [$_{compl.cl.}$ tā de kànfǎ cuò / shāndòng tiānrán].
1SG believe/say 3SG SUB view wrong/ cave natural

b. Wǒ yǐwéi /shuō [$_{compl.cl.}$ tā de kànfǎ shì cuò de / shāndòng shì tiānrán de].
1SG believe/say 3SG SUB view be wrong SUB/ cave be natural SUB
'I believed/said that his view was wrong/ that the cave was natural.'

(91) a. *Tā {rènwéi /yǐwéi}/ shuō [$_{compl.cl.}$ nǐ jiā [$_{PostP}$ sān gōnglǐ wài]].
3SG believe / say 2SG homE 3 km beyond

b. Tā {rènwéi /yǐwéi}/ shuō [$_{compl.cl.}$ nǐ jiā [$_{vP}$ zài [$_{PostP}$ sān gōnglǐ wài]]].
3SG believe / say 2SG home be.at 3 km beyond
'He believed/said that your home is more than 3 km away.'

(92) a. *Wǒ yǐwéi [$_{compl.cl.}$ tā [$_{PP}$ gēn nǐ]].
1SG believe 3SG with 2SG
(Intended: 'I believed him [$_{PP}$ with you], i.e. in your company.')

b. Wǒ yǐwéi / shuō / [$_{compl.cl.}$ tā [$_{vP}$ [$_{PP}$ gēn nǐ] [$_{vP}$ zài yīqǐ]]].
1SG believe/ say 3SG with 2SG be.at together
'I believed/said that he was with you.'

To summarize, the alleged Chinese ECM *believe* type verbs cited in the literature are all clause-selecting verbs, on a par with *say* type verbs such as *shuō* 'say', *tóngyì* 'agree' etc. whose clausal complement requires an autonomous predicate and allows for modality and aspect. (For additional arguments against ECM verbs in Chinese, cf. Ussery, Ding & Liu 2016).

[34] *Bǎ* is a *v*-like head that selects a verbal projection, whose specifier hosts the object DP (cf. Whitman & Paul 2005; Paul 2015, chapter 2).

5.2 *Ditransitive verbs:* 'V NP_1 NP_2'

Besides verbs selecting clausal complements, ditransitive verbs such as *jiào* 'call sb sth'; *mà* 'abusively call sb. names'; *dāng* 'treat as, take for' etc. in the pattern 'V NP_1 NP_2' have likewise been misanalysed as ECM verbs selecting an SC complement (cf. a.o. Tang Sze-Wing 1998; Tang Ting-chi 2000). This is reminiscent of the ditransitive 'take NP_1 *for* NP_2' verbs in English, Serbo-Croation and Russian, which have been incorrectly claimed to involve SCs headed by 'for' (cf. Marelj & Matushanky 2015).

Importantly, the ditransitive verbs involved here only allow a nominal projection as second argument, to the exclusion of any other XP (i.e. [±pred] Adjectival Phrases and Adpositional Phrases). This renders unfeasible an analysis of 'NP_1 NP_2' as an SC with NP_1 as subject and NP_2 as predicate, because other XPs besides NP would be expected as predicates in an SC. Furthermore, proper names (cf. (93)) are not licit SC predicates (cf. Marelj & Matushanky 2015: 54)

(93) Wǒmen jiào tā [$_{DP}$ Wáng lǎoshī]/*[$_{AdjP}$ fēicháng cōngmíng].
1PL call 3SG Wang teacher/ very be.intelligent
'We call him Prof. Wang/*be very intelligent.'

(94) Wǒ mà tā shǎguā/ {*bù cōngmíng /*shǎhūhūde}.[35]
1SG abusively.call 3SG fool / NEG be.intelligent/ be.foolish
'I (abusively) called him a fool/* not be intelligent/be foolish.'

(95) Dàjiā dōu bǎ tā dāng tiāncái/ *[$_{AdjP}$ fēicháng cōngmíng].
everybody all BA 3SG treat.as genius / very be.intelligent
'Everybody takes him for a genius/*to be very intelligent.'

(96) Bù yào bǎ wǒ dāng {kèrén/*[$_{AdjP}$ hěn kèqi] }, wǒmen shì hǎo péngyou.
NEG need BA 1SG treat.as guest / very be.polite 1PL be good friend
'Don't treat me {like a guest/*polite}, we're good friends.'

In addition, Bruening's (2018: 555) observation that the theme in a double object construction can itself be a reflexive pronoun (*Maxwell$_i$ offered Sally himself$_i$*) or contain one also holds for Chinese (cf. (97)); this undermines an SC analysis of DO constructions, because SCs constitute opaque domains for anaphora:

(97) Zhāngsān$_i$ sòng Lǐsì [zìjǐ$_i$ de shū] (Y.-H. Audrey Li 1985: 272, footnote 8)
Zhangsan give Lisi self SUB book
'Zhangsan$_i$ gave Lisi his$_i$ book (as a present).'

In fact, Y.-H. Audrey Li (1985) cited (97) precisely in order to invalidate an SC analysis of the DO construction in Mandarin Chinese.

[35] Adjectives are only acceptable in the parse shown in (i), where *mà* is not the ditransitive verb 'abusively call sb. names', but the transitive verb 'scold sb.' which in addition can select a clausal complement 'scold sb. for doing sth.' Accordingly, the nominal predicate *shǎguā* 'fool' requires the copula:

(i) Wǒ mà tā$_i$ [$_{TP}$ *pro*$_i$ {bù cōngmíng / shǎhūhūde}/ *(shì) shǎguā].
1SG scold 3SG NEG be.intelligent/ be.foolish / be fool
'I scolded him [$_{TP}$ because he was not clever/he was so foolish/he was a fool/].'

5.3 The *dang* 当 trap: Necessary digression on the homonymic verbs *dāng*

The reliance on translations as evidence for SCs in Chinese creates a particularly great confusion in the case of the different verbs *dāng* whose homonomy is not controlled for. Accordingly, the verb *dāng* 'assume, think' selecting a clausal complement and the ditransitive verb *dāng* 'treat as' are not distinguished and moreover mis-analysed as ECM verbs. Given that *dāng* is cited as the prototypical example of (alleged) ECM verbs in Chinese, a careful discussion is called for.

Sentence (98) is often proposed, mainly by Mandarin speakers from the South, as the equivalent of *I consider [him a fool]*, where *dāng* (translated as 'consider) is claimed to be an ECM verb selecting a nominal SC:

(98) Wǒ dāng [$_{SC}$ tā [$_{NP}$ shǎguā]].
1SG consider 3SG fool
'I consider him a fool.'

However, this way of presenting (98) is incorrect. Instead, *dāng* here is clearly the verb 'assume, think' selecting a clausal complement, as evidenced by the obligatory presence of the copula under negation (cf. Section 4.1.1 above):

(99) Wǒ dāng [$_{cl.compl.}$ tā bù *(shì) [$_{NP}$ shǎguā]].
1SG think 3SG NEG be fool
'I think that he is not a fool.'

Furthermore, the optionality of *shì* 'be' observed in (98) is heavily restricted and depends on the NP:

(100) Wǒ bù dāng [$_{cl.compl.}$ tā *(shì) {rén / xuésheng/ lǎoshī }].
1SG NEG think 3SG be human.being/ student / teacher
'I don't think that he is a human being/ a student/a teacher.'

This explains why it is nearly exclusively (98) with *shǎguā* 'fool' as nominal predicate that is cited as an alleged SC for Chinese (cf. a.o. Tang Sze Wing 1998).

The verb *dāng* 'think' contrasts with the ditransitive verb *dāng* 'take sb. for, treat as, consider' selecting two nominal complements (also cf. (95) – (96) above):

(101) Wǒ bù [$_{ba\text{-}vP}$ bǎ [tā dāng { rén / xuésheng/ lǎoshī}]].
1SG NEG BA 3SG treat.as human.being/ student / teacher
'I will not treat him as a human being/student/teacher.'

Importantly, (98) – (101) represent the judgements from the same speaker.

This analysis can also account for the contrast between (102) and (103) observed by an anonymous reviewer (my bracketing and translation):

(102) Wǒ dāng [$_{cl.compl.}$ tā [$_{AdjP}$ chǔn / lǎn]].
1SG think 3SG be.stupid/ be.lazy
'I think he is lazy.'

(103) *Wǒ bǎ tā dāng [$_{AdjP}$ chǔn / lǎn].
1SG BA 3SG treat.as be.stupid/ be.lazy
(Intended: 'I take him to be stupid.')

In (102), the verb *dāng* 'think, assume' selects a clausal complement where for some speakers, including the reviewer, the positive degree interpretation can be obtained for a bare adjective without a degree adverb (cf. Section 4.2 above). An adjective is, however, unacceptable as complement of the ditransitive verb *dāng* 'take sb. for', hence the reviewer's rejecting (103).

Note, finally, that Northern speakers mainly use the clausal complement selecting verb *dāng* in the sense of '*erroneously* assume' (cf. (104-106)), in general require the copula for a nominal predicate (cf. (105)) and a degree adverb for the positive degree interpretation of an adjective (cf. (106)) in the complement clause:

(104) Nǐ zài zhèr, wǒ hái dāng [cl.compl. nǐ zǒu -le] ne !
2SG be.at here 1SG still err.assume 2SG leave-PERF SFP
'You are here, and I thought you had left!' (Lü Shuxiang 2000: 151)

(105) [Matrix TP Wǒ dāng [cl.compl. tā shì [NP shǎguā]]] ne !
1SG err.assume 3SG be fool SFP
'And I had (wrongly) thought he was a fool!'

(106) [Matrix TP Wǒ hái dāng [cl.compl. tā [AdjP hěn lǎn]]] ne!
1SG still err.assume 3SG very be.lazy SFP
'And I had (wrongly) thought he was lazy!'

Given this complex situation, I have avoided examples with *dāng* as much as possible and have not based my reasoning on examples with *dāng* alone, as in Section 5.2 above, where *dāng* 'treat sb. as' is one among several ditransitive verbs examined.

5.4 *Wrap-up*

Chinese has no ECM verbs. Claims to the contrary in the literature have simply been too hasty: the data basis is too meagre and non-representative, basic facts such as the existence of predicative adjectives in Chinese are glossed over and it is not checked whether constraints holding for SCs in other languages (such as the exclusion of proper names as predicates, SCs as an opaque domain for anaphors etc.) are observed in Chinese. Alleged ECM verbs have been demonstrated to either involve clause-selecting verbs or ditransitive verbs, similar to what Marejl & Matushansky (2015) have shown for English, Serbo-Croation and Russian.

6 Matrix clauses with non-verbal predicates in Chinese

The lack of SCs in Chinese has consequences for the analysis of matrix sentences with non-verbal predicates, which I can only sketch briefly. The current assumption is that the copula and copula-like verbs such as *become*, *seem* etc. all select SCs with AdjPs, NPs or AdpPs as predicates and that the SC-subject raises to matrix SpecTP (cf a.o. Partee 1986; Heycock 1992; Moro 1997; Bowers 2002; den Dikken 2006).

(107) a. He$_i$ is [SC t$_i$ [PP off the ship]/[AdjP intelligent]/[NP a sailor]/ [DP Anna's best friend]].
b. Jenny$_i$ became [SC t$_i$ [AdjP intelligent]/[NP a sailor]/ [DP Anna's best friend]].
c. This$_i$ was [SC t$_i$ [PostP three years ago/ later]].

In Chinese, however, the situation is different, because copular verbs exclusively select nominal projections. Before demonstrating this for copula-like *become*-type verbs in the

remainder of this section, I first recapitulate the relevant data from Section 4 above concerning the (in)compatibility of the copula *shì* 'be' with the different lexical categories.

Nominal projections in general require the copula *shì* 'be' when predicates. Under certain conditions, NPs and proper names may function as predicate without the copula, but only in *root*-contexts. This is the exact opposite of the asymmetry expected under an SC approach, where it is the *non-root* context that should license a reduced predicational structure: *John *(is) president* vs *They elected John president.* Recall that under negation, the copula is always obligatory, both in root and non-root contexts.

Scalar (predicative) adjectives (e.g. *cōngmíng* 'be intelligent') are incompatible with the copula *shì* 'be', including negation contexts; in this respect they behave on a par with verbal predicates. Absolute (non-predicative) adjectives (e.g. *jiǎ* 'fake', *fāng* 'square') appear embedded in a DP with an empty NP complement [DP adj [De' *de* [NP Ø]]] and therefore require the copula.

Concerning PPs, they can never function as predicates nor be selected by the verb *zài* 'be at'.[36] While there are some rare cases where the copula selects temporal or abstract PPs (to the exclusion of spatial PPs), these are the exceptions to the general incompatibility between the copula and PPs.

PostPs - like PPs – cannot function as predicates.[37] Furthermore, they are incompatible with the copula, but – unlike PPs - acceptable as complement of the verb *zài* 'be at' (cf. (62) above)). Note, though, that the latter only holds for PostPs expressing spatial and abstract location, not for temporal location.

To sum up, AdpPs do not behave as a homogeneous group, because only PostPs are compatible with the verb *zài* 'be at'. We thus do not even obtain the at first sight "plausible" distribution, where the copula *shì* 'be' would combine with nominal projections, and the verb *zài* 'be at' with AdpPs.

If we now turn to copula-like *become*-type verbs in Chinese and the XPs they select, the picture we obtain again shows a major divide between nominal projections (acceptable as complement), on the one hand, and Adjectival Phrases and Adpositional Phrases (unacceptable as complement), on the other.

Verbs such as *biànchéng* 'become, change into', *chéng(wéi)* 'become', *dāng* 'function as, serve as, be' only select NPs, no AdjPs and in that respect pattern with the copula:[38]

(108) Sān nián méi jiàn tā , xiànzài biàn -chéng {[NP dà gūniang]/*[AdjP hěn piàoliàng]} le.
3 year NEG see 3SG now change-become big girl / very be.pretty SFP
'I haven't seen her for three years, now she's become a grown-up girl/very pretty.'

(109) Liǎng ge rén chéng (-wéi)-le {[NP hǎo péngyou]/*[AdjP hěn yǒuhǎo]}
2 CL person become-be -PERF good friend / very be.friendly

[36] Thanks to Ora Matushansky for referring me to Stassen (1997) and his treatment of the stance verb 'be at' as a copula-like verb selecting AdpPs. However, *zài* 'be at' in Chinese is *different* both from the copula *shì* 'be' and copula-like *become* type verbs in allowing for an empty object, on a par with transitive verbs:

(i) Lǐ lǎoshī jīntiān bù zài bàngōngshì, Zhāng lǎoshī yě bù zài.
Li teacher today NEG be.at office Zhang teacher also NEG be.at
'Professor Li is not in the office today, and Professor Zhang is not [there], either.'

(ii) Tā rènshi Lǐ lǎoshī , wǒ yě rènshi.
3SG know Li teacher 1SG also know
'He knows Professor Li, I know [him], too.'

[37] PostPs with a NumP-complement may exceptionally be autonomous predicates (still excluding *shì* 'be'), on a par with NumPs (cf. (65), (66) above).

[38] We concentrate on the dichotomy NP vs AdjP here, given that *become* verbs in English do not selects PPs, either. *Dāng* 'function as, be' in (110)is still another verb (also cf. (1) above), different from the homonyms just discussed in Section 5.3.

'These two persons have become good friends/friendly.'

(110) Ta zhǎngdà, xiǎng dāng {[NP bǎiwànfùwēng/ yīshēng]/*[AdjP hěn yǒumíng]}
3SG grow.up want function.as millionaire / doctor / very be.famous
'When she is grown up, she wants to be(come) a millionaire/ a doctor/very famous.'

The *meaning* of 'become + adjective' can either be rendered by a compound consisting of the verb *biàn* 'change' plus a scalar (predicative) adjective (cf. (111a-b)), or by a complex predicate headed by the same verb *biàn* 'change' (cf. (112)):

(111) a. À, nǐ [V° biàn -cōngmíng] le !
ah 2SG change-be.intelligent SFP
'Ah, you have become intelligent!'

b. Yèzi [V° biàn -hóng]-le.
leaf change-be.red-PERF
'The leaves have turned red.'

(112) Iphone6 shíjiān tūránjiān biàn de {[AdjP bù duì] /*cuò /*shì [cuò de]}
Iphone6 time suddenly change DE NEG be.correct/ wrong/ be wrong SUB
'Concerning the Iphone 6, the time indication has suddenly become incorrect.'

In the complex predicate in (112), *de* selects a predicative AdjP, and the resulting DeP in turn merges with the verb, in this case *biàn* 'change': [*v*P *biàn* [DeP *de* AdjP]].[39] Note that the status of this *de* – different from the *de*-head on the D-spine – is unclear, beyond its being a functional head (cf. Paul 2017b). The unacceptability of the absolute (non-predicative) adjective *cuò* 'wrong' in (112), irrespective of the presence or absence of *shì…de*, illustrates the requirement for *de* to select a predicative AdjP:

(113) a. Tā xiànzài biàn [de [hěn cōngmíng /fēicháng jiāo'ào /hen mǐngǎn]].
3SG now change DE very be.intelligent/extremely be.proud/very be.susceptible
'She has now become very bright/extremely proud/very susceptible.'

b. Shìqíng biàn de hěn fùzá.
matter change DE very be.complicated
'The matter has become very complicated.'

The compound status of '*biàn* + adjective' in (111a-b) above explains why no degree adverbs etc. are allowed (cf. (114)), in contrast to the AdjP in the complex predicate construction in (113a-b):

(114) *Nǐ [V° biàn hěn cōngmíng] le
2SG change very intelligent SFP

[39] This is the so-called *descriptive complement* presented in the literature as a postverbal manner adverb, an exception to the otherwise exclusively preverbal position for all adverbs (cf. a.o. Huang 1982, Ernst 2002). Cf. Paul (2017b) for arguments against this standard view and evidence in favour of its analysis as part of a complex predicate, building on an early proposal by Huang (1992), not followed up by either Huang or other Chinese linguists.

Importantly, the functional head *de* does not select NPs, as illustrated by the contrast between the unacceptable *hǎo péngyou* 'good friend' vs the acceptable *hěn yǒuhǎo* 'very friendly':

(115) a. Tāmen biàn de {*[$_{NP}$ hǎo péngyou]/[$_{AdjP}$ hěn yǒuhǎo]}
3PL change DE good friend / very be.friendly
'They have become good friends/very friendly.' (compare with (100) above)

b. *Nǐ tūrán biàn de [$_{NP}$ jūnzi] le
2SG suddenly change DE gentleman SFP
(Intended: 'You have all of a sudden become a gentleman.')

To summarize, an SC approach to non-verbal predication in Chinese matrix clauses is not feasible when assuming a unique projection (e.g. PredP) for all SCs (*contra* a.o. Sze-Wing 1998, Wei Ting-chi 2007).[40] Because the copula and copula-like verbs do not indifferently combine with AdjPs, NPs and AdpPs or at least a substantial, i.e. category-overlapping subset thereof, as is the case for English *be* and *become*. Instead, copular verbs exclusively select nominal projections, not other lexical categories (*modulo* the few heavily constrained cases of *shì* 'be' plus PP).

When adopting an analysis of SCs à la Stowell (1981) and Matushansky (2019) where it is the lexical head of the predicate that determines the category of the SC, a scenario where copular verbs exclusively select *nominal* SCs for Chinese is in principle possible and would at least in one case make Chinese conform to the generally adopted schema for non-verbal predication in matrix clauses. However, this scenario, recommended by two anonymous reviewers, does not seem to have any advantage over my proposal and certainly does not give us any new insight about Chinese. On the contrary, it might obscur the real "troublemaker", viz. predicative adjectives. Any theory of non-verbal predication (in matrix clauses) has to come to terms with them; the so far existing semantic analyses of adjectives in Chinese (cf. a.o. C.-S. Luther Liu 2010; 2018; Grano 2012) remain unsatisfactory, because they gloss over the existence of scalar non-predicative adjectives which must, however, be taken into account for a meaningful analysis. In addition, if acceptability as complement of the copula *shì* 'be' in matrix sentences is used as criterion for SC-hood, would that imply SC-status for the rare cases of abstract PPs (headed by *yīnwèi* 'because of' and *wèile* 'for', cf. (60) above) that are compatible with *shì* 'be' ?

Furthermore, as repeated several times, the conditioned optionality of the copula with nominal predicates in (affirmative) *root* clauses and its obligatory presence in *non-root* clauses is the exact opposite of the asymmetry expected under an SC approach, where it is the *non-root* context that allows for a reduced predicational structure without a copular head. Finally, Stowell (1978) argued for an analysis where the copula directly selects a nominal complement, not a nominal SC, a proposal taken up by Rothstein (1995) for copular identity sentences in Hebrew.

As a consequence, the strong claim is maintained that Chinese has no SCs at all, which highlights the general necessity of an alternative account *without* SCs for non-verbal predication in Chinese matrix clauses.[41]

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[40] Tang Sze-Wing (1998) and Wei Ting-chi (2007) do not take into account AdpPs at all, but only discuss alleged SCs with NPs and scalar (predicative) AdjPs, a non-conclusive scenario, as explained above. In addition, many of Tang's example sentences are rejected by other native speakers. For a clear-headed critique of Tang (1998), both on empirical and theoretical grounds, cf. Balazs (2012).

[41] Even if nominal SCs were admitted for Chinese, further subdivisions of SCs into *bare* vs *rich* SCs would be irrelevant, because they crucially involve an SC-analysis of matrix copular clauses with both nominal *and* adjectival predicates. According to Pereltsvaig (2001: 46), equative copular clauses involve a *bare* SC with a flat binary structure, i.e. [$_{SC=DP}$ DP DP], whereas non-equative, predicational copular sentences involve a *rich* SC:

7 Conclusion

This article has provided extensive evidence to show that there is no root vs non-root asymmetry for predicates in Chinese: if an XP is not licit as an autonomous predicate in root contexts, then X is not licit as predicate elsewhere, i.e. in non-root contexts, either. Accordingly, there are no special non-root contexts in the form of SCs where a non-predicative XP can exceptionally function as predicate.

This at first sight radical claim concerning Chinese is not isolated, but can be seen as part of a more general trend which provides alternative analyses for phenomena so far analysed as SCs, thus reducing the scope of this construction (cf. Marelj & Matushansky 2015; Bruening 2018; Matushansky 2019). The universal nature of SCs is therefore challenged and should no longer bias crosslinguistic studies, as is currently still the case; Balazs (2012) for example, despite some initial misgivings, in the end concedes the existence of SC in Chinese.

ECM verbs as the context *par excellence* for SCs have likewise been shown to be absent from Chinese.

Given the lack of non-root SCs in Chinese, an analysis postulating SCs as complements of copular verbs in matrix sentences is not viable, either. Even if one allowed for exclusively nominal SCs as complement of copular verbs in Chinese matrix sentences, this would leave unexplained why the copula is *always* obligatory in non-root contexts, but sometimes optional in matrix sentences, thus displaying the exact opposite of the observed crosslinguistic asymmetry in languages with genuine SCs.

The situation in Chinese suggests that the properties of its copula are at stake, as briefly illustrated below with two observations.

In languages with genuine SCs such as English and Romance languages, the copula and copula-like verbs are unaccusative verbs. This allows for the copula in matrix clauses to select an SC, whose subject raises to matrix SpecTP. In Chinese, by contrast, *shì* 'be' is a transitive verb with an external argument, as evidenced *inter alia* by the fact that it is not *shì* 'be', but the unaccusative verb *yǒu* 'exist' that occurs in the existential construction, alongside with other unaccusative verbs (cf. Paul, Lu & Lee 2020 for extensive discussion):

(116) a. Yǒu rén.
exist person
'There is somebody.'

b. Lái -le kèrén.
come-PERF guest
'There have come guests.'

c. Fāshēng-le shénme shì?
happen –PERF what matter
'What happened?'

While *yǒu* NP 'There is NP' can be uttered "out of the blue", *shì* NP 'be NP' can only be understood as 'This/{he/she/it} is NP' with a pronominal null subject.

We have also seen that the copula cannot establish a relation of predication for Adpositional Phrases, suggesting that the copula is required to support tense rather than to mediate the predication relation. This seems to be confirmed by the fact that the copula patterns with stative predicates (i.e. scalar adjectives (cf. (118)) and stative verbs (cf. (119)),

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[$_{SC=vP}$ *v*° NP/AP]. This is different from Moro (1997), where all copular clauses feature *bare* SCs, i.e. [$_{SC}$ DP XP], while the complement of *believe* type verbs is a *rich* SC with a PredP: [$_{SC=PredP}$ DP [Pred° XP]].

insofar as the presence of a past tense adverb is sufficient for locating the predicate in the past tense (cf. Sun Hongyuan 2014; Paul 2018):

(117) Tā yǐqián shì yīngwén lǎoshī, xiànzài shì déwén lǎoshī.
3SG before be English teacher now be German teacher
'She was an English teacher before, now she is a German teacher.'

(118) Wǒ zuótiān hěn máng.
1SG yesterday very be.busy
'I was very busy yesterday.'

(119) Tā yǐqián tèbié xǐhuān shùxué.
3SG before particularly like mathematics
'She particularly liked mathematics before.'

Further studies must decide whether the different nature of the copula and copula-like verbs in Chinese is indeed among the factors explaining why an SC approach to non-verbal predication in matrix clauses cannot be adopted.

Finally, there remains the challenge that in Chinese, scalar adjectives are autonomous predicates and - on a par with verbs - exclude the copula, a well-known fact often neglected in the literature. While adjectives and verbs are clearly distinct lexical categories in Chinese, they seem to behave alike with respect to their predicative function. How this can be formally captured must be left for future, more fine-grained approaches to non-verbal predication in matrix clauses.

Abbreviations

BA = high *v*-like head preceding the object in the *bǎ* construction, CL = classifier, IMP = imperfective aspect, NEG = negation, PERF perfective aspect, PL = plural (e.g. 3PL = 3rd person plural), PROGR = progressive aspect, SG = singular, SUB = subordinator

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Competing interests

The author has no competing interests to declare.

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