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Making some progress on the progressive aspect *zài* in Mandarin Chinese

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Taking into account data hitherto neglected, this article examines the progressive aspect *zài* in Mandarin Chinese and related issues. We argue in favour of the constituency [$_{\text{AspP}}$ *zài* [V-*zhe*]] and demonstrate important syntactic and semantic differences between the progressive aspect *zài* and the durative aspect -*zhe*. Importantly, unlike '*zài* V', 'V-*zhe*' is only acceptable as the sole predicate in a root sentence when interpretable as a derived homogeneous state. Otherwise, the presence of the progressive aspect *zài* is required: '*zài* V-*zhe*'. This crucial role of *zài* is often obscured by its phonological fusion (*haplology*) with the preposition *zài* 'at' heading an immediately following prepositional phrase: NP [$_{\text{Asp}}$ *zài* [$_{\text{VP}}$ [$_{\text{PP}}$ *zài* NP] [V-*zhe* NP]]] > NP [ZÀI NP] V-*zhe* NP. The presence/absence of an underlying progressive aspect *zài* (having fused with the preposition *zài*) is reflected in the choice of negation. Since the progressive aspect *zài* must be negated by *méi*, not *bù*, it follows that no underlying aspectual *zài* is present when it is *bù* that negates a VP with a *zài* PP adjunct: NP *bù* [$_{\text{VP}}$ [$_{\text{PP}}$ *zài* NP] VP]. By contrast, when there is an underlying aspectual *zài*, *méi* is required, resulting in the surface sequence 'NP *méi* [[ZÀI NP] VP]'. Finally, given that a subset of auxiliaries, some stative verbs as well as state-denoting 'V-*zhe*' are negated by *méi*, negation of '*zài* VP' by *méi* is compatible with the status of '*zài* VP' as a state, hence able to be true at a moment.

Keywords: durative aspect -*zhe*, haplology, negation *bù* vs *méi*, finiteness

1. Introduction

When wanting to examine the progressive aspect in Mandarin Chinese, one first needs to decide whether besides the clear case of the progressive aspectual auxiliary *zài* in '*zài* VP', the sequence *zhèng* ('just') *zài* ('PROGR') is likewise to be included as another realization of the progressive aspect. While in most of the Chinese literature, this sequence is presented as an adverb, i.e. as one word, *zhèngzài* 'just', Sun Hongyuan (2014) and Martin et al. (2020) treat *zhèngzài* as a bisyllabic word variant of the progressive aspect *zài*. As we will see, none of the above scenarios is correct. Instead, the sequence '*zhèng zài* VP' is to be analysed as the adverb *zhèng* 'just, right then' preceding the progressive aspect head *zài*, which in turn selects the following verbal projection as its complement:

(1) [$_{\text{AspP}}$ [$_{\text{Adv}}$ *zhèng* 'just'] [$_{\text{AspP}}$ *zài* [$_{v\text{P}}$ VP]]]

This analysis not only allows us to correctly predict the cases where *zhèng* 'just, right then' and progressive *zài* can only occur on their own, but also to obtain the correct distribution and well-formedness conditions for the progressive aspect *zài* itself.

The article is organized as follows. Section 2 provides evidence in favour of our analysis in (1) where the adverb *zhèng* 'just, right then' precedes and modifies the verbal projection headed by the progressive aspect *zài*. Section 3 turns to the structural analysis of the sequence '*zài* V-*zhe*' and the syntactic and semantic differences between the progressive aspect *zài* and the durative aspect -*zhe*. Section 4 addresses the phonological fusion of progressive *zài* with the homophonous preposition *zài* heading an immediately following PP, thus resulting in a single overt instance of *zài*: NP *zài* [$_{\text{PP}}$ *zài* NP] VP]=> NP [ZÀI NP] VP. This important phenomenon (*haplology*, cf. Chen Chung-yu 1978) is neglected in the majority of studies on the progressive *zài* and leads to a distorted picture of its distribution. Section 5 tackles the difficult issue of negation. While there is a consensus that the projection headed by *zài* must be negated by *méi*, not by *bù*, the implications of this requirement are interpreted differently in the literature and remain controversial. Importantly, the negation *méi* will be shown to be compatible with (derived) states (contra among others Lin Jo-wang 2003). Section 6 concludes the article.

The appendix discusses data from corpora and informant questionnaires indicating the existence of a small emerging group of speakers, for whom *zhèngzài* is an adverb, i.e. a single word 'just, right then', as evidenced by the acceptability of the sequence 'adverb *zhèngzài* + aspectual *zài* + VP'. Importantly, these speakers (henceforth referred to as the "1-word *zhèngzài* speakers") show the same properties for the aspectual *zài*, such as the haplology in the presence of an immediately adjacent preposition *zài*, leading to only one overt instance of *zài* 'NP *zhèngzài* [ZÀI NP] VP' and thereby nicely confirm this phenomenon.

2. In favour of 'adverb *zhèng* 'just'+ aspectual head *zài*'

If the sequence '*zhèng zài'* were indeed an adverb, i.e. a single word, hence to be noted as *zhèngzài* in the *Pinyin* transliteration, on a par with e.g. the adjunct NP *xiànzài* 'now', we would predict the well-formedness of the sequence '*zhèngzài* + aspectual *zài*', in parallel to the sequence '*xiànzài* 'now' + aspectual *zài* (cf.(2)). This is, however not the case, '*zhèngzài zài* VP' being rejected (cf. (3)) (except for the emerging 1-word *zhèngzài* group introduced in the appendix).

(2) Tā xiànzài zài zuò zuòyè.
3SG now PROGR make homework
'He's doing his homework now.'

(3) *Tā zhèngzài zài zuò zuòyè.
3SG zhengzai PROGR make homework

The majority of the data in favour of our analysis [Adv *zhèng*] [AspP *zài* VP] to be provided below can in fact be found in the rich Chinese literature on these items, even though *zhèng* 'just, right then', *zài* 'progressive aspect' and *zhèngzài* are all assigned adverbial status here. (But cf. Zhang Huinü (2002) presented at the end of the next section for the analysis of *zhèng zài* as two words, not one).

2.1. Cases where either *zhèng* 'just' or aspectual *zài* are acceptable, but not their combination **zhèng zài*

One piece of evidence against the word status of *zhèngzài* and in favour of our analysis 'adverb *zhèng* + aspectual head *zài* + VP' are cases where either *zhèng* 'just, right then' on its own (cf. (4) – (6)) or the aspect *zài* on its own (cf. (7) – (9)) are acceptable, but where their combination in the sequence *zhèng zài* is excluded.

Let us start with illustrating the first case where only *zhèng* 'just, right then' can precede the VP, to the exclusion of the aspect *zài*: *zhèng* (*zài) VP:

(4a) Nǐ lái de zhēn qiǎo , wǒ zhèng (*zài) yào zhǎo nǐ.
2SG come DE really opportune 1SG just PROGR want search 2SG
'You've come at the right time, just as I wanted to go see you.'

(4b) *Nǐ lái de zhēn qiǎo , wǒ *zài* yào zhǎo nǐ.
2SG come DE really opportune 1SG PROGR want search 2SG

(5a) Zhèng (*zài) chū mén, chē jiù lái -le.
just PROGR exit door bus then come-PERF
'Just when he was coming out of the house, the bus arrived.'
(based on Lü Shuxiang 2000: 670)

(5b) *Zài chū mén, chē jiù lái -le.
PROGR exit door bus then come-PERF

(6a) Wǒ zhōngwǔ huí -dào jiā zhèng (*zài) pèngshàng Lǎo Jì.
1SG noon return-arrive home just PROGR run.into Lao Ji
'Just when I came home at noon, I ran into Lao Ji.'

(6b) Tā zhèng (*zài) zuò-zài shāfā shàng kàn shū.
3SG just PROGR sit -be.at sofa on read book
'He was just sitting on the sofa and reading.'
(Zhang Huinü (2002: 63, (14) – (15), slightly modified)

The adverb *zhèng* 'just, right then' can coincide with the speech time as in (4a), refer to an implicit point in time provided by the context (cf. (6b)) or to a point in time explicitly mentioned as in (5a) ('just as he was coming out of the the house') and (6a) '(the moment) when I came home at noon'). The progressive aspect *zài* is excluded in the examples above because it is incompatible with auxiliaries such as *yào* 'want' (cf. (4)), with telic predicates such as *chū mén* 'exit door' = 'leave' (cf. (5)) and stative predicates such as *zuò-zài* 'sit-be.at', respectively (cf. (6b)).

We now turn to the cases where only the aspectual *zài* without the adverb *zhèng* is allowed: '(**zhèng*) *zài* VP':

(7a) Tàiyáng měi tiān dōu (*zhèng) zài shēngqǐ luòxià.
sun every day all just PROGR rise set
'The sun is rising and setting every day.'

(7b) Tā měi tiān dōu (*zhèng) zài xué hànyǔ.
3SG every day all just PROGR learn Chinese
'She is studying Chinese every day.'

(8) Dàjiě shénme shíhou dōu (*zhèng) zài rènzhēn gōngzuò.
elder.sister what time all just PROGR conscientious work
'Elder sister is conscientiously working all the time.' (Zhang Huinü 2002: 63, (16))

(9a) [Cóng shàngwǔ jiǔ diǎn zhídào wǎnshàng jiǔ diǎn ,
from morning 9 o'clock until evening 9 o'clock
chúle cōngcōng chī fàn , tā shǐzhōng (*zhèng) zài xiě
except hurriedly eat food 3SG throughout just PROGR write
'From 9 am to 9 pm, except for hurriedly eating something,
she has been writing all the time.'
(Feng Guogang 1998: 37, (5), slighly modified)

(9b) Tā [PP cóng yī diǎn qǐ] yīzhí (*zhèng) dōu zài dǎ zì.
3SG from 1 o'clock on continuously just all PROGR strike character
'She has been continuously typing from 1 o'clock on.'

The adverb *zhèng* 'just, right then' is excluded in (7) – (9), because its semantics is incompatible with the universal quantifier adverb *dōu* 'all'. While in (7) and (8), *dōu* 'all' quantifies over the temporal expressions *měi tiān* 'every day' and *shénme shíhou* 'any time' and the associated habitual eventualities, in (9a) and (9b), *shǐzhōng* 'throughout' and *dōu* 'all' refer to the time span ('from 9 am to 9 pm' and 'from 1 o'clock on', respectively) with the Chinese equivalent of a "universal perfect" reading.

To sum up, an analysis treating *zhèngzài* as one word, more precisely as an adverb, would be unable to predict the data above, where it is totally excluded to replace the (genuine) adverb *zhèng* 'just, right then' by the alleged adverbs *zhèngzài* or *zài*. Furthermore, the dominant adverbial analysis of *zài* in most of the Chinese literature (cf. a.o. Lü Shuxiang 2000, Fan Jiyan 1982, Guo Fenggang 1998) completely glosses over the fact that unlike the adverb *zhèng* 'just,

right then', *zài* as an aspectual head selects its complement and therefore imposes restrictions on the aktionsart of the following verbal projection, as evidenced by examples (4) – (6) above.[1] Sun Hongyuan's (2014) and Martin et al.'s (2020) analysis of *zhèngzài* as an aspectual head, hence on a par with the progressive *zài*, likewise encounters problems and incorrectly predicts the acceptability of *zhèngzài* in (7) – (9) above. It thereby blurs the role of *zài* in habitual eventualities (cf. (7-8)) and in the Chinese equivalents of the universal perfect (cf. (9a-b)).[2]

Before going on to the next section, we would like to draw attention to Zhang Huinü (2002), who to our knowledge is the only one to argue against *zhèngzài* as one word. Importantly, she explicitly states that *zhèng* 'just, right then' and *zài* do not even form a constituent, as indicated in the bracketing below:

(10a) Lǎo Shuān zhèng [zài [zhuānxīn zǒu lù]],
Lao Shuan just PROGR concentrate walk road
hūrán chī-le yī jīng.
suddenly eat-PERF 1 shock
'Lao Shuan was just concentrating on walking (when) he suddenly startled.'
(Zhang Huinü 2002: 64, (42) – (44), slightly modified; our glosses and translation):

(10b) Wǒmen zhèng [zài [zuò wǒmen de qiánrén cónglái méi zuò-guo
1PL just PROGR do 1PL SUB predecessor ever NEG do -EXP
de […] shìyè].
SUB work
'We are just doing the things our predecessors have never done.'

(10c) Yǎzuòjiān yǐjīng zuò-le yīxiē rén,
lounge already sit -PERF several people
zhèng [zài [hé Kǎn Jiě qǐjìnde tánlùn fǎguó de nǎilào]]
just PROGR with Kan Jie enthusiastically discuss France SUB cheese
'In the lounge had already sat down a number of people,
and they were just enthusiastically discussing French cheese with Kǎn Jiě.'

However, elsewhere she adopts the current view of Chinese scholars and incorrectly considers both *zhèng* 'just, right then' and the aspectual *zài* as adverbs.

2.2. Zhèng 'just, right then' as a VP-level adverb

While there is no consensus on the categorial status of *zhèngzài*, adverb or aspectual head (for those who treat it as one word), there is a general agreement that z*hèng* 'just, right then' is an adverb. More precisely, the data provided in the literature point to it being a low, i.e. VP-level adverb that must adjoin to, i.e. precede the verbal projection it modifies, i.e. in the case at hand the verbal projection headed by the aspectual *zài.*

Being a VP-level adverb itself, *zhèng* 'just, right then' is mutually exclusive with other VP-level temporal adverbs such as *hái* 'still', *réng* 'still, yet', *yǐjīng* 'already', *yīzhí* 'continuously', *yòu* 'again', whereas it can co-occur with, i.e. follow higher adverbs such as

[1] Similarly, Lin Jo-wang (2002: 268), despite assigning adverb status to *zhèng* 'just, right then' nevertheless proposes to treat it on a par with the progressive marker *zài, modulo* the "additional tint of more emphasis on the reference time at which the proposition is asserted to be true" for *zhèng*. By contrast, Lin Jo-wang (2015) treats *zhèngzài* 'right at' as an "aspectual adverb", i.e. as one word.

[2] For the '1-word *zhèngzài*' speakers to be presented in the appendix, *zhèngzài* is never the aspectual head, i.e. a bisyllabic variant of the aspectual *zài*, either, but clearly an adverb 'just, right then', as evidenced by the well-formedness of '[$_{adv}$ *zhèngzài*] [$_{Asp°}$ *zài*] VP'.

dàgài ‘approximately, probably’, *yě* ‘also’, *dōu* ‘all’ etc. (cf. (17a-b) below). *Zhèng* is likewise compatible with manner adverbs, which as typical “ad-verbs” are closer to the VP than other co-occurring VP-level adverbs and hence appear below, i.e. to the right of *zhèng* ‘just, right then’:[3]

(11a) Tā zhèng zài kǎolǜ wèntí.
3SG just PROGR ponder question
‘He’s just pondering the question.’

(11b) Tā yīzhí zài kǎolǜ wèntí.
3SG continuously PROGR ponder question
‘He has been continuously pondering the question.’

(11c) *Tā {yīzhí /zhèng} / {zhèng/yīzhí } zài kǎolǜ wèntí.
3SG continuously/just just /continuously PROGR ponder question.
(based on Lü Shuxiang 2000: 672, point 4)

(11a-b) illustrates that both *zhèng* ‘just, right then’ and *yīzhí* ‘continuously’ immediately precede ‘*zài* VP’, but cannot co-occur, irrespective of their relative order (cf. (11c)).The same holds for the other VP-level adverbs in the examples below, where for simplicity sake only the unacceptable order with a following *zhèng* ‘just, right then’ is indicated:

(12a) Sījī hái (*zhèng) zài lāodao.[4]
driver still just PROGR chatter
‘The driver is/was still chattering.’

(12b) Wǒ fāxiàn tā gāngcái zhùshì wǒ de nà yī yǎn.
1SG discover 3SG a.moment.ago gaze 1SG SUB that 1 eye
réng (*zhèng) zài chíxù.
still just PROGR continue
‘I discovered that that eye of hers that had gazed at me a moment ago still continued [to gaze].’

(12c) Dāngshí wǒ yǐjīng (*zhèng) zài húsīluànxiǎng.
that.time 1SG already just PROGR imagine.things
‘I was already imagining things at that time.’

(12d) Tāmen yòu (*zhèng) zài qīnrède jiāotán.
3PL again just PROGR affectionately chat
They are/were again chatting cordially.’
Zhang Huinü (2002: 63; (18), (22), (23), (39))

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[3] Manner adverbs form a subset within the VP-level adverbs, for they must follow auxiliaries (cf. Paul 2017: 123, (2b)):
(i) Tā {hái/yǐjīng } (*hěn zhuānxīnde) néng (*{hái/yǐjīng }) hěn zhuānxīnde gōngzuò.
3SG still/already very attenttively can still/already very attenttively work
‘She can still/already work attentively.’

[4] The presence of *zhèng* ‘just, right then’ in (12a) is acceptable for some speakers, provided the sentence is continued as in (i)
(i) Sījī hái zhèng zài lāodao, tā jiù xià chē le.
driver still just PROGR chatter 3SG then descend car SFP
‘The driver was still chatting, when he got out of the car.’

Note that in (12d) the verbal projection selected by the aspectual head *zài* features a manner adverb (*qīnrède* 'affectionately'), a data point that plays an important role for the correct analysis of the sequence '*zài* V-*zhe* (NP)' discussed in section 3 below.

Furthermore, reviewer 2 provides example (13a) with the manner adverb between *zhèng* 'just, right then' and the progressive aspect *zài*, thus providing further evidence against treating the sequence *zhèng zài* as one word:[5]

(13a) Tā zhèng *mùbùzhuǎnjīngde* zài guānchá yíbiǎo dúshǔ de biànhuà.
3SG just intently PROGR watch meter reading SUB change
'He is watching the changes in the meter reading intently.'

(13b) Tā zhèng zài *mùbùzhuǎnjīngde* guānchá yíbiǎo dúshǔ de biànhuà.
3SG just PROGR intently watch meter reading SUB change
'He is watching the changes in the meter reading intently.'

A quick informal survey with five native speakers from the North and two from the South showed their 100% acceptance for (13b) where the manner adverb directly adjoins to the VP. By contrast, for (13a), there were three "accept", one clear "reject" and one "very marginal" for the Northern speakers, and two "accept" for the Southern speakers.

We also searched the BLU-BCC corpus (http://bcc.blcu.edu.cn) for manner adverbs ending in -*dì* 地 between the adverb *zhèng* 'just, right then' and the progressive aspect *zài* and found 180 results. While in the majority of cases *zài* was a (surface) preposition: '*zhèng* manner-adv. [*zài* NP] VP' (cf. (14)), 43 results involved the progressive aspect *zài* '*zhèng* manner-adv. *zài* VP' as in (15-16)):

(14) Chéngyáo zhèng jiāojíde [PP zài sùshè lǐ] děng tā.
Chengyao just anxiaously at dormitory in wait 3SG
'Cheng Yao is anxiously waiting for him in the dormitory.'

(15) Tāmen zhèng jiāojíde zài xúnzhǎo shīzhǔ ne!
3PL just anxiously PROGR look.for owner SFP
'They are anxiously looking for the owner!'

(16) Wǎngluò bìngdú zhèng bùduànde zài zēngjiā hé gǎibiàn.
internet virus just constantly PROGR increase and change
'Internet viruses are constantly increasing and changing right now.'

Finally, as mentioned above, *zhèng* 'just, right then' as a VP-level adverb can be preceded by higher, sentence-level adverbs such as *dàgài* 'probably' and *yě* 'also':

(17a) Zhè shíhòu tā dàgài zhèng zài zhǔnbèi guòjié ne.
this moment 3SG probably just PROGR prepare holiday SFP

[5] The additional evidence against *zhèng zài* as one word provided by reviewer 2 is gratefully acknowledged. Besides the variability of acceptability judgements for (13a), it would, however, be insufficient on its own, because it could always be argued that the sequence '*zhèng zài* V' can be analysed in two ways, as one word when contiguous and as two words when separated by a manner adverb as in (13a). This is also the reason why the emerging 1-word *zhèngzài* group and the consequences of wordhood for *zhèngzài* discussed in the appendix are important: given that *zhèngzài* is an adverb 'just, right then', the progressive marker *zài* is added when required: [$_{Adv}$ *zhèngzài*] [$_{Aspect}$ *zài* VP].

'At this moment, he is probably just preparing for the celebration of the festival.'
(Guo Fenggang 1998: 36, (4), slighly changed;)

(17b) Yáohuàng-zhe shēntǐ tán -zhe jítā,
sway -DUR body pluck-DUR guitar
tā yě zhèng zài yúkuàide chàng.
3SG also just PROGR happily sing
'While she was swaying her body and playing the guitar, she was also singing happily.'
(Zhang Huinü (2002: 64, (33), slightly changed)

(17b) also nicely illustrates the case where *zhèng* 'just, right then' stresses the simultaneity of two eventualities. Last, but not least, all the examples above with one or several adverbs between the subject and the aspectual *zài* straightforwardly invalidate Tsai Wei-Tian's (2008: 678, 684) stipulation that *zài* raises to T°.[6]

3. Constituency [*zài* [V-zhe], *[[zài V] zhe]

Having established that *zhèng zài* in '*zhèng zài* VP' is not one word, but the adverb *zhèng* 'just, right then' preceding and modifying the projection headed by the progressive aspect head *zài*, we can now turn to other syntactic structures featuring *zài*, i.e. '*zài* V-*zhe*', where the verb is suffixed by the durative aspect –*zhe*:

(18a) Ta zài chuī-zhe kǒushào.
3SG PROGR blow-DUR whistle
'She's whistling.'

(18b) Tā zài tīng -zhe shōuyīnjī.
3SG PROGR listen-DUR radio
'He's listening to the radio.'

(19) Nǐ wèishénme xīn lǐ zài mà -zhe wǒ?
2SG why heart in PROGR scold-DUR 1SG
'Why are you cursing me in your heart?'

(20) Cǐkè zuò-zài chē shàng, wǒ qián -hòu zuǒ-yòu de rén
now sit-be.at train on 1SG front-back left-right SUB people
dōu zài dǎ -zhe diànhuà.
all PROGR strike-DUR phone
'Sitting in the train right now, people around me are all talking on the phone.'

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[6] Tsai Wei-Tian (2008: 678, 684) provides no evidence for the alleged raising of the aspectual head *zài* to T° and thus into the same projection (TP) that hosts the subject. His only example with *zài* (cf. (i)) does not feature any adverb, although since Pollock (1989) (himself building on work by Emonds (1976, 1978) and Jackendoff (1972)) the position of adverbs is *the* standard diagnostic for determining whether the verb is located in or above the *v*P; as a consequence, (i) cannot tell us anything about *zài*'s hierarchical position:

(i) Akiu zài kū
Akiu PROGR cry
'Akiu is crying.' (Tsai Wei-Tian 2008: 684, (4a))

In addition, Tsai's assumption goes against the general consensus (based on C.-T. James Huang's extensive work since 1982) that in Chinese the verb (including the copula *shì* 'be' and auxiliaries of all types) always remains in the *v*P, as evidenced by the possible presence of adverbs *between* the subject and the highest head in the verbal projection, thus *excluding* a spec-head relation between the two. The numerous examples in this article with adverbs or adjunct XPs below the subject and above *zài* confirm the general consensus that T° as the head of the projection hosting the subject always remains empty (cf. Ernst 1994).

While the analysis '[$_{AspP}$ [$_{Asp°}$ *zài*] [V-*zhe*]]' where the aspectual head *zài* selects 'V-*zhe*' is the obvious one, given the well-established strict right-branching syntax in the Chinese extended verbal projection (up to TP) (cf. C.-T. James Huang 1982 and his subsequent work), the opposite constituency: [$_{AspP}$ [$_{VP}$ [$_{Adv}$ *zài*] VP] -*zhe*] (with *zài* incorrectly assigned adverbial status) has nevertheless been proposed by Li Tianshu (2015: 49, (85)).[7] However, in addition to the strict head-initial nature of the verbal projection, there exist further arguments against -*zhe* selecting the 'VP-plus-adverb *zài*' sequence as its complement.

Let us start with the most trivial one, which arises when the VP is actually spelt out as 'verb + object' and then results in the incorrect order *[$_{AspP}$ [$_{VP}$ [$_{Adv}$ *zài*] [$_{VP}$ V NP]] -*zhe*]. This contrasts with the correct order predicted by our analysis '[$_{AspP}$ [$_{Asp°}$ *zài*] [[V-*zhe*] NP]]' where -*zhe* as a verb suffix immediately attaches to the verb, as illustrated in (18) – (20) above.

Even if for the sake of the argument we gloss over this problem and in addition adopt our analysis where *zài* is not an adverb as in Li Tianshu (2015), but heads the aspectual projection containing its VP complement, it is evident that *zài* and the verb do not constitute a complex head, hence a potential legitimate host for the suffix –*zhe*. Because the acceptability of manner adverbs and adjunct XPs modifying the VP clearly demonstrate the phrasal status of *zài*'s complement: [$_{AspP}$ *zài* [$_{VP}$ [$_{adv}$ XP] [[V-*zhe*] NP]]]:

(21a) Tā hái [$_{AspP}$ zài [[chōuchōudādāde] kūqì-zhe]]
3SG still PROGR sobbingly weep-DUR
'He's still weeping and sobbing.' (Guo Fenggang 1998: 43, (37), slightly modified):

(21b) Tāmen zài qīnrède jiāotán-zhe.
3PL PROGR affectionately chat -DUR
'They are chatting cordially.' (Zhang Huinü (2002: 63; (39), slightly modified)

(21c) Tā [$_{Asp}$ zài [[$_{PP}$ hé péngyǒu] jiāotán-zhe]].
3SG PROGR with friend chat -DUR
'He is chatting with friends.'

In Li Tianshu's (2015) scenario, (21a-c) cannot be derived, because the verb suffix -*zhe* would have to illegitimately combine with the entire verbal projection to its left, consisting of '*zài* + manner adverb/adjunct XP + verb': *[[$_{VP}$ *zài* [$_{VP}$ [$_{adv}$ XP] V]] -*zhe*].

It is probably the *prima facie* impression that the same verbs can occur in all of the three structures: '*zài* V', 'V-*zhe*' and '*zài* V-*zhe*' that has contributed to the general indecision concerning the correct constituency for the sequence '*zài* V-*zhe*', i.e. [*zài* [V-*zhe*]] or [[*zài* V]-*zhe*]. However, Li Tianshu (2015: 3) herself provides the crucial data (without following up on them) in favour of the structure [*zài* [V-*zhe*]], exclusively based on selectional restrictions alone. Referring to Hara (2009), she observes that positional verbs such as *zhàn* 'stand', *tǎng* 'lie', *zuò* 'sit' cannot be selected as complement of the progressive aspect *zài*, while this is possible when these verbs are suffixed with -*zhe*:[8]

[7] Li Tianshu (2015: 12, 49) visibly transposes into *syntax* Lin Jo-wang's (2002: 272) stipulation that -*zhe* takes scope over *zài* in the corresponding "logical structure": [*zhe* [*zài* [subject NP V object NP]]]. Note that Lin Jo-wang (2002) does not comment on the precise status of the postulated "logical structure" nor on how it is to be mapped into syntax, where *zài* must occur below the subject and where -*zhe* is a verbal suffix: (**zài*) [$_{TP}$ subject NP [$_{AspP}$ *zài* [$_{VP}$ V -*zhe* NP (*-zhe)]]]. In addition, Lin Jo-wang (2002) cannot correctly predict the data in (22) below where -*zhe* first combines with the verb and the resulting 'V-*zhe*' is then selected as complement by *zài*, leading to a hierarchical relation which is the exact opposite of his logical structure.

[8] The unacceptability of **zài zuò* 'PROGR sit' was already noticed by Teng Shou-hsin (1975: 129); Chen Chung-yu (1978: 91) likewise states the unacceptability of '*zài* V' for "verbs denoting static positions" in general.

(22) Tā zài { zhàn*(-zhe)/ tǎng*(-zhe)/ zuò*(-zhe)}
3SG PROGR stand -DUR / lie -DUR/ sit -DUR
'She is standing/lying/ sitting.'

This nicely confirms our analysis in terms of [*zài* [[V-*zhe*] NP]].

Other considerations beyond head directionality and selectional restrictions likewise argue in favour of [$_{AspP}$ *zài* [V-*zhe*]], where *zài* as the higher aspectual head selects the verbal projection to its right. It has since long been observed in the literature that unlike '*zài* V', 'V-*zhe*' is not acceptable on its own as the predicate in a root sentence (cf. Chen Gang 1980, Kong Lingda 1994: 440; Huang Nansong 1994: 446; also cf. Djamouri & Paul 2018 and references therein):[9]

(23a) *Dàjiā kuā -zhe nǐ.
everybody praise-DUR 2SG

(23b) *Tā zhèng xiě -zhe xìn.
3SG just write-DUR letter

(23c) *Tā zhèng huà -zhe. (Kong Lingda 1994: 440)
3SG just paint-DUR

When 'V-*zhe*' is selected as complement by *zài*, however, (23a-c) become acceptable:[10]

(24a) Dàjiā zài kuā -zhe nǐ.
everybody PROGR praise-DUR 2SG
'Everybody is praising you.'

(24b) Tā zhèng zài xiě -zhe xìn.
3SG just PROGR write-DUR letter
'He is just writing a letter.'

(24c) Tā zhèng zài huà -zhe huà.
3SG just PROGR paint-DUR painting
'She is just painting.'

Interestingly, positional statives such as *sit*, *stand* and *lie* form an exceptional class in English as well, insofar as they can occur in the progressive with a *non*-dynamic interpretation (cf. Ramchand 2018: 44; 215, note 3).

[9] Chinese scholars such as Chen Gang (1980) and Kong Lingda (1994) characterize sentences of the type illustrated in (23a) – (23c) as "incomplete", a term likewise used by among others Tang & Lee (2000) and Tsai Wei-tian (2008). However, the latter do not take into account the well-documented fact that 'V-*zhe*' is a licit predicate when referring to a derived state (cf. (25a-d) below). Nor do they comment on the well-known root vs non-root asymmetry, already stated as such by Chen Gang (1980). Cheng Gang (1980: 23-24) contrasts the constrained acceptability of 'V-*zhe'* as (an ongoing state 状态持续态 denoting) main verb (主要动词 *zhǔyào dòngcí*) in main clauses (主句 *zhǔjù*), with its unconstrained acceptability in non-main clauses (从句 *cóngjù*), where it can denote an activity or a derived state.

(i) Tā$_i$ [$_{adj.cl}$ *pro*$_i$ xiě -zhe xìn] chī zǎofàn. (compare with (23b))
3SG write-DUR letter eat breakfast
'He eats breakfast while writing letters.'

[10] The contrast between (23b-c) and (24b-c) straightforwardly invalidates Lin Jo-wang's (2002: 268) proposal to treat the adverb *zhèng* 'just' on a par with the progressive aspect marker *zài*: "It is rarely discussed in the literature what semantic function the adverb *zhèng* has. So far as I can see, its function is much like the progressive marker *zài* with an additional tint of more emphasis on the reference time at which the proposition is asserted to be true. Therefore, in this paper, I will treat *zhèng* on a par with *zài*."

By contrast, when 'V-*zhe*' can be interpreted as a (derived) state, a reading reinforced by the presence of (manner) adverbs in (25a) - (25d) below, it is acceptable as the sole predicate in a root sentence, a likewise well-known phenomenon:[11]

(25a) Dàxuě xiàng sīsuì-le de miánxù zài tiānkōng piāo-zhe.
heavy.snow like tear -PERF SUB cotton.wool at sky float-DUR
'The snow flutters in the sky like torn cotton wool.' (Chen Gang 1980: 25)

(25b) Xiǎomíng xiànggēnmùzhuāngshìde zhàn-zhe。
Xiaoming as.straight.as.a.stilt stand-DUR
'Xiaoming is standing as straight as a stilt.'

(25c) Xuéshēngmen mùbùzhuǎnjīngde kàn-zhe hēibǎn.
students with.fixed.eyes look-DUR blackboard
'The students are looking at the blackboard with utmost concentration.'
Huang Nansong (1994: 445, (54-55))

(25d) Wǒ yǒngyuǎn děng-zhe nǐ.
1SG forever wait -DUR 2SG
'I'll be forever waiting for you.'
(Djamouri & Paul 2018: 121, (40), (42))

This has to be seen against the background that in Chinese, only stative predicates (stative verbs and adjectives) can function as full predicates without any aspect marker in a root sentence, as already observed by Kong Lingda (1994: 436, III) for psychological predicates (such as *xǐhuān* 'like', *tǎoyàn* 'hate', dislike) and for equative sentences with the copula *shì* 'be':

(26a) Tā xǐhuān yóuyǒng.
3SG like swim
'She likes swimming.'

(26b) Wǒ shì lǎoshī.
1SG be teacher
'I'm a teacher.'

By contrast, bare non-stative predicates are only acceptable under a habitual interpretation (cf. (28a)) or simply unacceptable (cf. (27a)) when the habitual interpretation is semantically implausible. For an episodic interpretation, they require an aspect marker, an auxiliary or negation; the presence of a temporal adverb on its own is not sufficient (cf. Sun Hongyuan 2014: 50 – 51).

(27a) *Wáng jīnglǐ chī kǎoyā
Wang manager eat roast.duck

[11] The acceptability of 'V-*zhe*' in imperatives is a different case, a fact reviewer 1 reminds us of:
(i) Dūn -zhe, bié qǐlái
squat-ZHE NEG rise
'Remain squatted, don't get up!
(Cf. Lu Jianming 1999: 331-332; also cf. Djamouri & Zu 2015 and references therein.)

(27b) Wáng jīnglǐ jīngcháng chī kǎoyā
Wang manager often eat roast.duck
'Manager Wang often eats roast duck.' (Huang Nansong 1994: 445, §3.3)

(28a) Tā dǎ wǎngqiú / chōu yān.
3SG hit tennis / inhale smoke
'She plays tennis/smokes.' (habitual reading, not: 'She is playing tennis/smoking.')

(28b) Cǐ-shí-cǐ-kè tā *(zài) dǎ wǎngqiú/ chōu yān.
this-time-this moment 3SG PROGR hit tennis / inhale smoke
'Right now, she is playing tennis/smoking.'

(29a) Shàng ge yuè tā kàn*(-le) "sān guó yǎnyì".
last CL month 3SG see -PERF 3 kingdom romance
'Last month, he read the *Romance of the three kingdoms*.'
(Sun Hongyuan 2014: 50)

(29b) Wǒ jiàndào Lìchuān de shíhou, tā *(zài) huà yī fú huà.
1SG see Lichuan SUB time 3SG PROGR paint 1 CL picture
'When I saw Lichuan, she was painting a picture.' (Sun Hongyuan 2014: 254)

The temporal interpretation of bare predicates is thus a function of the predicate's semantic type with a clear dichotomy between states, on the one hand, and eventive predicates (activity, achievement, accomplishment), on the other (cf. Sun Hongyuan 2014: 54-55).

If we now look at this generalization in the light of "assertableness in a root context" as the most language general and theory-neutral definition of *finiteness*, the judgements observed in (23) – (29) above all fall in place. (For reasons of space, we somewhat simplify here; finiteness-related issues are likewise examined in section 4 below. Also cf. Paul & Ramchand (2023) for extensive discussion.)

(23a) – (23c) are unacceptable, because the durative aspect *-zhe* is special among the aspect markers in Chinese insofar as it produces an open-ended activity without telos (cf. a.o. Wu Jiun-Shiung 2007). Accordingly, it does not "save" the assertion, unlike the "genuine" aspect marker *zài*.[12] By contrast, when *-zhe* creates a derived homogeneous [ongoing] state as in (25a-c), 'V-*zhe*' is acceptable as the sole predicate in a root sentence~~s~~, on a par with the

[12] Another way to make the sentence finite, hence acceptable as a root sentence, is to add the *sentence-final particle* (SFP) *ne*, as shown by Kong Lingda (1994: 440) for (23a-c), illustrated here only for (23c), repeated as (i):
(i) *Tā zhèng huà -zhe.
3SG just paint-DUR
(ii) Tā zhèng huà -zhe ne.
3SG just paint-DUR SFP
'He's just painting.'
(Cf. Chen Gang (1980: 23) for the same observation.)
Ne can help to anchor an unbounded activity and hence make the sentence finite, because it provides a contextual interval for V-*zhe* which stretches over time itself (cf. Ramchand 2020). This also holds for (31b) below, which becomes acceptable as a root sentence when *ne* is added (cf. (iii)):
(iii) Qìchē fēibēn-zhe *(ne).
car gallop-DUR SFP
'Cars are galloping.'
For the role of the lowermost SFPs (*ne, le, láizhe*) in the 3-layered split CP with respect to finiteness, cf. Paul (2018), Ramchand (2020), Paul & Ramchand (2023) based on Kong Lingda (1994) as well as earlier observations by Zhu Dexi (1982, chapter 16). For the overall structure of the split CP in Chinese, cf. Paul(2014), Paul (2015, ch. 7); Pan & Paul (2016), Paul & Pan (2017); Pan (2019 a,b); Paul & Yan (2022) and references therein.

"lexical" statives in (26a–b) (also cf. Djamouri & Paul 2018). This is the reason why (30a) below is only acceptable under the interpretation 'He has shoes on', not 'He is putting on shoes'. For the latter, *zài* must be used (cf. Teng Shou-hsin 1973 : 21; 1975: 128).

(30a) Tā chuān-zhe xiézi.
3SG put.on-DUR shoe
'He has shoes on.'

(30b) Tā zài chuān xiézi.
3SG PROGR put.on shoe
'He is putting on shoes.' (Teng Shou-hsin 1973 : 21, footnote 6)

These facts can only be explained under an analysis where *zài* is the higher head selecting 'V-*zhe'*, and not the other way round, once again confirming the status of *zài* as an aspectual head, not as adverb. Because temporal adverbs alone cannot induce an episodic reading for bare activity predicates (cf. (28b), (29a-b) above.[13]
The fundamental difference we obtain between temporal adverbs and aspect markers ties in with Sun Hongyuan's (2014: 44-45) [subsequent] generalization that they do not contribute in the same way to the computation of tense in a Chinese sentence. Accordingly, it is important to distinguish between the adverb *zhèng* 'just, right then', on the one hand, and the progressive aspect head *zài*, on the other, in contrast to the literature where both are either classified as adverbs or as aspect markers, a uniform analysis unable to correctly predict the data.

4. Haplology

As demonstrated above, 'V-*zhe*' is only acceptable as the sole predicate in a root sentence when encoding a derived homogeneous state (in contrast to an open-ended activity); otherwise, the presence of e.g. the progressive aspect *zài* is required. This fact is often obscured by the invisibility of the aspectual *zài* due to its phonological fusion (*haplology*) with the preposition *zài* 'at' heading an immediately following PP. This well-documented phenomenon (cf. a.o. Chen Chung-yu 1978, Fan Jiyan 1982) is completely neglected and hence not controlled for in the majority of studies on -*zhe*, as illustrated in the very first example provided for -*zhe* by Lin Jo-wang (2002: 258):

(31a) Qìchē zài gōnglù shàng fēibēn-zhe.
car at street on gallop-DUR
'Cars are galloping on the street.'
Lin (2002: 258, (1a); our glosses, tones added)

[13] For states (i.e. stative verbs and adjectives), by contrast, an appropriate temporal adverb is sufficient to indicate past tense (cf. (i)), whereas an auxiliary verb is required to indicate future tense, as in (ii) (cf. Sun Hongyuan 2014: 44-45; 61)):

(ia) Lǎomóuzi xǐhuān Gǒnglì
Laomouzi love Gongli
'Lǎomóuzi loves Gǒnglì.'

(ib) Nèi shíhòu, Lǎomóuzi xǐhuān Gǒnglì.
that time Laomouzi love Gongli
'At that time, Lǎomóuzi loved Gǒnglì.'

(ia) Lǎomóuzi yǒuyītiān *(jiānghuì) xǐhuān Gǒnglì ma?
Laomouzi one.day FUT love Gongli SFP
'Will Laomouzi one day love Gongli?'

(iia) {(Jīntiān/ zuótiān)} Lùlu hěn jǔsàng.
today / yesterday Lulu very be.frustrated
'Lulu is frustrated today/ was frustrated yesterday.'

(iib) Lùlu hěn jǔsàng.
Lulu very be.frustrated
'Lulu is frustrated.'

(iic) Míngtiān Lùlu *(jiānghuì) hěn jǔsàng.
tomorrow Lulu will very be.frustrated
'Lulu will be frustrated tomorrow.'

Lin Jo-wang (2002) fails to realize and therefore leaves uncommented the obligatory implicit presence of the aspectual *zài* in (31a). Evidence for the latter becomes visible when we compare (31a) with (31b) and (31c):[14]

(31b) *Qìchē fēibēn-zhe.
car gallop-DUR

(31c) Qìchē *zài* fēibēn-zhe.
car PROGR gallop-DUR
'Cars are galloping.'

(31b) is unacceptable, because *fēibēn-zhe* 'gallop-DUR' as an open-ended activity cannot constitute the sole predicate in a root sentence. However, when selected as the complement of the aspectual *zài*, the resulting sentence is well-formed (cf. (31c)). It follows that (31a) must likewise contain the aspectual *zài* in order to license 'V-*zhe*'. The same contrast obtains in (32) – (33) below, where ZÀI in small caps represents the haplology of the aspectual *zài* with the preposition *zài* 'at', which is also spelt out in the glosses.

(32a) Tā ZÀI xǐzǎojiān chuī -zhe kǒushào.
3SG PROGR+at bathroom blow-DUR whiste
'She is/was whistling in the bathroom.'

(32b) *Tā chuī -zhe kǒushào.
3SG blow-DUR whiste

(32c) Tā zài chuī -zhe kǒushào.
3SG PROGR blow-DUR whiste
'She is/was whistling.'

(33a) Tā ZÀI wàimiàn dǎ–zhe wǎngqiú.
3SG PROGR+at outside hit-DUR tennis
'He is playing tennis outdoor.'

(33b) *Tā dǎ-zhe wǎngqiú.
3SG hit-DUR tennis

(33c) Tā zài dǎ-zhe wǎngqiú.
3SG PROGR hit-DUR tennis
'He is playing tennis.'

(32b) and (33b) are unacceptable, because no derived states can be construed for 'whistle' and 'play tennis', respectively. These sentences become acceptable when the aspectual *zài* is added;

[14] It is well-known that for Northern Mandarin speakers, the root vs non-root dichotomy for 'V-*zhe*' is very sharp, while this is not always the case for Taiwanese Mandarin speakers, to whom Lin Jo-wang belongs. However, he seems to be on a par with Northern speakers, because elsewhere he notes the unacceptability of 'V-*zhe*' :
(i) *Zhāngsān gài -zhe yī dòng fángzi. (Lin Jo-wang 2002: 260, (5))
Zhangsan build-DUR 1 CL house
The present study is based on the judgements by Northern Mandarin speakers.

the latter is visible in (32c) and (33c), but invisible, because fused with the preposition *zài* 'at' in (32a) and (33a).[15]

Chen Chung-yu (1978) seems to be the first to notice the phonological fusion (*haplology*) of the aspectual *zài* and the preposition *zài* 'at', based on the triple in (34a-c) below:

(34a) Tā ZÀI nàr {kū / shuì / dǎ diànhuà}.[16]
3SG PROGR+at there cry/ sleep/ hit phone
'He's crying/sleeping/making a phone call there.'

(34b) *Tā {kū / shuì / dǎ diànhuà}.
3SG cry/ sleep/ hit phone

(34c) Tā zài {kū / shuì / dǎ diànhuà}.
3SG PROGR cry/ sleep/ hit phone
'He's crying/sleeping/making a phone call.'
(Chen Chungyu 1978: 79; (9a-c); glosses added)

(34b) is unacceptable, because "incomplete with respect to temporal reference" (p. 79). Given the contrast with the acceptability of both (34a) and (34c), she concludes that *zài* in (34a) must have two functions, that of the aspect marker as in (34c) and that of the preposition. (p. 81).[17] This ties in with the observations made subsequently by Kong Lingda (1994) and Sun Hongyuan (2014) (presented above) that unlike stative predicates, activity verbs such as *kū* 'cry', *shuì* 'sleep' require aspectual marking for an episodic reading.

Furthermore, her example (35) below where in the presence of a preverbal *zài*-PP, *-zhe* is obligatory for positional verbs such as *zuò* 'sit', *tǎng* 'lie' etc. can only be accounted for when positing an implicit aspectual *zài*:[18]

(35) Tā ZÀI shù xià zuò*(-zhe)/tǎng*(-zhe).
3SG PROGR+at tree under sit -DUR / lie -DUR
'He's sitting/lying under the tree.' (Chen Chung-yu 1978: 91: (26a-b))

Because the same observation holds for aspectual *zài* on its own (cf. (22) in section 3 above); bare position verbs cannot be selected as complements by *zài*, whereas this is possible when they are suffixed by *-zhe*.

(36) Tā zài zuò*(-zhe)/ tǎng*(-zhe).
3SG PROGR sit -DUR / lie -DUR
'He's sitting/lying under the tree.'

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[15] Some speakers prefer (32a, c) and (33a,c) without *-zhe* and require emphasis on the PP in the (a) cases. By contrast, *-zhe* must be present in (31c), which is understood as describing a scene.

[16] Provided the predicate allows for a habitual interpretation, *zài* in 'NP zài NP VP' is to be analysed as realizing the preposition *zài* only, as confirmed by the optionality of the PP *zài jiālǐ* 'at home':
(i) Tā píngcháng (zài jiālǐ) shuì wǔjiào
3SG in.general at home sleep nap
'In general he takes a nap (at home).'

[17] Chen Chung-yu (1978: 79) cites as further evidence-that native speakers will produce (34c), and not (34b), when asked to "substract" the location information from (34a).

[18] This is not what Chen Chung-yu (1978: 91) says herself. Instead, she uses (35) to illustrate the special semantic properties of positional verbs.

Note, though, that Chen Chung-yu (1978) has to assume "distant" haplology, because in the underlying structure postulated by her, the preposition *zài* and the aspectual *zài* are <u>not</u> adjacent, but separated by the location NP :

(37) NP [$_{VP}$ [$_{PlaceP}$ [$_{Prep}$ *zài*] location NP] [$_{VP}$ [$_{Asp}$ *zài*] VP]]
(Chen Chung-yu 1978: 82, (13a))

The relative hierarchy between aspect and PP in (37) is, however, incorrect, as rightly pointed out by Fan Jiyan (1982: 75). For in general the aspectual *zài* precedes PPs, as illustrated below for PPs headed by prepositions other than *zài* 'at':

(38a) Tā [$_{AspP}$ zài [$_{vP}$ [$_{PP}$ xiàng wǒ] [$_{vP}$ zhāo shǒu]]]. (Fan Jiyan 1982: 75, (17); glosses, brackets and translations added)
3SG PROGR towards 1SG beckon hand
'He beckons me over.'

(38b) Wǒ [$_{AspP}$ zài [$_{vP}$ [$_{PP}$ duì nǐ] [$_{vP}$ jiǎng huà]]].
1SG PROGR facing 2SG speak word
'I'm speaking to you.'

(38c) Yàn -qún [$_{AspP}$ zài [$_{vP}$ [$_{PP}$ cháo nán] [$_{vP}$ fēixiáng]]].
wild.goose-group PROGR towards south fly
'A flock of wild geese is flying towards the south.'

(38d) Wǒmen [$_{AspP}$ zài [$_{vP}$ [$_{PP}$ cóng guówài] [$_{vP}$ yǐnjìn jìshù]]].
1PL PROGR from abroad introduce technology
'We are introducing technology from abroad.'

(38e) Xiǎolǐ [$_{AspP}$ zài [$_{vP}$ [$_{PP}$ ànzhào túyàng] [$_{vP}$ jiǎncái]]].
Xiali PROGR according.to pattern cut.out
'Xiaoli is cutting out [a garment] according to a pattern.'

It follows that Fan Jiyan's (1982: 75-76) structure in (39a) below, where the PP headed by *zài* 'at' is contained within the verbal projection selected as complement by the aspectual *zài*, is the correct one to serve as the input for the haplology. Crucially, haplology is "local", not "distant", requiring adjacency of the aspectual *zài* and the preposition *zài*: [19]

(39a) NP [$_{AspP}$ zài [$_{vP}$ [$_{PP}$ zài NP] [$_{vP}$ V NP]]] => NP ZÀI NP V NP

(39b) Tā [$_{AspP}$ zài [$_{vP}$ [$_{PP}$ zài lǐwū] [$_{vP}$ kàn shū]]] => Tā ZÀI lǐwū [$_{vP}$ kàn shū]
3SG PROGR at room see book 3SG PROGR+at room see book
'He's reading in the back room.'
(Fan Jiyan 1982: 75-76, (19a-c); bracketing, glosses and translation added)

Fan Jiyan (1982: 78) furthermore points out that Chen Chung-yu's (1978) assumption of haplology being able to apply at a "distance" would incorrectly predict the occurrence of only one *zài* for sentences where the *zài*-PP occurs in the topic position preceding the subject:

[19] This ties in with the likewise required local nature in the better-known (but nevertheless often neglected) case of haplology where the perfective aspectual suffix *-le* and the sentence-final particle *le* are phonologically fused when the verb occurs in sentence-final position: [$_{CP}$ [$_{TP}$ NP V-le] le] => 'NP V LE' (cf. a.o. Chao Yuen Ren 1968: 247, Marjorie K.M. Chan 1980, Lü Shuxiang 2000: 353, point 4).

(40) [$_{TopP}$ [$_{PP}$ *Zài* jiàoshì lǐ], [$_{TP}$ Zhāng lǎoshī zhèng *(*zài*) jiǎng jíhédàishù]].
at class.room in Zhang teacher just PROGR talk set.algebra
'In the class room, teacher Zhang is just talking about set algebra.'

(41) [$_{TopP}$ [$_{PP}$ *Zài* ménkǒu], [$_{TP}$ Xiǎohuáng *(*zài*) chīchīde xiào]].
at entrance Xiaohuang PROGR sneeringly laugh
'In the entrance, Xiaohuang is sneering.'

Fan Jiyan (1982: 75) explicitly states that sentences (40) – (41) with a topic *zài*-PP behave like "simple" sentences, i.e. sentences without any other occurrence of *zài*, and that accordingly the presence of the aspectual *zài* – an adverb for Fan Jiyan (1982) – is obligatory for the progressive reading.[20]

This clearly contrasts with the corresponding sentences (42) – (43) below where the surface *zài* PP *follows* the subject and where accordingly, the progressive *zài* "fuses" with the preposition and is invisible:

(42) [$_{TP}$ Zhāng lǎoshī [zhèng [ZÀI jiàoshì lǐ jiǎng jíhédàishù]].
Zhang teacher just PROGR+at class.room in talk set.algebra
'Teacher Zhang is just talking about set algebra in the class room.'

(43) [$_{TP}$ Xiǎohuáng [ZÀI ménkǒu] chīchīde xiào]].
Xiaohuang PROGR+at entrance sneeringly laugh
'Xiaohuang is sneering in the entrance.'

Incidentally, the position of the adverb *zhèng* 'just, right then' in (42) likewise argues in favour of Fan's structure in (39a), because *zhèng* as a low adverb must immediately adjoin to the (extended) verbal projection, in this case AspP.

The contrast between (40) – (41), on the one hand, and (42) – (43), on the other, brings us back to the issue of finiteness, i.e. assertableness in a root sentence, and the crucial role aspect such as the progressive *zài* play here. Seen in this light, Chen Chung-yu's (1978: 84) view cannot be correct that *zài* functions as a "pure" preposition as soon as the verb is suffixed by an aspect marker, including durative *-zhe*.

On the contrary, the cases with perfective *-le* and experiential *-guo* (the latter not discussed by Chen Chung-yu) need to be distinguished from those involving V-*zhe*.

(44a) Tā (*zài) chàng-le liǎng shǒu gē.
3SG PROGR sing -PERF 2 CL song

(44b) Tā zài diànshì shàng chàng-le liǎng shǒu gē.
3SG at TV on sing -PERF 2 CL song
'He sang two songs (on TV).' Chen Chung-yu (1978: 82)

(45a) Tā (*zài) dāng -guo bānzhǎng.
3SG PROGR serve.as-EXP monitor

[20] Sentences of the type illustrated in (40) – (41) are only acceptable without the aspectual *zài* in TP when they allow a generic, habitual reading (also cf. Sun Hongyuan 2014: 92-98):
(i) [$_{TopP}$ [$_{PP}$ Zài lǐwū] [$_{TP}$ tā měi tiān dōu kàn shū]].
at room 3SG every day all see book
'He reads in the back room every day.'

(45b) Tā zài wǒmen xuéxiào dāng -guo bānzhǎng
3SG at 1PL school serve.as-EXP monitor
'She served as class monitor (in our school).'

Since both perfective *-le* and experiential *-guo* are incompatible with the progressive aspect *zài* (cf. (44a), (45a)), it follows that *zài* in (44b) and (45b) is indeed the preposition 'at', not an instance of haplology.

However, the case of 'V-*zhe*' is different, as illustrated by the contrast between (46a) and (46b-c) reported by Chen Chung-yu (1978: 83) herself:

(46a) *Tā kū-zhe.
3SG cry-DUR

(46b) Tā zài kū-zhe.
3SG PROGR cry-DUR
'He is crying.'

(46c) Tā ZÀI kètīng lǐ kū-zhe.
3SG PROGR+at living.room in cry-DUR
'He is crying in the living room.'

Given the obligatory presence of the aspectual *zài* in (46b), it follows that it must be underlyingly present in (46c) as well, and that accordingly, *zài* in (46c) is not the preposition, but the haplology of aspectual *zài* and the preposition *zài* 'at'.[21]

Also recall from the discussion of (35) and (36) above (repeated in (47a-b) below) that both in sentences with the aspectual *zài* and with a sentence-internal (surface) *zài* PP, position verbs are only acceptable when suffixed by *–zhe* :

(47a) Tā zài {zuò*(-zhe)/ tǎng*(-zhe)}.
3SG PROGR sit -DUR/ lie -DUR
'He's sitting/lying.'

(47b) Tā ZÀI shù xià {zuò*(-zhe)/ tǎng*(-zhe)}.
3SG PROGR+at tree under sit -DUR/ lie -DUR
'He's sitting/lying under the tree.'

Again, this can only be accounted for when acknowledging the obligatory underlying presence of the aspectual *zài* in (47b) as well, invisible due to its haplology with the preposition *zài* 'at'.

Finally, Chen Chung-yu (1978) does not control for the absence/presence of the SFP *ne*, a low complementizer, and therefore does not see that in the absence of *zài*, it is the SFP *ne* that licenses 'V-*zhe*' as the only predicate in a root sentence, when the latter cannot be interpreted as a derived state:

(48) Tā shàng -zhe kè *(ne).
3SG attend-DUR class SFP
'He's in class now.' (Chen Chung-yu 1978: 84, (16d); glosses added)

[21] This is not what Chen Chung-yu (1978: 83) says. For her, '*zài* V-*zhe*' is a case of emphasis on the progress of an action.

While Chen Chung-yu (1978) marks *ne* as optional here, it is in fact required for the well-formedness of (48) as a root sentence. In fact, the literature on *-zhe* in general neglects the crucial role of *ne* for temporal anchoring and finiteness, notwithstanding the early observations by Chen Gang (1980), Zhu Dexi (1982, ch. 16) and Kong Lingda (1994) (cf. footnote 13 above) on *ne* in root sentences with 'V-*zhe*' as the only predicate. (Also cf. Djamouri & Paul 2018, Paul 2018 and references therein.)

To wrap up this section, when analysing the surface sequences 'NP [PP *zài* NP] VP', it is absolutely necessary to control for the presence/absence of haplology, i.e. the potential underlying presence of the progressive aspect *zài*, invisible due to its phonological fusion with the preposition *zài*. Otherwise, the conditions under which aspect markers are required to ensure episodic readings in Chinese become inconsistent with the overall picture. The potential presence of haplology is likewise extremely important in order to understand negation of the progressive aspect *zài*, to be examined in the next section.

5. Negation

There is a general consensus in the literature that the AspP headed by the progressive *zài* must be negated by *méi*, not by *bù*.[22]

(49a) Nǐmen wèishénme xiànzài méi /*bù zài zuò zuòyè ?
2PL why now NEG/ NEG PROGR do homework
'Why aren't you doing your homework now?'

(49b) Tā yěxǔ /dàgài méi /*bù zài shàng kè.[23]
3SG perhaps/probably NEG / NEG PROGR attend class
'He is perhaps/probably not attending classes.'

It goes beyond the scope of this article to fully address the complex and still not settled issue of the differences between these two types of negation in Mandarin Chinese. We therefore only briefly present some relevant observations from Ernst (1995) and Lin Jo-wang (2003) and then critically examine them in the light of the overall distribution of *bù* and *méi*, including data not taken into account by them.

5.1. Two types of negation in Mandarin: *bù* vs *méi*

Both Ernst (1995) and Lin Jo-wang (2003) account for the contrast between *bù* and *méi* in terms of different aspectual selection. They agree that stative predicates, i.e. adjectives and stative verbs, are negated with *bù* only. Beyond this consensus, however, their basic premises differ, each of which has its own shortcomings.

According to Ernst (1995: 696) *bù* requires "unbounded aspectual situations", i.e. states, but also activity verbs for him. The latter are claimed to be in principle unbounded as well, because their possible endpoint is arbitrary (cf. footnote 25 on p. 698). As already seen in the preceding sections and to be confirmed in the discussion below, presenting activity verbs as patterning with stative predicates with respect to negation does not lead to correct predictions.

According to Lin Jo-wang (2003: 428), *bù* exclusively selects states, and *méi* non-states. More precisely, "*bù* aspectually selects as its complement a stative situation *that requires no*

[22] Ernst (1995: 694) incorrectly claims *bù* to be the correct negation of '*zài* VP' for Southern speakers, while *méi* must be used for Northern speakers. This is invalidated by Lin (2003: 454, note 3) , stating that for all speakers, only '*méi zài* VP' is correct. Also cf. Hsieh Miao-Ling (2001: 23).

[23] For the reason why *bù* is likewise acceptable for reviewer 1 here, cf. the end of section 5.4 below.

input of energy in order to obtain that situation" (our emphasis). Unlike *bù*, *méi* "aspectually selects an event as its complement", i.e. a non-state, a dynamic situation involving change over time and requiring input of energy (cf. Lin Jo-wang 2003: 428: (6a-b)). The stipulation "requires (no) input of energy" added in the definition of stative situations and events is necessary for Lin Jo-wang (2003) to be able to correctly predict that '*zài* VP'- an event for him - requires the negation *méi* and excludes *bù*:

(50) Tā méi/*bù zài xǐ zǎo. (Lin Jo-wang 2003: 430, (10))
3SG NEG/ NEG PROGR wash bath
'He's not taking a bath.'

Lin Jo-wang (2003: 430) thus adopts Nordlander's view (1997) that the situation described by a progressive sentence is *not* a state, but a process constituting "a number of consecutive phases" with "an ongoing supply of energy", again in order to explain why the progressive aspect *zài* requires negation by *méi*/is negated by *méi*. However, while Nordlander's (1997) description might hold for the affirmative version of (50), i.e. 'He is taking a bath.' it is not clear at all whether it likewise applies to sentences such as (51) below:

(51) Ta (méi) zài xiūxi/ shuì/ děng.
3SG NEG PROGR rest / sleep/ wait
'She is (not) resting/sleeping/waiting.'

Be that as it may, Lin Jo-wang's (2003) narrow dovetailed definition of stative situations as excluding any energy input and the ensuing distribution *bù* (only for states) vs *méi* (only for non-states) in any case does not provide us with the correct picture.

For as pointed out by Lü Shuxiang (2000: 384), some auxiliary verbs (e.g. *néng(gòu)* 'can', *yào* 'want, will', *kěn* 'be willing', *gǎn* 'dare') likewise allow *méi*, in addition to the canonical negation with *bù* holding for all auxiliaries (also cf. Wang Canlong 2011).[24] It seems highly unlikely that this can be accounted for in terms of presence vs absence of "energy input".

The same holds for the fact that some stative verbs (e.g. *zài* 'be at') and derived states of the form 'V-*zhe*' have *méi* as their default negation, although in some cases *bù* is likewise acceptable (cf. Lü Shuxiang 1985: 245 - 246):

(52) Lǎolǐ zài jiā ma? Méi/bù zài jiā.
Laoli be.at home SFP NEG/NEG be.at home
'Is Laoli at home? No, he isn't.'

(53) Wǒ xiànzài yě méi / bù xián-zhe.
1SG now also NEG/ NEG idle-DUR
'I'm not idle now.

(54) Wǒ kànjiàn tā méi/bù tǎng-zhe, jiù jiào tā tǎng-xià.
1SG see 3SG NEG/NEG lie -DUR then tell 3SG lie -descend
'I saw that he was not lying, so I told him to lie down.'

(54) shows that in combination with 'V-*zhe*', both *méi* and *bù* are compatible with a past tense interpretation.

[24] The auxiliaries *huì* 'will', *gāi* 'should', *yīnggāi* 'should, must', *kěyǐ* 'can, may', *yuànyì* 'wish' are only compatible with *bù* (cf. Lü Shuxiang 2000: 384).

Finally, as observed by Lin Jo-wang (2003: 431) himself, in the locative construction with V-*zhe*, only *méi* is acceptable, to the exclusion of *bù*.[25]

(55) Qiáng shàng méi/*bù guà zhe huà, yě méi guà -zhe tōnggào,
wall on NEG/ NEG hang-DUR picture also NEG hang-DUR announcement
zhǐ guà -zhe yī fú guàlì.
only hang-DUR 1 CL wall.calendar
'There are no pictures hanging on the wall, there are also no announcements hanging, there is just a wall calendar hanging on the wall.'

Lin Jo-wang (2003: 432) again refers to the (extralinguistic) fact that positional states such as lying, sitting or hanging require prior energy input. However, besides familiar examples from the literature (cf. (56a-b) below) where such a prior energy input is simply implausible due to our world knowledge, there are well-known *linguistic* constraints holding for the locative construction with V-*zhe*, which directly challenge Lin Jo-wang's (2003) account.[26]

(56a) Tiān shàng guà -zhe yī lún míng yuè (Hu Wenze 1995: 106, (34), slightly changed)
sky on hang-DUR 1 CL bright moon
'In the sky hangs a bright moon.'

(56b) Xìxì de zhītiáo shàng guà -zhe lǜsè de shìzi. Jaxontov 1988: 132, (78)
thin SUB branch on hang-DUR green SUB persimmon
'Green persimmons hung from thin branches.'
'On thin branches are hanging green persimmons.' (our translation)

(57a) *Zhuōzi shàng {gùyì / mànmànde fàng-zhe yī běnshū.
table top on.purpose/slowly put -DUR one CL book
('A book was put on the table on purpose/slowly.')
(Pan Haihua 1996: 430, [60]; his glosses and translation)

(57b) Wūlǐ {bìngpái / *jǐnzhǎngde} zhàn-zhe shí ge rén.
room side.by.side/ nervously stand-DUR10 CL person
'In the room are standing side by side/nervously ten people.'

(57c) Běimén shàng (*zhǔdòng) shǒu -zhe yī ge lián.
Northern.Gate on own.accord guard-DUR 1 CL company
'At the Northern Gate several companies are keeping guard (of their own accord).'
((57b-c) based on Li Linding 1986: 75)

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[25] The example given by Lin Jo-wang 2003: 431, (12a-b)) himself is completely unacceptable, due to the presence of the quantified NP 'one picture' under the scope of negation (be it *méi* or *bù*):
(i) *Qiáng shàng méi / bù guà -zhe [yī fú huà].
wall on NEG/ NEG hang-DUR 1 CL picture
'There is not a picture hanging on the wall. (Lin Jo-wang 2003: 431, (12a-b); his translation)
Cf. Paul, Lu & Lee (2020) for demonstrating that no "inversion" is involved, hence the term *locative construction*.

[26] Importantly, the unacceptability of agent-oriented and activity-related adverbs holds independently of the thematic role of the postverbal NP, i.e. patient/theme in (57a) and agent in (57b-c), i.e. the unique argument of the unergative verb *zhàn* 'stand' in (57b). This directly challenges Pan Haihua's (1996: 427) scenario of a generalized agent deletion operation associated with *–zhe*. Instead, the correct generalization is that activity-related adverbs are excluded here, because the locative construction with *–zhe* conveys a situation, a state, rather than an (agent-controlled) activity. This is confirmed by the acceptability of adverbs such as *bìngpái* 'side by side' in (57b) referring to a state. Cf. Paul, Lu & Lee (2020) for further discussion.

Since agent-oriented and activity related adverbs are excluded from the locative construction with 'V-*zhe*' (cf. (57a-c)), Paul, Lu & Lee (2020: 263) conclude that it conveys a state, rather than an agent-controlled activity or process. This directly challenges Lin-Jo-wang's (2003) claim that *méi* only negates events, i.e. non-states.

To wrap-up, aspectual *zài* is negated by *méi*. Importantly, in addition, *méi* is also used as negation for (derived) states, including V-*zhe,* certain stative verbs as well as a subset of auxiliaries.[27] While the exact nature of these states as well as their sometimes observed compatibility with both *méi* and *bù* must be left for further research, it is evident that Lin Jo-wang's (2003) association of negation by *méi* with "input of energy", hence excluding states, is not on the right track, because inconsistent with the overall distribution of *méi*.

5.2. '*Méi/*bù* [*zài* NP] V-*zhe*' and haplology

Negation of the progressive aspect *zài* with *méi* also provides confirming evidence for the phenomenon of haplology discussed in section 4 above.

Context: A phones B on her cell phone, i.e. A doesn't know where B is.

(58a) A: Nǐ ZÀI jiā xiūxī ma?
2SG PROGR+at home rest SFP
'Are you having a rest at home?'

(58b) B: [Bù], wǒ méi/*bù zài jiā xiūxī, wǒ zài zhěnglǐ fángjiān.
no 1SG NEG/ NEG PROGR+at home rest 1SG PROGR tidy room
'No, I'm not having a rest at home, I'm tidying up my room.'

(59) Tā méi/*bù ZÀI chuáng shàng tǎng-zhe.[28]
3SG NEG/ NEG PROGR+at bed on lie -DUR
'He's not lying on the bed.' (Lin Jo-wang 2003: 431, (14b-c))

The underlying presence of the progressive *zài* requiring *méi* is particularly clear in (59), because positional verbs such as *tǎng* 'lie' must be suffixed by *-zhe* when selected as complement by *zài* (cf. (47) above). (Note that this is not what Lin Jo-wang (2003) says, because he is not aware of the phenomenon of haplology). The question-answer pair in (58a-b) refers to an ongoing activity at speech time, hence with an underlying progressive *zài* in (58a) and the first clause of (58b), and an overt instance of aspectual *zài* in the second clause.

If we now compare these with sentences where it is the negation *bù* that precedes the VP with a *zài*-PP adjunct, we note that they are only acceptable under a generic, habitual reading, not an episodic one as in (58) and (59), as also reflected in the different choice of adverbs. There is thus no underlying progressive aspect, and *zài* is a "pure" preposition here.

(60) Tā {yībān / jīngcháng/cónglái} bù zài jiā xuéxí/ tán qín.
3SG generally/ often /ever NEG at home study/ pluck piano
'He {generally/often } does not study/ play the piano at home.'
'He never studies/ plays the piano at home.'

This ties in with the generalization above that activity verbs without any aspect marking are only acceptable in root sentences when giving rise to a habitual reading. Given the general

[27] This is different from "derived states" in the sense of Lin Jo-wang (2003: 432) who uses this term for the predicate in the locative construction (55), where the intended state is said to require an initial input of energy.
[28] For the reason why *bù* is likewise acceptable for reviewer 1 here, cf. the end of section 5.4 below.

consensus that habituals are semantically statives, the negation with *bù* is as expected, as also acknowledged by both Ernst (1995) and Lin Jo-wang (2003). This is further illustrated in (61a), this time without any *zài* PP:

(61a) Tā bù chōu yān /chī jīròu
3SG NEG inhale cigarette /eat chicken
'She doesn't smoke/eat chicken.'

(61b) Tā méi chōu yān / chī jīròu
3SG NEG inhale cigarette /eat chicken
'She didn't smoke/eat chicken.'
(Lin Jo-wang 2003: 434, (17a-b), slightly changed)

When the negation *méi* is used instead of *bù*, we obtain an episodic interpretation referring to a single event (cf. (61b)).

5.3. *Bù* VP: covert presence of a volitional modality

Another case where *bù* does not combine with a stative predicate, but with an activity verb (cf. (62) below)) in fact involves a covert "future or volition modality", as per C.-T. James Huang's (1988: 290) by now classical analysis. (Also cf. Teng Shou-hsin 1974: 89):

(62a) Tāmen bù pǎo de kuài.[29]
3PL NEG run DE fast
'They won't run fast.'

(62b) Tā bù pǎo de kuài, shì yīnwèi tā bù xiǎng pǎo.
3PL NEG run DE fast be because 3SG NEG want run
'He won't run fast, because he doesn't want to run.'
(Huang 1988: 290; (7a), (45b))

A pointed out by Huang (1988: 290), (62a) "cannot be understood as a general statement about them that they don't run fast", i.e. no habitual interpretation is possible here. This is confirmed by the continuation in (62b), which clearly brings forward the covert presence of the future/volition modality in the first clause. Like modal auxiliaries in general this covert auxiliary is likewise negated by *bù*.
This view has remained the consensus up to now and is therefore likewise adopted by Ernst (1995: 671) and Lin Jo-wang (2003: 429), who provides further examples for *bù* negating the covert modal verb rather than the overt activity verb, thus giving rise to the meaning 'do not want to V', won't V':[30]

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[29] Given the controversial syntactic status of *de*, Huang (1988: 275) simply glosses it as DE (a "way-out" likewise adopted here). More than thirty years later, not much progress has been made; but cf. Paul (2015, ch. 8.3.3; 2017) for the analysis of *de* as a functional head selecting predicative adjectives, with the resulting DeP subsequently merging with V°. In other words, while the best *translational equivalent* is indeed a manner adverb, '*de* AdjP' in fact constitutes a secondary predicate.

[30] That is the reason why *bù* can only negate 'V-*zhe*' under a volitional reading, i.e. when the covert presence of a modal can be assumed (cf. Lin Jo-wang 2003: 455, note 4, (i)):

(i) Nǐ bù zài chuáng shàng tǎng-zhe, nǐ yào qù nǎlǐ?
2SG NEG at bed on lie -DUR 2SG want go where
'You don't want to lie on the bed. Where do you want to go?
(This could be said in a context where the person addressed is ill and should be in bed, but has gotten up.)

(63a) Wǒ bù qù Táiběi.
1SG NEG go Taipei
'I don't want to/will not go to Taipei.'

(63b) Tā bù bāng wǒ xiě zuòyè.
3SG NEG help 1SG write homework
'He doesn't want to help me with my homework.'
Lin Jo-wang (2003: 429; (8a-b)),

These data tie in with Sun Hongyuan's (2014: 218) observation that for [+intentional] activity verbs describing eventualities that can be scheduled, controlled by an agent, a futurate interpretation can be obtained *without* the otherwise obligatory future auxiliary *huì*:

(64a) Zhōngguó duì míngtiān bǐsài.
China team tomorrow play
'The Chinese team plays tomorrow.'

(64b) Zhōngguó duì míngtiān *(huì) yíng.
China team tomorrow will win
'The Chinese team will win/*wins tomorrow.'

The same empty volitional/future modality as postulated by Huang (1988) for *bù* preceding activity verbs in a non-habitual reading can be assumed here. The more so as the verbs in the examples used to illustrate this phenomenon all seem to involve control by the agent, although this observation needs to be confirmed by further research.

5.4. '*Bù* 'not' *(shì* 'be'*) zài* VP' in correcting statements and questions

We have seen in (58a) (repeated in (65) below) that the progressive aspect *zài* requires the negation *méi*, including the cases where it is only underlyingly present, because phonologically fused with the following preposition *zài*:

(65a) A: Nǐ ZÀI jiā xiūxī ma?
2SG PROGR+at home rest SFP
'Are you having a rest at home?

(65b) B: [Bù], wǒ méi/*bù zài jiā xiūxī, wǒ zài zhěnglǐ fángjiān.
no 1SG NEG/ NEG PROGR+at home rest 1SG PROGR tidy room
'No, I'm not having a rest at home, I'm tidying up my room.'

While (65b) is a well-formed answer to (65a) and negation with *bù* is clearly unacceptable, another, slightly more natural answer to (65a) features negation with *bù shì* 'not be':

Also cf. Hsieh Miao-Ling (2001: 40, (35a-b)) who contrasts the volitional reading in (iia) with the negation of the episodic reading in (iib):
(iia) Tā bù zuò-zhe / zhàn -zhe.
3SG NEG sit -DUR / stand-DUR
'He does not want to be sitting/standing.
(iib) Tā méi zuò-zhe / zhàn -zhe.
3SG NEG sit -DUR/ stand-DUR
'He is not sitting/standing.'

(66) [Bù], wǒ bù shì zài jiā xiūxī, wǒ zài zhěnglǐ fángjiān
no 1SG NEG be PROGR+at home rest 1SG PROGR tidy room
No, I'm not having a rest at home, I'm tidying up the room./?house?.'

As is well-known, *bù shì* 'not be' has scope over the sequence to its right and accordingly can either negate the entire sequence (cf. (67a)) or a subpart of it (cf. (67b)):

(67a) Bù, wǒ bù shì [$_{vP}$ [$_{PP}$ zài jiā] xiūxī], wǒ *zài gōngyuán lǐ pǎo bù*.
no 1SG NEG be PROGR+at home rest 1SG PROGR+at park in run step
'No, it's not the case that *I'm having a rest at home*, [but] *I'm running in the park*.'

(67b) [Bù], wǒ bù shì [$_{vP}$ [$_{PP}$ *zài jiā*] xiūxī,] wǒ shì [$_{PP}$ *ZÀI gōngyuán lǐ*] xiūxī.
no 1SG NEG be PROGR+at home rest 1SG be PROGR+at park in rest
'No, it's not the case that I'm having a rest *at home*, I'm having a rest *in the park*.'

In the propositional negation with *bù shì* 'not be', *shì* 'be' takes as complement the extended verbal projection to its right, as indicated in the bracketing. When the copula is negated, negation can affect the complement as a whole or a subpart, as in the case of English 'it is not (the case) that'. (Cf. Paul & Whitman 2008 for further discussion and references.)

Negation with *bù shì* 'not be' = 'it is not the case that' is either used in declaratives to correct a wrong statement (cf. (66-67) above), or in questions asking for a confirmation of a prior statement or an assumption held by the speaker:

(68) Nǐ bù shì zài xiě zuòyè ma? Zěnme chū-lái -le?
2SG NEG be PROGR write homework SFP how exit-come-PERF
'Aren't/weren't you (supposed to be) doing your homework?
How come you have gone out?'

These two contexts for *bù shì* 'not be' are important in order to come to terms with sequences of the form '*bù zài* VP' and '*bù zhèng zài* VP' (present in online corpora), which at first sight seem to contradict the robust generalization that the progressive aspect must be negated by *méi*, not by *bù*.[31]

(69a) Nǐmen wèishénme xiànzài bù [shì] zài gàn huó?
2PL why now NEG be PROGR work life
'Why is it that you are not working right now?'
'How come you are not working right now?'

(69b) Wǒ bù [shì] zhèng zài shàng kè ma?
1SG NEG be just PROGR attend class SFP
'Isn't it the case that I'm attending classes right now?'
'Am I not attending classes right now?'

As pointed out by the native speakers consulted, while in the BLU-BCC corpus, these sentences do not feature *shì* 'be', their interrogative nature as well as the linguist context given show them to be instances of (rhetorical) questions with *bù shì* 'not be'.

[31] The BLU-BCC corpus (http://bcc.blcu.edu.cn), for example, features about a hundred examples for *bù zhèng zài* VP 'NEG just PROGR VP'. Upon further examination, however, they all turn out to be (rhetorical) questions where the copula has been dropped: NP *bù ~~shì~~ zhèng zài* VP? 'NP NEG be just PROGR VP?' = 'Isn't it the case that NP is just V-ing?'.

This is confirmed by the fact that (70) is only acceptable when followed by the second clause, which indicates its interrogative nature:

(70) Nǐmen xiànzài bù [shì] zài gàn huó, *(zài gàn shénme) ?
2SG now NEG be PROGR do life PROGR do what
'If it's not the case that you're working right now, then what are you doing?'

Here again, *bù* is to be analysed as *bù shì* 'not be' with the associated semantics. If one wanted to negate the activity itself, *méi* would have to be used instead of *bù*, resulting in 'You are not working now.' for the first clause.

Finally, *bù* functioning as propositional negation *bù shì* 'not be' = it is not the case that' in questions asking for confirmation or in declaratives correcting a prior statement can likewise nicely account for the observations by reviewer 1 concerning the acceptability of *bù* (in addition to *méi*) in (49b) and (59), repeated in (71) and (72) below:

(71) Tā yěxǔ /dàgài méi /bù zài shàng kè.
3SG perhaps/probably NEG / NEG PROGR attend class
'He is perhaps/probably not attending classes.'

(72) Tā méi /bù ZÀI chuáng shàng tǎng-zhe.
3SG NEG/ NEG PROGR+at bed on lie -DUR
'He's not lying on the bed.'

Concerning (72), reviewer 1 further notes that *bù* is fine when (72) answers the question in (73):

(73) Ta ZÀI chuáng shàng tǎng-zhe ma?
3SG PROGR+at bed on lie -DUR SFP
'Is he lying on the bed?

(74a) Bù, tā bù *shì* ZÀI chuáng shàng tǎng-zhe.
no 3SG NEG be PROGR+at bed on lie -DUR
(74b) Tā (shì) ZÀI dì shàng tǎng-zhe.
3SG be PROGR+at floor on lie -DUR
'No, it's not the case that he is lying on the bed. He's lying on the floor.'

As evident from the continuing clause in (74b) (where *shì* can be added), (74a) is a clear case of *bù (shì)* 'not (be)' correcting the assumption made in the preceding question.

Similarly, *bù* in (71) (repeated in (76a)) is acceptable because functioning as propositional negation *bù shì* 'not be', with (75) provided by us as a possible context:

(75) Tā zhè gè shíjiān zài shàng kè ma?
3SG this CL time PROGR attend class SFP
'Is he attending classes at this moment?'

(76a) (Zhè gè shíjiān) tā yěxǔ / dàgài bú (shì) zài shàng kè.
this CL time 3SG perhaps/probably NEG be PROGR attend class
(76b) Kěnéng (shì) zài fǔdǎo xuéshēng.
perhaps be PROGR supervising student
'He is perhaps/probably not attending classes (at this moment). He is probably supervising students.'

The continuing sentence (76b) shows that the entire VP 'attend class' is negated here and replaced by the VP 'supervise students' as the correct event.

5.5. Wrap-up

The AspP headed by the progressive *zài* must be negated by *méi*, not by *bù*. '*zài* VP' thus behaves on a par with derived states of the form 'V-*zhe*' which likewise require the negation *méi*. The fact that some stative verbs as well as a subset of modal auxiliaries allow *méi* in addition to *bù* further confirms the compatibility of *méi* with states and directly challenges Lin Jo-wang's (2003) scenario with *méi* as exclusive negation for activities.

Furthermore, the choice of negation provides additional evidence for the phenomenon of haplology: '*méi* [*ZÀI* NP] VP' indicates the underlying presence of the progressive aspect *zài*, whereas '*bù* [*zài* NP] VP' either indicates a generic statement or an interpretation with an underlying volitional/future modality: 'not want to/will not VP [at NP]'.

6. Conclusion

Having removed the cumbersome preliminary obstacle of the status of *zhèng zài*, which is not one word, but the adverb *zhèng* 'just, right then' preceding the progressive aspect head *zài*, we addressed some of the central issues concerning the progressive aspect *zài*. (For the discussion of the small emerging group of 1-word *zhèngzài* speakers, cf. the appendix immediately below.)

We argued in favour of the constituency [$_{\text{AspP}}$ *zài* [V-*zhe*]] and demonstrated important syntactic and semantic differences between the progressive aspect *zài* and the durative aspect -*zhe*, often blurred by their co-occurrence in '*zài* V-*zhe*' and their selecting nearly identical verb classes. Importantly, unlike '*zài* V', 'V-*zhe*' is only acceptable as the sole predicate in a root sentence, when it can be interpreted as a derived homogeneous state. Otherwise, the presence of the progressive aspect *zài* is required: '*zài* V-*zhe*'.

This crucial role of *zài* is often obscured by its phonological fusion with the preposition *zài* 'at' heading an immediately following PP (*haplology*):

(71) NP [$_{\text{Asp}}$ *zài* [$_{\text{VP}}$ [$_{\text{PP}}$ *zài* NP] [V-*zhe* NP]]] => NP [ZÀI NP] V-*zhe* NP.

The presence/absence of an underlying progressive aspect *zài* (having fused with the preposition *zài*) is reflected in the choice of negation. Since the progressive aspect *zài* must be negated by *méi*, not *bù*, it follows that no underlying aspectual *zài* is present when it is *bù* that negates a VP with a *zài* PP adjunct: NP *bù* [$_{\text{VP}}$ [$_{\text{PP}}$ *zài* NP] VP]. By contrast, when there is an underlying aspectual *zài*, the negation *méi* is required, resulting in the surface sequence 'NP *méi* [[*ZÀI* NP] VP]'. Finally, given that a subset of auxiliaries, some stative verbs as well as state-denoting 'V-*zhe*' are negated by *méi*, negation of '*zài* VP' by *méi* is compatible with the status of '*zài* VP' as a state, hence able to be true at a moment. The exact nature of these different states must be left for further research.

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Appendix

As mentioned in the introduction, there are a handful of examples attested in corpora where *zhèngzài* 'just, right then' is an adverb, i.e. one word, as evidenced by its co-occurrence with the aspectual *zài*, leading to the sequence: [$_{AspP}$ [$_{adv}$ *zhèngzài*] [$_{AspP}$ *zài* VP]] (cf. (2a-d) below). More precisely, concerning the two corpora consulted (in November 2021), the PKU-CCL corpus (http://ccl.pku.edu.cn:8080/ccl_corpus) features ten examples and the BLU-BCC corpus (http://bcc.blcu.edu.cn) twenty-four examples. Three different structures can be found.

i) '*zhèngzài* [$_{PP}$ zài NP] VP'
It makes up for half of the cases (6 of 10 examples in the PKU-CCL corpus, and 12 of 24 in the BLU BCC corpus, respectively). The majority involves haplology (noted as *ZÀI*) of the progressive aspect *zài* and the preposition *zài* of the immediately adjacent *zài*-PP. The progressive aspect *zài* must be present underlyingly to explain the non-habitual reading of what at the surface looks like bare verbs. (Recall from section 4 that non-stative bare verbs are only acceptable as sole predicates in a root sentence when giving rise to a habitual reading.) This analysis is confirmed by sentence (1d) where the adjunct PP is headed by *hé* 'with' and preceded by both the adverb *zhèngzài* 'just' and the aspectual *zài*:

(1a) Zhè qún rén zhèngzài ZÀI wǒ jiā dǎ biānlú.
this group people just PROGR+at 1SG home strike side.stove
'This group of people is just enjoying a Cantonese hotpot at my place.'

(1b) Bǐsài zhèngzài ZÀI Lánzhōu jǔxíng.
competition just PROGR+at Lanzhou hold
'The match is just going on in Lanzhou.'

(1c) Zhè bù diànshìjù zhèngzài ZÀI Běijīng pāishè.
this CL TV.drama just PROGR+at Beijing shoot
'This TV drama is just being filmed in Beijing.

(1d) Tā [$_{AspP}$ zhèngzài [$_{AspP}$ zài [$_{PP}$ hé péngyou] jiāotán]]].
3SG just PROGR with friend chat
'He is just chatting with friends.'

ii) '*zhèngzài* [$_{AspP}$ zài VP]'
The co-occurrence of *zhèngzài* with the aspectual *zài* immediately preceding a VP clearly points to the adverbial status of *zhèngzài* 'just, right then'.

(2a) Tā zhèngzài zài xuéxí zhōngwén.
3SG just PROGR learn Chinese
'He is just learning Chinese.'

(2b) Tóngshìmen zhèngzài zài gòumǎi lǐpǐn.
colleagues just PROGR buy gift
'The colleagues are just buying gifts.'

(2c) Jīxuě zhèngzài zài xùnsùde xuánzhuǎn-zhe.
snow just PROGR rapidly spin -DUR
'The snow is just spinning rapidly.'

(2d) Yúyè zīyuán zhèngzài zài jíjù jiǎnshǎo.
fishery resource just PROGR sharp decrease
'Fishery resources are just declining sharply.'

iii) '*zhèngzài* [VP [V° *zài*] PostP]'
In this structure, the adverb *zhèngzài* 'just' precedes the (stative) verb *zài* 'be at', which in turn selects a postpositional phrase as its complement. Given the well-known fact that the verb *zài* 'be at' is incompatible with any aspect marker, this again confirms the status of *zhèngzài* as an adverb, on a par with *zhèng* 'just', not with the aspectual head *zài*.

(3a) Gè fāng bǎozhèng [*v*P zhèngzài [*v*P zài [PostP huìtán zhōng]]]
each side assure just be.at talks in
'All parties assure to be presently (engaged) in talks.'

(3b) Tā sìhū cǐkè zhèngzài zài lěng fēng lǐ.
3SG seemingly at.present just be.at cold wind in
'It seems as though he is just in a cold wind right now.'

(3c) Běn gōngsī de 'lán -xīng-dàshà' zhèngzài zài jiànshè zhōng.
1PL company SUB blue-star -building just be.at build in
The "blue star" building of our company is just under construction.'

(3d) Diànhuà zhèngzài zài jiētōng zhōng.
phone just be.at put.through in
'The phone is just connecting.'

While the majority of the 1-word-*zhèngzài* examples are from the microblogging website *Weibo* and hence probably rather recent (although no year is indicated here), there are also some dated occurrences from other text genres.

The earliest attestation for group 1, '*zhèngzài* [PP zài NP] VP', is 1979 (in the Chinese translation of Rachel Carson's *Silent spring* from 1962). For group 2, '*zhèngzài* [AspP zài VP]', we have 1998 (in Ren Yihong's *Ài nǐ bù liú yúdì* 爱你不留余地). Group 3, *zhèngzài* [VP [V° *zài*] PostP]], is first attested in a *Rénmín Rìbào* (People's Daily) article from 1997. This is noteworthy because "negligence" as a consequence of the fast writing mode in *Weibo* can be excluded as a possible factor for the use of the adverb *zhèngzài* 'just, right then'. More importantly, it nicely illustrates the difference between a change itself, more precisely the creation of a new adverb *zhèngzài* 'just, right then' and its *diffusion* among the speakers evolving in time, with an increase in the period covered by *Weibo*. (Cf. Hale 2007 for extensive discussion of *change* vs *diffusion* of that change.)

The examples in (1) – (3) above (occasionally shortened in parts not relevant for the problem under discussion) also provided the material for our informal online questionnaire, whose aim was to find speakers who actually use the adverb *zhèngzài* in combination with the aspectual *zài* +VP. All the sentences were double-checked for their acceptability with *zhèng* 'just' instead of *zhèngzài* 'just' for the "canonical" group of native speakers, as represented by one of the co-authors. In addition, we chose two [+ human] subjects and two [-human] subjects for each group, even though we think it highly unlikely that this could have any influence on the outcome.

Sixty-one participants took part in the online questionnaire where the twelve sentences above were augmented by twelve filler sentences and presented in a randomized order. Five

judgement types were offered: completely acceptable (100%), probably acceptable (??OK), probably unacceptable (??*), completely unacceptable (*) and "I don't know" (Ø). While detailed information on the judgements per sentence is provided in the overview at the end of the appendix, the results can be summarized as follows.

The structure in (1) with a preverbal *zài*-PP, '*zhèngzài* [PP zài NP] VP', and the structure in (3) '*zhèngzài* [VP [V° *zài*] PostP]' where the adverb *zhèngzài* 'just' precedes the verb *zài* 'be at', received eleven and thirteen "100% acceptable" judgements, respectively; the structure in (2) '*zhèngzài* [AspP zài VP] with *zhèngzài* preceding 'aspectual *zài* + VP' was judged "100% acceptable" only four times.

While the comparatively high frequency (within the modest sample at hand) of the adverb *zhèngzài* 'just' preceding a *zài*-PP looks plausible, because it can be linked to the phenomenon of haplology (cf. section 4 above), the comparatively high frequency of *zhèngzài* 'just' with the verb *zài* 'be at' is at first sight somewhat surprising, given that the verb *zài* is incompatible with any aspect marker and accordingly, there does not exist any potential source structure for the possible reanalysis of the adverb *zhèng* 'just' and the aspectual *zài* into the adverb *zhèngzài*: *[Adv *zhèng*] [Asp° *zài* [V° *zài*]. The only possible parallel we can see is that with the adjunct NP *xiànzài* 'now', acceptable as modifier of the verb *zài* 'be at', as in e.g. *Tā xiànzài zài jiā* '3SG now be.at home' = 'She is at home now.'

There were only two speakers among the sixty-one who accepted all of the test sentences with either "100% acceptable" or "probably acceptable". Our initial purpose of the questionnaire (besides confirming the findings in the corpora), i.e. being able to ask follow-up questions in order to further test the distribution of the adverb *zhèngzài* 'just' was therefore seriously hampered. We nevertheless checked two data points: the acceptability of *zhèngzài* 'just' (cf. 4a)) in contexts where the canonical speakers only use the adverb *zhèng* 'just' and where aspectual *zài* is excluded (cf. (4b) and the discussion in section 2 above), and the acceptability of *zhèngzài* 'just' in the topic position before the subject (cf. (5a)), a position excluded for low VP adverbs such as *zhèng* 'just' (cf. (5b)), but acceptable for adjunct NPs such as *xiànzài* 'now' (cf. (5c)):

(4a) Nǐ lái de zhēn qiǎo , wǒ [Adv zhèngzài] yào zhǎo nǐ.
2SG come DE really opportune 1SG just want search 2SG
(Intended: 'You've come at the right time, just as I wanted to go see you.')

(4b) Nǐ lái de zhēn qiǎo , wǒ [Adv zhèng] (*[Asp° zài]) yào zhǎo nǐ.
2SG come DE really opportune 1SG just PROGR want search 2SG
'You've come at the right time, just as I wanted to go see you.'

(5a) Fàng xīn ba, [Adv zhèngzài] ne, diànhuà zài [PostP jiētōng zhōng],
put heart SFP just TOP phone be.at put.through in
nǐ zhǔnbèi shuō ba.
2SG prepare talk SFP
(Intended: 'Be reassured, the phone is just connecting, get ready to talk.')

(5b) Fàng xīn ba, (*zhèng ne), diànhuà zhèng zài [PostP jiētōng zhōng],
put heart SFP just TOP phone just be.at put.through in
nǐ zhǔnbèi shuō ba.
2SG prepare talk SFP
'Be reassured, the phone is just connecting, get ready to talk.'

(5c) Fàng xīn ba, xiànzài ne, diànhuà (zhèng) zài [$_{PostP}$ jiētōng zhōng],
put heart SFP now TOP phone just be.at put.through in
nǐ zhǔnbèi shuō ba.
2SG prepare talk SFP
'Be reassured, the phone is just connecting right now, get ready to talk.'

However, the results of our mini-test were inconclusive; the sentences were either rejected as unacceptable or as difficult to judge.

Data from the Acceptability Judgment Test

A. Participants' information (in general): Total N=61

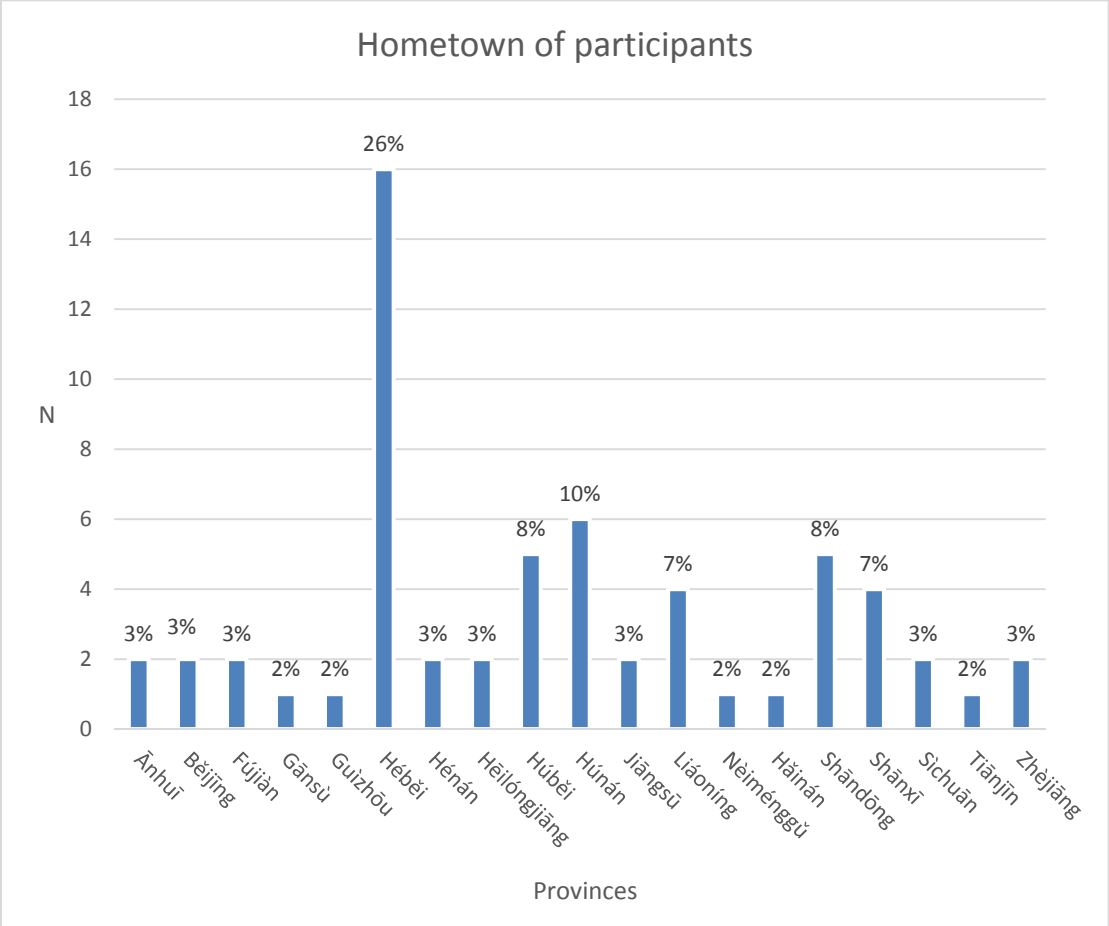
(1) Gender:

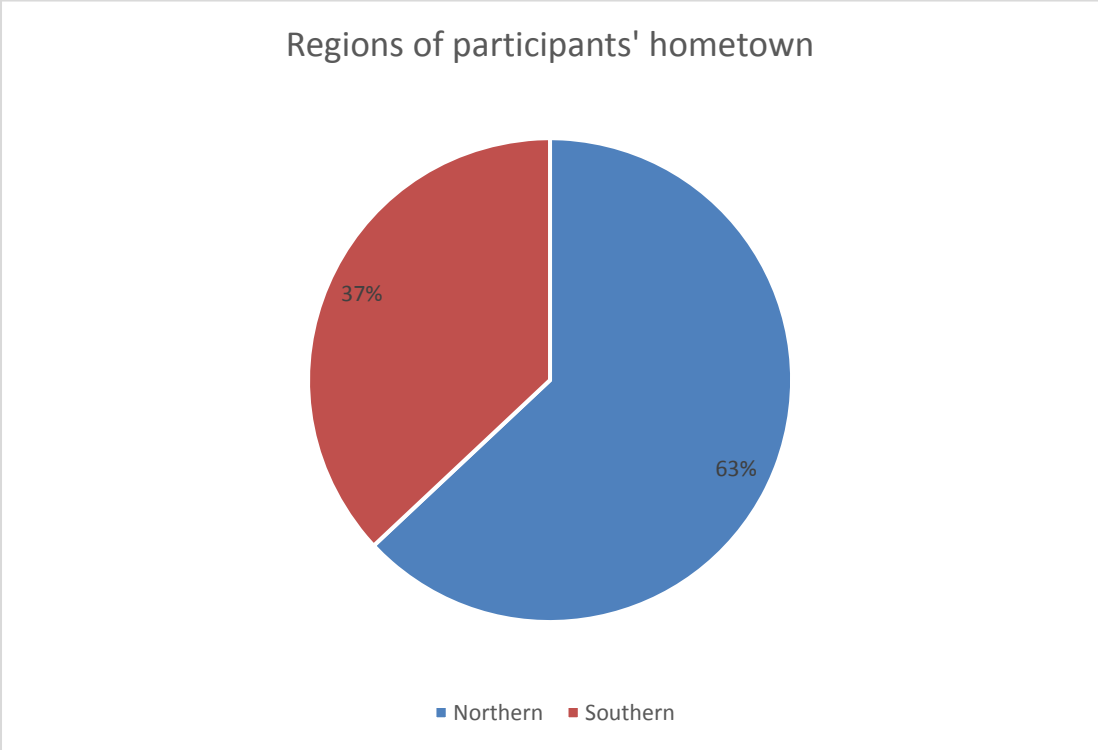
Gender	N	Percentage
Male	16	26.23%
Female	45	73.77%
Total N	61	

(2) Age ranges:

Age ranges	N	Percentage
Under 18	0	0%
18~25	26	42.62%
26~30	18	29.51%
31~40	16	26.23%
41~50	1	1.64%
51~60	0	0%
60 and above	0	0%
Total N	61	

(3) Hometown


Hometown of participants
N
18
16
14
12
10
8
6
4
2
0
3%
3%
3%
2%
2%
26%
3%
3%
8%
10%
3%
7%
2%
2%
8%
7%
3%
2%
3%
Ānhuī
Běijīng
Fújiàn
Gānsù
Guìzhōu
Héběi
Hénán
Hēilóngjiāng
Húběi
Húnán
Jiāngsū
Liáoníng
Nèiménggǔ
Hǎinán
Shāndōng
Shānxī
Sìchuān
Tiānjīn
Zhèjiāng
Provinces


Regions of participants' hometown
37%
63%
Northern
Southern

(4) Education background:

Degrees	N	Percentage
B.A.	6	9.84%
Postgraduates	36	59.02%
Ph.D	19	31.15%
Total N	61	

B. Participants' judgments on the test sentences (re-categorized into three groups)

(1) **Group 1**： [VP [adv *zhèngzài*] [VP [PP *zài* NP] VP]]

a. 这群人正在在我家打边炉。

Zhè qún rén zhèngzài ZÀI wǒ jiā dǎ biānlú.
this CL people just at+PROGR 1SG home strike hot-pot
'This group of people is just enjoying a Cantonese hotpot at my place.'

Acceptability scale	N	Percentage
Completely unacceptable	32	52.46%
Probably unacceptable	19	31.15%
Probably acceptable	6	9.84%
Completely acceptable	3	4.92%
I don't know	1	1.64%
Total N	61	

b. 比赛正在在兰州举行。

Bǐsài zhèngzài ZÀI Lánzhōu jǔxíng.
competition just PROGR+at Lanzhou hold
'The match is just going on in Lanzhou.'

Acceptability scale	N	Percentage
Completely unacceptable	31	50.82%
Probably unacceptable	16	26.23%
Probably acceptable	12	19.67%
Completely acceptable	1	1.64%
I don't know	1	1.64%
Total N	61	

c. 这部电视剧正在在北京拍摄。

Zhè bù diànshìjù zhèngzài ZÀI Běijīng pāishè.
this CL TV.drama just PROGR+at Beijing shoot
'This TV drama is just being filmed in Beijing.

Acceptability scale	N	Percentage
Completely unacceptable	19	31.15%
Probably unacceptable	28	45.9%
Probably acceptable	7	11.48%
Completely acceptable	7	11.48%
I don't know	0	0%
Total N	61	

d. 他正在在和朋友交谈。

Tā [AspP zhèngzài [AspP zài [PP hé péngyou] jiāotán]]].
3SG just PROGR with friend chat
'He is just chatting with friends.'

Acceptability scale	N	Percentage
Completely unacceptable	40	65.57%
Probably unacceptable	19	31.15%
Probably acceptable	2	3.28%
Completely acceptable	0	0%
I don't know	0	0%
Total N	61	

(2) Group 2：[adv *zhèngzài*] [asp *zài*] VP

a. 她正在在学习中文。

Tā zhèngzài zài xuéxí zhōngwén.
3SG just PROGR learn Chinese
'She is just learning Chinese.'

Acceptability scale	N	Percentage
Completely unacceptable	46	75.41%
Probably unacceptable	14	22.95%
Probably acceptable	1	1.64%
Completely acceptable	0	0%
I don't know	0	0%
Total N	61	

b. 同事们正在在购买礼品。

Tóngshìmen zhèngzài zài gòumǎi lǐpǐn.
colleagues just PROGR buy gift
'The colleagues are just buying gifts.'

Acceptability scale	N	Percentage
Completely unacceptable	44	72.13%
Probably unacceptable	13	21.31%
Probably acceptable	0	0%
Completely acceptable	4	6.56%
I don't know	0	0%
Total N	61	

c. 积雪正在在迅速地旋转着。

Jīxuě zhèngzài zài xùnsùde xuánzhuǎn-zhe.
snow just PROGR rapidly spin -DUR
'The snow is just spinning rapidly.'

Acceptability scale	N	Percentage
Completely unacceptable	42	68.85%
Probably unacceptable	17	27.87%
Probably acceptable	2	3.28%
Completely acceptable	0	0%
I don't know	0	0%
Total N	61	

d. 渔业资源正在在急剧减少。

Yúyè zīyuán zhèngzài zài jíjù jiǎnshǎo.
fishery resource just PROGR sharp decrease
'Fishery resources are just declining sharply.'

Acceptability scale	N	Percentage
Completely unacceptable	39	63.93%
Probably unacceptable	20	32.79%
Probably acceptable	2	3.28%
Completely acceptable	0	0%
I don't know	0	0%
Total N	61	

(3) **Group 3:** [$_{adv}$ *zhèngzài*] [$_{VP}$ [$_{Verb}$ *zài*] [$_{PostP}$ NP postposition]]

a. 各方保证正在在会谈中。

Gè fāng bǎozhèng zhèngzài zài huìtán zhōng
each side assure just be.at talks in
'All parties assure to be presently (engaged) in talks.'

Acceptability scale	N	Percentage
Completely unacceptable	40	65.57%
Probably unacceptable	18	29.51%
Probably acceptable	3	4.92%
Completely acceptable	0	0%
I don't know	0	0%
Total N	61	

b. 他似乎此刻正在在冷风里。

Tā sìhū cǐkè zhèngzài zài lěng fēng lǐ.
3SG seemingly at.present just be.at cold wind in
'It seems as though he is just in a cold wind right now.'

Acceptability scale	N	Percentage
Completely unacceptable	39	63.93%
Probably unacceptable	15	24.59%
Probably acceptable	5	8.2%
Completely acceptable	2	3.28%
I don't know	0	0%
Total N	61	

c. 本公司的'蓝星大厦'正在在建设中。

Běn gōngsī de 'lán -xīng-dàshà' zhèngzài zài jiànshè zhōng.
1PL company SUB blue-star-building just be.at build in
The "blue star" building of our company is just under construction.'

Acceptability scale	N	Percentage
Completely unacceptable	32	52.46%
Probably unacceptable	16	26.23%
Probably acceptable	4	6.56%
Completely acceptable	9	14.75%
I don't know	0	0%
Total N	61	

d. 电话正在在接通中。

Diànhuà zhèngzài zài jiētōng zhōng.
phone just be.at put.through in
'The phone is just connecting.'

Acceptability scale	N	Percentage
Completely unacceptable	39	63.93%
Probably unacceptable	18	29.51%
Probably acceptable	2	3.28%
Completely acceptable	2	3.28%
I don't know	0	0%
Total N	61	