

Semantic Feature Analysis of “Chinese Verbs and ‘Zai Plus Locative’ Structure” and the Constraints on Constructional Transformation

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Abstract—There is an urgent need into the study on how to help correct and explain ill-formed sentences related to “Chinese verb and ‘zai plus locative’ structure”. The theoretical foundation of this paper is based on semantic feature analysis proposed by Qi (1994). With reference to the two different situational classifications of Chinese verbs by Ma (1981) and by Chen (1988), this paper, combined with the Generalized Valence Mode by Zhan (1999), elaborates on a large number of linguistic facts related to “Chinese verb and ‘zai plus locative’ structure” and figures out the constraints on constructional transformations. Research results show that each observed linguistic fact can be categorized into and explained by one of the 13 substructures derived from two basic structures, in addition, in spite of the syntactic and semantic complexity of the “Chinese verb and ‘zai plus locative’ structure”, each observed linguistic fact and the corresponding constructional transformation can be explained through the semantic situation of the verb and the subcategorization of the verb. Constraints on transformation for sentences with locatives such as theme locative, agent locative, event locative, or entity locative are different, and constraints on transformation for sentences with verbs/VP such as action verb, state verb, V-zhe, or V-O vary greatly. The semantic feature analysis in this paper shed light on producing grammatical Chinese sentences of “zai plus locative” structure in teaching and learning Chinese as a first and second language.

Keywords—*zai plus locative; semantic feature analysis; semantic situation of verbs; subcategorization; constructional transformation*

I. INTRODUCTION

The Chinese character “zai” means “in, at, or on” in English. “zai + locative” sentence structure is the most common sentence structure in the space and position system. The semantic relation between “zai + locative” and the verbs are very complicated. The relative position between locative and the verbs, semantic function of the verbs and their following elements, the constraints on constructional transformation have a lot to do with the semantic situation and subcategorization of the verbs.

Many researches have been done on the “zai + locative” sentence structure in Chinese. When conducting semantic feature analysis of N + ‘zai + locative’ + V sentence structure, reference [1] intends to establish a structural framework of the space and position system through analyzing various concrete sentences of “zai + locative” structure. He demonstrates that it is helpful to get access to the category of the modern Chinese grammar by establishing the space and position system. It is an efficient way to establish a new grammar category by finding out the possibility of appropriate syntactic compositionality or distributive feature in terms of semantics.

When discussing the semantic function of ‘zai + locative’ and constraints on word order, reference [2] mentions that “zai + locative” is one of the grammar forms that express the category of adverbial locative. Because of the different semantic references, these locative categories can be different. The difference lies in the pre-locative and the post-locative. Because of these different of semantic senses and the constraints from the verbs, every locative category can be sub-classified into three contrasting semantic representations [starting point], [original point] and [terminal point]. The semantic function of “zai + locative” can be generalized as four kinds, namely, [-displacement] agent [original point], [-displacement] theme [original point], and [+displacement] agent [starting point], [+displacement] theme [terminal point]. In action verb sentence, those semantic functions are restricted by the Principle of Temporal Sequence (PTS) [3] or iconicity principle [4]. Some researchers, e.g. Shen (2010) [5], hold the view that the [+displacement] theme locative after a verb emphasizes diverting sites or a new condition.

When analyzing the staticlization conditions on verbs of ‘Gua’ Type, reference [6] demonstrated that the verbs of “Gua” type includes some verbs such as “gua, fang, chuan, cha, dai” and so on. Their common semantic characteristic is not only [+put], but also contains a staticlization. Thus it can be said that the verbs of “Gua” type not only indicate movements, but also express a staticlization under certain circumstances.

When elaborating on argument structure and constructional transformation, reference [7] classified

locative into event locative and entity locative. Event locative refers to the position where the action takes place, and entity locative refers to the position where the entity is. Event locative and entity locative possess different positions in sentences. They can be used with verbs of different situational types. Event locative can be used with verbs such as “xiao or zhao”. Entity locative can be used with verbs such as “zhan or xie”.

Reference [8] attributes the contrast of action and state to the contrast of semantic features of the predicates. From viewpoint of Constructional Transformation Theory, they points out that the reason why sentence like “Caiban shang fang zhe rou.” (On the chopping board lies a piece of meat.) could express existence and state is that there is an adherent position where the objects of these verbs can be placed. While the reason that sentence like “Tai shang yan zhe bangzixi.” can express activity and movement is that there is no adherent position where the objects of these verbs can be placed. Attention should be paid to whether the verbs have a semantic feature of adherent point or nor [8][9].

Though there are so many researches on “Chinese verbs and ‘zai + locative’ structure”, yet, in learning Chinese as a first or second language, we still could not provide a proper explanation for the ill-formedness of this sentence “*Ba ding zi qi zai qiang shang” (hammer the nail into the wall).

This paper, aiming to help correct and explain ill-formed sentences related to “Chinese verb and ‘zai + locative’ structure”, elaborates on “Chinese verbs and ‘zai + locative’ structure” and figures out the constraints on constructional transformations based on the semantic feature analysis theory on “zai + locative” demonstrated by [1].

II. TWO DIFFERENT SITUATIONAL CLASSIFICATIONS OF CHINESE VERBS BY MA (1981) AND BY CHEN (1988)

The situation of a sentence is fully determined by the situation of the main verb of the sentence. According to the

Generalized Valence Mode [10], the meaning of some sentences can be saturated only if the meaning of the main verb of the sentence is saturated. In Chinese, some verbs can not be used alone. They must be used with the other syntactic elements. In this paper the adverb “zhe” following the verb is treated as part of VP. The verb and “zhe” are taken as a whole in this semantic analysis.

Different researchers have presented different views on the distinction of verb-types [11]-[20]. Static verbs describe states, and dynamic verbs describe process and events. Durative and punctual verbs are distinguished in terms of time and telic and atelic verbs in terms of result. Chinese verbs inherently describe different situation types.

Chinese researchers have done considerable work on situational types, among which the most typical researches were done by [21] and by [22].

Reference [21] stated that the situation of a sentence is fully determined by the situation of the main verb of the sentence. He used three phases, namely, static, durative, and telic to classify verbs into four situational types V1, V2, V3, and V4, as can be seen in “Table I”.

TABLE I. SITUATIONAL CLASSIFICATION OF CHINESE VERBS (MA 1981)

	Static	Durative	Telic
V1	+	+	+
V2	-	+	+
V3	-	+	-
V4	-	-	+

Reference [22] stated that the situation of a sentence not only depends on the main verb of the sentence but also on other parts of the sentence. That is, although the main verb is the most important element in determining the sentence situation, other parts such as adverbs also have effect. Chen’s (1988) [22] classification is more detailed (as can be seen in “Table II”).

TABLE II. SITUATIONAL CLASSIFICATION OF CHINESE VERBS-TYPES (CHEN 1988)

NO.	Verb types	Instances
(1)	Attribute	shi (be), deng yu (equal)
(2)	Mental state	xiang xin (believe), bao qian (regret)
(3)	Position	zhan (stand), zuo (sit), tang (lie)
(4)	Action and Mental Activity	tiao (jump), xiang (think), cai (guess)
(5)	Verb-object Structure	du shu (read <books>), chang ge (sing <songs>)
(6)	Change	bian hua (change), cheng wei (become)
(7)	Directional Action	pao (run up), pa shang (climb on)
(8)	Instantaneous Change	si (die), tang (lie), duan (snap)
(9)	Instantaneous Action	zuo (sit), zhan (stand)
(10)	Verb-verb or Verb-adjective	tui dao (push down), qie sui (smash <into pieces>)

TABLE III. SITUATIONAL CLASSIFICATION OF CHINESE VERBS-SITUATION TYPES (CHEN 1988)

Phrase feature Situation types	Static	Durative	Telic	Verb type (See “Table II”)
State	+	-	-	(1) (2) (3)
Activity	-	+	-	(3) (4) (5)
Accomplishment	-	+	+	(3) (4)
Simple change	-	-	+	(6) (7)
Complex change	-	-	-	(8) (9) (10)

From the “Table III” above, we can find that some verb types such as (3) and (4) belong to more than one category,

so reference [22] use modifiers, auxiliary words and prepositions to eliminate the ambiguity.

TABLE IV. SITUATIONAL CLASSIFICATION OF CHINESE VERBS, USING MODIFIERS, AUXILIARY WORDS AND PREPOSITIONS (CHEN 1988)

	State			Activity	Accomplishment	Complex change	Simple change
	(1)	(2)	(3)				
Hen(very) +V	-	+	-	-	-	-	-
V+zhe	-	(-)	+	+	+	-	-
Zai+V	-	(-)	(-)	+	+	+	-
V+(le)+TO P+le(act)	-	-	-	+	+	+	-
V+(le)+TO P+le(state)	-	+	+	-	+	+	+
TQP: Time Quantity Phrase							

“Hen” is a pre-modifier. “Zai” is a preposition. And “le” is an auxiliary word. “Le” is an aspect marker in Chinese. From “Table IV” we can see that there is a close relation between the verbs and their following elements.

III. SEMANTIC RELATIONS BETWEEN AGENT LOCATIVE, THEME LOCATIVE AND THE VERB

As it is known the subcategorization of a verb plays a very important role in deciding what kind of complements the verb can take. The subcategorization of a verb also plays a key role in deciding the relative position of “zai + locative” and the verb in a sentence. Therefore, the relative position of

agent locative and theme locative is decided by the subcategorization of the verb.

A. Semantic Reference of “Zai plus locative” as Agent Locative and as Theme Locative

Semantic reference is a kind of relation between semantic elements. “Zai + locative” can be an obligatory or non-obligatory part responsible for the verb. Many researches have been done on the semantic relation between “zai + locative” and the verbs [23] [24]. “Zai + locative” can function as agent locative and theme locative [25]. The following two examples are listed to explain what agent locative and theme locative are.

(1a)	Ta	zai	jiaoshi	li	xie	zi.
	He	in	classroom	LOC	write	Chinese characters
	‘He is writing in the classroom.’					
(1b)	Ta	zai	heiban	shang	xie	zi.
	He	on	blackboard	LOC	write	Chinese characters
	‘He is writing on the blackboard.’					

“Zai jiaoshi li” (in the classroom) in (1a) “is an agent locative. The agent locative refers to the position where the agent is. In (1a) “ta” (he) is the agent. So “zai jiaoshi li” refers to the place where “ta” is. The “zai + locative” in (1b) is a theme locative. The theme locative refers to the position

where the theme is. So “zai heiban shang” (on the blackboard) refers to the place where “zi” (Chinese characters) is. It is noteworthy that these two different semantic functions may cause two contrasting semantic references [26], for instance,

(2)	Ta	zai	huoche	shang	xie	zi.
	He	on	train	LOC	write	Chinese characters
	‘He wrote some Chinese characters on the train.’					

“Zai huoche shang” (on the train) in (2) in may refer backwards to “ta” (he) or refer forwards to “zi” (Chinese characters). Is “ta” (he) “zai huoche shang” (on the train) or is “zi” (Chinese characters) “zai huo che shang” (on the train)? The contrasting meanings of the semantic reference in (2) are resulted from the two different semantic functions of “zai huoche shang”, that is, both the agent locative and theme locative functions of the PP “zai huoche shang”.

The omission of the main verb does not cause any semantic function disturbance to the agent locative. (1a) can be transformed into (3a). The omission of the main verb “xiezi” in (1a) does not cause any semantic function disturbance to the agent locative “zai jiaoshi li”. “Zai jiaoshi li” (in the classroom) still refers to the position where the

agent “ta” (he) is after the omission of the main verb “xiezi”. Here after the omission of the main verb “xiezi”, the preposition “zai” in (1a) functions as verb in (3a).

However, the omission of the main verb will cause a great semantic function disturbance to a theme locative. (1b) can not be transformed into (3b). Because “zai heiban shang” (on the blackboard) in (1b) in refers to the place where the theme “zi” (Chinese characters) is, and the one in (3b) refers to the place where the agent “ta” (he) is. (3b) is grammatical in terms of pure linguistic knowledge, but ungrammatical in terms of pragmatic meaning. A person may not be on blackboard according to our cognitive knowledge. Here after the omission of the main verb “xiezi”, the preposition “zai” in (1b) functions as verb in (3b).

(3a)	Ta He	zai in	jiaoshi classroom	li. LOC
'He is in the classroom.'				
(3b)	*Ta He	zai on	heiban blackboard	shang. LOC

Agent locative can not be placed after the main verb, e.g. (1a) cannot be transformed into (4a). While theme locative

can be placed after the main verb, e.g. (1b) can be transformed into (4b).

(4a)	*Ta He	ba make	zi Chinese characters	xie write	zai in	jiaoshi classroom	li. LOC
(4b)	Ta He	ba make	zi Chinese characters	xie write	zai on	heiban blackboard	shang. LOC
'He made the Chinese characters written on the blackboard.'							

B. Agent Locative, Theme Locative and Subcategorization of the Main Verb

Generally speaking, the semantic function between the agent locative and the main verb is not so close as that between the theme locative and the main verb.

Agent locative can be used before a variety of verbs freely, and its semantic function is not restricted by the main verb. Agent locative is not an obligatory part responsible for the verb, e.g.

(5a)	Ta He	zai in	jiaoshi classroom	li LOC	changge. sing song
'He is singing in the classroom.'					
(5b)	Ta She	zai in front of	zhuangtai dressing table	qian LOC	shu toufa. comb hair
'She is combing her hair in front of the dressing table.'					

In these cases (5a-b), “zai jiaoshi li” and “zai zhuangtai qian” are both agent locatives. They can be used freely before verbs like “changge” and “shu toufa” respectively.

While theme locative has a close relation with the main verb and its semantic function is restricted by the main verb. Every theme locative has three contrasting representations,

theme [starting point], theme [original point] and theme [terminal point] [27]. We take the PP “zai caiban shang” (on the chopping board) as an example to interpret this relation and express these three representations. “Zai caiban shang” only has lexical meaning but no semantic sense when it is used alone. However, when it is used with verbs, it has three different semantic senses, e.g.

different semantic senses, e.g.						
(6a)	Zai On	caiban chopping board	shang LOC	fang-le put-Asp	rou a piece of meat	
'Put a piece of meat onto the chopping board.'						
(6b)	Zai From	caiban chopping board	shang LOC	na-le fetch-Asp	kuai a piece of	rou meat
'Fetch a piece of meat from the chopping board.'						
(6c)	Zai On	caiban chopping board	shang LOC	duo chop up	rou meat	
'Chop up the meat on the chopping board.'						

According to the Generalized Valence Mode [10], “fang” is a three-place argument verb. In (6a), “Zai caiban shang” is one of the verb’s ([fang] put) arguments. Based on the subcategorization of the verb “fang”, we know that “rou” acts as the theme role of the verb “fang” and “zai caiban shang” is the [adherence point] of the theme “rou”. Here “zai caiban shang” is a [terminal point] in terms of semantic function. “Zai + locative” like “zai caiban shang” interpreted as [terminal point] can co-occur with verbs like [fang] (put), which can express the displacement of the object.

“Na” is a two-place argument verb. In (6b), “rou” is one of its arguments and acts as its theme role. “Zai caiban shang” in (6b) means the place from where the “rou” is fetched. Therefore, we can say that “zai caiban shang” in (6b) is the [starting point] of the action. “Zai + locative” like “zai cai ban shang” interpreted as a [starting point] can co-occur with verbs like [na] (fetch | leave).

“Duo” is a two-place argument verb. In (6c), “rou” is one of its argument and act as its theme role. “Zai caiban shang” in (6c) is the place where the “rou” is chopped up. There is no displacement of “rou”. Therefore, “zai caiban shang” in (6c) is the [original point] of the action. “Zai + locative” like “zai caiban shang” interpreted as an [original point] can co-occur with verbs like [duo] (chop up).

We can make a summarization: there are three sharp contrasting representations of theme locative, namely, theme [starting point], theme [original point] and theme [terminal point]. The semantic senses of these three representations can be explained with regard to the subcategorization of the main verb of the sentence.

C. Constraints on Action Verb Sentence Transformation and State Verb Sentence Transformation

It is assumed that there are two basic sentence structures, that is, Basic Structure A “N + L (esp. zai + locative) + V” (hereafter, Basic Structure A) and Basic Structure B “N + V + L (esp. zai + locative)” (Basic Structure B). All the substructures in the rest part of this paper are derived from these two basic structures.

“Zai + locative” can be used with action verbs, static verbs etc. The examples in “a” of (7-12) are of “substructure ①”, and the ones in “b” of (7-12) are of “substructure ②”.

(7a)	S.P.	Xiaohouzi Little monkey	cong from	mabei horseback	shang LOC	tiao xialai.→ jump down
(7b)		*Xiaohouzi little monkey	tiao jump	zai on	mabei horseback	shang. LOC
(8a)	O.P.	Ta He	zai in	jiaoshi classroom	li LOC	changge. → sing song
(8b)		*Ta He	changge sing song	zai in	jiaoshi classroom	li. LOC
(9a)	T.P.	Xiaohouzi Little monkey	wang up onto	mabei horseback	shang LOC	tiao. → jump
(9b)		Xiaohouzi Little monkey	tiao jump	zai onto	mabei horseback	shang. LOC

The locatives of (7a), (8a) and (9a) are all agent locatives. Agent locative refers to the location where the agent is. They are all placed after the agents, thus can be called post locatives. As mentioned above, agent locative can not be placed after verb. Thus the sentences (7a) and (8a)

can not be transformed into sentences (7b) and (8b) respectively. While Sentence (9a) can be transformed into (9b), this will be explained in the following part.

In the following are some other action verb sentences with pre-locatives.

(10a)	S.P.	Ta He	zai onto	qiangshang wall LOC	gua hang	hua.→ picture
(10b)		*Ta He	gua hang	hua picture	zai onto	qiang shang. wall LOC
(11a)	O.P.	Ta He	zai in	pen basin	li LOC	xi wash
(11b)		*Ta He	xi wash	yifu clothes	zai in	pen basin
(12a)	T.P.	Ta He	zai on	heiban blackboard	shang LOC	xiezi. → write
(12b)		Ta ba zi He make Chinese characters	xie zai heiban write on blackboard	shang. LOC		

The locatives of (10a), (11a), and (12a) are all theme locatives. Theme locative refers to the location where the theme is. They are all placed before the theme, thus can be called pre-locatives. As mentioned in the previous section, theme locative can be placed before verb in “ba” sentence structure. Sentence (12a) can be transformed into (12b). However, the sentences (10a) and (11a) can not be transformed into sentences (10b) and (11b) respectively. This will be explained in the following part.

No matter what the semantic senses of the locatives in these two sentence structures are, “substructure ① N + L +

[action] V” can be transformed into “substructure ② N + [action] V + L” only when the locatives in these sentences are interpreted as [terminal point]. “Cong mabei shang” in (7a) and “zai qiangshang” in (10a) are both [starting point], thus (7a) and (10a) of substructure ① can not be transformed into (7b) or (10b) of substructure ②. The locatives in (8a) and (11a) are both [original point], therefore (8a) and (11a) can not be transformed into (8b) or (11b) of substructure ②. However, “wang mabei shang” in (9a) and “zai heiban shang” in (12a) are both [terminal point], thus (9a) and (12a)

can be transformed into (9b) and (12b) of substructure ② respectively.

Next, a semantic feature analysis of some sentences with state verbs is made.

The syntactic and semantic function of the “zai + locative” in the state verb sentence is totally different from that in the action verb sentence. The position of locative is not influenced by the semantic function of the locative in the

(13a)	Bingren The patient	zai in	chuang shang bed LOC	tang-zhe. lie-Asp
(13b)	Bingren The patient	tang lie	zai in	chuang shang. bed LOC
(13b)	Chuang In bed	shang LOC	tang-zhe lie-Asp	bingren. patient

(13a-c) all mean “There is a patient lying in bed.” “Tang (zhe)” is a state verb, thus (13a-c) are all state verb sentences.

(14a)	Hua Picture	zai on	qiang shang wall LOC	gua-zhe. hang-Asp
(14b)	Hua Picture	gua hang	zai on	qiang shang. wall LOC
(14c)	Qiang On wall	shang LOC	gua-zhe hang-Asp	hua. picture

(14a-c) all mean “There is a picture being hung on the wall.” “Gua (zhe)” is a state verb, thus (14a-c) are all state verb sentences. The position of the locative “zai qiang shang” and “qiang shang” are not restricted by their semantic functions [28].

It is noticed that the “substructure ④ N + [state] V + L” of these state verb sentences is similar to the “substructure ② N + [action] V + L” of the action verb sentences. If we only look at the surface representations of the action verb and state verb sentences, we can not tell the reason why some sentences of “N + V + L” structures are grammatical while some are not. With the help of semantic feature analysis, we know and explain better.

(15a)	*Jige ren Several people	zai on	lu road	shang LOC	zou. walk
*‘There are several people walk on the road.’					
(15b)	*Ta He	zai on	feiji plane	shang LOC	kan. look
*‘He is looking at on the plane.’					
(15c)	*Yifuhua A picture	zai on	qiang wall	shang LOC	gua. hang
*‘There is a picture hang on the wall.’					

(15a) and (15c) are ungrammatical, because the meanings of the sentence are not saturated. The meanings of these sentences can be saturated only if these verbs take as their complements another syntactic element such as “zhe”, an aspect marker in Chinese [29;30]. (15b) is ungrammatical

state verb sentence. These kinds of state verb sentences can be classified into three sentence structures:

③ N + L + [state] V

④ N + [state] V + L

⑤ L + [state] V + N

See the following examples:

The position of the locative “zai chuang shang” and “chuang shang” are not restricted by their semantic functions.

IV. SEMANTIC FEATURE ANALYSIS OF “VERB PLUS ZHE” AND “VERB PLUS OBJECT” IN DIFFERENT STRUCTURES

This part makes semantic feature analysis of the verb in the Basic Structure A “N + L (esp. zai + locative) + V”, concerning the three variants of “verb + zhe” and “verb + object”.

A. Semantic Feature Analysis of “Verb + Zhe” Variants and “Verb + Object” in the Basic Structure A “N + Zai + Locative + V”

The basic syntactic structure A “N + L (esp. zai + locative) + V” can be easily established in theory. However, we need to know more to explain the following ill-formed sentences (15a-c) in practice.

because “kan” in (15b) is a two-place verb. This two-place verb selects an object as its complement. However, there is no object following the verb “kan” in (15b).

While in our daily life, we produce sentences such as:

(16a)	Jige ren Several people	zai on	lu road	shang LOC	zouzhe. walk-Asp	
'There are several people walking on the road.'						
(16b)	Ta He	zai on	feiji plane	shang LOC	kan look	hai. sea
'He is looking at the sea on the plane.'						

(16c)	Yifuhua A picture	zai on	qiang wall	shang LOC	guazhe. hang-Asp
'There is a picture being hung on the wall.'					

Therefore, the basic syntactic structure A “N + L (esp. zai + locative) +V” can be established practically and used widely on the condition that there is another syntactic element following the verb. Based on our observation, Basic Structure A can be interpreted as the following two substructures.

⑥ N + zai +locative + V + zhe [or V + zhe]

⑦ N1 + zai + locative + V + N2 [or V + O]

The syntactic elements following the verbs in substructure ⑥ and ⑦ are different. In order to make the matter simpler, we use “V + zhe” short for substructure ⑥, and “V + O” short for substructure ⑦. There is only one verb in ⑥ or in ⑦.

(17)	Ta He	zai onto	wuliang roof beam	shang LOC	gua hang	denglong. lantern
'He hung a lantern onto the roof beam.'						

The syntactic form of ⑥ can be transformed into “V + zhe + de + N” (here, “de” is a genitive expression), for example, (16c) can be transformed into (18). While sentence of structure ⑦ can not necessarily be transformed into the

In terms of time, “zhe”, the element following the verb, marks the durativeness of action. “Zhe” is an auxiliary. It can be used after verbs or adjectives, expressing the durativeness of action or state. “V + zhe” can be described as [+telic], [+durative], while “V + O” can be described as [+telic], [-durative] [28; 30]. For instance, “zou” in (16a) means that the action of walking has been accomplished, however, because of the effect of the word “zhe”, the action of walking will last for a period of time. The verb has been interpreted as a verb expressing a durative state. Things go different for sentence of substructure ⑦ V + O. The verb “gua” (hung) in the VP “gua denglong” (hung a lantern) expresses the state of the accomplishment of the action “hanging”. The action “hanging” has made the lantern hung on the roof beam. The verb does not express any durative state.

“V + zhe + de + N” structure, for example, (16b) can not be transformed into (19), in addition, (20a) can not be transformed into (20b).

(18)	Gua zhe de hua 'A picture that is being hung'				
(19)	*Kan zhe de ta / *kan zhe de hai *A looking he / *a looking sea				
(20a)	Ta He	<i>zai</i> in	shufang study	li LOC	xiexin.→ write letters
'He is writing letters in the study.'					
(20b)	*Xie zhe de ta / *xie zhe de xin *A writing he / *writing letters				

In terms of space, “V + zhe” can be described as [-displacement], [+state] and “V + O” can be described as [-displacement], [-state]. According to the analysis of semantic features of verbs by [1], “V + zhe” can be interpreted as the following two substructures because of its internal semantic differences: “V + zhe1” and “V + zhe2”. In the “V + zhe1” structure, “zai + locative” means the location where the object is placed; and in the “V + zhe2” structure, “zai + locative” means the location where the action takes place. Therefore, (16c) “Yifuhua zai qiangshang guazhe.” is of “V

+ zhe1” type, because the locative “zai qiangshang” here refers to the place where “yifuhua” is placed and (16a) “jigeren zai lushang zouzhe.” is of “V + zhe2” type, because the locative “zai lushang” here refers to the place where the action “walking” happens.

“V + zhe1” can be transformed into Basic Structure B “N + V + L (esp. zai + locative), for example, (16c) can be transformed into (21). Both (16c) and (21) mean “There is a picture being hung on the wall.”

(21)	Yifuhua A picture	gua hang	zai on	qiang shang. wall LOC
'There is a picture being hung on the wall.'				

While “V + zhe2” can not be transformed into Basic Structure B “N + V + L (esp. zai + locative), for example, (16a) can not be transformed into (22).

(22)	*Jigeren Several people	zou walk	zai on	lu road	shang. LOC
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“V + zhe2” can only undergo transformation by adding “zheng” (just) before “zai + locative”, and its sentence

meaning remains unchanged, for example, (16a) can be transformed into (23).

(23)	Jigeren Several people 'There are several people just walking on the road.'	zheng just	zai on	Lu shang road LOC	zou zhe. walk
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We can make a summarization of semantic feature analysis of the verb in the Basic Structure A “N + L (esp. zai

+ locative) + V”, concerning the three variants of “verb + zhe” as following:

TABLE V. SEMANTIC ANALYSIS OF THE “V + ZHE” VARIANTS AND “V + O” (ADOPTED FROM QI 1994, P. 27)

		V + zhe		V + O
		V + zhe1	V + zhe2	
Time	Telic	+	+	+
	Durative	+	+	-
Space	Displacement	-	-	-
	State	+	-	-

B. Semantic Feature Analysis of “Verb Plus Zhe” Variants in the Structure “L + V + Zhe + N”

There is one verb in “L + V + zhe + N”. Here, “zhe” is also an aspect marker, expressing the durative state of the

action. We take “V + zhe” as a whole when discussing the semantic meaning of the verb. See the following examples (adopted from [31]):

(24a)	Tai On rostrum 'Seated on the rostrum are the presidium.'	shang LOC	zuozhe seat-Asp	zhuxituan. presidium
(24b)	Tai On stage 'The clapper opera is shown on the stage.'	shang LOC	yanzhe show-Asp	bangzixi. clapper opera
(24c)	Malu On road 'A crowd of people are walking on the road.'	shang LOC	zouzhe walk-Asp	yiqunren. a crowd of people

According to [31], though these three sentences are of the same sentence structure, yet, the internal implied semantic relations between the verbs and the locative are different. (24a), (24b), (24c) are of V + zhe1 type, V + zhe2 type, V + zhe3 type respectively. The three “V + zhe” variants in the Structure “L + V + zhe + N” are as follows:

⑧ L + V + zhe1 + N: nonaction verb; durative; nondisplacement; The NP after the verb may be a theme or an agent, e.g.

(25a)	Guizi In cupboard 'The wine is hidden in the cupboard.'	li LOC	changzhe hide-Asp	putaojiu. wine
(25b)	Menwai Outside by the door LOC 'There are two persons standing outside by the door.'		zhanzhe stand-Asp	lianggeren two persons

The main verb “changzhe” (is hidden) in (25a) is a verb featured as [-action], [+durative] and [-displacement]. The NP “putaojiu” (wine) occurring after the verb “changzhe” (is hidden) is a theme.

“Zhanzhe” (are standing) in (25b) is a verb featured as [-action], [+durative] and [-displacement]. The NP “lianggeren” (two persons) after the verb is an agent.

⑨ Locative + V + zhe2 + N: action verb; durative; non-displacement; The NP after the verb must be a theme, e.g.

(26)	Xiyiji Washing machine 'The clothes are washed in the washing machine.'	li LOC	xizhe wash-Asp	yifu clothes
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In (26), “xizhe” is a verb featured as [+action], [+durative] and [-displacement]. The noun “yifu” occurring after the VP “xizhe” is a theme.

⑩ Locative + V + zhe3 + N: action; durative; displacement; The noun occurring after the V can not be a theme, but must be an agent, e.g.

(27)	Yingou In sewer 'There are many worms wriggling in the sewer.'	li LOC	pazhe wriggle	xuduo many	xiaochong. little worms
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In (27), “pazhe” (are wriggling) is a verb featured as [+action], [+durative] and [+displacement]. The NP “xuduo xiaochongzi” (many worms) occurring after the verb “pazhe” (are wriggling) is an agent.

In the following, the circumstances under which the “L + V + zhe + N” structure can transform into the Basic Structure B “N + V + L (esp. zai + locative)” are discussed.

Firstly, substructure ⑧ “Locative + V + zhe1 + N” can be transformed into “N + V + zai + locative”, e.g. (25a) → (28a); (25b) → (28b).

(28a)	Putaojiu Wine	chang hide	zai in	guizili cupboard LOC
	‘The wine is hidden in the cupboard.’			
(28b)	Lianggeren Two persons	zhan stand	zai outside by the door	men wai LOC
	‘There are two persons standing outside by the door.’			

Secondly, sbustructure ⑨ “Locative + V + zhe2 + N” can not be transformed into “N + V + zai + locative”, e.g. (26) can not be transformed into (29).

(29)	*Yifu Clothes	xi wash	zai xiyiji in washing machine	li. LOC
	‘The clothes are washed in the washing machine.’			

Thirdly, sbustructure ⑩ “Locative + V + zhe3 + N” can be transformed into “N + V + zai + locative”, or cannot be transformed into this sentence structure, e.g. (24c) → (30) or (27) can not be transformed into (31).

(30)	Yiqunren A crowd of people	zheng zou just walk	zai malu shang on road LOC
	‘A crowd of people are walking on the road.’		
(31)	*Xuduo Many	xiaochong little worms	pa zai yingou li. wriggle in sewer LOC

Based on the semantic features of the verbs and variants of “zhe”, we can make a summarization:

The existential sentence with an [-action] verb and “zhe” can be transformed into sentence of “N + V + zai + locative” structure.

The existential sentence with an [+action], [-displacement] verb and “zhe” can not be transformed into sentence of “N + V + zai + locative” structure.

The existential sentence with an [+action], [+displacement] verb and “zhe” can be transformed into sentence of “N + V + zai + locative” structure when the agent of the sentence is a person; but cannot when the agent is something.

V. CONSTRAINTS ON THE TRANSFORMATION OF THE SENTENCES WITH EVENT LOCATIVE AND ENTITY LOCATIVE

Event locative and entity locative possess different positions in a sentence. They can be used with verbs of different situational types, verbs such as [xiao | zhao] or [zhan | xie] [7].

The locative around verbs has different semantic functions. Some of them may refer to the “space” where the action takes place. They can be named “event locative”. Some of them may refer to the “place” where the entities are. They are called “entity locative”. Event locative and entity locative possess different position in sentences. In this section, we will discuss the three different positions of the “zai + locative” or “locative” in various sentences.

See the following examples:

(32a)	*Zai Out of	chuang window	wai LOC	xiayu rain	
(32b)	Chuang Out of window 'It is raining outside.'		wai LOC	xia <i>zhe</i> yu rain	
(32c)	*Ba Make	yu rain	xia rain	zai out of	chuang window wai LOC
(33a)	*Zai At	menkou door LOC	zhan stand	ren people	
(33b)	Menkou At door LOC 'There are some people standing at the door.'		zhan <i>zhe</i> stand-Asp	ren people	
(33c)	*Ba Make	ren people	zhan stand	zai at	menkou door LOC
(34a)	*Zai On	tai shang rostrum LOC		zuoz <i>zhe</i> seat-Asp	zhuxituan presidium

(34b)	Tai On rostrum 'Seated on the rostrum are the presidium.'	shang LOC	zuozhe seat-Asp	zhuxituan presidium	
(34c)	*Ba Make	zhuxituan presidium	zuo sit	zai tai shang At rostrum LOC	
(35a)	*Zai On	di floor	shang LOC	xiao pare	tudoupi potato peel
(35b)	*Di Floor	shang LOC	xiao zhe Pare-Asp	tu dou pi potato peel	
(35c)	Ba Make 'Pare the potato peel down onto the floor.'	tudoupi potato peel	xiao pare	zai on	dishang floor LOC
(36a)	Zai On 'Write on the blackboard'	heiban shang blackboard LOC		xie zi write Chinese characters	
(36b)	Heiban shang xiezhe zi Blackboard LOC write-Asp Chinese characters 'There are some Chinese characters written on the blackboard.'				
(36c)	Zhangsan A person's name 'Zhangsan writes on the blackboard.'	ba zi make Chinese characters write on blackboard LOC	xie zai heiban shang.		
(37a)	Zai In 'Look for books in the library.'	tushuguan library LOC	zhaoshu look for books		
(37b)	*Tushuguan Library LOC		zhaozhe look for-Asp	shu book	
(37c)	*Ta He	ba make	shu book	zhao look for	zai tushuguan in library LOC

Based on our observation, we know that there are three kinds of sentence structures in these examples:

① Zai + L + V + N

② L + V + zhe + N

③ Ba + N + V + zai + L (The noun before “ba” is omitted.)

The locative appears before the verbs in ① and ②, while the locative appears after the verb in ③. Generally speaking, the locative that has semantic relation with verbs like “xiao” (peel), or “zhao” (look for) is event locative. The event locative must appear before the verb (38a), for example,

(38a)	Zhangsan zai chufang A person's name in kitchen LOC pare potatoes 'Zhangsan is paring potatoes in the kitchen.'	li	xiao	tudou.
(38b)	Zhangsan ba A person's name make	tudoupi potato peel	xiao pare	zai di shang. on floor LOC
	'Zhangsan pared the potato peel down onto the floor.'			

In (38a) the locative “zai chufang li” (in the kitchen) occurs before the verb “xiao”. That Zhang san is paring potatoes is an event. This event takes place in the kitchen. We do not concern about the position of the “tudou” (potatoes). However after the event has been accomplished, the potato peel will fall down onto the floor. This is an obvious change. We can describe this change through constructional transformation by making use of substructure ③, thus we can produce the expression (38b) instead of (38a).

Because the action denoted by the verbs like “zhao” (look for) does not cause any change to the entity in a sentence. And there is no obvious position change of an

entity. Therefore, verbs like “zhao” can not co-occur with entity locative. Thus sentence (37c) is ungrammatical.

Locative that has semantic relation with verbs like “zhan” and “xie” can be interpreted as event locative or entity locative when it occurs before verbs; and can only be interpreted as entity locative when it occurs after verbs. This kind of entity locative appearing after verbs can be subdivided into more detailed semantic functions, for instance, (39a) can be subdivide into (39b) and (39c).

(39a)	Yifu Clothes	fang be	chouti in drawer	li LOC	
(39b)	Yifu Clothes	fang be	zai in	chouti drawer	li LOC
	'The clothes are in the drawer.'				
(39c)	Yifu Clothes	fang put	dao into	chouti drawer	li LOC
	'The clothes are put into the drawer.'				

The locative “chouti li” in (39a) is an entity locative, because it refers to the place where the things “clothes” are and occurs after the verb “fang”. “Choutili” in (39b) is a static entity locative and the one in (39c) is a dynamic entity locative or terminal entity locative. It is important to know that psyche verbs like “understand” or “think” are excluded from structure ①, ② or ③.

VI. CONCLUSION

The syntactic and semantic functions of “zai + locative” are very complex. It is one of the most controversial sentence structure on which many researches have been done. There are quite a lot of achievements related to this structure. However, in teaching and learning Chinese as a first or second language, for the ill-formed sentences, like “*Ta ba zi xie zai jiaoshi li.” (*He made the Chinese characters written in the classroom), we still can not provide appropriate and exhaustive explanation for the illformedness.

This paper bases its theoretical foundation on semantic feature analysis, with reference to different situational classifications of verbs, combined with the Generalized Valence Mode, elaborates on a large number of linguistic facts related to “Chinese verb and ‘zai + locative’ structure” and figures out the constraints on constructional transformations. This paper deals with sentences with locatives such as theme locative, agent locative, event locative, or entity locative, and sentences with verbs/VP such as action verb, state verb, V-zhe, or V-O. This paper illustrates the semantic features of verbs and their following elements, i.e., the variants of “zhe”. It surveys on constructional transformations from the viewpoint of subcategorization of verbs, and the situational types of verbs. In this paper, each observed linguistic fact and the corresponding constructional transformation is explained through the semantic situation of the verb and the subcategorization of the verb.

This paper has three main findings: the semantic relations between agent locative, theme locative and the verb; the semantic feature of “verb + zhe” and “verb + object” in different structures; the classification of 13 substructures derived from two basic structures.

These analyses may provide a better guideline for us to avoid making ill-formed sentences and produce more well-formed sentences. However, due to the limit of time and knowledge, there are many questions remained unsolved in this paper, e.g. To what extent the subcategorization and the semantic situation of the Chinese verbs can decide the position of “zai + locative”? How to make better use of the three contrasting semantic representations of theme locative? It is hoped that more researches will be conducted into this field in future.

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