Event Coercion of Mandarin Chinese Temporal Connective \textit{hou} ‘after’

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Abstract

Unlike its English equivalent \textit{after}, which often takes NP complement, Chinese temporal connective \textit{hou} tends to take VP complement. In terms of type coercion, while \textit{after} seems to generally license event coercion, Chinese \textit{hou} does not (with a few exceptions), as in most cases the presence of a verb is required for the \textit{hou}-construction (and the sentence) to be correct. Rather than attributing this difference to the different lexicalization of nouns in these two languages, this paper argues that it is due to the difference between \textit{hou} and \textit{after}. In particular, \textit{hou} is weaker in its coercion force than \textit{after} because of its polysemy. It is either a temporal connective or a locative connective.

1 Introduction

Natural language often leaves many meaning facets unexpressed in the surface form, which will lead to type-mismatch, underspecification or semantic incongruity. For example, there is some covert event meaning in the sequence in (1), which must be recovered in understanding or interpretation. Type mismatch occurs because \textit{the book} is an entity type and \textit{begin} requires its complement to be an event type.

(1) John began the book.

The theory of Generative Lexicon (Pustejovsky,1995,2001,2006) proposes in particular that the mismatch is solved by the operation of type coercion, which is defined as follows (Pustejovsky, 1995: 111).

(2) Type Coercion

A semantic operation that converts an argument to the type which is expected by a function where it would otherwise result in a type error.

It is redefined as (3) (Pustejovsky, 2006).

(3)Type Coercion: the type a function requires is imposed on the argument type. This is accomplished by either:

①Exploitation: taking a part of the argument’s type to satisfy the function;

②Introduction: wrapping the argument with the type required by the function.

In essence, it confers to the predicate the ability to change the argument type. The eventive verb \textit{begin} in (1) coerces its argument to assume an event type (i.e. \textit{read/write the book}) from an entity type (i.e. \textit{the book}). \textit{Read} and \textit{write} are the telic role and agentive role of \textit{book} respectively. The type coercion discussed above will be called event coercion below, which makes an entity type shift to an event type.

Similarly, some temporal connectives can coerce its complement to be an event type. Consider the following examples. Some events like \textit{eating dessert} and \textit{drinking coffee} can be reconstructed respectively (Pustejovsky, 1995:231).

(4) Let’s leave after dessert.

(5) Let’s leave after the coffee.
is a case of French temporal connective après (Godard & Jayez, 1993).

Après ce livre, je me seas fatigué.

After this book I feel tired.

Lin & Liu (2005) claim that most of the coercion mechanisms postulated by GL do not seem to work in Mandarin Chinese. While event coercion mechanism works in English as shown in (1), it does not in Mandarin Chinese as shown in (7). To obtain a grammatical expression, a verb such as ‘read’ or ‘write’ must be explicitly provided.

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However, other researches paint a different picture. According to Huang & Ahrens (2003), Liu (2005), Lin et al. (2009), Song(2011a, 2011b), coercion is a universal linguistics mechanism and pervasive in Mandarin Chinese which is exemplified by (8). 赶 ‘rush’ is an eventive verb like begin.

The argument types of hou can be classified into intervals, events and entities. As a temporal connective, hou normally selects for an interval type argument as its complement as in (9). 十点 ‘ten o’clock’ refers to a point of time and 三天 ‘three days’ refers to a period of time, respectively. Here the mechanism at work is pure selection since the type requirement of of hou is satisfied directly.

Secondly, expressions denoting events can combine with hou naturally because time is the basic element of event and an event always extends over time. See the following examples.

To my knowledge, so far no study on Chinese temporal connectives has been done from the perspective of type coercion. Based on data from bilingual corpora, this paper aims to show that event coercion of hou is not as pervasive as that of its English equivalent after and give an explanation for the phenomenon.

The event-denoting expression can be an NP involving an event nominal (会 ‘meeting’) as in (10) or a VP (写完论文 ‘finishing the paper’) as in (11). Here hou coerces an event to shift to an interval.

Finally, some nouns denoting entities such as 酒 ‘wine’ can be a complement of hou occasionally. For the case in (12), the NP 三杯马提尼 ‘three martinis’ does not satisfy the type required by the temporal connective hou since it denotes entities, but the sentence is acceptable. It is
because *hou* coerces the NP into obtaining an event denotation, one which is available from the NP’s qualia structure. That is, an event reading such as 喝完三杯马提尼后 *he wan san bei matini hou* ‘after drinking three martinis’ can be reconstructed. 喝‘drink’ is the telic qualia of the 酒. Type Coercion as defined in (2) and (3) makes this possible. Here an entity shifts to an event.

(12) 三 杯 马提尼 后, 约翰 感觉 好 了。 san bei matini hou yuehan ganjue hao le  
‘After three martinis John felt well.’

In this paper, I confine my research to an analysis of the type coercion as shown in (12), i.e. event coercion. I will illustrate how *hou* and *after* are different in event coercion and further explain where the difference comes from.

### 3 A Comparison of *hou* and *after*

In this section I will take advantage of bilingual corpora to compare *hou* and *after*. My analysis is based on Chinese-English bilingual Corpus of Peking University and Jukuu Chinese-English bilingual Corpus. Also, a few data are collected by informants’ intuition.

In section 2, I classify the kinds of complement of *hou*. At a first glance it seems that there is no significant difference between *hou* and *after* since both of them can take interval, event and entity type complement. To put it in another way, both basically select for the arguments of type interval and event, and can license event coercion whereby an entity type shifts to an event type. However, the data from bilingual corpora show that event coercion of *hou* is not so pervasive as that of *after*. *hou* tends to take VP rather than NP complement when the complement nouns are entity type. My analysis focuses on this type. In addition, the complex type of *physobj•event* will be touched on.

#### 3.1 Entity Type Nouns

*hou* can’t combine with entity type nouns as freely as *after* can. Data show the frequency of event coercion involving *hou* in the bilingual corpora is very low, suggesting that it is not a pervasive phenomenon. Actually, no relevant instances of [entity type noun+ *hou*] construction were found in both bilingual corpora, whereas 23 instances of [after+ entity type noun] construction were found. All the missing verbs in English sentences appear overtly in the corresponding Chinese sentences. See the following examples.

(13) 喝 了 几 杯 马提尼酒 后,  
he le ji bei matinijiu hou  
‘He played best after a couple of martinis.’

(14) 吃 过 中餐 后, 来 一 杯  
chi guo zhongcan hou lai yi bei  
‘after a Chinese food a cup of green tea is perfect.’

(15) 通过 海关 之后, 你 必须  
tongguo haiguan zhihou ni bixu  
‘After the Customs, you must show your passport to the office at Immigration.’

In (13), the verb 喝 ‘drink’ shows up although the Chinese sentence is still allowed without it. In (14) and (15), the verbs 吃 ‘eat’ and 通过 ‘go through’ can’t be absent. Otherwise the *hou*-construction (and the sentence) would be ungrammatical. In most cases, the construction of [after + entity type noun] can’t be translated into Chinese word for word and a verb must be explicitly provided to obtain a grammatical expression. More examples are presented in (18).
In the above cases, the complements of *hou* are VPs and the verbs (and aspectual markers) in italics must be present. The complements of *after*, however, are NPs.

To confirm further the frequency of [entity type noun*+* hou] construction, I have consulted Modern Chinese corpus of Peking University which consists of more than 1.5 hundred million words. As a result, only 2 instances are found which is presented below. In these cases, coercion can facilitate type satisfaction and an event reading can be recovered from the complement nouns. The hidden verb is *烧* *shao* ‘burn’ in (16) and *喝* *he* ‘drink’ in (17), which are the telic role of *香* *xiang* ‘incense’ and *酒* *jiu* ‘wine’ respectively.

Note that the cardinal-classifier phrase in (16) can’t be deleted, otherwise error will occur. Namely, 香后 is impossible as shown in (18c). Although 酒后 is grammatical in Mandarin Chinese, it is a compound and can’t combine with other words freely. It is usually used in some fixed expressions like four- character idioms, e.g. 酒后驾车 *jiuhoujiache* ‘drive after having drunk’. Moreover, not all the imaginable occurrences of the sequence [bare noun*+* hou] are allowed as shown in (18c-d). According to my data, only 酒后 and 茶后 are possible.

(16) 一炷香后，和尚推开了 yi zhu xiang hou heshang tui le one CL incense after monk push open ASP
门。men
doors
‘After one stick of incense burnt out, the monk pushed open the door.’

(17) 于是三杯酒后，就说:  yushi san bei jiu hou jiu shuo then three CL wine after EMP say “你太太真像Nancy Caro11。” ni de taitai zhen xiang Nancy Caro11 you POSS wife very like Nancy Caro11 ‘Then after three glasses of wine, (he) said “your wife is just like Nancy Caro11”’

(18) a. 酒后jiuhou ‘after drinking’  
   b. 茶后chahou ‘after tea’  
   c. *香后xianghou*  
      literal translation: incense after  
   d. *咖啡后kafeihou* ‘after coffee’

It appears that the [cardinal + CL + N+hou] construction can license event coercion as both一炷香 and 三杯酒 are sequences of this kind of construction. However, it is not so for all the imaginable occurrences of construction. Hou imposes some restrictions on this construction. Firstly, the [cardinal +classifier +N] construction has no definite reading and only indefinite reading is available. Secondly, generally speaking, the cardinals involved in this construction are limited to 半*ban* ‘half’, 一*yi* ‘one’, 二*er* ‘two’ and 三*san*
‘three’, and the nouns are limited to those denoting incenses, liquors and teas. (19) is acceptable but it means ‘behind the three books’. Here hou/zhihou is not a temporal connective but a locative connective.

(19) 三本书 后 之后
san ben shu hou/zhihou
three CL book behind
‘behind the three books’

3.2 Complex Type Nouns

It seems that some nouns denoting to other entities can be complement of hou as shown in (20a). 早餐 zaocan ‘breakfast’ can refer to food, so it can be a entity type. Oddly enough, (20b) is not allowed even though 中餐 zhongcan ‘Chinese food’ also refers to food.

(20) a. 早餐 以后，我们 去 巡视
zaocan yihou women qu xunshi
breakfast after we go make-a-tour
柏林墙。
bolinqiang
Berlin Wall
‘After breakfast we made a tour of the Wall.’

b. *中餐 后
zhongcan hou
Chinese food after
‘after Chinese food’

It is because these two nouns belong to different types. 中 餐 zhongcan ‘Chinese food’ is an artifactual type and only refers to an entity, while 早餐 zaocan ‘breakfast’ is a complex type and refers to more than one aspect, an entity or an event. It identifies both an eventuality of eating and the physical manifestation of food: event•food. (20a) is acceptable because coercion by dot exploitation takes place (cf. Pustejovsky, 2011). In this example, it is the event manifestation of the noun meaning that is selected for by hou. More examples are presented in (21), all the nouns in which are typed as a dot object event•physobj \(^3\) and the event aspect are selected for by hou.

(21) 午餐后 wucan hou ‘after lunch’
晚餐后 wancan hou ‘after supper’
雨后 yuhou ‘after the rain’
雪后 xuehou ‘after the snow’

3.3 Summary

In short, when the complement noun is an entity type, hou tends to take VP rather than NP complement. It is different from its English equivalent after, which often takes NP complement. In terms of type coercion, while after seems to generally license event coercion, Chinese hou does not (with a few exceptions), as in most cases the presence of a verb is required for the hou-construction (and the sentence) to be correct. In rare cases, the [cardinal+CL+N+hou] construction licenses coercion. Many restrictions, however, are imposed on it and therefore the examples of event coercion of hou are few and far between.

4 Discussion

Data from bilingual corpora prove event coercion of hou is much less than that of after. My findings are in line with the studies of Liu (2004) and Lin & Liu (2005). By comparing complement coercion in Chinese and English, they come to a conclusion that while in English some event information is left unexpressed in surface syntactic form, in Chinese it tends to be expressed directly. Lin & Liu (2005) claim that coercion involving event information (i.e. event coercion) does not work in Chinese as shown in (7). They further propose a hypothesis, which assume that being an analytical language, Chinese lexicon does not share the same degree of richness in sub-lexical event information as in a language like English. In English the primitives that carry event information are extensively incorporated into individual lexical forms, but in Mandarin Chinese they are sent directly to syntactic computation. In other words, it is because nouns in Mandarin Chinese don’t have sub-lexical event information that complement coercion

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\(^2\) 中 餐 zhongcan has another sense. In this sense, it is a synonym of 午餐 wucan ‘lunch’, which is a complex type and can combine with hou as shown in (21).

\(^3\) Not all the nouns of complex type event•physobj can be the complement of hou. For example, *电影后 dianying hou ‘after the film’ is not allowed.
doesn’t work. For example, (1) is acceptable but its
(7) is not, because 书 shu ‘book’ doesn’t have sub-
lexical event information while book does. 
According to this account, it is because 中餐 zhongcan ‘Chinese food’ does not have sub-
lexical event information that 中餐后 zhongcan hou ‘after
Chinese food’ is impossible (cf.(20b)).

However, there is a problem with this analysis. 
If it is the poverty of sub-lexical event information 
that makes coercion inapplicable in Mandarin
Chinese. 一炷香后 yi zhu xian hou and 三杯酒后
san bei jiu hou (cf.(16) and (17)) should be 
unacceptable since 香 xiang ‘incense’ and 酒 jiu ‘wine’ have no sub-event information to be 
retrieved. But that is not the case as shown in (16) 
and (17). It suggests that they are not short of event
information at all and instead they can provide a
verb 烧 shao ‘burn’ and 喝 he ‘drink’ respectively
for the reconstruction of event reading.

Rather than attributing this difference to the
different lexicalization of nouns in these two
languages, this paper argues that it is due to the
different coercion force of the temporal
connectives. Hou is weaker in its coercion force
than its English equivalent after. Specifically, after
is a temporal connective referring to time sequence
and means “later in time than”. hou, however, can
be either a temporal connective or a locative
connective. In particular, it is polysemous and has
at least two senses. One is equivalent to after and
refers to time sequence. The other is equivalent to
behind and refers to location. The temporal
meaning is derived metaphorically from the spatial
meaning. As a locative connective, it usually
selects for entity type nouns as complement. As a
temporal connective, if it also combines with entity
type nouns, ambiguity will arise in [entity type
noun + hou] construction. For example, 海关之后
haiguan zhihou might mean either “behind the
customs” or “after (going through) the
customs”(cf.(17)). To avoid this ambiguity, the verb
通过 tongguo ‘go through’ must be present.
This is why the temporal connective hou does not
take an entity type complement and license event
coercion.

Against the analysis above, 一炷香后 yi zhu
xian hou and 三杯酒后 san bei jiu hou can
license coercion. There seem to be two reasons for
such counterexamples. First, cardinal-classifier
plays an important role. Despite in Chinese
cardinal-classifier-noun phrases have definite
explanation in certain context (cf.(19)), they have
only indefinite readings in this context. Hence, the
physical objects denoted by them occupy no
specific position and can not be used as a reference
to specify the location of the other objects. hou
gets only the temporal meaning. But, if the
cardinal-classifier-noun phrases are preceded by
demonstrative pronouns such as 这 zhe ‘this’, its
definite reading will be salient and hou will get
spatial meaning other than temporal meaning. So
(22) denotes some locations other than time.

(22)a. 这一炷香之后
zhe yi zhu xiang zhihou
this one CL incense after
‘behind the incense’

b. 这三杯酒之后
zhe san bei jiu zhihou
This three CL wine after
‘behind the three glasses of wine’

Second, the sequence of [cardinal+classifier+N]
such as 一炷香 yi zhu xian is a highly
conventionalized construction and functions as
[cardinal+ CL+ temporal measure word]
construction, which denotes a period of time. It can
be observed from the contrast between (23) and
(24).

(23) a. 一炷香的时间
yi zhu xiang de shijian
one CL incense MOD time
‘the time that it takes for one stick of
incense to burn out’

b. 一炷香后
yi zhu xiang hou
one CL incense after
‘After one incense burnt out

(24) a. 一个小时的时间
yi ge xiaoshi de shijian
one CL hour MOD time
‘one hour’

b. 一个小时后
yi ge xiaoshi hou
‘after one hour’
one CL hour after
‘after one hour’

In the examples above, both 一炷香 yi zhu xian and 一个小时 yi ge xiao shi can modify temporal nouns such as 时间 shijian ‘time’ and describe duration of time. Since 一个小时之后 yi ge xiao shi zhihou is allowed, it becomes logical for 一炷香 yi zhu xian to combine with hou. Other such NPs includes 一盏茶 yi zhan cha ‘one cup of tea’, 三杯酒 san bei jiu ‘three glasses of wine’ and so on. Without denoting a period of time, 一本书 yi ben shu can’t modify time nouns as shown in (25a) and therefore 一本书后 yi ben shu hou is impossible as shown in (25b).

(25) a. *一本书的时间
yi ben shu de shijian
one CL book MOD time
‘the time that it takes for one to finished one book’

b. *一本书后4
yi ben shu hou
one CL book after

It is not difficult to conclude that only the NPs which can modify time nouns can combine with hou. Because of the lack of timer such as clock and watch, in ancient China, time can be measured in the duration of one stick of incense burning out, or having a cup of tea or a glass of wine. For example, it takes about one hour for one incense to burn out, so 一炷香的时间 yi zhu xiang de shijian is equivalent to one hour or so.

5 Conclusion

To conclude, this paper describes the difference between hou and its equivalent after in event coercion. Furthermore, an alternative account is given for the difference. Future study is required to investigate more temporal connectives in different languages and further discuss this issue from a typological perspective.

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4 It can’t mean ‘behind the book’, because unlike 三本书 san ben shu in (19), 一本书 yi ben shu does not have definite reading.