Event integration as a driving force of language change: evidence from Chinese 使-shǐ-*make*

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Abstract

Talmy's (1991; 2000a; 2000b) influential work on motion events provides a strong two-way typology that can examine and account for the typology of a language, but this framework is basically synchronic. It may not be equally valid to explain language change. In this paper, we apply the event integration theory and its latest development, The Macro-event Hypothesis (Li, 2020, 2023), to account for the development of the causative verb 使-shǐ-*make* (SHI for short) in Chinese. This study reveals that, firstly, the multi-functional behavior of SHI represents a typical case of grammaticalization, with a full verb acquiring the role of conjunction and expressing abstract meanings. Secondly, the semantic division of the causative and non-causative uses of SHI in Contemporary Chinese is the most clear-cut. Thirdly, causative SHI shows a greater level of semantic bleaching, and the construction profiles a single causal activity and has a higher degree of event integration when compared to its lexical verbal use. The constructional grammaticalization of SHI confirms that event integration is key to its development. This study verifies The Macro-event Hypothesis of a continuum of grammaticalization in language and uncovers the process of semantic gradation that takes place in Chinese.

Keywords: event typology; event integration; 使-shǐ-*make*; The Macro-event Hypothesis; grammaticalization continuum

1. Introduction

Event typology has long been a major focus in cognitive typology (Batoréo & Ferrari, 2016; Feist & Duffy, 2020; Ji & Hohenstein, 2014a, 2014b, 2018; Naidu et al., 2018; Slobin, 2004; Talmy, 1991, 2000a, 2000b; among others). One of the most renowned and influential typological models is the 'motion event typology' formulated by Talmy (1991, 2000a, 2000b), according to which all languages can either be verb-framed (e.g., the Romance languages) or satellite-framed (e.g., the Germanic languages), based on their predominant means to express the semantic component 'path': either in the main verb or the satellite to the verb (typically a prefix or verbal

particle). Elegant and simple as it is, this bifurcation has provoked both extensive research and critical challenges over the past decades (cf. Slobin, 2004; Croft et al., 2010; Li, 2018, 2019, 2020, 2023; Li & Liu, 2021; etc.). One key problem is that the two-way typology is built mostly on the basis of synchronic analysis, largely neglecting the diachronic aspect of language typology (Li, 2018). To fill in this gap, Li (2018) first applied Talmyan motion event typology to account for the grammaticalization of Chinese directional complements from Archaic Chinese (BCE 1600–24) to Modern Chinese (1912-present), and put forward The Macro-event Hypothesis:

> The Macro-event Hypothesis: A language can generally use a construction in which one clause is in a certain syntactic relation with another clause to represent, correspondingly, a situation in which one event is in a certain semantic relation with another event. Some semantic relations, such as manner and cause, are privileged, while others, such as an if-then conditional, are not. For the privileged cases, some languages can use a single clause to represent the entire situation as a single larger event—termed "macro-event." In such cases, human cognition can treat the same situation either more analytically as discrete simpler events with a connection, or more synthetically as a unitary integrated complex event. This dichotomy might alternatively be viewed as a continuum in several aspects. With corresponding semantic gradations, there might exist syntactic gradations from a double to a single clause representation and, within the single clause, from less to more grammaticalized for some constituents. Diachronically, a language might then progressively change its representation of a privileged relation from having solely a highly analytic one to also having a highly synthetic one. On this basis, languages may fall into two major categories: macro-event languages and non-macro-event languages, which then might be further divided into four distinctive types, respectively: steady state macro-event languages versus conflated macro-event languages, and steady state non-macro-event languages versus deconflated non-macro-event languages.
> (Li, 2023, p. 139)

The hypothesis can be summarized as languages may generally fall into two broad categories: macro-event type languages and non-macro-event type languages. According to Talmy (1991, 2000b, Chapter 3), the cognitive process of event integration is the conceptual integration or conflation of two events into a unitary event that, more analytically, would be conceptualized as an event complex, termed 'macro-event'. In languages, this process emerges as the expression of an event in a single clause that, more analytically, would be expressed by means of a more complex syntactic structure. In the context of the current Special Issue, we would like to ask what role event integration plays in the semantic change of Chinese causatives, taking the most prototypical analytic causative verb 使-shǐ-*make* (SHI henceforth) as an example. In addition, we will test The Macro-event Hypothesis of a continuum of grammaticalization in languages.

This paper is divided into six sections. Section 2 briefly sketches the typology of event integration (Section 2.1) and reviews previous studies on the synchrony and diachrony of SHI (Section 2.2). Section 3 proffers an introduction to the data and method. Section 4 first reports some general results (Section 4.1), followed by a description of the prototypicality change of SHI (Section 4.2) as well as its

semasiological change (Section 4.3). In Section 5, the interaction between grammaticalization and event integration is discussed by distinguishing the lexical and the grammatical use of verbal SHI (Section 5.1), and by zooming in on the constructional grammaticalization that verbal SHI has undergone (Section 5.2). Finally, Section 6 provides concluding remarks.

2. Literature review

2.1. Typology of event integration

Talmy's (1991, 2000b, Chapter 3) typology of event integration, based on how an event complex is integrated into one clause, looks at which constituent encodes a particular semantic notion, namely path. The event complex, or macro-event, comprises two major components, a framing event and a co-event, together with the support relation (e.g., manner/cause) between them. The framing event offers "for the whole macro-event the overarching conceptual framework or reference frame within which the other included activities are conceived of as taking place", represents "the upshot relative to the whole macro-event", and determines the overall temporal and spatial frameworks, the argument structure, and the syntactic complement structure (Talmy, 2000b, p. 219). Hence, the framing event is the main event and has a framing function relative to the co-event. Verb-framed languages typically encode the core schema of a framing event in the verb root and express a co-event component in the satellite. In contrast, satellite-framed languages characteristically use a satellite to express the core schema, encoding the co-event component in the verb. This dichotomy not only works in the event domain of motion but also functions in state change, realization, temporal contouring, and action correlation.

There is a huge amount of literature concerning single-language and cross-linguistic studies on motion typology (Aske, 1989; Ji & Hohenstein, 2014a, 2014b, 2018; Naidu et al., 2018; Slobin, 1996; Zlatev & Yangklang, 2004; among others), but only a few studies center on state change and realization (Du et al., 2020; Kou & Hohenstein, 2020, 2021; Levin & Rappaport Hovav, 1991). It is worth noting that there has been relatively little investigation into the full range of macro-event. Li (2018, 2019, 2020, 2023) and Li and Liu (2021) filled this gap by demonstrating how the Chinese language in the past and at present encodes the five types of macro-event with the full set of 11 simplex directional complements, and, more importantly, how event integration involved in the diachronic change of these directional complements. Li (2018) first argued that macro-event results from the integration of two simpler events through grammaticalization in Mandarin. Following this spirit, Li (2020, 2023) developed the Talmyan two-way typology and formulated The Macro-event Hypothesis. Theoretically, the hypothesis extends the event integration theory by setting up a diachronic conceptual framework that can be used to explore how streams of action are identified by the human mind and are combined into linguistic representations, illustrated by Chinese data. Methodologically, prior research into these topics in Chinese is mostly introspection based, lacking empirical data. In contrast, Li (2018, 2019, 2020), Li & Liu (2021), and Liu & Li (2023) employed a large amount of authentic data, presenting more convincing results and offering an ideal context for examination. To our knowledge, there has been no empirical work on The Macro-event Hypothesis.

Additionally, in studies on event integration thus far, a neglected, though we assume an important, line of research is Givón (2001, 2009). Drawing on the isomorphism between the syntax and the semantics of verbal complements in English, Givón (2001, 2009, p. 64) illustrated the functional and structural features of clause union syntactically, and event integration (also semantic bonding) semantically, forming a complementation scale. The semantic gradation of event integration is subsumed under three major features: (1) referential integration: the sharing of referents between the two events; (2) temporal integration: simultaneity or direct temporal adjacency of the two events; and (3) spatial integration: the sharing of the same location between the two events. Other widely discussed features, such as successful (versus unrealized) causation, intentional (versus accidental) causation, or direct (versus indirect) causation, are relevant primarily because they imply directly or indirectly either co-temporality or co-spatiality of the two events (Givón, 2001, Chapter 12). Syntactically, six main syntactic devices that code clause union were proposed: (1) expression of the co-referent argument: zero versus present; (2) grammatical relations: integrated single set versus two distinct sets; (3) adjacency of the two verbs: co-lexicalization versus separation; (4) finite verb morphology: presence versus absence on the complement verb; (5) adjacency of the two clauses: presence versus absence of a complementizer; and (6) intonation contours: joint versus separate (Givón, 2009, pp. 65–66). It is argued that the stronger the semantic bond between the two events is, the more extensive will be the syntactic integration of the two clauses into a single though complex clause (Givón, 2001, p. 40). Considering that the functional and structural analysis of event integration exhibited by English complementation may offer new insights into event integration in Chinese, in this study, we will attend to the Givónian semantic features of event integration when necessary.

2.2. The synchrony and diachrony of SHI in Chinese

An analytic causative is a two-verb structure that expresses a predicate of cause and a predicate of effect, for example, *cause*, *make*, *have*, and *get* in English (Gilquin, 2010); *doen* 'do' and *laten* 'let' in Dutch (Kemmer & Verhagen, 1994; Levshina et al., 2013a, 2013b, 2014; Verhagen & Kemmer, 1997); *få* 'get', *komma* 'come', *ha* 'have', *förmå* 'induce', and *låta* 'let' in Modern Swedish (Rawoens, 2011); etc. According to Shibatani (1976) and Talmy (1976, 2000a, p. 494), the first predicate constitutes the causing event, and the second represents the caused event. In analytic causative constructions, other constituents besides the two verbs are CAUSER, CAUSEE, and PATIENT (if present).

In Mandarin, SHI is the prototypical member of analytic causatives. Other peripheral ones include 令-lìng-*order*, 让-ràng-*make, let*, and 叫-jiào-*ask* (Lyu, 1942/2002, pp. 92–97; Pulleyblank, 1995; Xu, 2003, 2006; Cao, 2011; Shi, 2021; Liu & Li, 2023). The canonical syntactic pattern of Mandarin analytic causative construction is [NP1 + SHI/LING/RANG/JIAO+NP2 + VP]. In the matrix clause, NP1 (the CAUSER) is the subject of the causative verb, and NP2 (the CAUSEE) is the object of the causative verb as well as the subject of VP in the embedded clause. The CAUSEE undergoes change or influence and VP denotes the final result/state stemming from the CAUSEE. From Archaic to Contemporary Chinese, among analytic causatives, SHI is particularly intriguing because it is the only one that

survived the change of the Chinese language; meanwhile, it is also the one that is pervasively used to express causativity, be it in the past or at present, suggesting that it is an ideal indicator of the development of Chinese.

Despite extensive research on analytic causatives in Chinese, the diachronic change of SHI received little attention as its causative meaning had formed even in Archaic Chinese (Xu, 2003, p. 232). There are eight documented diachronic studies on the grammaticalization of SHI from a lexical verb to a causative: Xu (2003, 2006), Chang (2005, 2006), Cao (2011), Liu (2011), Liu (2016), and Shi (2021). These studies have two shortcomings in common. First, none of them provides a full picture of the semantic development of SHI from Archaic to Contemporary Chinese. The second is as the frequency distribution of SHI over time was not obtained, the authors summarized the change in SHI in terms of their assumptions, resulting in conflicting views. For instance, Xu (2003, 2006, pp. 133–138) proposed that causative SHI originated from its lexical meaning 'to send', and Chang (2005, 2006) and Liu (2016) argued against this view and held that causative SHI developed from multiple sources, including the lexical meaning 'to send', 'to appoint', and their subcategories ('to order' and 'to allow'). Cao (2011) and Liu (2011) avoided this dispute and attended to the development of SHI for a certain period of time in Chinese history. Specifically, Cao (2011) centered on the conditions for grammaticalization, the mechanisms (metaphor and subjectification), the process, and the results of grammaticalization of SHI from Old Chinese to Middle Chinese. Liu (2011) drew on data from one work, 太平经 'Scripture of the Great Peace', and discussed the role pragmatics plays in the emergence of causative SHI and its development from the Qin dynasty to the Donghan dynasty (221 BCE–220 CE). To our knowledge, Shi (2021) is the first work that brought together the diachronic change of SHI and the 'synthetic-to-analytic' development of the Chinese language. Based on an investigation of the use of SHI in two Chinese classics, 左传 'Zuo's Commentary on Spring and Autumn Annals' and 战国策 'Strategies of the Warring States', Shi (2021) hypothesized that SHI underwent three types of change: (1) change of categorical meaning from lexical syntheticity to analyticity ([SHI NP1 PREP NP2] → [SHI NP1 SHI-PREP NP2]); (2) change of categorical meaning from pragmatic syntheticity to analyticity ([SHI $\varnothing_{\text{non-indexed}}$ VP] → [SHI NP$_{\text{general name}}$ VP]); and (3) change in register (formal contexts→oral contexts). The two mechanisms involved are grammaticalization and the separation of semantic components (Shi, 2021). To summarize, in existing research, no consensus has been reached on the semantic change of SHI, including the origin of its grammaticalization, the conditions for and the mechanisms of its grammaticalization, and the essence of its semantic change (e.g., grammaticalization in Xu (2003, 2006) versus poly-grammaticalization in Chang (2005)).

In this study, from an event integration perspective, we aim to fill these gaps by adopting a usage-based approach and quantitatively examining the development of SHI throughout Chinese history.

3. Data and method

3.1. Data source, periodization, and data retrieval

This study uses data stemming from the Center for Chinese Linguistics Corpus, Peking University (henceforth CCL) (Zhan et al., 2003, 2019). CCL spans about

Table 1. Frequency distribution of SHI across the subcorpora of CCL

Stage	N	Frequency of SHI after random sampling	Frequency of SHI after cleaning
Stage 1: Archaic Chinese (1100 BCE–25 CE)	3341	1000	996
Stage 2: Medieval Chinese (25 CE–907 CE)	8669	1000	995
Stage 3: Early Mandarin (907 CE–1644 CE)	38955	1000	996
Stage 4: Early Modern Chinese (1644 CE–1920s)	14235	1000	985
Stage 5: Modern Chinese (1930s–1949)	14465	1000	995
Stage 6: Contemporary Chinese (1949–present)	548515	1000	995
Total	628180	6000	5962

3,000 years and starts with one of the earliest dynasties in Chinese history, the Zhou dynasty (1100 BCE). It subsumes two subcorpora: the Classical Chinese corpus and the Modern Chinese corpus. The former covers the period from the Zhou dynasty to the early years of the Republican era (the 1920s) with 163,662,943 characters, and the latter comprises modern Chinese (1930s–1949) and contemporary Chinese (1949–present) with 509,913,589 characters. Texts in CCL cover various genres, including political essays, fiction, drama, biography, etc.

Given the wide temporal span and the large amount of data, periodization is methodologically desirable. In this study, we followed Jing-Schmidt and Peng (2016) in periodization and divided Chinese into five periods: Archaic Chinese (1100 BCE–25 CE), Medieval Chinese (25 CE–907 CE), Early Mandarin (907 CE–1644 CE), Early Modern Chinese (1644 CE–1920s), and Modern Chinese (1940s–present). A preliminary inspection of the data revealed that the tokens of SHI increased much more rapidly from the early years of the 20th century, compared to that in preceding periods. Therefore, we further divided Modern Chinese into two subperiods: Modern Chinese (1930s–1949) and Contemporary Chinese (1949–present). Table 1 presents an overview of the data, including the raw frequency, randomly sampled frequency, and cleaned frequency of concordances in the six subcorpora. It is observable that the dataset is too large to be directly submitted to manual annotation; hence, we set 1000 as a threshold and applied random sampling to data in each period, and then we checked each concordance and discarded noises in which SHI indicates proper names. Repeated hits were also deleted.

3.2. Data annotation

The 5962 instances were then coded in terms of the semantics of SHI. Table 2 provides an overview of the tagging scheme with illustrating examples.

Once the coder (also the first author) finished up the annotation, two colleagues checked through the dataset. Disagreements were resolved afterward based on re-examinations of the relevant concordances as well as consultations of available secondary commentaries and annotations.

In analyzing the data, we took the distribution of cleaned frequency and proportion as the point of departure. As Hilpert (2013, p. 462) states, "[A] look at raw frequencies is a common starting point for analyses of constructional change." A focus on the general frequency evolution allows us to go beyond the particular level of the individual sense and to make generalizations on the level of overarching semantic

Table 2. Variable, its levels, and illustrating examples

Variable	Word class	Label	Example
Semantics	conjunction	conj_if	a. [使]舜无其志,虽口辩而户说之,不能化一人。(西汉\刘安•淮南子) (If Shun does not have belief or virtue, even if he can speak eloquently and persuade people from one family to another, he would not be able to influence anyone.) (Xihan dynasty, Archaic Chinese)
	noun	n_mission	b. 槌头和尚随着[使]命而来。(明\喻世明言) (Monk Ketou came with a mission.) (Ming dynasty, Early Mandarin)
		n_official	c. 九月,金[使]来贺生日。(清\西夏书事) (In September, the ambassador from Jin country came to celebrate the birthday of the Emperor of Song.) (Qing dynasty, Early Modern Chinese)
		n_servant	d. 那[使]婢将要叫喊……(清\乾隆南巡记) (The housemaid is going to cry…) (Qing dynasty, Early Modern Chinese)
	verb	v_appoint	e. 简子许之,[使]少室周为宰。(春秋\国语) (Zhao Jianzi praised this issue and appointed Shaoshi Zhou as the director of the family.) (Chunqiu, Archaic Chinese)
		v_send	f. 鲁侯闻之大惊,[使]上卿厚礼而致之。(六朝\列子) (When the Marquis of Lu heard the news, he was surprised and sent Shang Qing to bring rich gifts to attract the person.) (the Six dynasties, Medieval Chinese)
		v_serve	g. 司马宪为殿中郎,口辩有才地,[使]魏,见称于北。(北宋\册府元龟) (Sima Xian, an official, was talented in eloquence. When he served as an envoy to Wei, he was well known in the north.) (Beisong dynasty, Early Mandarin)
		v_use	h. 王之华[使]锤迎敌。(清\海国春秋) (Wang Zhihua fight the enemy with a hammer.) (Qing dynasty, Early Modern Chinese)
		v_indulge	i. 三丫头这小孩,也太[使]性子了。(民国\留东外史续集) (San Yatou, as a kid, is too bad-tempered.) (the Republic of China, Modern Chinese)
		v_shi(bu)de	j. 张胜道:"[使]不得!" (明\警世通言) (Zhang Sheng said: "You must not do this!") (Ming dynasty, Early Mandarin)
		v_causative	k. 改革开放[使]我国社会生产力获得了极大的解放。(当代\1994年报刊精选) (The Reform and Opening Up has greatly liberated the social productivity of our country.) (Contemporary, Contemporary Chinese)
	N/A	idiom	l. 娄定远见风[使]帆。(民国\南北史演义) (Lou Dingyuan is changeable as weathercock.) (the Republic of China, Modern Chinese)

categories as well as reveal more general underlying tendencies in semantic change (Jansegers & Gries, 2020).

4. Results

In this section, we start with presenting the proportion distribution of SHI in the six stages regarding each sense/meaning (Section 4.1), then zoom in on its change in prototypicality (Section 4.2), and provide a description of its semasiological change (Section 4.3).

4.1. General results

Based on the raw frequencies of SHI regarding its 12 senses, we calculated its proportion distribution in the six subcorpora of CCL, as shown in Fig. 1.

In Fig. 1, the block represents the proportion of the corresponding sense in the occurrences in each stage, indicating the token frequency of each sense. At first glance, the use of SHI to represent officials and its two verbal uses (v_causative and v_send) prevail in all 12 senses across time. A full view of the token frequency of each sense over time is presented in Appendix 1. Among the 5962 hits, there are 3899 instances in which SHI is used as a verb (2198 for causative use and 1701 for lexical/concrete verbal uses), 1723 instances where SHI serves as a noun, 329 instances where SHI is a conjunction, and 11 cases for idiomatic use.

4.2. The prototypicality change of SHI

To capture the trajectory of the semantic development of SHI, it is helpful to figure out its prototypicality in different stages. Figure 2 visualizes the proportion distribution of the conjunctional (CONJ), nominal (NOUN), concrete verbal (CONC.V), causative verbal (CAUS.V), and idiomatic (IDIOM) uses of SHI in the six stages.

It can be seen from Fig. 2 that at the very beginning (Archaic Chinese), SHI is predominately used either as a verb with lexical meanings (47.89%) or as a causative (41.47%), far more frequent than its conjunctional (4.32%) and nominal (6.33%) uses. From the second to the fifth stage, however, the cases of SHI used as a noun increase greatly, taking over 30% of instances in both Medieval Chinese and Early Modern Chinese, and even over 45% in Early Mandarin and Modern Chinese. When it comes to the last stage, Contemporary Chinese, the proportion of its nominal use drops back to less than 7%. Different from the sharp increase as well as decrease in its nominal use, the conjunctional and idiomatic use of SHI over time remains low, viz.,
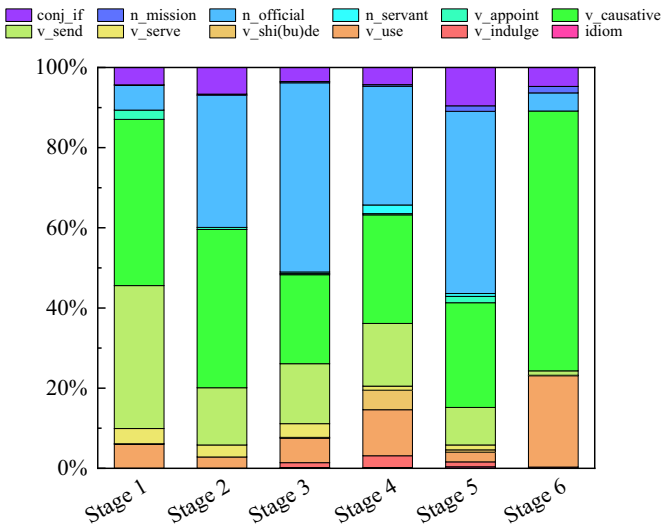

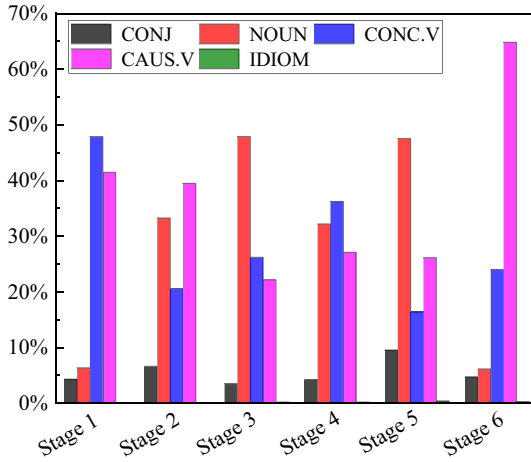**Figure 1.** Proportion distribution of the 12 senses of SHI over time.

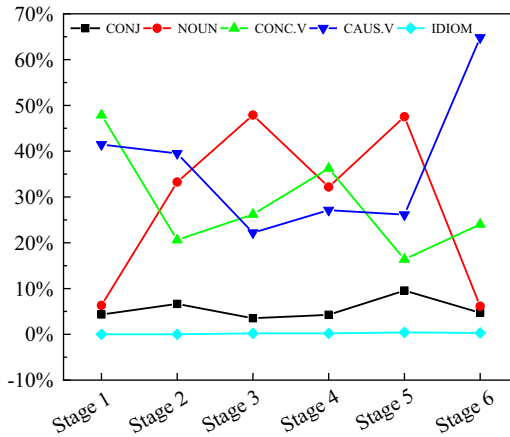**Figure 2.** Proportion distribution of the five categorical uses of SHI over time.

Figure 3. The changing trend regarding the five categorical uses of SHI over time.

below 10% and 1%, respectively. Figure 3 demonstrates the change in proportion of each conceptual category from stage 1 to stage 6.

In a usage-based model of semantics, we can operationalize the prototypicality of a lexical item's senses as the relative frequency of each sense (cf. Liu, 2023; Soares Da Silva, 2012). In other words, relative frequency manifests the structural weight of a certain sense. Therefore, by computing the relative frequency of each sense of SHI in every stage and integrating results from Figs. 2 and 3, we propose that in Archaic Chinese and Contemporary Chinese, the concrete verbal sense (especially 'to send') and the causative sense are the corresponding prototypical sense, whereas from Medieval Chinese to Modern Chinese, the prototypicality of SHI becomes diversified in that three categories (NOUN, CONC.V, and CAUS.V) together dominate in

frequency, though they all change with fluctuations. If claims have to be made, the prototypical meaning in Medieval Chinese is the causative meaning, in Early Mandarin and Modern Chinese is the nominal one (especially 'official'), and in Early Modern Chinese is the concrete verbal meaning ('to send' and 'to use' in particular). In contrast, the conjunctional and idiomatic meanings are not the prototypical meaning at all times.

The multi-functional behavior of SHI represents a typical case of grammaticalization, with a full verb acquiring the role of conjunction and expressing abstract meanings. We assume that the semantic change process was by no means abrupt and might be intertwined with the different meanings of SHI. Xu (2003, 2006) first dealt with the semantic change of SHI, but she only sketched the shift from 'to send' meaning to 'if' meaning and paid no attention to the interaction between various senses of SHI. In the next section, we will present a more complete description of the semasiological change of SHI.

4.3. The semasiological change of SHI

Evaluating a grammaticalization process involves a dimension of semasiological salience (or prototypicality) and a dimension of onomasiological salience (or entrenchment) (Soares da Silva, 2012). The semasiological perspective starts from the word or (grammatical) construction and looks at its meanings or functions, whereas the onomasiological perspective starts from the concept or function and looks at the different words or (grammatical) constructions.

Figure 4 presents a global linear delineation of the semasiological change of SHI over the six stages. The black dot represents the emergence of a sense; the line following the black dot represents the duration of the sense; and the line on the left of a black dot that links it to another line indicates the origin of a sense[1]. In this way, Fig. 4 demonstrates the time when a specific sense of SHI emerges or disappears and its duration in the history of the Chinese.

In Fig. 4, the development of SHI as a verb is the most noticeable since the verbal meanings are active in change. The trajectory of its change regarding the various verbal uses can be characterized as by and large inconstant. To illustrate, from Medieval Chinese to Modern Chinese, the proportion of SHI used to express concrete verbal meanings decreased and was accompanied by a slight decrease in its causative use. Presumably prior to Contemporary Chinese, nevertheless, the former is narrowed down to one sense ('to use') and low in frequency, while the latter is abundantly attested. Hence, compared with that in previous stages, the semantic division and boundary in Contemporary Chinese between the causative and non-causative uses of SHI are more clear-cut.

Up to now, we have traced the evolution of SHI in Chinese exclusively based on its token frequency. The development of SHI matches the well-known tendency typical of polysemic entities, that is, to extend their more concrete, physical meanings toward more abstract domains (Sweetser, 1990).

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[1]The dotted line in the sense 'v_serve' in Contemporary Chinese is the result of the only one instance where SHI expresses the meaning of someone serving as an envoy, but the instance is from a story recorded in a historical biography, rather than an instance used in Contemporary Chinese.
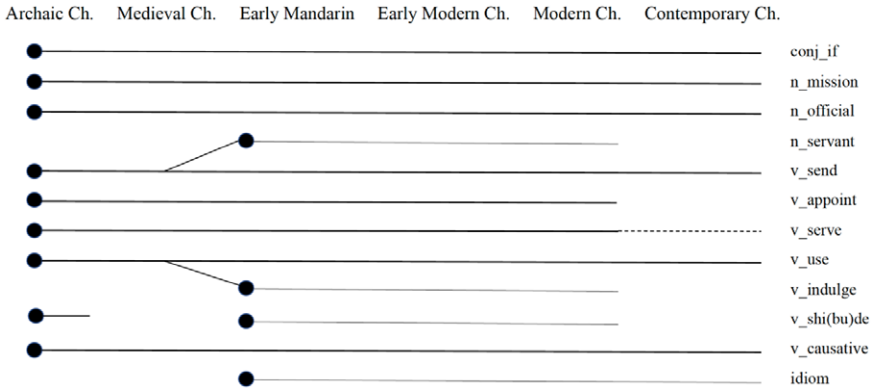
Figure 4. The semasiological change of SHI over time.

5. Grammaticalization and event integration

Let us now analyze the grammaticalization of verbal SHI more closely. In this section, we examine the gradual grammaticalization of verbal SHI at two levels: that of the lexical meaning of causative SHI, that is, the degree of semantic bleaching, and that of the constructional structure and meaning in terms of event integration.

5.1. Distinguishing the lexical and grammatical use of verbal SHI

We set out to characterize the division of labor that operates between the lexical/concrete and grammatical/causative use of SHI by detailing its distributional profile. The proportion of the two conceptual categories and their change over time are displayed in Fig. 5.

From Fig. 5, it can be observed that the proportion of lexical use of SHI outnumbers that of causative SHI in Archaic Chinese, Early Mandarin, and Early Modern Chinese, while the latter surpasses the former in Medieval Chinese, Modern Chinese, and Contemporary Chinese. The decrease in its lexical use from occupying over 45% in Archaic Chinese to less than 25% in Contemporary Chinese is in tandem with the drastic surge of its grammatical use in Contemporary Chinese, which occupies over 64% of all cases. In fact, the lexical use not only decreases in frequency and proportion in Contemporary Chinese but also in the versatility of sense the instances can express. To illustrate, in Archaic Chinese and Medieval Chinese, the lexical cases have the meaning 'to appoint', 'to send', 'to serve', and 'to use', and from Early Mandarin to Modern Chinese, the instances can additionally express another meaning, 'to indulge'. In Contemporary Chinese, nevertheless, on the one hand, the meaning 'to appoint' and 'to indulge' disappear, and on the other, there are only 11 cases where SHI means 'to send', 1 case with 'to serve' meaning, and 227 cases with 'to use' meaning, versus 645 causative instances. Figure 6 displays the changing trend of the lexical and grammatical use of SHI.

From Figure 6, one can see that the decline in the use of 'to send' from stage 1 to stage 6 is steep when compared to the fluctuation of other lexical senses. In fact, SHI in Contemporary Chinese is rarely used to express its lexical meaning on its own as it did in the history of Chinese. Currently, to express 'to send/serve/use', we are inclined
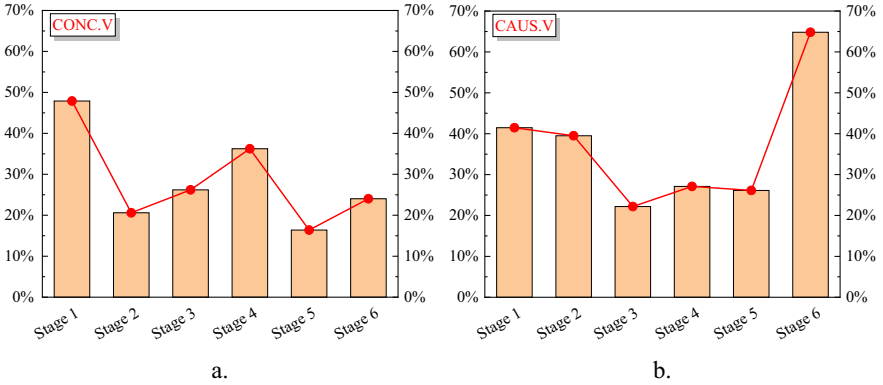
Figure 5. The proportion of the concrete verbal and causative use of SHI over time.
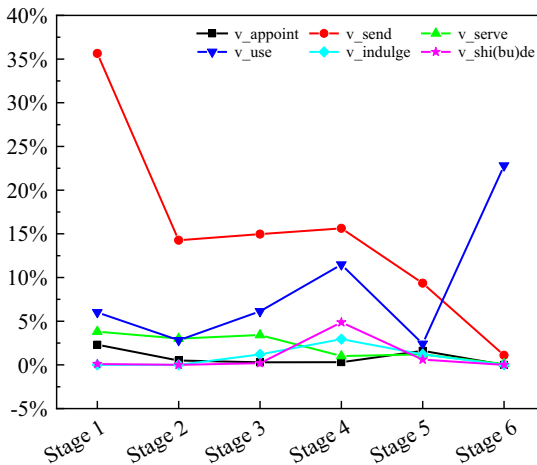

Figure 6. The changing trend of the lexical and grammatical use of SHI over time.

to use disyllabic verbs, for example, 驱使 *qū shǐ* 'to order about', 出使 *chū shǐ* 'to serve as an envoy', 使用 *shǐ yòng* 'to use', etc. In contrast, causative SHI in Contemporary Chinese can either be used on its own or in alternatives including 使得 *shǐ dé* 'to make', 致使 *zhì shǐ* 'to cause', etc.

In semantic change, the basic distinction between a lexical and grammatical element is that the latter has little meaning by itself, and its function is to provide extra information about the former (Correia Saavedra, 2021, p. 135). In this sense, SHI loses some features of its literal meaning when used as a causative. Specifically, the shift from the agentive meaning 'to send/appoint/use' to the (non-)agentive meaning 'to make/cause' implies semantic bleaching, that is, a weakening of the CAUSER's power that transfers from the CAUSER to the CAUSEE (compare example *f* with example *k* in Table 2). As discussed in Section 2.2, Xu (2003, 2006, pp. 133–138) posited that causative SHI was grammaticalized from lexical SHI with the meaning 'to send', whereas Chang (2005) and Liu (2016) stated that causative SHI developed from multiple sources. Based on our observation, it is more likely that

causative SHI is intertwined with its most dominant lexical meaning, 'to send', rather than with the peripheral meaning 'to appoint'. As will be detailed below, the two main senses of SHI, 'to send' and 'to make', vary greatly in structural features and exhibit functional shifts.

5.2. SENDING versus MAKING: constructional grammaticalization and event integration

Already at the early stage of Archaic Chinese, SHI was predominantly used to express the meaning 'to send' and 'to make', with the form [NP1 + SHI + NP2 + VP]. To capture its semantic change displayed by the two constructions (abbreviated as SENDcxn and MAKEcxn) across time, we compare their productivity in terms of two metrics: the type frequency (V) and the hapax legomena (V1) of VPs in SENDcxn and MAKEcxn (cf. Desagulier, 2022). V refers to the number of VP types the two constructions can host, and V1, originally inspired by quantitative works in morphology, is the number of hapax legomena of a given morphological category. It should be pointed out that the motivation for centering on the collocation of SENDcxn and MAKEcxn lies in Construction Grammar (Croft, 2001; Goldberg, 1995, 2006), particularly the tenet that syntactic constructions and their verbs are intrinsically connected. Here we track the frequency of V and V1 of VPs in SENDcxn and MAKEcxn in each stage, as diagrammed in Figs. 7 and 8. In Table 3 we list the top 10 most frequently used VPs in SENDcxn and MAKEcxn in each stage, with their frequencies in brackets. Note that for SENDcxn in stage 5 and stage 6, the most frequently used VPs include a number of hapax legomenon that cannot be ranked and therefore are unlisted.

From Figure 7 to Figure 8, one can see that the change in the count of V and V1 of VPs in SENDcxn and MAKEcxn is consistent with the change in the frequency of two constructions (see Section 5.1). From stage 1 to stage 6, MAKEcxn becomes more
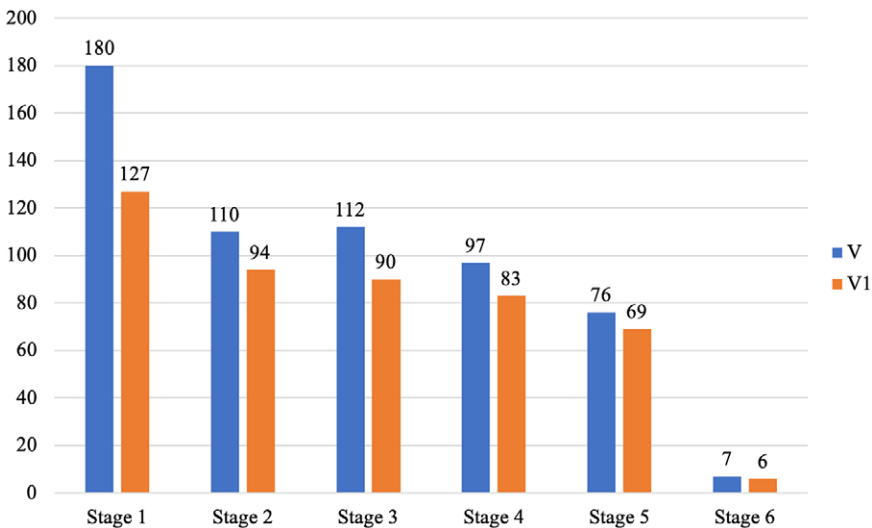

Figure 7. Distribution of V and V1 of VPs in SENDcxn in the six stages.
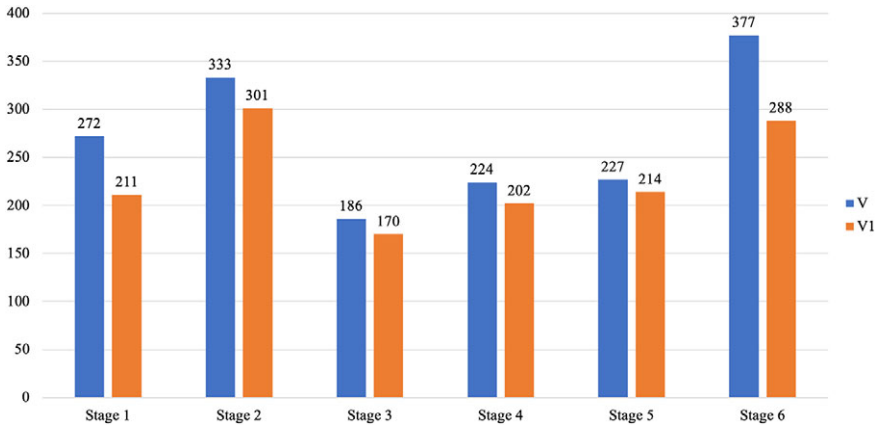
Figure 8. Distribution of V and V1 of VPs in MAKEcxn in the six stages.

Table 3. The top 10 most frequently used VPs in SENDcxn and MAKEcxn in each stage

Stage	SENDcxn	MAKEcxn
Stage 1	来聘 'come and visit'(17), 告 'tell'(12), 谓 'say'(11), 问 'ask'(11), 如 'go'(9), 之 'go'(9), 吊 'condole'(6), 将 'lead'(6), 请 'invite'(6), 杀'kill'(6)	有 'have'(11), 无 'not have'(10), 为 'as'(8), 然'as'(6), 知 'know'(6), 从 'follow'(5), 得 'get'(5), 先导 'precurse'(5), 先驱 'pioneer'(5), 治 'govern'(5)
Stage 2	将(4), 问(4), 发 'send'(3), 告(3), 平 'suppress'(3), 守 'guard'(3), 屯 'collect'(3), 遗 'give as a gift'(3), 持 'hold'(2), 持节 'serve as an envoy'(2)	知(9), 为(6), 有(5), 生 'breed'(4), 闻知 'hear and know'(4), 从(3), 观 'watch'(3), 然(3), 同 'be the same'(3), 闻 'hear'(3)
Stage 3	问(4), 持节(3), 赐 'bestow'(3), 请(3), 往'go'(3), 谓 'say'(3), 拜 'accept an appointment'(2), 吊(2), 伐 'go on a punitive expedition'(2), 归 'return'(2)	为(8), 知(8), 然(5), 安 'remain safe'(4), 居'settle down'(3), 闻知(3), 承 'undertake'(2), 持(2), 反 'turn over'(2), 归(2)
Stage 4	请(4), 贺 'celebrate'(3), 将(3), 如(3), 到 'arrive at'(2), 告哀 'beg for help'(2), 聘 'visit'(2), 取 'capture'(2), 视 'observe'(2), 往(2)	然(7), 知(6), 为(5), 有(5), 放心 'rest assured'(4), 知道 'know'(4), 成 'achieve'(3), 去 'leave for'(3), 不安 'uneasy'(2), 出'get out'(2)
Stage 5	出(2), 带领 'lead'(2), 南下 'go southwards'(2), 入白 'go and tell'(2), 守(2), 讨 'beg for'(2)	有(8), 知(6), 知道(6), 为(5), 然(5), 得(3), 见 'see'(2), 居(2), 去(2), 王 'be the king'(2)
Stage 6	N/A	成为 'become'(34), 有(17), 得到 'get'(15), 达到 'achieve'(11), 受到 'receive'(10), 保持 'maintain'(8), 发展 'develop'(8), 产生'produce'(7), 发挥 'exert'(7), 实现 'realize'(7)

productive while SENDcxn decreases in productivity. In fact, the two-verb structure shared by the two constructions is ubiquitous in human language (recall Section 2.2). Of the two constructions, MAKEcxn comprises two events: a causing event and a caused event. SHI in MAKEcxn expresses the notion of cause, therefore being conceptually dependent on the second verb which encodes the caused event (Kemmer & Verhagen, 1994). As Langacker (1991, p. 408) stated, analytic causative constructions profile the energy input or instigating force codified in the CAUSER,

responsible for the occurrence of the caused event. In discussing the stages of grammaticalization of analytic causatives in Romance languages, Soares da Silva (2012) relied on the binding force of causatives (Givón, 1980) and the degree of event integration and causal independence (CAUSEE's autonomy and CAUSER's control) (Talmy, 2000b). Following Soares da Silva (2012), we examine the grammaticalization of SHI at two levels: (1) the lexical meaning of causative SHI, namely the degree of semantic bleaching, and (2) the constructional structure and meaning in terms of event integration.

Regarding the degree of semantic bleaching, as discussed in Section 5.1, there is semantic bleaching in SENDcxn, from which MAKEcxn originated. Of MAKEcxn per se throughout the six stages, the most grammaticalized version is the one in which SHI presents the highest degree of semantic bleaching and the construction presents the highest degree of event integration. Hence, MAKEcxn exhibits the correlation formulated by Givón (1980) between the semantics of the complement-taking verb and the syntax of the verb-plus-complement construction, as a result of the binding force of the main verb. For SENDcxn, with the constructional meaning 'to send/order sb. to do sth.', SHI in the construction is strictly interpersonal, implying that the object will perform the action required by the subject; thus, SHI keeps its literal meaning and argument selection restrictions, including that the two participants are animate, the subject is superior to the object in social status, and the complement event is irrealis (Cao, 2011; Xu, 2003, 2006), see examples of SENDcxn from stage 1 to stage 5 in (1)–(5):

1. Stage 1: 王[使]游孙伯请滑。(春秋\国语)
   *Wáng **shǐ** Yóu Sūnbó qǐng huá*
   King send You Sunbo ask for mercy
   'King Xiang sent a senior official, You Sunbo, to intercede for Hua Country.' (Chunqiu\Discourses of the States)
2. Stage 2: 昭帝时数[使]巫祝诅。(东汉\前汉纪•荀悦)
   *Zhāodì shí shù **shǐ** wū zhù zǔ*
   Zhao Emperor sometimes send witch sacrifice
   'When Emperor Zhao of Han was on the throne, he often sent the clergy to pray.' (Donghan dynasty*The History of Pre-Han•Xun Yue*)
3. Stage 3: 吴王[使]太中大夫郑泉聘于汉。(北宋\资治通鉴)
   *Wúwáng **shǐ** Tàizhōng dàfū Zhèng Quán pìn yú hàn*
   Wu King send Taizhong official Zheng Quan hired by Han Country
   'The King of Wu sent the Chief Counselor Zheng Quan as an envoy to Han.' (Beisong dynasty*Comprehensive Mirror to Aid in Government*)
4. Stage 4: 札巴[使]侍女遗以杂佩, 海陵遂手刃札巴, 以徇于宫。(清\廿二史札记•清•赵翼)
   *Zhá Bā **shǐ** shìnǚ wèi yǐ zá pèi, Hǎi Líng suì shǒu rèn Zhá Bā, yǐ xùn yú gōng*
   Zha Ba send maid bestow with mixed jade, Hai Ling then hand slash Zha Ba, to warn at palace
   'Zha Ba sent her maid to give some jades to Tang Gute, Zha Ba's husband. Hai Ling then killed Zha Ba to warn the court.' (Qing dynasty*Reflections on Twenty-two Histories•Qing•Zhao Yi*)

5. Stage 5: 事闻, 政府急起袁世凯于彰德, [使]南下督师。(民国\满清兴亡史)

    *Shì wén, Qīng zhèngfǔ jí qǐ Yuán Shìkǎi yú Zhāngdé, **shǐ** nánxià dūshī*

    Thing heard, the Qing government hastily rise Yuan Shikai in Zhangde, send southward supervise military

    'Once hearing the news, the Qing government hastily appointed Yuan Shikai in Zhangde and sent him southward to supervise the military.' (the Republic of China*The Rise and Fall of the Qing Dynasty*)

It can be seen in examples (1)–(5) that SHI did not grammaticalize. Another piece of evidence comes from Table 3, where the top 10 most frequently used VPs in SENDcxn are all action verbs that refer to the action the subject requires the object to perform in the near future (Chang, 2005; Shi, 2021). In SENDcxn, the subject, the object, and the relationship between them are quite restricted. Specifically, the two participants in the instances are mostly animate, definite, and volitional and possess a 'superior–subordinate' relationship. As the constructional meaning is the subject sends/orders about the object to perform an action, in construing the complement scene denoted by the VP, one needs to take the whole of the complement event as the target of the subject's instigating force, implying that the complement event is irrealis. To summarize, the complement event encoded in VP in SENDcxn is construed with great independence and is of a low degree of event integration with the main event represented by SHI.

Compared with SENDcxn, semantic bleaching, or the loss of the degree of control exerted by the agentive subject (Langacker, 1999), is obvious in MAKEcxn. MAKEcxn applies fewer restrictions to the subject, the object, and the relationship between them. Early in stage 2, the subject/CAUSER in MAKEcxn can be events, instead of animate entities, and the CAUSEE is extended to material objects. The 'superior–subordinate' relationship between the two no longer exists. The VP in complement/caused event in MAKEcxn not only includes action verbs but also contains psychological/mental verbs, and is later extended to adjectives (see Table 3). Our finding here corrects and improves Xu (2003, 2006)'s statement, that during the semantic change of SHI, two conditions play roles: (1) the VP in the caused event is no longer restricted to denote concrete actions, and (2) the agency has to be weakened from both CAUSER and CAUSEE. In addition, our data reveal that the cause-and-effect relationship between the causing and caused event represented by SHI and VP/AP respectively in MAKEcxn is in any case obvious and salient. See examples of MAKEcxn from stage 1 to stage 6 in (6)–(11):

6. Stage 1: 奸臣之败其主也, 积渐积微,[使]主迷惑而不自知也。(战国\管子)

    *Jiānchén zhī bài qí zhǔ yě, jī jiàn jī wēi, **shǐ** zhǔ míhuò ér bù zìzhī yě*

    Treacherous officials defeat their masters, accumulate gradually accumulate, make the master confused and not aware of it

    'The reason why the treacherous court officials entail the downfall of their emperors is that the officials gradually influence the emperors, and the latter becomes confused and unclear about the fact.' (the Warring States*Guan Zi*)

7. Stage 2: 釜必磨治令白净,勿[使]有腻气。(六朝\齐民要术•贾思勰)
   *Fǔ bì mó zhì lìng báijìng, wù **shǐ** yǒu nì qì*
   Cauldron must grind manage make white clean, do not make have greasy odor
   'The cauldron must be ground until it is white and clean, and it should be prevented from being greasy.' (the Six dynasties *Important Arts for the People's Walfare•Jia Sixie*)

8. Stage 3: 奈何信奸谗贼臣之语,夜宿娼家,荒于酒色,[使]朝纲不理,国政不修…… (元\大宋宣和遗事)
   *Nàihé xìn jiān chán zéichén zhī yǔ, yè sù chāngjiā, huāng yú jiǔsè, **shǐ** cháogāng bù lǐ, guózhèng bù xiū…*
   How believe in treacherous and slanderous officials' words, night stay in prostitutes' houses, lie waste in drinking and sex, make the law of imperial court ignore, the politics of country not deal with…
   'How come he believed in the treacherous and slanderous officials and indulged himself in drinking and sex, causing the court disciplines and national affairs to be left aside…' (Yuan dynasty*The Legacy of Xuanhe of the Song Dynasty*)

9. Stage 4: 此扇虽小, 煽之可[使]烈焰冲天。(清\绿野仙踪)
   *Cǐ shàn suī xiǎo, shān zhī kě **shǐ** lièyàn chōngtiān*
   This fan though small, fanning it can make flames soar into sky
   'Although it is a small fan, fanning it can cause flames to soar into the sky.' (Qing dynasty*The Fairy Traces in the Wild*)

10. Stage 5: 原来线絮就是蚕茧上剥来粗丝,如今持向水边, 漂之[使]白。(民国\秦朝野史)
    *Yuánlái xiànxù jiùshì cánjiǎn shàng bōlái cū sī, rújīn chí xiàng shuǐbiān, piǎo zhī **shǐ** bái*
    Turns out the thread wadding is silkworm cocoon on stripcome thick silk, now held to water edge, bleach it make white
    'It turns out that the thread fiber was made from the thick silk stripped from the cocoon of silkworms, which was dipped into water and bleached to make it white.' (the Republic of China*Unofficial History of the Qin Dynasty*)

11. Stage 6: 飞机的轰鸣声与枪炮声[使]他们惊愕得目瞪口呆。(当代\1994年报刊精选)
    *Fēijī de hōngmíng shēng yǔ qiāngpào shēng **shǐ** tāmen jīng'è dé mùdèngkǒudāi*
    Planes' roar and gunshots sound make them dumbfounded with astonishment
    'The roar of planes and the sound of gunshots caused them to gape with astonishment.' (Contemporary*The Selected Newspapers in 1994*)

In examples (6) to (11), MAKEcxn profiles a single causal activity in which a single energy source, the CAUSER, exerts influence on the CAUSEE. In event perception and event representation, MAKEcxn is mapped onto a mono-clausal structure (Talmy, 2000a, Chapter 8; Talmy, 2000b, Chapter 3), thus being of a high degree of event integration. Previous studies (Smith, 1970; Shibatani, 1976; McCawley, 1978,

Table 4. Main features of SENDcxn and MAKEcxn

Structural/Semantic feature	SENDcxn	MAKEcxn
Subject	[+animacy], [+definiteness], [+volition], [−eventhood]	[−animacy], [−definiteness], [−volition], [+eventhood]
Subject's superior social status	+	−
Semantics of SHI	'to send/order about'	'to cause/make'
Object	[+animacy], [+definiteness], [+volition], [−eventhood]	[−animacy], [±definiteness], [±volition], [+eventhood]
VP	[+action], [+irrealis]	[−action], [−irrealis]
Prototypical syntactic structure	[NP1 + SHI + NP2 + VP]	[NP1 + SHI + NP2 + VP/AP]
Event semantics	• more independence of the complement event and lower degree of event integration • indirect way of causation	• less independence of the caused event and higher degree of event integration • direct way of causation

p. 26; Dowty, 1979; Comrie, 1985, Croft, 1991; Kemmer & Verhagen, 1994; Levin & Rappaport Hovav, 1994) have pointed out that causal chains that can be described by single-clause expressions tend to express direct causation between the CAUSER and CAUSEE. Table 4 systematizes the main structural and semantic features that iconically codify in SENDcxn and MAKEcxn.

The semantic change of SHI from SENDcxn to MAKEcxn not only testifies The Macro-event Hypothesis of a continuum of grammaticalization in languages but also furthers the hypothesis by revealing the process of semantic gradation taking place in the history of Chinese. In Talmy's (2000b, Chapter 3) terms, in MAKEcxn, the logical subject of the caused event, namely the CAUSEE, loses control over its own activity, resulting in a greater degree of structural integration of events and a more direct causal relationship between the events. Therefore, in terms of grammaticalization, there is a significant increase from SENDcxn to MAKEcxn: MAKEcxn in stage 6 represents the highest degree of constructional grammaticalization while SENDcxn in stage 1 is the lowest. Put simply, the increasing cline of constructional integration and grammaticalization is as follows: SENDcxn > MAKEcxn. Currently, there is no clear answer regarding how long it takes for an element to grammaticalize (cf. Narrog & Heine, 2011, p. 8). In this study, it is observed that SHI in Archaic Chinese has already been used as a causative, meaning that it has undergone grammaticalization before the period under discussion. As time goes on, its lexical verbal uses become narrowed and the causative use expands, meaning that SHI is still grammaticalizing.

6. Conclusions

A few conclusions may be drawn from this diachronic analysis of SHI in Chinese. Firstly, the multi-functional behavior of SHI represents a typical case of grammaticalization, with a full verb acquiring the role of conjunction and expressing abstract meanings. Secondly, the semantic division and boundary of the causative and noncausative uses of SHI in Contemporary Chinese are the most clear-cut. Thirdly, the complement event encoded in VP in SENDcxn is construed with greater independence and is of a lower degree of event integration with the main event represented by SHI. In contrast, SHI in MAKEcxn shows a greater level of semantic bleaching, and

MAKEcxn as a whole profiles a single causal activity, thus having a higher degree of event integration. The predominant use of causative SHI in Contemporary Chinese as well as its demise in expressing 'to send' meaning on its own exhibits the functional shift of verbal SHI over time. Fourthly, our results verify The Macro-event Hypothesis of a continuum of grammaticalization in language, and more importantly, first reveal the process of semantic gradation in Chinese. The constructional grammaticalization of SHI in SENDcxn and MAKEcxn suggests that event integration is key to language change.

Talmy's (1991, 2000b) influential work on event typology provides strong arguments for the typology of the Romance and Germanic languages and thereby significantly extends the ways that can be used to examine and account for the typology of a language. The purpose of this paper is to apply the event integration theory and its latest development, the Macro-event Hypothesis, to account for the diachronic development of Chinese, particularly to expound on the semantic change of SHI from a full verb to a causative marker in the history of Chinese. Different from previous studies which look into the diachrony of SHI only by enumerating its partial change with sporadic instances, we take a holistic view of its form, meaning, and change across different stages based on a large amount of authentic data. This study is the first one to take a corpus-based long-term perspective on the diachrony of SHI, and to explain its functional shift based on event integration theory.

Further research on the role of event integration in language change is obviously necessary. We suggest three research topics. First, more quantitative corpus analyses are needed to confirm the motivating force of event integration in constructional grammaticalization suggested here. A second research topic consists in elaborating on the various degrees of event integration in different stages of language change, for instance, by setting up a hierarchical event integration model. Finally, it is important to figure out whether event integration is of psychological reality in language processing in the human mind.

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Appendix 1

Word class	Label	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Total
Conjunction	conj_if	43	67	35	42	95	47	329
Noun	n_mission	1	3	3	4	14	16	41
	n_official	62	328	471	292	452	45	1650
	n_servant	0	0	4	21	7	0	32
Verb	v_appoint	23	5	3	3	16	0	50
	v_send	355	142	149	154	93	11	904
	v_serve	38	30	34	10	12	1	125
	v_indulge	0	0	11	29	12	0	52
	v_use	60	28	61	113	24	227	513
	v_shi(bu)de	1	0	2	48	6	0	57
	v_causative	413	392	221	267	260	645	2198
Idiom	idiom	0	0	2	2	4	3	11
Total	12	996	995	996	985	995	995	5962