Scientific Research Publishing

Open Journal of Applied Sciences, 2025, 15(1), 329-351
https://www.scirp.org/journal/ojapps
ISSN Online: 2165-3925
ISSN Print: 2165-3917

To Change or Not to Change: A Case Study of "V + Dào" Construction as the State Change Event from the Perspective of the Event Integration Hypothesis

Lin Yu

School of Foreign Languages, Henan University, Kaifeng, China
Email: yulin@vip.henu.edu.cn

How to cite this paper: Yu, L. (2025) To Change or Not to Change: A Case Study of "V + Dào" Construction as the State Change Event from the Perspective of the Event Integration Hypothesis. *Open Journal of Applied Sciences*, **15**, 329-351.
https://doi.org/10.4236/ojapps.2025.151021

Received: December 26, 2024
Accepted: January 27, 2025
Published: January 30, 2025

Abstract

This study examines the "V + Dào" construction as a state change event through the lens of the Event Integration Hypothesis. It focuses on how these constructions represent state changes, exploring distinctions between "change" and "stasis". Using a corpus-based approach, the analysis covers the semantic and syntactic features of "V + Dào" constructions and their event integration patterns. The findings highlight the distribution of agency, animacy, and support relations in state change events, emphasizing the complex interaction of internal and external event integrations and their correlation with the conceptual primitives of change and transition. This study offers insights into the lexicalization and grammaticalization processes of the "V + Dào" construction, and potentially the broader verb-complement constructions in Mandarin.

Keywords

"V + Dào" Construction, State Change Event, Event Integration, Semantic Properties, Syntactic Properties

1. Introduction

The integration of macro-events within a single clause is a critical aspect of understanding how events are linguistically encoded, as it reflects the dynamic nature of these events in communication. In Mandarin Chinese, a significant number of such macro-events are represented through verb complement constructions, which serve as central elements in syntactic and semantic analyses. One

such construction that has attracted considerable attention is the "V + Dào" construction. This construction, due to its intricate nature, has been the subject of ongoing debate in traditional Chinese linguistics, with scholars proposing varying classifications, such as directional complement, resultative complement, or phase complement [1]-[23].

The focus of this study on the "V + Dào" construction is driven by two primary factors. First, it exhibits distinctive linguistic characteristics that warrant further examination. Second, it plays a significant role in expressing the completion or culmination of events, particularly in the individualization of state change events. These constructions provide valuable insight into how events are structured and how their semantic and syntactic elements interact.

State change events, which describe situations where an object's or context's specific property transitions between states (change) or maintains its current state (stasis), are particularly relevant to this study. These events share similarities with motion events in terms of their encoding and interpretation, making the "V + Dào" construction an important candidate for exploring the broader event integration processes in Mandarin. Understanding these constructions is crucial because they represent dynamic processes in both physical and cognitive domains, which also needs to be extended beyond Talmy's two-way typology [24] [25].

This paper aims to investigate the event integration processes within temporal contouring events by focusing on the "V + Dào" construction. Specifically, it seeks to answer two key research questions: (1) What are the characteristic features of event integration patterns observed in the "V + Dào" construction as a stare change event in Mandarin? (2) How do the event integration patterns of the "V + Dào" construction relate to its semantic and syntactic properties, and to what extent?

The structure of the paper is as follows: Section 1 introduces the theoretical framework and sets out the research objectives. In Section 2, an event integration model for temporal contouring events is established, drawing upon motion event analysis. Section 3 outlines the methodology employed in this corpus-based study, followed by an examination of the results and discussions in Section 4. Finally, Section 5 summarizes the conclusions, offering insights into the implications of the findings and suggesting directions for future research.

By examining the interactions between event semantics, syntactic structures, and event integration patterns, this study contributes to a deeper understanding of how state change events are linguistically encoded in Mandarin. In doing so, it also expands our knowledge of the broader typology of verb-complement constructions and their role in representing dynamic processes within language.

2. An Event Integration Model of State Change Events

This paper, grounded in the macro-event theory and its processes of event integration, posits that the action-correlating event is metaphorically derived from the motion event. Consequently, the initial task is to delineate the conceptual

primitives—Figural Entity, Ground Entity, Activating Process, Association Function in the framing event, and Support Relation in the co-event. Building on the analogy between motion events and action-correlating events, the subsequent objective in this section is to construct an event integration model for the action-correlating event.

Event integration, as defined by Talmy [26], refers to the cognitive process of reconceptualization, wherein multiple events or conceptual components are synthesized into a unified representation. In this framework, a verb root can encapsulate multiple conceptual elements or events. Taking "the rock rolled down the hill" as an example, in the verb root "roll", two distinct events are integrated: one specifies the "Motion" of the rock through the clause "the rock Moves", while the other conveys the "Manner" of this motion through the clause "the rock rolls (Manner)". Thus, the verb root "roll" encapsulates the conceptual components of both "Motion" and "Manner", integrating these into a single complex event, which is expressed through a unified clause.

Moreover, Talmy (2000) argues that a macro-event consists of two fundamental components: a framing event and a co-event. The co-event is linked to the framing event through a relationship known as the support relation. The framing event itself serves as an abstract event schema, synthesized from various event types, such as motion events, temporal contouring events, state change events, action correlation events, and realization events. In this analysis, we conceptualize the core elements within the framing event, alongside the supportive connection established by the co-event, as schematic conceptual primitives. Moreover, we interpret the realization of these schematic conceptual primitives in different event types as instantiated conceptual primitives. **Figure 1** presents the schematic conceptual primitives within the framing event.

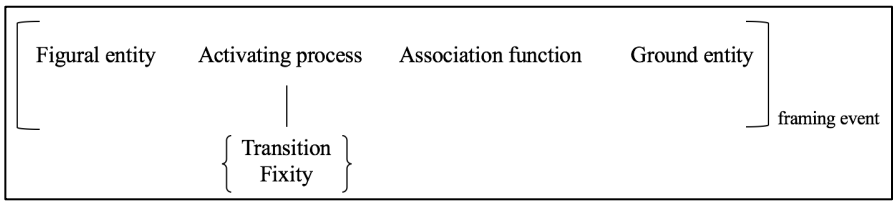

Figure 1. Talmy (2000)'s schematic conceptual primitives in the framing event.

As shown in **Figure 1**, Talmy (2000: 218) identifies four fundamental schematic conceptual primitives that are integral to the framing event [26].

(1) Figural Entity: This component, which is currently the focus of attention, represents the main object or subject within the event. It is the element that captures the observer's interest, standing out in the context of the surrounding scene.

(2) Ground Entity: Serving as a backdrop or reference point, the ground entity contrasts with the figural entity. It provides context and spatial orientation, allowing the observer to understand the positioning and relevance of the figural entity within the broader event landscape.

(3) Activation Process: This element introduces dynamism into the event, characterized by the interplay between transition and fixity. It encapsulates concepts such as motion versus stationariness and change versus stasis, highlighting the fluidity and variability inherent in events.

(4) Association Function: This function delineates the relationship between the figural and ground entities, elucidating how these components interact and relate to one another within the event's framework.

These conceptual primitives exhibit adaptability across various event types, which enables their instantiation and reification in diverse contexts. By examining how these primitives' function in different scenarios, we can gain insights into the underlying structures of events and the cognitive processes involved in their interpretation. The interplay of these components fosters a richer understanding of how macro-events are perceived and conceptualized, thus enhancing our comprehension of event representation in cognitive linguistics.

3. A Corpus-Based Methodology

In a state change event, a specific property is associated with a given object or situation. This property may undergo transformation, categorized as a "change", or remain constant, classified as "stasis". The type of state transition mirrors the path type observed in motion events [26]. Similar to motion events or temporal contouring events, state change events can manifest as either "state change" or "state stasis" across two primary scenarios: existence and condition [26]. In the case of existence, state change events are conceptualized as transitions "from presence to absence" or "from absence to presence". For the condition scenario, state change events pertain to either "physical" or "cognitive" transformations. In this study, physical transformations encompass material behaviors (e.g., "hit", "broke", "push"), physiological activities (e.g., "smile", "laugh", "sigh"), and verbal behaviors (e.g., "say", "tell", "speak", "praise"). Conversely, cognitive transformations include processes of perception (e.g., "see", "look"), reaction (e.g., "like", "please"), and recognition (e.g., "know", "believe", "conceive"). This framework implies that state change events constitute the most significant proportion of the data analyzed in this study.

Based on the above, the data collection process for the "V + Dào" construction involved three systematic steps. First, a representative corpus was selected as the primary data source for this study. Second, the term "Dào" was used as a keyword to conduct a comprehensive search, yielding all relevant concordances. Finally, the resulting data were meticulously filtered sentence-by-sentence, retaining only those instances that conformed to the "V + Dào" construction.

The first step in data selection involves meeting three specific criteria. (1) The data must exhibit a colloquial style, avoiding literary, stilted, or otherwise formal expressions. (2) The data should occur frequently in natural speech rather than being rare or occasional. (3) The data must be pervasive, encompassing a wide range of semantic notions rather than being narrowly confined [27]. Based on

these criteria, we selected the "Spoken Language" section from the Center for Chinese Linguistics (CCL) corpus at Peking University. The "Spoken Language" data originate from sources such as the transcriptions of the Beijing Dialect Survey Data (1982), twenty-one dialogues across various media, and five television interviews, including Dating with Lu Yu.

In the second step, the Chinese character "Dào" was employed as the primary keyword for retrieval, yielding a total of 2471 instances within temporal contouring events. During this process, several duplicated transcriptions were identified. To ensure the integrity and reproducibility of the data, all duplicates were preserved in their original form.

The final step involved identifying and isolating instances strictly conforming to the "V + Dào" construction. A manual sorting process was conducted, filtering the dataset to extract the relevant 2471 sentences for analysis. Based on the internal and external event integration model of the "V + Dào" construction and its syntactic properties, a tentative tagging scheme is established and listed with the variables and their corresponding values in Table 1 as follows.

Table 1. The tagging scheme of the "V + Dào" construction as state change event.

Three Levels	Variables		Values
Event Semantics	Figural Entity (FigEnt)	Agentive (Agen)	[True]; [False]
		Animate (Anim)	[True]; [False]
	Ground Entity (GroEnt)		property [property]
	Activating Process (ActiPro)		[change]; [stasis]
	Association Function (AssoFun)		transition type [transition]
	Support Relation (SuppRel)		[precursion]; [enablement]; [cause]; [manner]; [subsequence]; [constitutedness]
Syntactic Properties	Syntactic Types of "V + Dào" (SynType_VD)		Free Complements (FC); Forward Bound Complements (FBC); Backward Bound Complements (BBC); Bound Complements (BC)
	Syntactic Types of the Following Component "X" (SynType_X)		temporal nouns (TempN); locative nouns (LocaN); patient nouns (PtienN); stimulus nouns (StimuN); degree nouns (DgreN); temporal clauses (TempC); stimulus clauses (StimuC); degree clauses (DgreC); patient clauses (PtienC); temporal adjectives (TempA); degree adjectives (DgreA); stimulus adjectives (StimuA); non-texts (NoT)
Event Integration Patterns	Internal Event Integration (IEI)	"V" (IEI_V)	[Activating Process] + [Support Relation]
		"Dào" (IEI_D)	[Activating Process] + [Association Function]
	External Event Integration (EEI)	The Types of Verb-complement Construction (EEI_Type)	Verb-Directional construction (VDir); Verb-Resultative construction (VRes); Verb-Phase construction (VPha)

Meanwhile, Figure 2 provides an overview of the "V + Dào" constructions in the context of state change events. The data structure outlines the characteristics of each variable, while the summary highlights representative instances for each variable, offering insights into their distribution and usage.

```
> str(EEI_VD_StaChanEvt)
'data.frame':   2471 obs. of  13 variables:
 $ Chin_VD    : Factor w/ 169 levels "上升到","上涨到",..: 33 50 147 48 42 57 57 57 57 57 ...
 $ FigEnt_Agen: logi  FALSE FALSE TRUE TRUE TRUE FALSE ...
 $ FigEnt_Anim: logi  FALSE FALSE TRUE TRUE TRUE TRUE ...
 $ GroEnt     : Factor w/ 1 level "property": 1 1 1 1 1 1 1 1 1 1 ...
 $ ActiPro    : Factor w/ 2 levels "change","stasis": 1 1 1 1 1 1 1 1 1 1 ...
 $ AssoFun    : Factor w/ 2 levels "change+transition",..: 1 1 1 1 1 1 1 1 1 1 ...
 $ SuppRel    : Factor w/ 8 levels "cause","cause+path",..: 1 1 1 1 5 8 8 8 8 8 ...
 $ SynType_VD : Factor w/ 4 levels "BBC","BC","FBC",..: 3 3 3 3 3 3 3 3 3 3 ...
 $ SynType_X  : Factor w/ 9 levels "DgreA","DgreC",..: 3 9 6 9 9 9 9 9 9 9 ...
 $ IEI_V      : Factor w/ 9 levels "change+cause",..: 1 1 1 1 4 7 7 7 7 7 ...
 $ IEI_D      : Factor w/ 2 levels "change+transition",..: 1 1 1 1 1 1 1 1 1 1 ...
 $ EEI_VD     : Factor w/ 1 level "StaChanEvt": 1 1 1 1 1 1 1 1 1 1 ...
 $ EEI_Type   : Factor w/ 2 levels "VPha","VRes": 2 2 2 2 2 2 2 2 2 2 ...
> summary(EEI_VD_StaChanEvt)
   Chin_VD     FigEnt_Agen     FigEnt_Anim          GroEnt       ActiPro
 看到   : 656   Mode :logical   Mode :logical   property:2471   change:2462
 想到   : 193   FALSE:425       FALSE:321                      stasis:   9
 得到   : 121   TRUE :2046      TRUE :2150
 受到   : 115
 感到   : 103
 讲到   :  94
 (Other):1189
             AssoFun           SuppRel     SynType_VD   SynType_X                  IEI_V
 change+transition:2462   cause      :2175   BBC: 109   StimuN :1267   change+cause      :2172
 stasis+transition:   9   subsequence: 136   BC : 302   StimuC : 431   change+subsequence: 136
                          manner     : 100   FBC:1989   NoT    : 322   change+manner     : 102
                          cause+path :  24   FC :  71   PtienN : 266   change+cause+path :  24
                          path       :  19              DgreN  :  79   change+path       :  19
                          existence  :   8              StimuA :  71   stasis+existence  :   8
                          (Other)    :   9              (Other):  35   (Other)           :  10
              IEI_D            EEI_VD     EEI_Type
 change+transition:2462   StaChanEvt:2471   VPha:2101
 stasis+transition:   9                     VRes: 370
```

Figure 2. The structure and summary of "V + Dào" constructions in state change events.

Figure 2 presents the "V + Dào" constructions, encompassing 2471 observations or sentences with 13 variables relevant to state change events. The variable Chin_VD contains 169 distinct levels or instances of the "V + Dào" construction, as detailed in Figure 2. The variables FigEnt_Agen and FigEnt_Anim exhibit the highest frequencies for true values, highlighting their prominence in state change events.

In this framework, the ground entity (GroEnt) in state change events represents the property undergoing transformation, while the activating process (ActiPro) can take the form of either a "change" or "stasis". The association function (AssoFun) uniformly assumes the value "transition", whereas the support relation (SuppRel) comprises 8 distinct values.

The syntactic types of "V + Dào" constructions (SynType_VD) include four categories: backward bound complements (BBC), bound complements (BC), free complements (FC), and forward bound complements (FBC). Meanwhile, the syntactic types of "X" (SynType_X) are represented by nine values: degree adjectives (DgreA), degree nouns (DgreN), degree clauses (DgreC), patient nouns (PtienN), patient clauses (PtienC), stimulus nouns (StimuN), stimulus clauses (StimuC), stimulus adjectives (StimuA), and non-text elements (NoT).

The internal event integration for the verb (IEI_V) spans ten values, including "change + cause", "change + cause + path", "change + manner", "change + concomitance", "change + subsequence", "change + path", "change + path + path", "stasis + manner", and "stasis + existence". For "Dào", the internal event integration (IEI_D) consists of two values: "change + transition" and "stasis + transition". The external event integration (EEI_Type) can be categorized as either a verb phase construction (VPha) or a verb resultative construction (VRes).

Overall, the distribution of "V + Dào" constructions as state change events is illustrated in Figure 3.

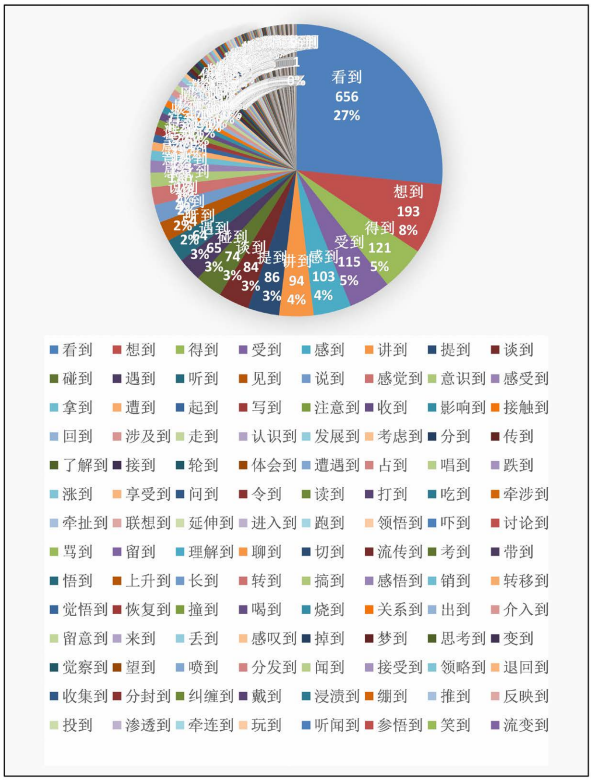

Figure 3. The pie chart of Chin_VD in state change events.

The above Figure 3 lists the top ten most frequent values or instances of Chin_VD in "V + Dào" constructions. These include "看到(see, frequency = 656)", "想到(think about, frequency = 193)", "得到(obtain, frequency = 121)", "受到(suffer, frequency = 115)", "感到 (feel, frequency = 103)", "讲到(speak, frequency = 94)", "提到(mention, frequency = 86)", "谈到(talk, frequency = 84)", "碰到(encounter,

frequency = 74)”, “遇到(meet, frequency = 65)”, “听到(listen, frequency = 103)”, “见到(see, frequency = 103)”, and “说到(say, frequency = 50)”.

Aligned with the research objectives, the study delves into the “V + Dào” constructions in state change events, focusing on their event semantics, syntactic properties, and patterns of event integration.

4. “V + Dào” Constructions as State Change Events: Results and Discussion

In the analysis of “V + Dào” constructions as state change events, it is essential to explore three interrelated dimensions: event semantics, syntactic properties, and event integration patterns. State change events are defined by transitions in a particular property associated with an object or situation, where the property can either undergo a “change” or remain in a state of “stasis”. This distinction mirrors the transition observed in motion events, where path types reflect the trajectory of change [26]. Much like motion events or temporal contouring events, state change events can be categorized into two fundamental situations: existence and condition. In the existence situation, a state change is conceptualized as a transition from presence to absence, or vice versa. In contrast, the condition situation involves changes related to either physical or cognitive aspects. Physical changes encompass material actions (e.g., “hit”, “break”, “push”), physiological responses (e.g., “smile”, “laugh”, “sigh”), and verbal behaviors (e.g., “say”, “tell”, “speak”, “praise”). Cognitive changes, on the other hand, pertain to processes like perception (e.g., “see”, “look”), emotional reaction (e.g., “like”, “please”), and recognition (e.g., “know”, “believe”, “conceive”).

In this study, the “V + Dào” construction is analyzed through the lens of state change events, focusing on its semantic properties, syntactic characteristics, and event integration patterns. The event semantics of the “V + Dào” construction are explored in terms of how they convey transitions of state or stasis, particularly in the context of physical and cognitive changes. Syntactically, the study investigates the structure and formation of these constructions, examining how the verb and complement combine to express state transitions. Finally, the event integration patterns of “V + Dào” constructions are analyzed, highlighting how these constructions combine with other elements in the sentence to form a cohesive event representation. By examining these three dimensions, this study aims to provide a comprehensive understanding of how “V + Dào” constructions function as linguistic markers of state change events in Mandarin Chinese.

4.1. Event Semantics of “V + Dào” Constructions as State Change Events

As indicated above, the variable of GroEnt contains only one value of “property”, thus we are mainly concerned with variables of FigEnt_Agen, FigEnt_Anim, ActiPro, AssoFun and SuppRel in this Section.

Firstly, Table 2 provides us with the distribution of the agency and animacy

features of the figural entities in state change events, and we find that true values account for the larger proportions in FigEnt_Agen and FigEnt_Anim. Different from motion events and temporal contouring events, the combination between false values in FigEnt_Agen and true values in FigEnt_Anim also have a high frequency in the data. For example, in the top ten frequent "V + Dào" constructions, such as "得(obtain, frequency = 189)" and "受(suffer, frequency = 103)", the figural entities of them are supposed to be non-agentive but animate under normal circumstances.

Table 2. Agency and animacy features of figure entities in state change events.

FigEnt_Agen \ FigEnt_Anim	False	True	Total
FALSE	223	203	426 (17%)
TRUE	98	1947	2045 (83%)
Total	321 (13%)	2150 (87%)	2471 (100%)

[1] 我也能**感觉到**那种幽默。
wǒ yě néng gǎn jiào dào nà zhǒng yōu mò
I also can feel arrive that kind of humor
I can also **felt** that kind of humor.

[2] 网络**起到**了很大的作用。
wǎng luò qǐ dào le hěn dà de zuò yòng
internet play arrive Asp a big role
The internet has **played** a big role.

[3] 这个人为什么可以**得到**这么好的待遇。
zhè gè rén wéi shí me kě yǐ dé dào zhè me hǎo de dài yù
this man why can get arrive so much good salary
Why does this man **get** so much good salary?

[4] 房子**涨到**一定程度的时候。
fáng zǐ zhǎng dào yī dìng chéng dù de shí hòu
house go up arrive a certain degree time
(When) the house **goes up to** a certain degree.

For example, "我(I)" in [1] is both agentive and animate, "网络(the internet)" in [2] is agentive but inanimate, "这个人(this man)" in [3] is non-agentive but animate, and "房子(the house)" in [4] is non-agentive and inanimate. As for the correlation coefficient between the FigEnt_Agen / FigEnt_Anim and the variable of "V + Dào" constructions in state change events, the variable of "V + Dào" constructions (Chin_VD) shares a weak correlation to FigEnt_Agen ($t = 0.27$, $p < 0.01$) and FigEnt_Anim ($t = 0.18$, $p < 0.01$).

Secondly, the variable of ActiPro involves two values that are represented by the conceptual primitives of the "change" (frequency = 2549) and the "stasis" (frequency = 11). As Talmy (2000b: 237) mentions, the "association process" in state

change event can be a "change" in the property or an "unchanging continuation" (stasis) of that property [26]. When the value of ActiPro is the "stasis" in the state change event, two related circumstances of "V + Dào" constructions will be taken into consideration. See the example of "站到(stand at)" in example [5] and "占到(account for)" in example [6].

[5] 我是**站到**了刘招华人生河流的尽头。

wǒ shì zhàn dào le Liu Zhaohua rén shēng hé liú de jìn tóu

I am stand arrive Asp Liu Zhaohua life river the end

I'm **standing at** the end of Liu Zhaohua's life river.

[6] 当当网的销售额已经**占到**中国图书市场的 15%。

Dāng Dāng wǎng de xiāo shòu é yǐ jīng zhàn dào zhōng guó tú shū shì chǎng de 15%

Dāng Dāng On-line shop amount of sales already account for arrive China's book market 15%

The amount of sales in Dāng Dāng On-line shop has already **accounted for** 15% of China's book market.

The value of ActiPro in [5] designates the "state", which means "my situation is at the end of Liu Zhaohua's life river", and the value of ActiPro in [6] indicates that the "existence" of sales has amounted to 15% of China's book market.

Thirdly, the variable of AssoFun corresponds to ActiPro as indicated in Figure 2, and the correlation coefficient between them is rather high ($t = 1$, $p < 0.01$). The values in AssoFun of the "V + Dào" constructions are represented by the conceptual primitives of "change + transition" and "stasis + transition". However, the variable (Chin_VD) in state change events bears a rather weak correlation to ActiPro/AssoFun ($t = -0.07$, $p < 0.01$).

Finally, the variable of SuppRel contains 8 values in the "V + Dào" constructions as state change events – "cause", "subsequence", "manner", "cause + path", "path", "existence", "concomitance", and "path + path". Their distribution is summarized in Table 3.

Table 3. The distribution of support relation in state change event.

SuppRel	Frequency	Percentage
cause	2175	88.06%
subsequence	136	5.51%
manner	100	4.01%
cause + path	24	0.97%
path	19	0.77%
existence	8	0.32%
concomitance	5	0.20%
path + path	4	0.16%
Total	**2471**	**100.00%**

In the above examples of state change events, the support relations of "感觉到(feel)" in [1] and "起到(play)" in [2] are represented by the conceptual primitive of the "cause". The support relation in [3] "得到(obtain)" is the "subsequence", for the action occurs only after the state changes from having nothing to having something. In other words, somebody should give first, and then the figural entity can obtain the thing. Another similar example of "subsequence" is "收到(receive)". In [4] the support relation of "涨到(go up to)" is "cause+path", for there is an "ascending" meaning (*i.e.* the traversal vector of the path) in "涨(go up)". The support relation of "占(account for)" in [6], however, is marked as "existence", which is ignored by Talmy, for the result of the percentage is obtained by the existence of the amount of sales.

[7] **喝到**小便变白。

hē dào xiǎo biàn biàn bái

drink arrive the urine turn white

Drink until the urine turns white.

[8] 又**回到**像过去一样。

yòu huí dào xiàng guò qù yī yàng

again return arrive like the past the same

Again (it) **goes back** as before.

[9] 从蒋介石一直**骂到**李登辉。

cóng Jiǎng Jièshí yī zhí mà dào Lǐ Dēnghuī

from Jiǎng Jièshí continuously scold arrive Lǐ Dēnghuī

(He) is continuously **scolding** from Jiǎng Jièshí **to** Lǐ Dēnghuī.

[10] 台下的观众**笑到**全身抽筋。

tái xià de guān zhòng xiào dào quán shēn chōu jīn

stage under audience laugh arrive the whole body cramp

The audience under the stage **laughed to the degree** that their whole bodies cramp.

[11] (他们)**进入到**了那个(网络)世界里。

(tā men) jìn rù dào le nà gè (wǎng luò) shì jiè lǐ

(They) enter into Asp that (internet) world

(They) **entered into** that (internet) world.

Moreover, in example [7] the support relation of "喝到(drink until)" is the "manner" of drinking. "回到(go back)" in [8] expresses the "path" in the support relation. "Dào" in [9], in fact, is an instantiation of the entrenched construction "从……到……(from ... to ...)", but at the same time we can still consider "骂到(scold to)" as an instance of the "V + Dào" construction. Similar to Talmy's (2000b: 46) example of "whistled past", the support relation in "骂到(scold to)" is the "concomitance". The construction of "笑到(laugh to the degree that)" in example [10] also expresses the "concomitance" in the support relation. In example [11], since the internet world is not a real physical but an abstract world, this example cannot be taken as a motion event but a state change event. On this account, example [11] belongs to the situation of "change of existence", for it changes from

being absent (never enter into the internet world) to being present (enter into the internet world). Moreover, the support relation in "进入(enter into)" is represented by the conceptual primitives of "path + path".

As for the correlation coefficient between SuppRel and the variable of the "V + Dào" construction (Chin_VD) in state change events, the distribution of the "V + Dào" construction shares a weak correlation to SuppRel ($t = -0.2$, $p < 0.01$). The variable of Chin_VD also shares a moderate correlation with FigEnt_Agen ($t = -0.45$, $p < 0.01$), but bears a weak correlation with FigEnt_Anim ($t = -0.15$, $p < 0.01$).

4.2. Syntactic Properties of "V + Dào" Constructions as State Change Events

In this Section, we proceed to examine the syntactic properties in terms of SynType_VD and SynType_X. SynType_VD consists of 4 values – backward bound complements (BBC), bound complements (BC), free complements (FC), and forward bound complements (FBC). The values of SynType_X can be represented by degree adjectives (DgreA), degree nouns (DgreN), degree clauses (DgreC), patient nouns (PtienN), patient clauses (PatienC), stimulus nouns (StimuN), stimulus clauses (StimuC), stimulus adjectives (StimuA), and non-texts (NoT). And their detailed distribution is summarized in Table 4 and Figure 4.

Table 4. The distribution of syntactic properties in state change events.

	StimuN	StimuC	NoT	PtienN	DgreN	StimuA	DgreC	PtienC	DgreA	Total
FBC	1023	375	294	248	22	8	4	12	3	1989
BC	154	53	24	3	4	63	1	0	0	302
BBC	41	2	2	3	46	1	13	0	1	109
FC	48	1	2	12	7	0	0	0	1	71
Total	1266	431	322	266	79	71	18	12	5	2471

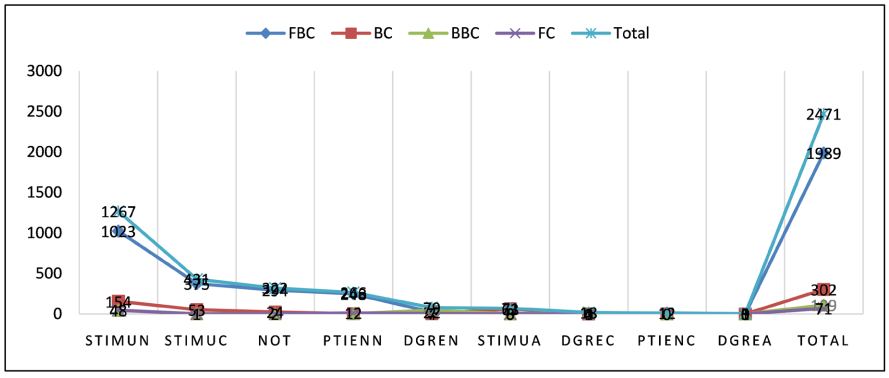

Figure 4. The line chart of syntactic properties in state change events.

In Table 4 and Figure 4, we find that the value of FBC in the variable of SynType_VD is the most frequent one. The most frequent value of SynType_X in FBC

is the stimulus noun (StimuN), in BC it is the stimulus noun (StimuN), in BBC it is the degree noun (DgreN), and in FC it is still the stimulus noun (StimuN). From these we can infer that the first verbs are often taken as the main verbs of "V + Dào" constructions in the case of the state change events, and most of these verbs relate to the cognitive verbs which might include the perception verbs, reaction verbs and recognition verbs as mentioned at the beginning of Section 5.3.

In example [1] to [11], the value of SynType_VD in [1] is FBC, for we can say "感觉到那种幽默(felt that kind of humor)" and "感觉那种幽默(feel that kind of humor)", but not "*到那种幽默(*arrive that kind of humor)", and its value of SynType_X is a stimulus noun (StimuN). Similarly, the values of SynType_VD in [2]-[4] and [6] are all FBC, and their values of SynType_X are represented by a patient noun (PtienN), a stimulus noun (StimuN), a degree noun (DgreN), and a stimulus noun (StimuN), respectively. The values of SynType_VD in [5], [10] are both BC, and their values of SynType_X are represented by a stimulus noun (StimuN) and a degree noun (DgreN), respectively. The values of SynType_VD in [7]-[9] are all BBC, and their values of SynType_X are represented by a degree clause (DgreC), a stimulus noun (StimuN), and a patient noun (PatienN), respectively. In [11], the value of SynType_VD is FC, and the value of SynType_X is a stimulus noun (StimuN). See the following for more examples.

[12] (他)**爱到**那个地步(我)就愿意。

(tā) ài dào nà gè dì bù (wǒ) jiù yuàn yì

(he) love arrive that kind of degree (I) will

(If he can) **love to** that kind of degree, (then I) will.

[13] 我试过上午**睡到**自然醒。

wǒ shì guò shàng wǔ shuì dào zì rán xǐng

I tried morning sleep arrive wake up naturally

I tried to **sleep to the degree** that I can wake up naturally.

The value of SynType_VD in [12] is BBC, for we can articulate "爱到那个地步(love to that kind of degree)" and "到那个地步(to that kind of degree)", but not "*爱那个地步(*love that kind of degree)", and its value of SynType_X is a degree noun (DgreN). And it is similar in example [13], the SynType_VD is BBC and its SynType_X is a degree clause (DgreC).

As for the correlation coefficient between the SynType_VD/SynType_X and the variable of "V + Dào" constructions (Chin_VD) in state change events, the distribution of "V + Dào" constructions bears a weak correlation with the variables of SynType_VD ($t = -0.04$, $p < 0.05$) and SynType_X ($t = 0.19$, $p < 0.01$).

4.3. Event Integration Patterns of "V + Dào" Constructions as State Change Events

In this Section, we mainly discuss the internal and external event integration patterns of "V + Dào" constructions in state change events, and how they are influenced by their semantic and syntactic properties of "V + Dào" constructions. In the internal event integration, both IEI_V and IEI_D have more than two

(including two) conceptual primitives conflated in them. In the external event integration, the variable of EEI_VD belongs to the state change event, and it can be analyzed in terms of "IEI_V + IEI_D". The variable of EET_Type can be the verb-phase construction (VPha) or the verb-resultative construction (VRes).

Firstly, IEI_V has 9 values: "change + cause", "change + subsequence", "change + manner", "change + cause + path", "change + path", "change + concomitance", "change + path + path", "stasis + existence", "stasis + manner". Table 5 and Figure 5 exhibit the detailed distribution of IEI_V.

Table 5. The distribution of IEI_V in state change events.

IEI_V	Frequency	Percentage	Examples
change + cause	2172	87.94%	网络起到了很大的作用。 (The internet has played a big role.)
change + subsequence	136	5.51%	这个人为什么可以得到这么好的待遇。 (Why does this man get so much good salary?)
change + manner	102	4.09%	喝到小便变白。 (Drink until the urine turns white.)
change + cause + path	24	0.97%	房子涨到一定程度的时候。 (When the house goes up to a certain degree.)
change + path	19	0.77%	又回到像过去一样。 (Again (it) goes back as before.)
stasis + existence	8	0.32%	当当网的销售额已经占到中国图书市场的15%。 (The amount of sales in Dāng Dāng On-line shop has already accounted for 15% of China's book market.)
change + concomitance	5	0.20%	台下的观众笑到全身抽筋。(The audience under the stage laughed to the degree that their whole bodies cramp.)
change + path + path	4	0.16%	(他们)进入到了那个(网络)世界里。 ((They) entered into that (internet) world.)
stasis + manner	1	0.04%	我是站到了刘招华人生河流的尽头。 (I'm standing at the end of Liu Zhaohua's life river.)
Total	**2471**	**100.00%**	

In Table 5 and Figure 5, we find that the most frequent event integration pattern in IEI_V is the value of "change + cause", then followed by the values of "change + subsequence", "change + manner", and so on. The value of "stasis + manner" is the least frequent one, but it does not mean it is not significant. The internal event integration patterns in IEI_V can be formatted into two situations, one is that 2 conceptual primitives are conflated in IEI_V (formulated as "2"), and

the other is that 3 conceptual primitives are conflated in IEI_V (formulated as "3"). See Table 6 and Figure 6 for details.

Table 6 and Figure 6 exhibit the internal event integration patterns of IEI_V in "V + Dào" constructions. For instance, the values of IEI_V in "感觉到(feel)" of [1] and "起到(play)" of [2] are both represented by "change + cause". In

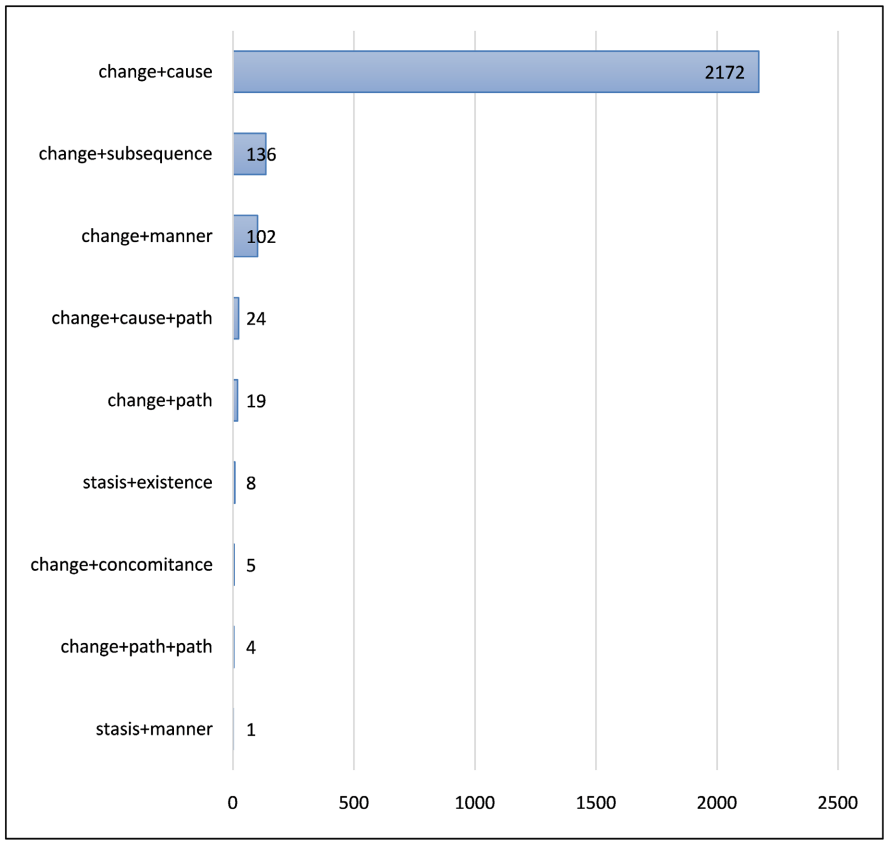

Figure 5. The bar chart of IEI_V in state change events.

Table 6. The formats and the distribution of IEI_V in state change events.

Formats	IEI_V	Frequency	Total
2 (Two conceptual primitives are conflated in IEI_V)	change + cause	2172	2443
	change + subsequence	136	
	change + manner	102	
	change + path	19	
	stasis + existence	8	
	change + concomitance	5	
	stasis + manner	1	
3 (Three conceptual primitives are conflated in IEI_V)	change + cause + path	24	28
	change + path + path	4	
Total	**9**	**2471**	**2471**

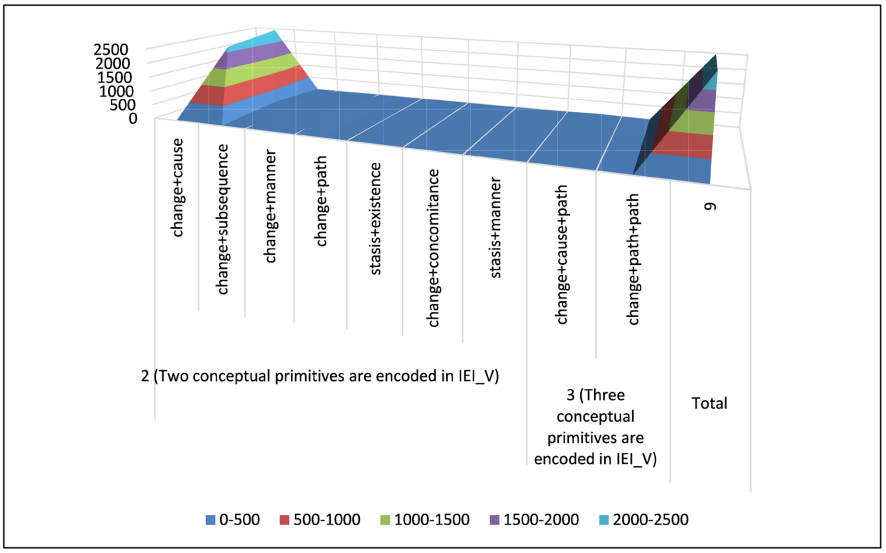

Figure 6. The surface chart of the internal event integration patterns in IEI_V (state change events).

example [3], the value of IEI_V in "得到(obtain)" is represented by "change + subsequence", for the action only occurs after the state change from having nothing to having something. In example [7], the value of IEI_V in "喝到(drink until)" is represented by "change + manner". The value of IEI_V "涨到(go up to)" of [4] contains 3 conceptual primitives of "change + cause + path", for there is an "ascending" meaning (*i.e.* the traversal vector of path) in the "change" of "涨(go up)", and this state change is also caused by the verb "涨(go up)". The internal event integration patterns such as "change + cause + path" are not pervasive in state change events, for most of them occur in terms of motion events within the physical space. As these examples are not typical motion events that, in fact, describe the changes in the "property", they are sorted into state change events. All these values such as "change + cause + path" in IEI_V are followed by degree nouns (DgreN), such as "增加到三粒(increased to the quantity of three)", "增长到多少亿(increased to how much billion)", "长到一百一(increased to 110)", "上升到百分之六十(increased to 60%)", etc.

Secondly, the variable of IEI_D is highly correlated to the variables of ActiPro and IEI_V, and it has two internal event integration patterns, one is "chang + transition" and the other is "stasis + transition". Therefore, IEI_D can be formatted as "2", implying that 2 conceptual primitives are conflated in it.

Thirdly, based on the formula of "EEI_VD = IEI_V + IEI_D", the variable of EEI_VD can be formatted as "2 + 2" or "3 + 2". See **Table 7**.

In **Table 7**, we find that the shared conceptual primitive of "change" or "stasis" is shared and mapped between the variables of IEI_V and IEI_D. In addition, the various support relations in IEI_V and the "transition" in IEI_D can provide conceptual slots for each other so as to form a gestalt of the unitary event.

Finally, the majority of the values in the EEI_Type are the verb-phase

constructions (VPha), and sometimes they are rendered as the verb-resultative constructions (VRes), especially when the value of SynType_X is a patient noun (PatienN) or a patient clause (PatienC).

Table 7. The formats and the distribution of EEI_VD in state change events.

Formats	EEI_VD	Frequency	Total
2 + 2	(change + cause) + (change + transition)	2172	2443 (99%)
	(change + subsequence) + (change + transition)	136	
	(change + manner) + (change + transition)	102	
	(change + path) + (change + transition)	19	
	(stasis + existence) + (stasis + transition)	8	
	(change + concomitance) + (change + transition)	5	
	(stasis + manner) + (stasis + transition)	1	
3 + 2	(change + cause + path) + (change + transition)	24	28 (1%)
	(change + path + path) + (change + transition)	4	
Total	**9**	**2471**	**2471 (100%)**

As for the correlation coefficients[1] between the IEI_V / IEIE_D / EEI_Type and the variable of the "V + Dào" construction (Chin_VD) in state change events, the distribution of "V + Dào" constructions bears a weak correlation with the distribution of IEI_V ($t = -0.20$, $p < 0.01$) and IEI_D ($t = -0.07$, $p < 0.01$), and it has a moderate correlation to the distribution of EEI_Type ($t = -0.34$, $p < 0.01$) [28].

In short, the event integration patterns of "V + Dào" constructions and their correlations with their semantic/syntactic properties can be preliminarily summarized in the following two aspects.

(1) The first aspect relates to the event integration patterns of "V + Dào" constructions in state change events. Based on the discussion above, we find:

① In the internal event integration, IEI_V can integrate or conflate 2 or 3 conceptual primitives (see Appendix I);

② IEI_D only involves 2 conceptual primitives in it, including "change + transition" and "stasis + transition";

③ In the external event integration, the variable of EEI_VD refers to the state change event. According to the formula of "EEI_VD = IEI_V + IEI_D", EEI_VD can be formatted as "2 + 2" or "3 + 2", in which IEI_V and IEI_D can be fused together by means of their shared conceptual primitive of the change or the stasis, and they can also provide the conceptual slots for each other;

[1]A correlation coefficient is a statistical measure that quantifies the degree to which two variables are linearly related. It is commonly denoted by r (for Pearson correlation) or another symbol depending on the measured correlation type. The correlation coefficient ranges between -1 and 1. For instance, (1) "r = 1" indicates a perfect positive linear relationship; as one variable increases, the other increases proportionally; (2) "r = −1" implies a perfect negative linear relationship, as one variable increases, the other decreases proportionally; (3) "r = 0" suggests no linear relationship between the variables [28].

④ The majority of the values in EEI_Type are the verb-phase constructions (VPha), and the rest are the verb-resultative constructions (VRes).

(2) The second aspect pertains to the correlations between the event integration patterns of "V + Dào" constructions and their semantic/syntactic properties in state change events. In the internal event integration, the variables of IEI_V and IEI_D are taken into consideration, and the variables of Chin_VD and EET_Type are calculated in the external event integration.

Above all, Table 8 provides us with all the correlation coefficients of the "V + Dào" constructions in state change events.

In Table 8, IEI_V is strongly correlated to SuppRel, moderately correlated to FigEnt_Agen and EEI_Type, and weakly correlated to ActiPro, AssoFun and FigEnt_Anim, IEI_V and SynType_X. Their correlated coefficients can be descendingly ordered as "(SuppRel) > (FigEnt_Agen > EEI_Type) > (ActiPro > AssoFun > FigEnt_Anim > IEI_V > SynType_X)" and visualized in Figure 7.

In the internal event integration of IEI_D, it bears a strong correlation with ActiPro and AssoFun and a weak correlation with IEI_V, FigEnt_Anim, SuppRel and SynType_X. The scalar hierarchy is "(ActiPro > AssoFun) > (IEI_V > FigEnt_Anim > SuppRel > SynType_X)", and it is visualized in Figure 8.

In the external event integration, the variable of EEI_Type is strongly correlated to FigEnt_Agen, moderately correlated to SuppRel, IEI_V and FigEnt_Anim, and weakly correlated to SynType_X and SynType_VD. The correlation hierarchy is "(FigEnt_Agen) > (SuppRel > IEI_V > FigEnt_Anim) > (SynType_X > SynType_VD)". See Figure 9 for details.

Table 8. The correlation coefficients among the variables in state change events.

IEI_StaChanEvt	VD_Chin	FigEnt_Agen	FigEnt_Anim	ActiPro	AssoFun	SuppRel	SynType_VD	SynType_X	IEI_V	IEI_D	EEI_Type
VD_Chin	1	0.27	0.18	−0.06	NA	−0.2	−0.04	0.19	−0.2	NA	−0.34
FigEnt_Agen	0.27	1	0.53	*0.03	NA	−0.45	−0.1	0.09	−0.44	NA	−0.62
FigEnt_Anim	0.18	0.53	1	−0.14	NA	−0.15	*−0.02	0.23	−0.15	NA	−0.33
ActiPro	−0.06	*0.03	−0.14	1	NA	0.14	*−0.002	−0.05	0.18	NA	*−0.02
AssoFun	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SuppRel	−0.2	−0.45	−0.15	0.14	NA	1	0.05	*0.02	0.98	NA	0.44
SynType_VD	−0.04	−0.1	*−0.02	*−0.002	NA	0.05	1	0.07	0.05	NA	0.14
SynType_X	0.19	0.09	0.23	0.23	NA	*0.02	0.07	1	*−0.02	NA	−0.15
IEI_V	−0.2	−0.44	−0.15	−0.15	NA	0.98	0.05	*−0.02	1	NA	0.43
IEI_D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EEI_Type	−0.34	−0.44	−0.33	*−0.02	NA	0.44	0.14	−0.15	0.43	NA	1

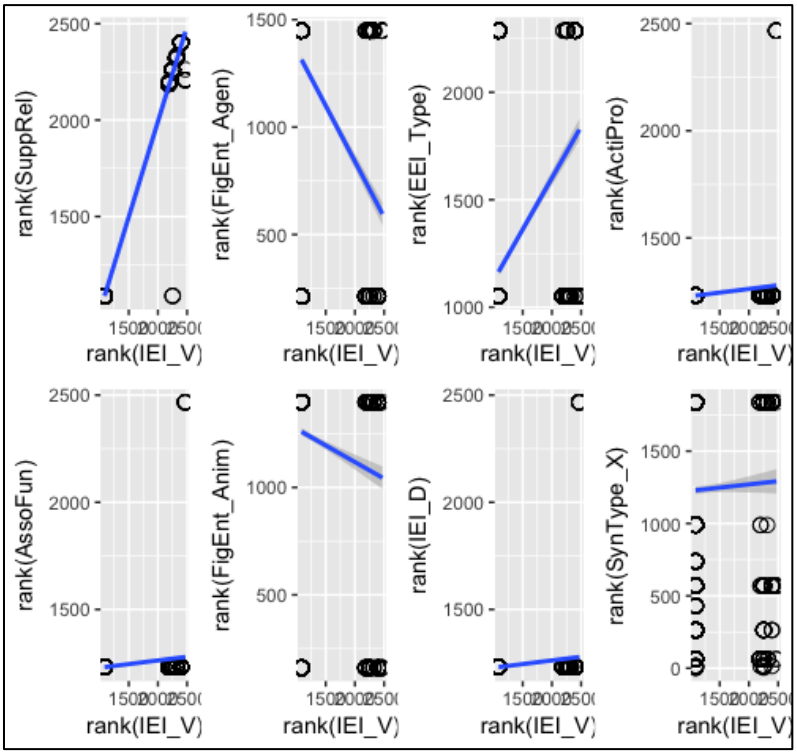

Figure 7. The visualization of the correlations of IEI_V in state change events.

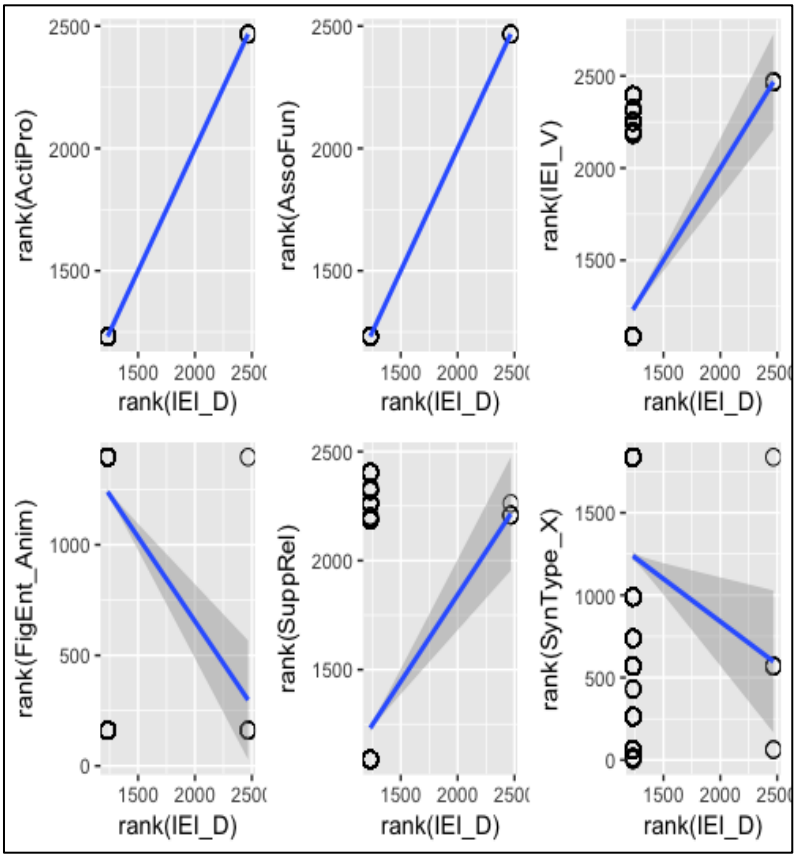

Figure 8. The visualization of the correlations of IEI_D in state change events.

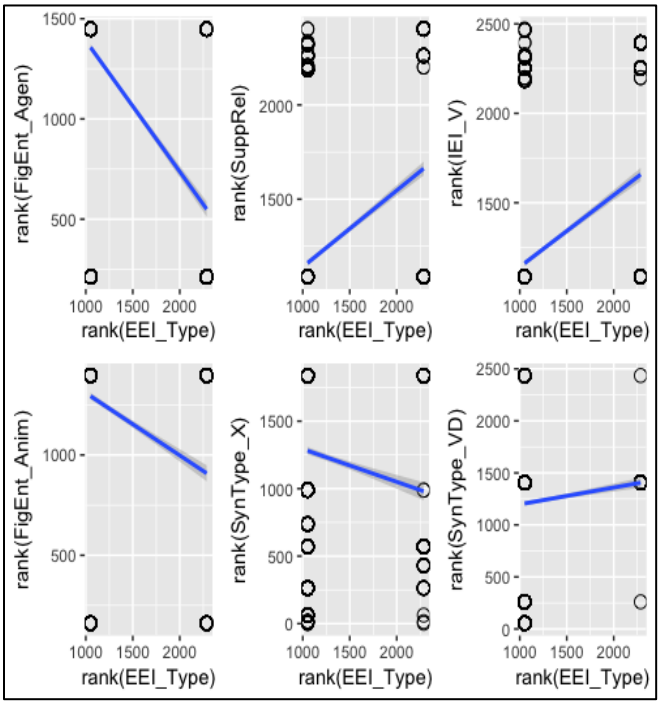

Figure 9. The visualization of the correlations of EEI_Type in state change events.

Finally, Chin_VD is only moderately correlated to EEI_Type, and it is weakly correlated to FigEnt_Agen, SuppRel, IEI_V, SynType_X, FigEnt_Anim, ActiPro, AssoFun, IEI_D and SynType VD. Their hierarchical order is "(EEI_Type) > (FigEnt_Agen > SuppRel > IEI_V > SynType_X > FigEnt_Anim > ActiPro > AssoFun > IEI_D > SynType VD)", and this is visualized in Figure 10.

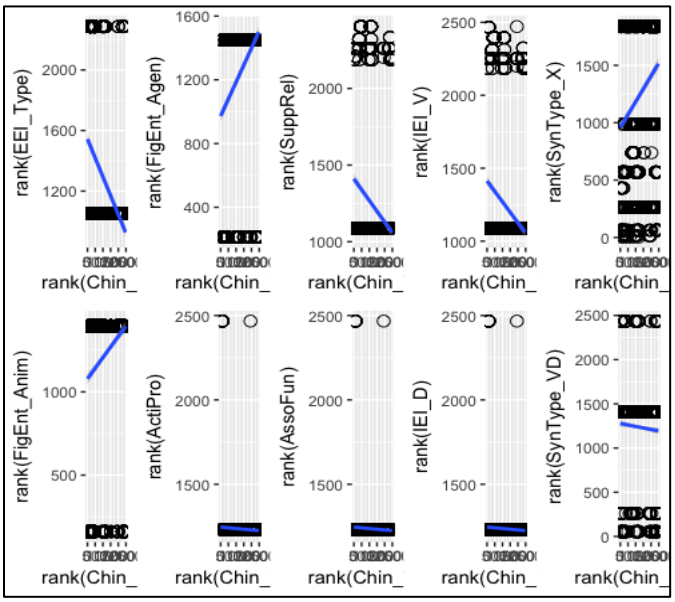

Figure 10. The visualization of the correlations of Chin_VD in state change events.

From Figures 7-10, we find that both the internal and external event integration correlate to each other in state change events. However, the hierarchies of the influenced variables in "V + Dào" constructions are varied regarding the internal and external integration of state change events.

5. Conclusions

This study provides a comprehensive analysis of "V + Dào" constructions within the framework of state change events, offering significant insights into their semantic, syntactic, and event integration properties. The findings reveal several key patterns and hierarchical structures among the variables:

(1) Internal Event Integration (IEI):

- IEI_V integrates either two or three conceptual primitives, reflecting its versatility in representing dynamic state changes.
- IEI_D, in contrast, consistently encapsulates two conceptual primitives, emphasizing its stability in marking transitions.
- The interaction between IEI_V and IEI_D gives rise to nine combinations in EEI_VD, which can be systematically categorized as "2 + 2" or "3 + 2".

(2) External Event Integration (EEI):

- The values of EEI_Type predominantly align with verb-phase constructions (VPha), highlighting their widespread applicability in state change descriptions. However, verb-resultative constructions (VRes) also play a role, albeit less frequently, indicating the nuanced syntactic diversity within these constructions.

(3) Hierarchical Structures:

- The hierarchy of correlated variables within IEI_V positions SuppRel as the most influential variable, followed by FigEnt_Agen, EEI_Type, ActiPro, AssoFun, and FigEnt_Anim.
- For IEI_D, strong correlations with ActiPro and AssoFun were observed, while weaker associations were noted with IEI_V, FigEnt_Anim, SuppRel, and SynType_X.
- In EEI_Type, the hierarchy is led by FigEnt_Agen, with subsequent contributions from SuppRel, IEI_V, FigEnt_Anim, SynType_X, and SynType_VD.
- The hierarchical structure of Chin_VD assigns the highest influence to EEI_Type, followed by FigEnt_Agen, SuppRel, IEI_V, SynType_X, FigEnt_Anim, ActiPro, AssoFun, IEI_D, and SynType_VD.

These findings underscore the intricate relationships between the conceptual, syntactic, and semantic dimensions of state change events. The study contributes to a deeper understanding of the interaction between verb and complement constructions in Chinese, particularly in how state transitions are linguistically encoded. The systematic analysis presented here not only enhances our understanding of "V + Dào" constructions but also provides a framework for exploring similar phenomena in other languages. Future research could investigate cross-linguistic comparisons to examine whether the patterns observed in Chinese hold

universally or are language-specific. Moreover, applying computational models to these hierarchies could further refine our understanding of event integration and its cognitive underpinnings.

In conclusion, the nuanced interplay of conceptual primitives, syntactic structures, and semantic roles in "V + Dào" constructions offers a valuable lens for examining state change events, with broader implications for linguistic theory and typology.

Funding

This paper is supported by:

1) Henan Social Science Foundation Project, entitled "Research on the Typological Macro-event Variation of Chinese Reciprocal Construction" (Award Number: 2023BYY002, Grant recipient: Lin Yu);

2) Henan University Graduate Education Teaching Reform Research and Practice Project, entitled "English Language Intelligence Interdisciplinary Talent Training and Practice" (Award Number: YJSJG2023XJ026, Grant recipient: Lin Yu);

3) Henan Colleges and Universities' Outstanding Young Teacher Training Program in 2023 (Grant recipient: Lin Yu);

4) Henan Provincial Federation of Social Sciences Project, entitled "A Study on the Standardization of Reciprocal Constructions in Internet Language" (Award Number: SKL-2024-1350, Grant recipient: Lin Yu).

5) Henan Social Science Foundation Project, entitled "A Schematic Approach to the Construal Mechanism of Nominal-Predicate Constructions" (Award Number: 2024BYY001, Grant recipient: Chaojun Yang).

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

[1] Chao, Y.R. (1968) A Grammar of Spoken Chinese. University of California Press.

[2] Lyu, S. (1980) 800 Words in Modern Chinese. Commercial Press.

[3] Hu, Y. (1981) Modern Chinese (Revised Version). Shanghai Educational Publishing House.

[4] Li, X. (1982) An Analysis of "V + Dào". *Chinese Language Learning*, No. 1, 15-19.

[5] Zhu, D. (1982) Grammar Handouts. Commercial Press.

[6] Zhu, D. (1985) Grammar Discussions. Commercial Press.

[7] Jiang, T. (1982) On the Compounds of Verbs and Prepositions. *Journal of Anhui Normal University*, No. 1, 77-88.

[8] Liu, Y. (1998) A General Explanation of Directional Complements. Beijing Language and Culture University Press.

[9] Luo, Y. (1998) The Prepositional Conflation and the Lexicalization of "V + Dào" Structure. *Studies in Language and Linguistics*, No. 2, 22-27.

[10] Hu, Y. and Fan, X. (1995) Research on Verbs. Henan University Press.

[11] Chen, X. (1996) The Existence and Disappearance of "Dào" in "Dào + NP". *Journal of Henan University*, No. 2, 59-65.

[12] Ding, S. (1999) Modern Chinese Grammar. Commercial Press.

[13] Huang, B. and Liao, X. (2002) Modern Chinese (3rd Revised Version II). Beijing Higher Education Press.

[14] Liang, Y. (2005) The Formation Process of "Come" and "Go" in Chinese Verb-Phase Complement. *Linguistic Sciences*, No. 6, 27-35.

[15] Liang, Y. (2007) The Grammaticalization of Chinese Directional Complements. Xuelin Publishing House.

[16] Zeng, H. (2005) A Brief Analysis of the Syntax of the "V + Dào" Structure of Modern Chinese. *Journal of Jiujiang College*, No. 2, 66-68.

[17] Zeng, H. (2009) Again on the Grammaticalization of "Dào"—Discussion with Mr. Liu Ziyu of Peking University. *Journal of Anhui University*, No. 6, 79-84.

[18] Wu, F. (2010) Grammaticalization Patterns Related to the Directional Verbs in Chinese Dialects. *Dialect*, No. 2, 97-113.

[19] Shen, J. (2015) Word Class Typology and Chinese Nominalism. *Contemporary Linguistics*, No. 22, 17-145.

[20] Yu, L. and Li, F. (2018) An Event Integration Approach to the Variation of "V + Dào" Construction in Verb Complement Typology. *Foreign Languages and Their Teaching*, No. 1, 72-83.

[21] Yu, L. (2021) An Event Integration Approach to Lexicalizations of Action Correlating Events—A Case Study of "V + Dào" Construction in Mandarin. *Open Journal of Modern Linguistics*, **11**, 335-360. https://doi.org/10.4236/ojml.2021.113027

[22] Yu, L. (2022) A Critical Review of "V + Dào" Construction in Mandarin. *Open Journal of Modern Linguistics*, No. 1, 9-22.

[23] Yu, L. and Jiang, X. (2024) A Corpus-Based Study of "V + Dào" Constructions as Temporal Contouring Events in Mandarin. *Communication and Linguistics Studies*, **10**, 19-31. https://doi.org/10.11648/j.cls.20241002.11

[24] Li, F. (2013) Two Systemic Errors in Macro-Event Research. *Foreign Languages in China*, No. 2, 25-33.

[25] Li, F.T. (2018) Extending the Talmyan Typology: A Case Study of the Macro-Event as Event Integration and Grammaticalization in Mandarin. *Cognitive Linguistics*, **29**, 585-621. https://doi.org/10.1515/cog-2016-0050

[26] Talmy, L. (2000) Toward a Cognitive Semantics: Typology and Process in Concept. Vol. 2, The MIT Press.

[27] Talmy, L. (1985) Lexicalization Patterns: Semantic Structure in Lexical Forms. In: Shopen, T., Ed., *Language Typology and Syntactic Description*, *Vol.* 3: *Grammatical Categories and the Lexicon*, Cambridge University Press, 36-149.

[28] Levshina, N. (2015) How to Do Linguistics with R: Data Exploration and Statistical Analysis. John Benjamins Publishing Company. https://doi.org/10.1075/z.195