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Research Article

Unveiling Realization Events: An Event Integration Analysis of “V + Dào” Constructions in Mandarin

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Abstract

This study explores the event integration patterns within Mandarin's "V + Dào" constructions, specifically focusing on realization events. The analysis reveals that internal event integration within the verb (IEI_V) can conflate two or three conceptual primitives, demonstrating flexibility in encoding event semantics. Similarly, internal event integration within "Dào" (IEI_D) consistently involves two conceptual primitives. At the constructional level, external event integration (EEI_VD) is composed of 11 distinct combinations of IEI_V and IEI_D, formulated as “2+2” or “3+2,” reflecting various ways in which conceptual primitives are integrated. By the method of correlation analysis and the framework of event integration, these constructions align with the verb-resultative structure (VRes), central to the realization event framework. Hierarchical analysis of the variables in both IEI_V and IEI_D indicates the prioritization of factors such as association function (AssoFun), action properties (ActiPro), and syntactic types. Additionally, the "V + Dào" construction (Chin_VD) shows weak correlations with several variables, suggesting its relative independence in the event structure. These findings point to a high degree of grammaticalization of the "V + Dào" construction in realization events, offering valuable insights into the structure of Mandarin's motion-event constructions. The study contributes to a deeper understanding of the syntactic and semantic interaction in Mandarin event structures and provides important implications for further research on similar Chinese resultative constructions.

Keywords

Realization Event, Internal/External Event Integration, “V + Dào” Construction, Correlation Analysis, Visualization

1. Introduction

The integration of macro-events within a single clause is a cornerstone of understanding how languages encode events, reflecting their dynamic essence in human communication. In Mandarin Chinese, macro-events are frequently represented through verb complement constructions, which occupy a pivotal position in both syntactic and semantic analyses. Among these, the "V + Dào" construction stands out as a focal point of linguistic inquiry. This construction, with its multifaceted nature, has fueled extensive scholarly debates in traditional Chinese linguistics. Researchers have proposed diverse classifications for it, labeling it as a directional complement, a resultative complement, or a phase complement, depending on its contextual and functional attributes [1, 2, 4-6, 8, 10-18, 21-28]. These studies have highlighted the role of directional complements in Mandarin grammar, providing essential descriptive and analytical frameworks. However,

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with the advent and expansion of grammaticalization theory, researchers have begun to investigate the deeper mechanisms that drive the evolution of directional complements. These efforts have revealed that such compliments extend beyond their prototypical directional meanings, encompassing resultative, stative, and even aspectual functions. This semantic flexibility underscores their dynamic nature and their ability to integrate into various grammatical contexts, highlighting their significance as linguistic units capable of continuous innovation.

In the light of this evolving understanding, the "V + Dào" construction emerges as a particularly compelling subject of study. Its linguistic features not only invite further scrutiny but also illuminate broader principles of how events are encoded in Mandarin. Specifically, this construction plays a pivotal role in the linguistic encoding of realization events, a conceptual category that includes scenarios where entities undergo the fulfillment or confirmation properties within given contexts. These events encompass fulfilled or confirmed processes, drawing notable parallels with motion events in their encoding mechanisms and interpretive frameworks. As such, the "V + Dào" construction serves as an invaluable lens through which to explore the intricate processes of event integration in Mandarin, offering insights into both the physical and cognitive dimensions of linguistic representation.

A realization event is defined as a comprehensive category encompassing two related types, fulfillment and confirmation, where the scope of the agent's intention extends at least over the execution of the agent's action [20]. This intentionality is the distinguishing factor that sets realization events apart from other event types. More precisely, realization events encompass the outcome of an action and its purpose, goal, or the degree to which it is fulfilled or confirmed through intentional actions. Following Jia & Li [7], realization events represent a distinct subcategory within the broader category of realization events. When the intention behind an action is implicated within a particular event, based on the context, that event is classified as a realization event. While other macro-event types, such as motion events, realization events, and action-correlating events, may also involve the agent’s intention, they are not categorized as realization events. Instead, they are viewed as overlapping events with realization events within the framework of this study.

This study delves deeply into the event integration processes underlying realization events, using the "V + Dào" construction as the focal point of analysis. It is guided by two primary research questions: (1) What are the defining features of event integration patterns in the "V + Dào" construction as a realization event in Mandarin? (2) How do these integration patterns relate to the construction's semantic and syntactic properties, and to what extent do they inform the broader understanding of event representation?

To address these questions, the study adopts a rigorous and structured approach. Drawing upon Chao’s [1] influential framework for analyzing directional complements, it seeks to uncover new dimensions of their functional and structural characteristics. Section 1 outlines the theoretical underpinnings of the study, situating it within the broader discourse on event integration and verb-complement constructions. Section 2 introduces an event integration model tailored to realization events, informed by insights from motion event analysis. Section 3 details the methodological design of this corpus-based study, setting the stage for the results and discussions in Section 4. Finally, Section 5 synthesizes the findings, offering theoretical and practical insights while suggesting directions for future research.

By investigating the interplay between event semantics, syntactic structures, and integration patterns, this study contributes significantly to our understanding of realization events and their linguistic encoding in Mandarin. Moreover, it broadens the typological scope of research on verb-complement constructions, illuminating their role in representing dynamic processes. This work not only enriches the typological understanding of Mandarin grammar but also offers a framework for examining similar constructions across languages, enhancing our appreciation of both universal and language-specific principles governing event integration.

2. Unveiling Realization Events: An Event Integration Model

Event integration, a cornerstone of [20] macro-event theory, encapsulates the cognitive process by which discrete conceptual components or events are synthesized into a unified representation. This mechanism of reconceptualization enables linguistic expressions, such as verb roots, to embody multiple interrelated events, yielding complex, cohesive representations of actions, states, or occurrences. Consider the sentence "The rock rolled down the hill." Here, the verb root roll conflates two distinct yet interdependent events: the motion of the rock (expressed as "the rock moves") and the manner in which this motion occurs (captured as "the rock rolls"). This integration not only binds motion and manner into a single semantic unit but also exemplifies the capacity of language to encode multifaceted experiences within the constraints of syntax.

Building upon this, macro-events, as defined by Talmy [20], are composite linguistic structures consisting of two primary components: the framing event and the co-event. The framing event functions as the central schema, encompassing abstract templates such as motion events, temporal contouring events, state change events, action-correlating events, and realization events. These schemas serve as cognitive scaffolds that guide the interpretation of specific instances. In contrast, the co-event operates in a subordinate yet indispensable role, elaborating upon or motivating the framing event through mechanisms such as "cause" or

"manner." For instance, in the aforementioned example, the framing event encapsulates the motion of the rock down the hill, while the co-event enriches this motion by specifying its manner, namely rolling. The dynamic interaction between these components reflects the inherent complexity and hierarchical nature of event representation in language.

Central to this framework are the schematic conceptual primitives delineated by Talmy [20]: the Figural Entity, the Ground Entity, the Activating Process, and the Association Function. These elements form the cognitive underpinnings of event integration. The Figural Entity represents the focal subject or object within the event, standing out against the contextual backdrop provided by the Ground Entity, which serves as a spatial or relational reference point. Together, these entities establish the spatial and relational foundation of the event. The Activating Process introduces dynamism, embodying the tension between motion and stasis, change and stability. This component captures the event's inherent fluidity, enabling the encoding of transitions and states within the linguistic structure. Lastly, the Association Function delineates the interactive relationship between the Figural and Ground Entities, weaving a coherent narrative thread that binds these components within the event's framework.

To further elucidate the intricacies of event integration, the study extends Talmy's theoretical model by introducing the concepts of internal and external integration. Internal integration refers to the conflation of subevents within a single linguistic unit, such as a verb root or satellite, as seen in *roll* of the "the rock rolled down the hill", where motion and manner coalesce. External integration, on the other hand, describes the synthesis of subevents across separate linguistic elements, such as the main verb and its satellite. This distinction allows for a nuanced analysis of the structural configurations that underlie event representation, providing insights into how languages encode complex events with varying degrees of granularity.

Croft [3] builds on this foundation by exploring resultative and directional constructions, offering additional perspectives on event integration. In examples like "Kay wiped the counter clean" or "Kay wiped the fingerprints from the counter," the verb root wipe integrates "manner" and "change" subevents, while the satellite (e.g., clean or from) introduces new dimensions such as state transitions or directional paths. These constructions exemplify how linguistic expressions can encode multiple subevents, enriching the macro-event with layers of semantic detail.

This study advances Talmy's model by applying it to realization events, hypothesizing that such events are metaphorically derived from motion events. To substantiate this claim, it delineates the core conceptual primitives—Figural Entity, Ground Entity, Activating Process, and Association Function—alongside the co-event's support relations, which include "cause," "manner," and "purpose." By mapping these primitives onto realization events, the proposed framework seeks to uncover the cognitive mechanisms that facilitate their integration, revealing parallels with motion event schemas.

Through the synthesis of these theoretical insights, this study provides a comprehensive model of event integration that transcends typological boundaries, bridging the gap between abstract linguistic structures and concrete cognitive processes. This approach not only enriches our understanding of how complex events are encoded in language but also opens new avenues for exploring the interplay between syntax, semantics, and cognition.

3. A Corpus-based Methodology

This study examines the "V + Dào" construction as a case study to explore the conceptual primitives involved in the distribution of realization events, with a particular focus on internal and external event integration. The primary objective is to unravel how these realization events are linguistically represented and cognitively processed through the interaction of conceptual components within the structure of the construction. Internal integration refers to the conflation of multiple conceptual elements within a single linguistic unit, while external integration addresses the way components are combined across different linguistic elements. By focusing on these integration mechanisms, the study aims to deepen our understanding of how realization events are encoded in language.

3.1. Data Collection of "V + Dào" Construction

The initial phase of this study centers on selecting data according to three essential criteria: colloquial style, frequency, and semantic coverage. Each data reflects natural spoken language instead of literary or formal registers, ensuring the authenticity of colloquial usage. Additionally, the study prioritizes data that appears frequently in conversational contexts, avoiding rare or exceptional instances. Moreover, the data captures a broad spectrum of semantic categories, providing a diverse representation of realization events rather than being restricted to a limited set of meanings. In accordance with these parameters, the data for this study is drawn from the "Spoken Language" section of the Center for Chinese Linguistics corpus at Peking University (CCL). This includes sources such as transcriptions from the "Beijing Dialect Survey Data of 1982," 21 dialogues from various media outlets, and five television interviews, including the show "Dating with Lu Yu." Following a rigorous process of data extraction, verification, and refinement, a total of 1106 concordances were identified, representing 183 distinct categories of realization events. These results are visually represented in Figure 1.

```
> str(EEI_VD_ReaEvt)
'data.frame':   1106 obs. of  13 variables:
 $ Chin_VD    : Factor w/ 183 levels "上升到","买到",..: 125 72 16 16 16 16 16 16 16 16 ...
 $ FigEnt_Agen: logi  TRUE TRUE FALSE TRUE FALSE TRUE ...
 $ FigEnt_Anim: logi  TRUE TRUE FALSE TRUE FALSE TRUE ...
 $ GroEnt     : Factor w/ 1 level "acting": 1 1 1 1 1 1 1 1 1 1 ...
 $ ActiPro    : Factor w/ 2 levels "confirmation",..: 1 1 1 2 2 2 2 2 2 2 ...
 $ AssoFun    : Factor w/ 2 levels "confirmation+transition",..: 1 1 1 2 2 2 2 2 2 2 ...
 $ SuppRel    : Factor w/ 8 levels "cause","cause+path",..: 1 1 1 1 1 1 1 1 1 1 ...
 $ SynType_VD : Factor w/ 4 levels "BBC","BC","FBC",..: 3 3 1 3 3 3 3 3 3 3 ...
 $ SynType_X  : Factor w/ 9 levels "DgreA","DgreC",..: 1 6 3 6 4 4 4 4 4 4 ...
 $ IEI_V      : Factor w/ 11 levels "confirmation+cause",..: 1 1 1 6 6 6 6 6 6 6 ...
 $ IEI_D      : Factor w/ 2 levels "confirmation+transition",..: 1 1 1 2 2 2 2 2 2 2 ...
 $ EEI_VD     : Factor w/ 1 level "ReaEvt": 1 1 1 1 1 1 1 1 1 1 ...
 $ EEI_Type   : Factor w/ 1 level "VRes": 1 1 1 1 1 1 1 1 1 1 ...
> summary(EEI_VD_ReaEvt)
    Chin_VD     FigEnt_Agen     FigEnt_Anim        GroEnt             ActiPro
 找到   :179   Mode :logical   Mode :logical   acting:1106   confirmation:362
 做到   :169   FALSE:224       FALSE:185                    fulfillment :744
 达到   : 85   TRUE :882       TRUE :921
 得到   : 69
 回来到 : 50
 看到   : 36
 (Other):518
                    AssoFun           SuppRel     SynType_VD   SynType_X
 confirmation+transition:361   cause      :880   BBC:124     PtienN :443
 fulfillment+transition :745   subsequence: 73   BC :105     StimuN :236
                               path+path  : 50   FBC:800     NoT    :181
                               cause+path : 36   FC : 77     DgreN  :138
                               path       : 34               DgreC  : 37
                               manner     : 31               StimuC : 37
                               (Other)    :  2               (Other): 34
                     IEI_V                          IEI_D        EEI_VD     EEI_Type
 fulfillment+cause      :614   confirmation+transition:361   ReaEvt:1106   VRes:1106
 confirmation+cause     :266   fulfillment+transition :745
 fulfillment+subsequence: 73
 confirmation+path+path : 50
 confirmation+path      : 34
 fulfillment+cause+path : 32
 (Other)                : 37
```

Figure 1. *The structure and summary of "V + Dào" constructions in realization events.*

Figure 1 presents a comprehensive analysis of 1,106 observations of realization events within "V + Dào" constructions, categorized across 13 distinct variables. Among these, 183 instances fall under the Chin_VD variable, which is specifically focused on the distribution of "V + Dào" constructions within realization events. Figure 2 illustrates these instances in greater detail. Within the dataset, the most frequent occurrences are found in the FigEnt_Agen and FigEnt_Anim variables, where the true values are predominant. The ground entity (GroEnt), which represents the "acting" entity in the event, is identified, and the activating process (ActiPro) is classified under two categories: "confirmation" or "fulfillment," reflecting the nature of the realization event.

The Association Function (AssoFun) within the dataset is categorized into two distinct values: "confirmation+transition" and "fulfillment+transition," which align with the values observed in the activating process. Additionally, the support relation (SuppRel) variable encompasses eight distinct values: "cause," "subsequence," "path+path," "cause+path," "path," "manner," "concomitance," and "enablement," each of which denotes the different types of relationships that can exist within the realization event.

The syntactic properties of the "V + Dào" construction (SynType_VD) are categorized into four distinct types: Backward Bound Complements (BBC), Bound Complements (BC), Free Complements (FC), and Forward Bound Complements (FBC). Furthermore, SynType_X includes nine different values, such as Degree Adjectives (DgreA), Degree Nouns (DgreN), Degree Clauses (DgreC), Patient Nouns (PtienN), Patient Clauses (PtienC), Stimulus Nouns (StimuN), Stimulus Clauses (StimuC), Stimulus Adjectives (StimuA), andNon-Textual Elements (NoT).

The internal event integration patterns within the verb (IEI_V) are classified into 11 distinct combinations, with values such as "confirmation+cause," "confirmation+cause+path," "confirmation+manner," "confirmation+path," and "fulfillment+cause+path," among others. These combinations represent the various ways in which the

internal events are integrated within the realization event. The values of IEI_D align with the AssoFun variable, reflecting two values: “confirmation+transition” and “fulfillment+transition.” Finally, the realization event is characterized by the verb-resultative construction (VRes), which defines the type of event being observed.

In addition, Figure 2 further elaborates on the Chin_VD variable, providing a detailed distribution of the 183 instances of “V + Dào” constructions, highlighting their respective frequencies and proportions. This extensive analysis underscores the complex interrelationship between different variables within realization events and their corresponding syntactic and semantic structures.

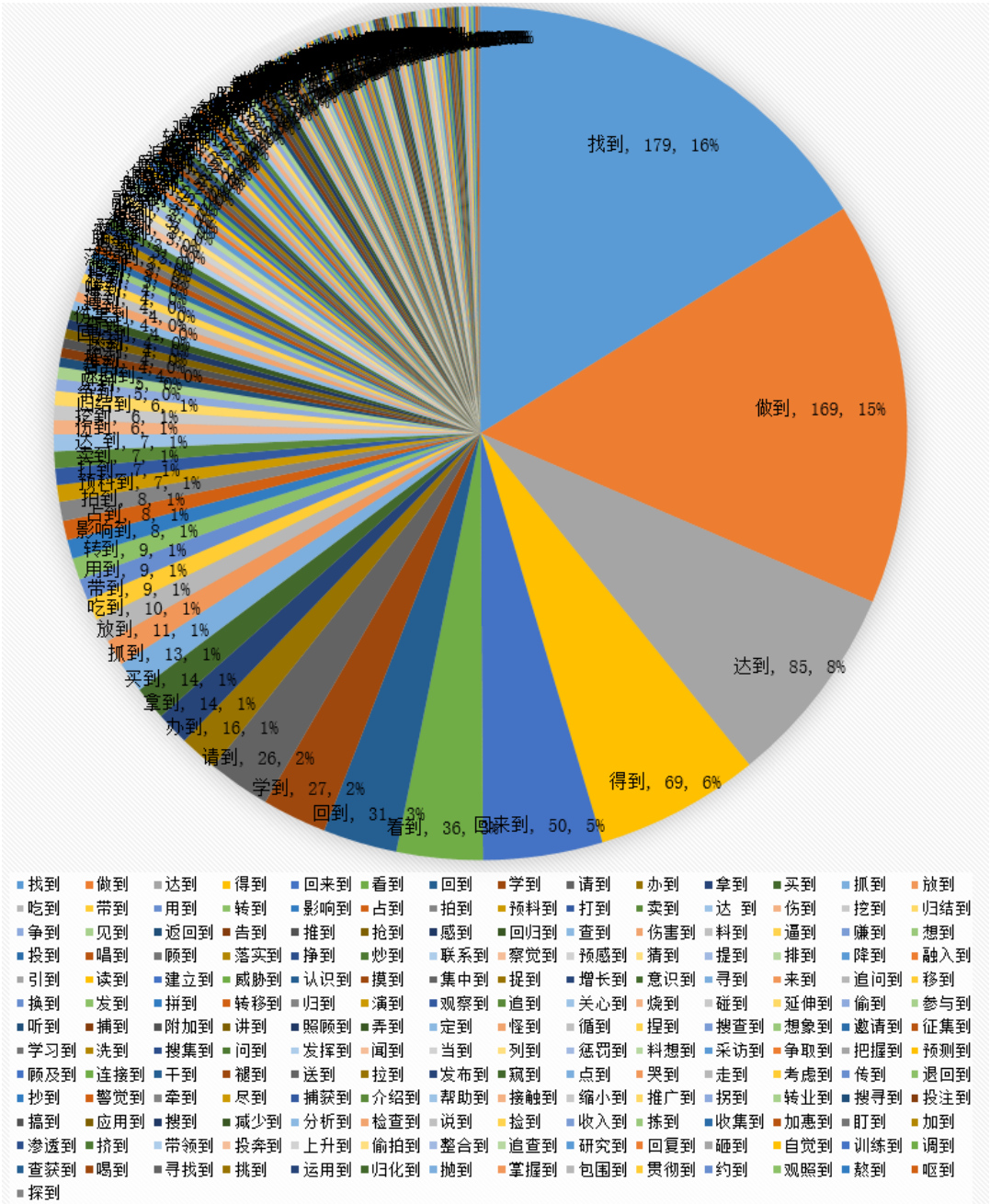

Figure 2. *The pie chart of Chin_VD in realization events.*

The data of Chin_VD are distributed in Figure 2, ranking with their frequencies from high to low. We only list the verbs with the frequency of more than 10, and they are: “找到 (find, frequency = 179)”, “做到 (do, frequency = 169)”, “达到 (invite, frequency = 85)”, “得到 (obtain, frequency = 69)”, “回来到 (return to, frequency = 50)”, “看到 (see, frequency = 36)”, “回到(return, frequency = 10)”, “学到 (learn, frequency = 10)”, “请到 (invite, frequency = 10)”, “办到 (achieve, frequency = 10)”, “拿到 (take, frequency = 10)”, “买到 (buy, frequency = 10)”, “抓到 (catch, frequency = 13)”, “放到 (put, frequency = 10)”, “吃到 (eat, frequency = 10)”. Some of the verbs can also be found concerning other macro-event types, which can be considered as the polysemy of the same verb.

In accordance with the research questions of this study, “V + Dào” constructions of realization events are explored and discussed in terms of their event semantics, syntax properties, and event integration patterns.

3.2. Data Encoding

The 1,106 instances of “V + Dào” constructions are systematically encoded across three key dimensions: event semantics, syntactic properties, and event integration patterns. Event semantics are analyzed through the lens of conceptual primitives derived from macro-event theory, with each instance assigned specific variables and corresponding values to quantify their semantic characteristics. A particular focus is placed on the agency and animacy of the figural entity, which are examined in relation to the observed event integration patterns. These patterns are further contextualized by variables such as the nature of the figural and ground entities, the process of activation, the functions of association, support relations, and the macro-event types they instantiate.

Syntactically, the analysis builds upon Chao’s [1] classification of verb complements, distinguishing between free complements, bound complements, and bound phase complements. Free complements occur when the verb ("V") and the complement ("Dào") are independent, as in constructions like “来到故乡” (have come to hometown), where both “来故乡” (come to hometown) and “到故乡” (arrive in hometown) are grammatically acceptable. In contrast, bound complements demonstrate a more interdependent relationship, as seen in examples like “碰到一件怪事” (have met a strange thing), where constructions like "*碰一件怪事" (*meet a strange thing) and "*到一件怪事" (*arrive a strange thing) are ungrammatical. Bound phase complements, on the other hand, form a hierarchical structure, with “Dào” subordinated to the verb. This is exemplified by “挣到钱” (has earned the money), where “挣钱” (earn the money) is grammatical, but "*到钱" (*arrive at the money) is not. Notably, in certain instances, “Dào” can function as the main verb, subordinating the preceding verb, as in “走到张家” (walk to the Zhangs’), where “到张家” (arrive at the Zhangs’) is valid, but "*走张家" (*walk the Zhangs’) is ungrammatical. This distinction has led to the further categorization of bound phase complements into forward bound and backward bound complements.

The syntactic properties of the complement following "Dào" (denoted as “X”) exhibit significant variability. Drawing on the work of Lyu [17] and Zhu [27, 28] it is observed that “X” can manifest as a noun, a clause, or may even be omitted. When “X” is a noun, it can take various forms, including locative (e.g., “家乡” in “他回到了家乡” - he came back to his hometown), temporal (e.g., “明年暑假” in “等到明年暑假” - waiting until next summer vacation), or patient forms (e.g., “你说的” in “办得到你说的” - can achieve what you said). Nouns in this position may also include degree nouns or stimulus nouns, depending on the context. Additionally, when “X” is realized as a clause, it may serve a temporal, stimulus, locative, or patient function. “X” may also appear as an adjective, fulfilling roles such as marking stimulus, temporal, or degree.

In terms of event integration patterns, the analysis differentiates between internal integration within the verb (“V”) and the complement (“Dào”)—labeled as IEI_V and IEI_D, respectively—and external integration at the constructional level (EEI_VD). The external integration encompasses a variety of broader semantic categories, including motion events, temporal contouring events, state-change events, action-correlating events, and realization events. The typology of “V + Dào” constructions is further refined into three primary categories: verb-directional (VDir), verb-resultative (VRes), and verb-phase (VPha) structures, each reflecting distinct semantic roles and relationships.

In conclusion, the encoding of the “V + Dào” construction within this study offers a comprehensive analysis that incorporates event semantics, syntactic properties, and event integration patterns. This multi-dimensional approach provides an intricate framework for understanding the complex interactions between linguistic form and semantic function, as outlined in Table 1.

Table 1. *The tagging scheme of the “V + Dào” construction as realization 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)		[fulfillment]; [confirmation]
	Association Function (AssoFun)		transition type [transition]
	Support Relation (SuppRel)		[precursion]; [enablement]; [cause]; [manner]; [subsequence]; [con-

Three Levels	Variables		Values
Syntactic Properties			stitutedness]
	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)

The coding of the "V + Dào" construction, as illustrated in Table 1, involves three primary dimensions: event semantics, syntactic properties, and event integration patterns. Each dimension is characterized by a set of variables, each with specific values, defining the construction's features. While certain variables function independently, others exhibit interdependencies, reflecting the complexity inherent in the construction. In particular, the syntactic properties are largely independent of one another, allowing for a relatively straightforward classification of elements. In contrast, the event integration patterns demonstrate a more intricate relationship between variables, as they interact in ways that reflect the interconnectedness of various elements within the construction. These relationships are examined in greater detail in Section 4, where a comprehensive analysis is explored the ways in which these variables influence one another and contribute to the overall structure of the "V + Dào" construction.

3.3. Statistical Analysis and Visualization

For the statistical analysis of the "V + Dào" constructions, the annotated dataset was processed using the R programming environment. Initially, the data, which was primarily in string format, was converted into factor variables using the "stringsAsFactors" function. This transformation facilitated the analysis of categorical data. Two primary computational approaches were employed in this study: (1) correlation analysis utilizing linear regression models to examine the relationships between various variables, and (2) statistical visualization through the "ggplot2" package to display the interaction patterns. To calculate and visualize the correlation coefficients, the R packages "ggplot2," "energy," and "car" were applied, following Levshina's [9] guidelines. Given the non-linear yet monotonic nature of the relationships between the variables, non-parametric correlation measures, specifically Spearman's ρ (rho) and Kendall's τ (tau), were employed to assess the strength and direction of associations [9]. According to Levshina [9] a strong correlation is identified when the coefficient is greater than or equal to 0.7 or less than or equal to -0.7, a moderate correlation occurs within the range of 0.3 to 0.7 or -0.3 to -0.7, and a weak correlation is between 0 and 0.3 or 0 and -0.3. Further discussion on the distribution of the "V + Dào" constructions and the corresponding correlation data is provided in Section 4.

4. "V + Dào" Constructions as Realization Events: Results and Analysis

In alignment with the research objectives of this study, the analysis of "V + Dào" constructions within the context of realization events will be undertaken through a comprehensive examination of their event semantics, syntactic properties, and patterns of event integration. The exploration of event semantics focuses on understanding the underlying conceptual primitives that govern the interpretation of these constructions, with particular emphasis on how they reflect different facets of the realization process. In addition, the syntactic properties of the "V + Dào" construction will be analyzed to investigate how these forms are structured within sentence construction and how they relate to other elements

in the clause. The analysis will consider variations in syntactic patterns, such as the role of bound and free complements, and the potential influence these structures have on the overall event representation. Finally, a key component of the study will involve the investigation of event integration patterns, which are crucial for understanding how multiple event components—such as actions, states, and transitions—are combined within the construction to produce a coherent, unified representation of the event. This multi-dimensional approach will contribute to a deeper understanding of how "V + Dào" constructions function to convey complex semantic and syntactic relationships, shedding light on their role in expressing realization events within Mandarin Chinese.

4.1. Event Semantics of "V + Dào" Constructions as Realization Events

The variables of FigEnt_Agen, FigEnt_Anim, ActiPro, AssoFun and SuppRel will be discussed individually in the event semantics of "V + Dào" constructions. The rest variables which contain only one value will not be dealt with in the realization event.

Firstly, the variables of FigEnt_Agen and FigEnt_Anim will be analyzed together in "V + Dào" constructions. As indicated in Figure 1, the true values account for the highest frequency in both of them. Table 2 indicates their detailed distribution that reveals the relationship between FigEnt_Agen and FigEnt_Anim.

Table 2. *Agency and animacy features of figure entities in realization events.*

	FigEnt_Anim		
FigEnt_Agen	**FALSE**	**TRUE**	**Total**
FALSE	151	73	224 (20%)
TRUE	34	848	882 (80%)
Total	185 (17%)	921 (83%)	1106 (100%)

In Table 2, the most frequent combination between FigEnt_Agen and FigEnt_Anim is that the values are true in both of them, which is commonly used in our spoken Chinese. And the rest combinations are relatively rare with regard to their ratios. See examples from (1) to (4).

(1) 如果你能办到某些事。
rú guǒ nǐ néng bàn dào mǒu xiē shì
if you can do arrive some things
If you can achieve some things.

(2) 这种言论伤害不到我。
zhè zhǒng yán lùn shāng hài bú dào wǒ
this kind of talk hurt not arrive me
This kind of talk cannot hurt me.

(3) 在街上被人找到去拍广告。(No. 306)
zài jiē shàng bèi rén zhǎo dào qù pāi guǎng gào
on the street Bei people find arrive to shoot advertisements
On the street, (I)[1] was found to shoot advertisements.

(4) 责任也尽到了。(No. 4)
zé rèn yě jìn dào le
the duty also do arrive Asp
The duty has also been done.

The FigEnt_Agen and FigEnt_Anim in (1) "你(you)" are both true, in (2) "这种言论 (this kind of talk)" the FigEnt_Agen is true and FigEnt_Anim is false, in (3) the omitted "我(I)" is false in FigEnt_Agen and true in FigEnt_Anim due to the passive marker "被(Bei)". And "责任(duty)" in (4) is false both in FigEnt_Agen and FigEnt_Anim.

As for the correlation coefficients between FigEnt_Agen / FigEnt_Anim and the distribution of "V + Dào" constructions (Chin_VD), either FigEnt_Agen ($t = -0.13$, $p<0.01$) or FigEnt_Anim ($t = -0.13$, $p<0.01$) shares a rather weak correlation with Chin_VD, but the correlation coefficient between FigEnt_Agen and FigEnt_Anim are relatively strong ($t=0.68$, $p<0.01$).

Secondly, according to the definition of realization events, two values are encoded in the variable of ActiPro, one is "confirmation" and the other is "fulfillment". The values of ActiPro in (1) "办到某些事(achieve)", (2) "伤害不到我(cannot hurt me)", (3) "被人找到(was found by people)" and (4) "尽到(do the duty)" all pertain to the conceptual primitive of "fulfillment". While in example (5), the ActiPro of "查不到(We cannot search out)" relates to the conceptual primitive of "confirmation", for we want to confirm whether the things are searched out or not.

(5) 我们查不到了。
wǒ men chá bú dào le
we search not arrive Asp
We cannot search out.

After ranking and calculating the data, this variable of ActiPro has a weak correlation with the distribution of the "V + Dào" construction in realization events ($t=-0.064$, $p<0.05$).

Thirdly, the association function (AssoFun) is in accordance with the variable of ActiPro. AssoFun of "Dào" is "fulfillment+transition" in examples from (1) to (4), and it is "confirmation+transition" in example (5).

Finally, as for the support relation (SuppRel), it has 8 values, including "cause" (frequency = 880), "cause+subsequence" (frequency = 73), "path+path" (frequency = 50), "cause+path" (frequency = 36), "path" (frequency = 34), "manner" (frequency = 31), "concomitance" (frequency = 1), "enablement" (frequency = 1).

1 According to the context of the data, the figural entity of "I" is omitted here.

In the previous instances from (1) to (5), the value of SuppRel refers to the "cause" in (1) "办到某些事(achieve some things)", (2) "伤害不到我(cannot hurt me)", (3) "被人找到(was found by people)", (4) "尽到 (do the duty)", and (5) "查不到(cannot search out)". In (6), the SuppRel of "买到(buy)" is represented by the conceptual primitives of "cause+path". Like "come" and "go", "买(buy)" also contains a "deictic" component of the path, for the path subsumes the deictic components – of the speaker or to the speaker [20]. Similar in example (7), the SuppRel of "卖到(sell)" also expresses the conceptual primitives of "cause+path", which contains an opposite "deictic" component of the path when compared with "买(buy)", for we can buy something from others and sell something to others.

(6) 爸爸有一天一定要帮你买到大房子。

bà bà yǒu yī tiān yī dìng yào bāng nǐ mǎi dào dà fáng zǐ

Daddy someday must do help you buy arrive a big house

Daddy must help you (achieve to) buy a big house.

(7) 画家的画在台湾可以卖到一千万。

huà jiā de huà zài tái wān kě yǐ mài dào yī qiān wàn

artist's paintings in Taiwan can sell arrive ten million

The artist's paintings can sell for ten million in Taiwan.

Moreover, according to causation semantics [19, 20], the support relation of "帮助到(help)" in (8) is the only example that signifies the conceptual primitive of "enablement" in our data, because the speaker wants to confirm whether the course can be helpful or not to the audience.

(8) 课程有没有能够帮助到你?

kè chéng yǒu méi yǒu néng gòu bāng zhù dào nǐ

course does or does not can help arrive you

Whether the courses can help you?

In example (9), the support relation is "subsequence" in the verb "告(sue)", and it is quite a specific case in the data with low frequency. The background of this case is that Li Ao (an influential Critics in Taiwan) wanted to sue a lot of people who have the absolute political rights such as Li Denghui (the president of Taiwan during that time), and he can only found some other related people who do not have that much high political rights. Only after he fulfilled the task of finding the prosecutor and preparing the necessary documents, can he start a suit to him/her. Some other similar examples in the data are "得到(obtain)" and "转业(change work)".

(9) 我们只能告到检察官。

wǒ men zhī néng gào dào jiǎn chá guān

we only can sue arrive the prosecutor

We can only sue the prosecutor.

Examples from (10) to (11) are the transcriptions from the lessons of *Guo Xue Tang*, so they will be repeated every time at the beginning of each lesson. With the purpose to maintain the authenticity, we have not deleted the repeated expressions, among which the frequency of "回来到 (return to)" is 50 and that of "来到(come back to)" is 2. the speaker's intention of the lessons is to welcome the audience and keep in line with their topics. Since the name of the lesson *Guo Xue Tang* is not a real physical location but a desirable situation, its related examples should be considered as realization events. Moreover, we find that the support relation of the compound verb "回来(return back)" conflates the "paths" both in the verbs of "回(return)" and "来(come)". The former refers to, according to Talmy [20], the traversal vector of the path; and the latter signifiers the deictic component of the path. While in the support relation of the verb "来(come)", only the deictic component of the path is conflated in it. Therefore, the support relation in the compound verb of "回来到(return back to)" can be represented by the conceptual primitives of "path+path", whereas in the support relation of the verb "来(come)", the deictic component of the path is the only value involved.

(10) 欢迎继续回来到《国学堂》。

huān yíng jì xù huí lái dào *Guo Xue Tang*

welcome continue return back to *Guo Xue Tang*

Welcome return to *Guo Xue Tang*.

(11) 欢迎来到《国学堂》。

huān yíng lái dào *Guo Xue Tang*

welcome come arrive *Guo Xue Tang*

Welcome to *Guo Xue Tang*

In example (12), the purpose of the speaker "我(I)" is to catch somebody's attention, and the way to realize or fulfill it is the method of crying. Similar to example "张柏芝从北京哭到上海(Zhāng Bǎizhī cried to Shanghai from Beijing)" in the motion event, the support relation in "哭到(cry to the degree that)" also refers to the conceptual primitive of the concomitance.

(12) 我哭到有人注意了。

wǒ kū dào yǒu rén zhù yì le

I cry arrive somebody pay attention Asp

I cry to the degree that somebody paid attention to me.

Example (13) is an anecdote of Li Ao, an influential writer and critic in Taiwan. When being asked about what his best study method is, Li Ao explained how his reading habit was formed. In this context, the activating process can be interpreted as the purpose of fulfillment, and the support relation of the verb "训练(training)" can be taken as the "manner".

(13) 就是训练到看书。

jiù shì xùn liàn dào kàn shū

just is train arrive read book

Just training how to read the books.

As for the correlation coefficient between SuppRel and the variable of the "V + Dào" construction (Chin_VD) in realization events, the distribution of the "V + Dào" construction shares a weak correlation to SuppRel ($t=-0.14$, $p<0.01$). In addition, the variable of Chin_VD also shares a weak correlation with FigEnt_Agen ($t=-0.13$, $p<0.01$), FigEnt_Anim ($t=-0.13$, $p<0.01$), ActiPro ($t=-0.06$, $p<0.05$), and AssoFun ($t=-0.07$, $p<0.05$).

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

The variables of SynType_VD and SynType_X, as the syntactic properties of "V + Dào" constructions, will be discussed in this Section. The variable of SynType_VD contains 4 values, including backward bound complements (BBC, frequency = 124), bound complements (BC, frequency = 105), free complements (FC, frequency = 77), and forward bound complements (FBC, frequency = 800). Similar to the realization events, the variable of SynType_X also includes 9 values: degree adjectives (DgreA, frequency = 24), degree nouns (DgreN, frequency = 138), degree clauses (DgreC, frequency = 37), patient nouns (PtienN, frequency = 443), patient clauses (PtienC, frequency = 8), stimulus nouns (StimuN, frequency = 236), stimulus clauses (StimuC, frequency = 37), stimulus adjectives (StimuA, frequency = 2), and non-texts (NoT).

Table 3 and Figure 3 reveal the concrete distribution between SynType_VD and SynType_X.

Table 3. *The distribution of syntactic properties in realization events.*

	SynType_X									
SynType_VD	**PtienN**	**StimuN**	**NoT**	**DgreN**	**DgreC**	**StimuC**	**DgreA**	**PtienC**	**StimuA**	**Total**
FBC	430	172	142	13	0	31	4	8	0	800
BBC	0	16	10	85	10	0	3	0	0	124
BC	5	6	28	28	27	6	3	0	0	105
FC	8	42	1	12	0	0	14	0	0	77
Total	443	236	181	138	37	37	24	8	0	1106

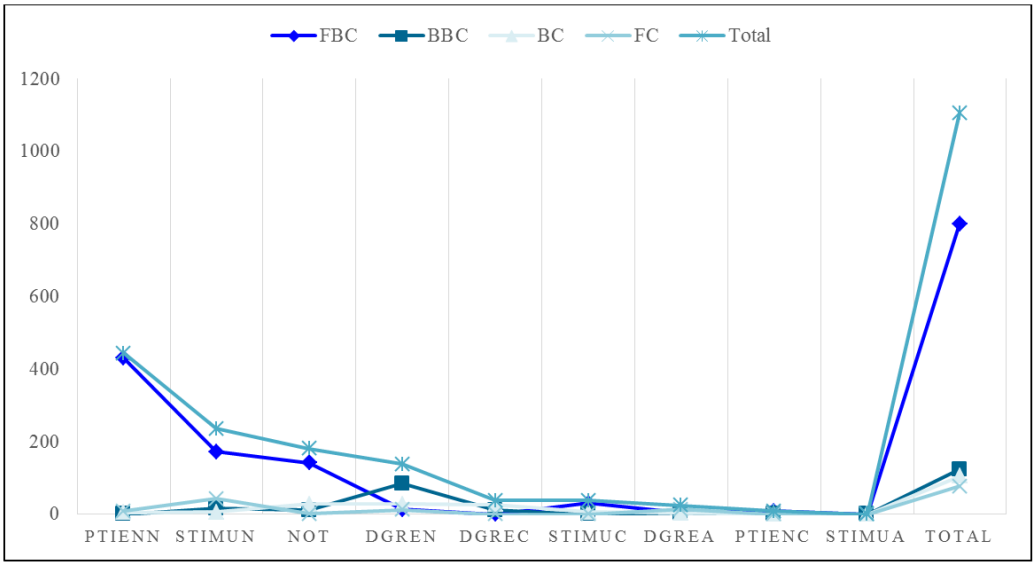

Figure 3. *The line chart of syntactic properties in realization events.*

To illustrate Table 3 and Figure 3 in a specific way with the previous examples, we firstly discusse the values of forward bound complements (FBC) in SynType_VD with their various values in SynType_X. In example (1), since "办到某些事(achieve something)" can only be interpreted as "办某些事(achieve something)" but not "*到某些事(*arrive something)", the value of SynType_VD is judged as a forward bound complement, and its value of SynType_X is represented by a patient noun (PtienN). Similarily, the SynType_X in "伤害不到我(cannot hurt me)" of (2) is also represented by a patient noun (PtienN); in "被人找到(was found by people)" of (3) it is expressed by a non-text (NoT); in "尽到责任(do the duty)" of (4) it is represented by a patient noun (PtienN); in "查不到(cannot search out)" of (5), it is expressed by a non-text (NoT); in "买到大房子(achieve to buy a big house)" of example (6), it is represented by a pa-

tient noun (PtienN); in “卖到一千万(sell for ten thousand)” of (7), it is represented by a degree noun (DgreN); in “帮助到(help)” of (8), it is represented by a patient noun (PtienN); in“告到检察官(sue the prosecutor)” of (9), it is still represented by a patient noun (PtienN); and in “训练到看书(training how to read the books)” of (13), it is represented by a patient clause (PtienC).

Secondly, the values SynType_VD are free complements (FC) in example (10) “回来到《国学堂》(back to the *Guo Xue Tang*)” and (11) “来到《国学堂》(come to the *Guo Xue Tang*)”, and the values of SynType_X in these two examples are both stimulus nouns (StimuN) that signify the stimulus of the audience’s situations.

Thirdly, the value of SynType_VD is a backward bound complement (BBC) in “哭到有人注意了(cry to the degree that somebody paid attention to)” of (12), for we can only express “到有人注意了(to the degree that somebody paid attention to)” but not “*哭有人注意了(cry that somebody paid attention to)”. And the SynType_X of “有人注意了(somebody paid attention to)” is a stimulus clause (StimuC).

Finally, in “归结到心上(sum up to the heart)” of example (14), the value of SynType_VD is a bound complement (BC), and the SynType_X is represented by a stimulus noun (StimuN).

(14) “人”又可归结到“心”上。

“rén” yòu kě guī jié dào “xīn”shàng

“people” again can sum arrive the “heart” up

“People” can be summed up to the “heart”.

The distribution of the “V + Dào” construction bears no correlation to the distribution of SynType_VD (t= - 0.007, p>0.05) but a weak correlation with SynType_X (t=0.06, p<0.05). In addition, SynType_X and SynType_VD are moderately correlated to each other (t=0.4, p<0.01).

4.3. Event Integration Patterns of “V + Dào” Constructions as Realization Events

In this Section, we proceed to discuss the variables of IEI_V and IEI_D in the internal event integration as well as the variables of EEI_VD, EEI_Type and Chin_VD in the external event integration.

Firstly, IEI_V consists of 11 values: “confirmation+cause” (frequency = 266), “confirmation+cause+path” (frequency = 4), “confirmation+manner” (frequency = 7), “confirmation+path” (frequency = 34), “confirmation+path+path” (frequency = 50), “fulfillment+cause” (frequency = 614), “fulfillment+cause+path” (frequency = 32), “fulfillment+concomitance” (frequency = 1), “fulfillment+enablement” (frequency = 1), “fulfillment+manner” (frequency = 24), “fulfillment++subsequence” (frequency = 73). See Table 4 and Figure 4 for details.

Table 4. *The distribution of IEI_V in realization events.*

IEI_V	Frequency	Percentage	Examples
fulfillment+cause	614	55.52%	如果你能办到某些事。 (If you can achieve some things.)
confirmation+cause	266	24.05%	我们查不到了。 (We cannot search out.)
fulfillment+subsequence	73	6.60%	我们只能告到检察官。 (We can only sue to the prosecutor.)
confirmation+path+path	50	4.52%	欢迎继续回来到《国学堂》。 (Welcome back to the *Guo Xue Tang*)
confirmation+path	34	3.07%	欢迎继续来到《国学堂》。 (Welcome to the *Guo Xue Tang*)
fulfillment+cause+path	32	2.89%	画家的画在台湾可以卖到一千万。 (The artist’s paintings can sell for ten million in Taiwan.)
fulfillment+manner	24	2.17%	就是训练到看书。 (It is training the (task of) reading the books.)
confirmation+manner	7	0.63%	我自己在生活中观察到。 (I have observed that in my own life.)
confirmation+cause+path	4	0.36%	演出票可以订到。

IEI_V	Frequency	Percentage	Examples
fulfillment+enablement	1	0.09%	(The tickets can be ordered.) 课程有没有能够帮助到你? (Whether the courses can help you?)
fulfillment+concomitance	1	0.09%	我哭到有人注意了。 (I cry to the degree that somebody pays attention to me.)
Total	1106	100.00%	

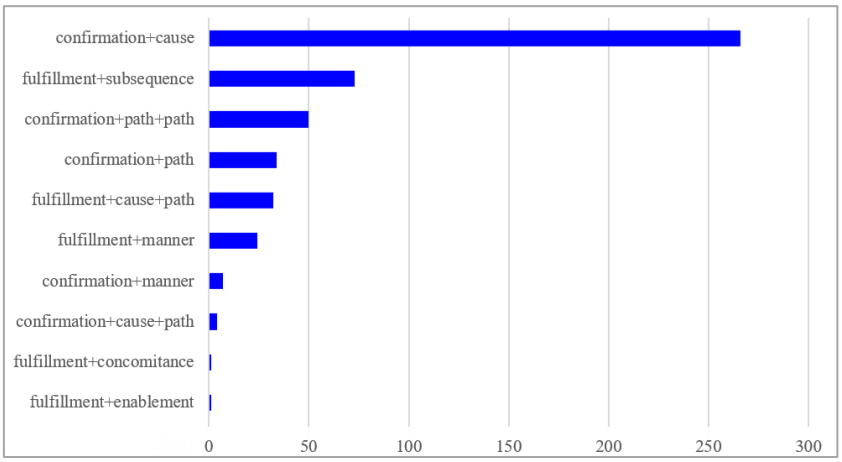

Figure 4. *The bar chart of IEI_V in realization events.*

As Table 4 and Figure 4 indicate, if two conceptual primitives are integrated or conflated in IEI_V, the conflated conceptual primitives can be formatted as "2" which can be instantiated as "confirmation+cause", "confirmation+manner", "confirmation+path", "fulfillment+concomitance", "fulfillment+enablement", "fulfillment+manner", "fulfillment++subsequence" and "fulfillment+cause"; if three conceptual primitives are integrated or conflated in IEI_V, the conflated conceptual primitives can be formatted as "3" that can be instantiated as "confirmation+cause+path" and "confirmation+path+path". See Table 5 and Figure 5.

Table 5. *The formats and the distribution of IEI_V in realization events.*

Formats	IEI_V	Frequency	Total
2 (Two conceptual primitives are conflated in IEI_V)	confirmation+cause	266	1020 (92%)
	confirmation+manner	7	
	confirmation+path	34	
	fulfillment+cause	614	
	fulfillment+concomitance	1	
	fulfillment+enablement	1	
	fulfillment+manner	24	
	fulfillment+subsequence	73	
3 (Three conceptual primitives are conflated in IEI_V)	confirmation+cause+path	4	86 (8%)
	confirmation+path+path	50	
	fulfillment+cause+path	32	

Formats	IEI_V	Frequency	Total
Total	11	1106	1106 (100%)

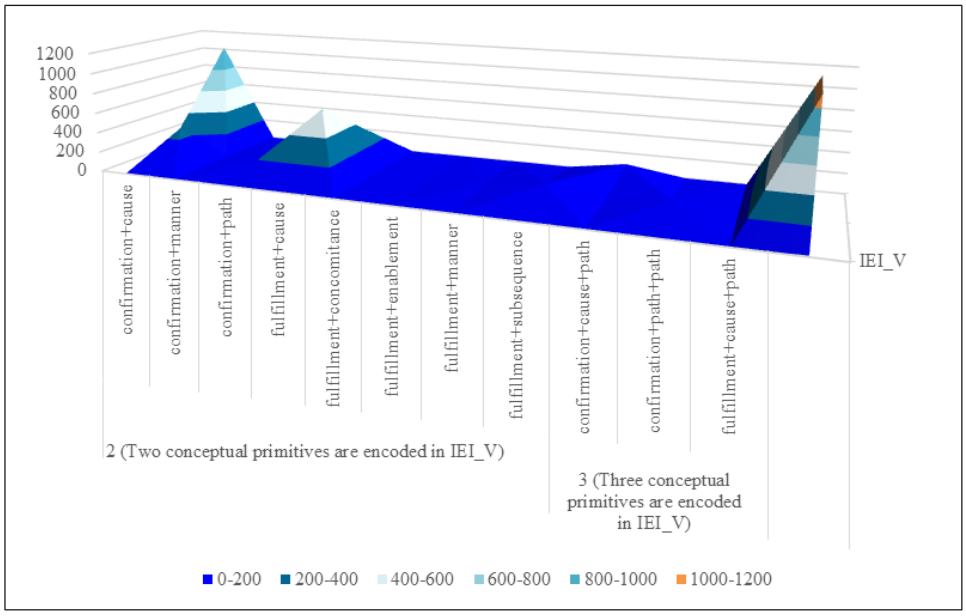

Figure 5. *The surface chart of the internal event integration patterns in IEI_V (realization events).*

Secondly, the values of IEI_D refer to "fulfillment+transition" and "confirmation+transition". However, Chin_VD is weakly correlated to IEI_V ($t=-0.11$, $p<0.01$) and IEI_D ($t=-0.07$, $p<0.01$) in realization events.

Thirdly, the value of EEI_VD signifies the realization event. Based on the formula of "EEI_VD = IEI_V + IEI_D", since the conceptual primitives conflated in IEI_V can be formatted as "2" or "3" and those in IEI_D can be formatted as "2", their combinations can be formatted as "2+2" or "3+2". See Table 6 for the details.

Table 6. *The formats and the distribution of EEI_VD in realization events.*

Formats	EEI_VD	Frequency	Total
2+2	(confirmation+cause)+(confirmation+transition)	266	1020
	(confirmation+manner)+(confirmation+transition)	7	
	(confirmation+path)+(confirmation+transition)	34	
	(fulfillment+cause)+(fulfillment+transition)	614	
	(fulfillment+concomitance)+(fulfillment+transition)	1	
	(fulfillment+enablement)+(fulfillment+transition)	1	
	(fulfillment+manner)+(fulfillment+transition)	24	
	(fulfillment+subsequence)+(fulfillment+transition)	73	
3+2	(confirmation+cause+path)+(confirmation+transition)	4	86
	(confirmation+path+path)+(confirmation+transition)	50	
	(fulfillment+cause+path)+(fulfillment+transition)	32	
Total	11	1106	1106

In Table 6, we find that "fulfillment" and "confirmation" are the shared conceptual primitives between IEI_V and IEI_D in realization events. They are mapped together as the foundation for EEI_VD as a unitary event. The different support relations in IEI_V and the "transition" in IEI_D are overlapped by the conceptual slots provided for each other.

Finally, in the external event integration, the values of EEI_Type in "V + Dào" constructions belong to the verb-resultative event constructions (VRes) in realization events.

In Section 4.3, the main findings concerning "V + Dào" constructions in realization events can be concluded from two aspects as follows.

1) The first aspect relates to the event integration patterns of "V + Dào" constructions in realization events. Based on the discussion above, we find that:
   a. IEI_V can conflate 2 or 3 conceptual primitives;
   b. IEI_D can conflate 2 conceptual primitives (see Appendix I);
   c. EEI_VD here refers to the realization event;
   d. EEI_Type is the verb-resultative constructions (VRes);
   e. in the internal event integration, IEI_V can be formatted as "2" (in which two conceptual primitives are conflated) or "3" (in which three conceptual primitives are conflated). IEI_D can also be formatted as "2", for only two conceptual primitives are conflated in it;
   f. in the external event integration, EEI_VD is formally equivalent to "IEI_V+IEI_D" that can be formatted as "2+2" or "3+2". In semantics, EEI_VD is fused by the interaction of the conceptual primitives in IEI_V and IEI_D. The shared conceptual primitives in IEI_V and IEI_D are mapped to each other by means of the conceptual primitives of "fulfillment" and "confirmation" in different subtypes of realization events. In addition, IEI_V and IEI_D are also integrated by the conceptual slots provided for each other.
2) The second aspect pertains to the correlations between the event integration patterns of "V + Dào" constructions and their semantic/syntactic properties in realization events. Based on the correlation analysis, Table 7 presents us with all the correlation coefficients between all the variables in realization events.

Table 7. *The correlation coefficients among the variables in EEI_VD_ReaEvt.*

IEI_ReaEvt	VD_Chin	FigEnt_Agen	FigEnt_Anim	ActiPro	AssoFun	SuppRel	SynType_VD	SynType_X	IEI_V	IEI_D	EEI_Type
VD_Chin	1	-0.128	-0.132	-0.06	NA	-0.14	*-0.007	0.06	-0.11	NA	NA
FigEnt_Agen	-0.128	1	0.68	-0.29	NA	-0.23	0.07	0.18	-0.36	NA	NA
FigEnt_Anim	-0.132	0.68	1	-0.26	NA	*0.01	0.08	0.19	-0.22	NA	NA
ActiPro	-0.06	-0.29	-0.26	1	NA	-0.08	-0.14	-0.29	0.83	NA	NA
AssoFun	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SuppRel	-0.14	-0.23	*0.01	-0.08	NA	1	0.12	0.24	0.32	NA	NA
SynType_VD	*-0.007	0.07	0.08	-0.14	NA	0.12	1	0.4	-0.06	NA	NA
SynType_X	0.06	0.18	0.19	-0.29	NA	0.24	0.4	1	-0.15	NA	NA
IEI_V	-0.11	-0.36	-0.22	0.83	NA	0.32	-0.06	-0.15	1	NA	NA
IEI_D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EEI_Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

In Table 7, IEI_V is strongly correlated to AssoFun, IEI_D and ActiPro. It is moderately correlated to FigEnt_Agen and SuppRel, and it is weakly correlated to FigEnt_Anim, SynType_X and SynType_VD. Their correlated coefficients can be ordered as "(AssoFun > IEI_D > ActiPro) > (FigEnt_Agen > SuppRel) > (SynType_X > SynType_VD)", which are visualized in Figure 6.

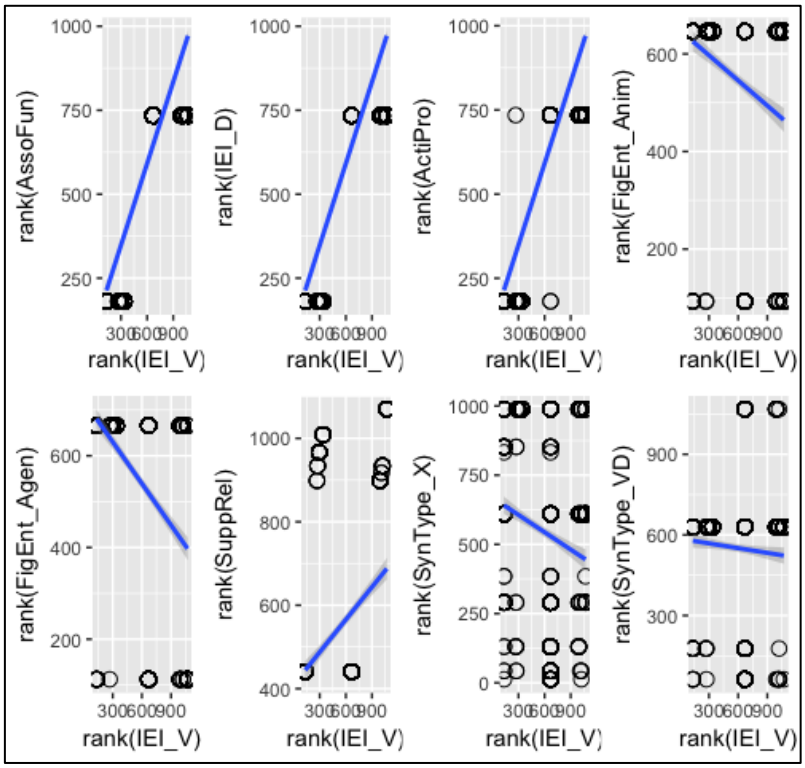

Figure 6. *The visualization of the correlations between the variables and IEI_V in realization events.*

The variable of IEI_D bears strong correlations with the variables of AssoFun, ActiPro and IEI_V, but has weak correlations with the variables of FigEnt_Agen, SynType_X, FigEnt_Anim, SynType_VD and SuppRel. Their correlated coefficients can be descendingly ordered as "(AssoFun > ActiPro > IEI_V) > (FigEnt_Agen > SynType_X > FigEnt_Anim > SynType_VD > SuppRel)". See Figure 7 for details.

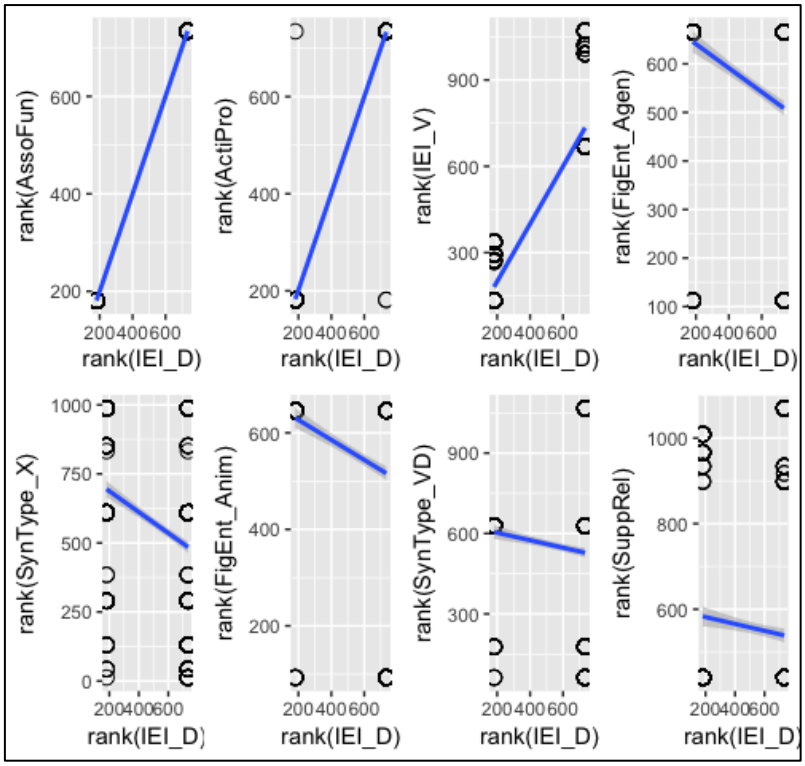

Figure 7. *The visualization of the correlations between the variables and IEI_D in realization events.*

In the external event integration, we only probe into the correlation between the variable of Chin_VD and other variables of "V + Dào" constructions, for there is only one value in EEI_VD and EEI_Type. Chin_VD only has a weak correlation with FigEnt_Anim, FigEnt_Agen, SuppRel, IEI_V, AssoFun, IEI_D, ActiPro and SynType_X. Their correlated coefficients can be ordered as "FigEnt_Anim > FigEnt_Agen > SuppRel > IEI_V > AssoFun > IEI_D > ActiPro > SynType_X", which are visualized in Figure 8.

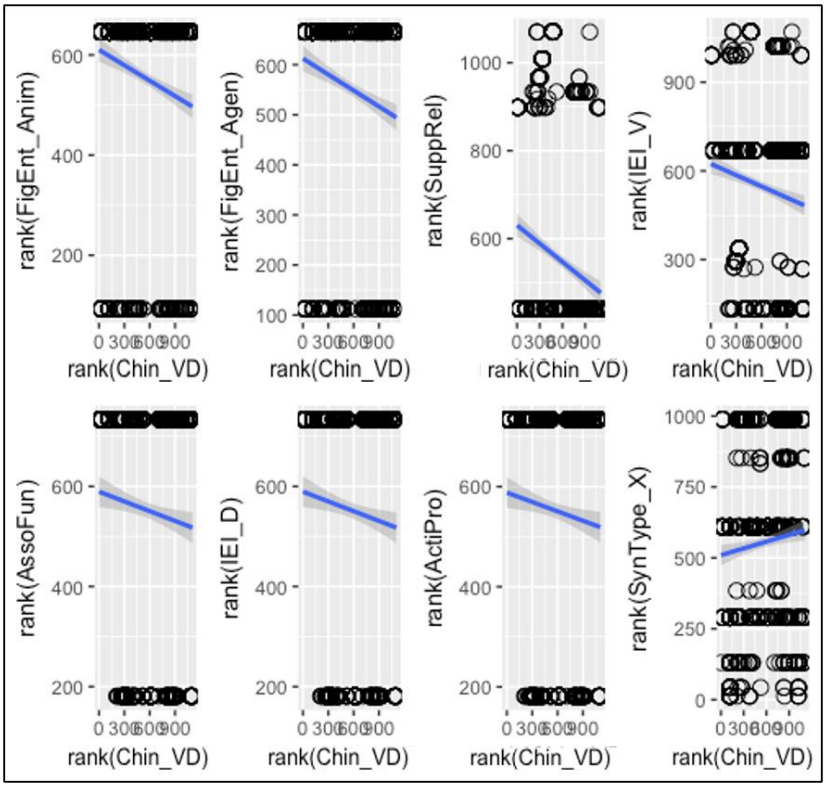

Figure 8. *The visualization of the correlations between the variables and Chin_VD in realization events.*

In Table 7 and from Figure 6 to Figure 8, we can infer that IEI_V and IEI_D are strongly correlated to each other ($t=0.84$, $p<0.01$), and both of them are sensitive to the variables of ActiPro and AssoFun. In other words, the internal event integration provides the foundation for the development of the external event integration in realization events.

5. Conclusion

In the context of realization events within Mandarin's "V + Dào" constructions, a detailed examination of event integration patterns reveals several key observations about the interaction of conceptual primitives. First, internal event integration within the verb (IEI_V) demonstrates flexibility, as it can combine either two or three conceptual primitives. This capacity for conflation suggests a level of semantic fluidity, allowing for various expressions of meaning depending on the specific construction. Similarly, the internal event integration within "Dào" (IEI_D) consistently involves two conceptual primitives, contributing to the overall structure of the event.

On a broader scale, external event integration at the constructional level (EEI_VD) includes 11 distinct combinations of IEI_V and IEI_D. These combinations can be captured in a formulaic manner, represented as either "2+2" or "3+2", indicating the varied ways in which different event primitives can be integrated within the construction. The value of EEI_Type, in this case, consistently aligns with the verb-resultative construction (VRes), a particular syntactic structure that is integral to the realization event framework.

Further analysis of the hierarchical relationships between variables in both IEI_V and IEI_D reveals a nuanced pattern of interdependencies. In IEI_V, the hierarchy of correlated variables is structured as follows: "AssoFun > IEI_D > ActiPro" takes precedence, followed by "FigEnt_Agen > SuppRel" and finally, "SynType_X > SynType_VD". This ordering reflects the relative importance of each variable in shaping the meaning and syntactic realization of the event. In IEI_D, the hierarchy shifts slightly, with "AssoFun > ActiPro > IEI_V" forming the core, followed by "FigEnt_Agen > SynType_X > FigEnt_Anim > SynType_VD > SuppRel." The differences in these hierarchical structures underscore the distinct roles

played by these variables in the verb and complement, as well as their integration within the broader event structure.

Interestingly, when examining the correlation of Chin_VD (the "V + Dào" construction) with other variables, it becomes evident that this construction exhibits only a weak correlation with several key elements, including FigEnt_Anim, FigEnt_Agen, SuppRel, IEI_V, AssoFun, IEI_D, ActiPro, and SynType_X. This suggests that while these variables are relevant to the overall event structure, the specific "V + Dào" construction does not exhibit a strong alignment with these elements in a manner that would imply direct or substantial interdependence. The weak correlations indicate that the Chin_VD construction operates somewhat independently in the larger schema of realization events, suggesting that it may have a more flexible or diverse set of applications in natural language use.

To recap, "V + Dào" construction, as a realization event, exhibits a relatively high degree of grammaticalization, offering valuable insights for the study of similar resultative constructions in Mandarin. Meanwhile, this paper can provide significant insight into the structural and functional dynamics of realization events in Mandarin, contributing to a more nuanced understanding of the "V + Dào" construction's role in encoding complex event semantics.

Abbreviations

ActiPro	Activating Process
Agen	Agency
Anim	Animacy
Asp	The Marker of the Aspect
AssoFun	Association Function
BBC	Backward Bound Complements
BC	Bound Complements
Chin_VD	Chinese Instances of "V + Dào" Constructions
DgreA	Degree Adjectives
DgreC	Degree Clauses
DgreN	Degree Nouns
EEI	External Event Integration
EEI_Type	External Event Integration in the Verb-complement Types of "V + Dào" Constructions
EEI_VD	External Event Integration in "V + Dào" Constructions
FBC	Forward Bound Complements
FC	Free Complements
FigEnt	Figural Entity
FigEnt_Agen	The Agency in the Figural Entity
FigEnt_Anim	The Animacy in the Figural Entity
GroEnt	Ground Entity
IEI	Internal Event Integration
IEI_D	Internal Event Integration of "Dào"
IEI_V	Internal Event Integration of "V"
NA	The Missing Value in R Language
NoT	Non-Text
PtienN	Patient Nouns
PtienC	Patient Clauses
ReaEvt	Realization Event
StimuC	Stimulus Clauses
StimuN	Stimulus Nouns
SuppRel	Support Relations
SynType_VD	The Syntactic Types of "V + Dào" Constructions
SynType_X	The Syntactic Types of "X" Postpositioning "V + Dào" Constructions
T & F	True and False Value
TempC	Temporal Clauses
TempConEvt	Temporal Contouring Events
TempN	Temporal Nouns
vd_structure	The Whole Data of "V + Dào" Constructions
VDir	Verb-directional Constructions
VPha	Verb-phase Constructions
VRes	Verb-resultative Constructions

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Biography

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