A Study on the Frame Construction Model in the Generation of Two-way Verbal Humor

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ABSTRACT. *Based on the Autonomy/Dependency theory and Frame theory, this paper explores the mechanism of frame shifting and autonomy/dependency coupling involved in the construction of verbal humor, and attempts to establish the "autonomy/dependency coupling frame" model. It is found that frame transfer and autonomy/dependency coupling are the key links of humor generation. Meanwhile, by comparing the interactive differences among language producer, recipients and semantic frame, the paper analyzes the motivation of the construction mechanism of two-way humor , and to some extent, it has bridged the deficiency of the investigation of cognitive operation in previous studies and deepened the research horizon in this field.*

KEYWORDS: *verbal humor; frame shifting; frame model of autonomous/dependent coupling; two-way humor*

1. Introduction

Humor is a both universal and special form of expression, which can be found everywhere in daily life. It is widely active in language, behavior, logic and other aspects. It is not only an explicit language coding form, but also reflects the internalized cognitive mode. In a broad sense, humor can be divided into verbal humor and non-verbal humor. This paper takes verbal humor as the research object and does not discuss non-verbal humor. The research on humor has been on the rise since Plato's time. In history, many scholars including Plato, Kant and Freud have carried out a large number of fruitful researches from different perspectives, and put forward a series of influential theories such as Error theory, Superiority theory and Release theory. In recent years, there has been an obvious trend of linguistic shift in the study of humor. There are numerous related studies abroad, covering many fields such as Rhetoric, Semantics, Pragmatics, Sociolinguistics, Psycholinguistics, Computational linguistics and Cognitive linguistics, mainly involving stylistic rhetorical features (Pepicello, 1983; Nash, 1985), speech act theory (Searle, 1986),

relevance theory (Sperber&Wilson, 1995), sign theory (Raskin, 1985), frame shifting (Coulson, 2001), computational analysis model (Mihalcea&Straapparava,2006), pedagogy (Vandergriff &Fuchs, 2012), conceptual integration (Fauconnier, 2002); Partington, 2011) and other topics, presenting a diversified, interactive and comprehensive research trend. Domestic linguistic research on verbal humor can be divided into two roads: static research and dynamic research. Jiang chengsheng and Liao dingzhong（2005）analyzed the pragmatic motivation of humor based on the cooperative principle and relevance theory. Hu xiaoying and Yang tingjun（2011）made a preliminary cognitive interpretation of humor from the perspective of spatial conflict. Wang wenbin（2003）explained the online generation mechanism of verbal humor based on conceptual blending theory. Shan xinrong and Xiao kunxue（2014）analyzed the causes of conversational humor from the perspectives of frame conflict and frame shifting. Also based on the frame theory, Jiang lei（2009）further analyzed several stages involved in frame shifting in the production of humorous speech. Obviously, the research on verbal humor has become a hot topic in the academic circle in recent years, and the results are quite abundant. These studies deepened the research in the field of domesticating translation, but the dynamic building mechanism and interactive mechanism for verbal humor between conflicting and asymmetric concepts has not been discussed up to now. To be specific, there still exist the following problems to be solved: 1) most researches on verbal humor focus on conventional humor, lacking a unified approach to interpret other types of humor (unconventional humor); 2) there should be some special correlation between the frames involved in the generation of verbal humor, rather than a simple conflict relationship.The classification of verbal humor is numerous due to the differences in its standards, so this paper will not list them one by one. According to the effect of verbal humor, verbal humor can be divided into two-way humor(humor effect exists in both language producer,and recipients) and one-way humor(humor effect only exists in either language producer or recipients). Considering the popularity of two-way humor in daily life, this study mainly focuses on two-way humor.

In view of this, based on the relevant theories of cognitive linguistics, the paper takes a comprehensive study on frame models for the shifting and the coupling at different stages in humor generation ,establishing model of "independent/dependent coupling frame" and exploring   the generating mechanism of the two-way verbal humor.

2. Generation mechanism of verbal humor

2.1 Autonomy and Dependence

Independence/dependence is originally a pair of concepts in philosophy, referring to an asymmetric relationship between A and B in which if A is relatively self-sufficient, and B presupposes and depends on A, and is regulated and supported by A , then we can hold A depends on B(Xu shenghuan, 2007: 34-40). Many schools of linguistics have discussed autonomy/dependence from different angles. Based on

the independence principle of universal grammatical structures, generative linguist Safir (2004) investigated the independent dependence between independent syntax and non-independent sentences in syntactic structures. Langacker(1987), a cognitive linguist, also specially discussed the asymmetric connection between autonomy and dependence. He described the autonomy/dependence relationship in this way: in a group of valence relations, if A is the specific interpretation of A sub-structure in B, then structure B depends on structure A. That is, dependent component B provides elaboration site to be filled in detail, and independent component A provides specific explanations for the elaboration site as filling contents. Therefore, the semantic expression of dependency component B cannot be self-explanatory. Only by presupposing or associating the autonomous component A can it be clearly presented. He further proposes two criteria for determining a set of autonomy/dependency relationships: interpretive criteria and sub-structural criteria. The former means that the independent component should make a specific interpretation of the elaboration site provided by the dependent component, while the latter means that the elaboration site filled by the independent component should be the sub-structure of the dependent component. From this point of view, any relational concept has a set of autonomous/dependent associations, because relational concepts are conceptualized by schematically intrinsic referential actors. For example, in the prepositional phrase "*on the floor*", "*on*" is dependent on "*the floor*", because as a relational predicate,"on" cannot be semantically self-evident, but the semantic aspect highlighted by "*the floor*" makes a specific explanation of a preset sub-structure-boundary mark of on before the conceptualization can be completed. This paper will explore the relevant issues based on the perspective of autonomy/dependence in cognitive linguistics.

2.2 Semantic frame

The concept of frame originated from cognitive psychology and refers to the knowledge structure of people's memory organized by various information and experiences. Fillmore first introduced frame into linguistic research to form frame semantics. He believed that frame refers to multiple domain knowledge networks related to a concept or connected to a known language form (Fillmore 1982:111-137). The interpretation of language meaning is inseparable from the positioning of the frame. If we want to determine the meaning of "autumn", we must put it in the frame of "season", otherwise the concept of "the third season of four seasons" will not be known. Barsalou (1992a:30) pointed out that a semantic frame should contain at least two elements: attribute and value. He defined attribute as "a concept that can describe a certain feature of at least some members of a category". Value is defined as "the sub-member that can represent a certain feature in the category". For example, in the "purchase framework", "consumer" and "commodity" are two attributes of this frame. "the buyer Xiao wang" and "a used car" can be used as the specific value of "consumer" and "commodity" respectively. When a concept in a conceptual system is encoded and introduced into discourse, other concepts in the system are automatically activated or have potential to be activated. Therefore, the use of language plays a dual role of both access and frame control to the specific

positioning of meaning. That is, the use of a certain word will activate a certain frame, which will also delineate the scope of semantic interpretation. Meanwhile, Sperber&wilson (1995:20) argued that when people interpret information, they activate chunks of information in a frame from knowledge and experience, and the connection between different chunks of information ensures that integrated information can be stored coherently and organically as a gestalt structure. In terms of the categorization of the frame, its archetypal features are static, while verbal communication is dynamic and often involves the online construction of different information chunks. Therefore, the semantic communication of coherent speech involves not only the activation of a single semantic frame, but also the activation of connections between different frames, namely, frame shifting. Coulson(2001) investigated event-related potential (ERPs) by quantifying reading time and verified the existence of "frame shifting" in the generation of humorous speech. The dynamic shifting of semantic frame can provide a powerful cognitive explanation for the semantic integration of continuous speech.

2.3 The correspondence between semantic framework and autonomy/dependency coupling in verbal humor

Sullivan(2007) discussed the relationship of autonomy/dependence in different types of metaphors, reinterpreted the autonomy/dependence relationship, enhanced the explanatory power of autonomy/dependence relationship, and solved the mutual compatibility between semantic frame and autonomy/dependence relationship by combining the frame and construction theory. Based on this, the author further believes that the frame should contain the following three hierarchical structures: frame(autonomous/dependent connection)>features/roles(dependent component)> elaboration value(autonomous component).The hierarchical relationship is as follows: explanatory value is the elaboration of the feature/role, feature/role provides the elaboration site for the explanatory value, feature/role and explanatory value jointly construct the autonomous/dependent connection, forming the gestalt frame.

Semantic contrast between different frames plays a crucial role in the generation of verbal humor. To understand the humorous words, one firstly activate a starting frame.When the starting frame conflict with the following discourse interpretation, one activates another advanced frame.if the new advanced frame can be activated and the starting frame smoothly undergoes the shifting, a temporary coupling frame comes into being which produces humor. It can be seen that the frame and the relationship between the frame elements are of great significance for the study of the construction of verbal humor. Jiang lei (2009) once divided the generation of humorous speech into several steps according to different states of semantic frame, which has certain enlightenment for the dynamic research of the construction of verbal humor. But what is the relationship between frame that enable shifting? Can shifting be implemented wherever conflicting frames exist? These issues are not addressed in this article. In view of this, the following hypothesis is proposed: the frame shifting in verbal humor is conditional, and requires a certain independent/dependent relationship between the components of the two frames. In the process of verbal humor construction, there are not only shifting between frames,

but also independent/dependent connections among different frame components. In typical two-way humor, both are indispensable. The former is the premise and foundation of humor generation, while the latter is the concept storage path and key of humor generation.

The autonomous/dependent coupling mechanism of frame elements in verbal humor is dynamic in both shifting and coupling. On the one hand, dynamic shifting refers to the existence of multiple semantic frames in a certain cognitive domain before the generation of verbal humor. These frames have differences in the degree of prominence or discourse dominance in our cognitive reference. Another frame that conflicts with the starting frame is subsequently actualized or potentially activated. On the other hand, dynamic shifting also includes the rising and sinking of the prominent position of the frame itself before and after activation. Specifically, when the initial frame is activated, its cognitive prominence decreases, that is, the frame sinks. After the activation of the starting frame, the cognitive prominence of the advanced frame is increased, that is to say, the frame rises. Dynamic connection refers to the condition in which there is an asymmetric relationship between independent/dependent connection. Dynamic shifting and dynamic connection between frames not only provide possibilities for the generation of verbal humor, but also restrict the generation of verbal humor to some extent. It should be noted that dynamic shifting and dynamic connection between frames exist only as a potential or presupposition, and not every verbal humor can be successfully achieved, which will be discussed in detail below.

2.4. Construction of "independent/dependent coupling frame" model in verbal humor

As mentioned above, there exist independent/dependent coupling between shifting frames in humor construction. In order to further clarify the relationship, combined with the semantic framework and independent/dependent coupling characteristics, we attempt to establish the "independent/dependent coupling frame" model, as shown below:
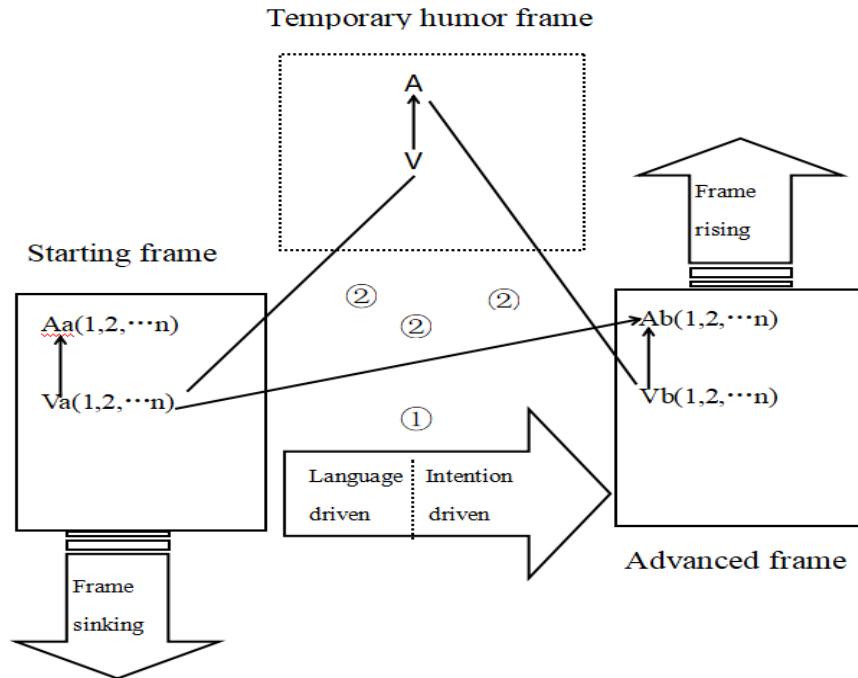
Figure 1 Independent/dependent coupling frame model in verbal humor

Note: Bold box represents the semantic frame; dotted box represents a temporary frame Since it is not a long-term storage of stable knowledge structure; A and V respectively represent the unique feature and unique value generated in the framework of humor temporary coupling. Aa represents the Attribute in the frame of autonomous components, and Va corresponds to the explanatory Value of the features in the frame of autonomous components. Ab represents the Attribute in the dependency component frame, while Vb corresponds to the explanatory value of the feature in the dependency component frame.Thin arrows indicate explanatory relationships and directions, and bold arrows indicate activation relationships and directions.Numbers(①/②) represent the ordinal steps of humor process.

People follow the principle of relevance in their daily communication. To correctly understand the meaning of the speaker's words, the recipient must establish the correlation between the words and the context with reasoning (Jiang chengsheng, Liao dingzhong, 2005:26). At the same time, Ponty's "intentional arc" theory holds that consciousness is contextualized, our perception of external processing is established on the basis of experience and our cognitive support by an intentional arc, keeping sensory and mental unity. In the "intentional arc", cognitive psychological event is a meaningful gestalt, which contains related foreground information and background information. With the adjustment of focus and intention,

these foreground information and background information will be highlighted or withdrawn from each other in rotation (Jiang zhihui, 2001). These findings provide a psychological basis for the proposed model. the author argues that speech act in pragmatics main body is not completely passive after receiving speech output to adjust the cognitive operation, but also the existence of active psychological response, especially when in actual words promote cognitive and psychological expectation of inconsistency, the active correction based on intentional arc is more outstanding (as shown in figure 1 steps (1)). To be specific, in the process of constructing verbal humor, the initial semantic frame is the first to be activated, and then correlation is generated based on reasoning and intentionality adjustment, and another frame is activated to form contrast, which is the first step. This activation process can be divided into two stages: language-driven stage and intention-driven stage. The former is passive adjustment, while the latter is active adjustment. But the two are in a continuum, and there are no distinct boundaries. After experiencing this process, the prominence of the initial frame cognition decreases and the frame sinks. And the advanced frame is highlighted by cognition to achieve the rising of the frame. Secondly, from the perspective of autonomous/dependent coupling, the autonomous components in the initial frame explain the sub-structure of the dependency components in the advanced frame. The two cross-frame structures form the temporary frame of autonomous/dependent coupling and generate humor, which is the second step. Obviously, the generation of regular two-way humor usually experience two steps: shifting from initial frame to advanced frame and the frame of independent/dependent coupling,. Based on this, the author thinks that the autonomy/dependency coupling model between semantic frames can provide an effective cognitive explanation for the generation mechanism of humorous speech.

Compared with Langacker's independent/dependent coupling model and Fillmore's isolated analysis of semantic framework, this model in the interpretation of verbal humor has the following advantages: first of all, it contains both the independent/dependent coupling of base information matrix and showed profiled information of framework , leading the whole cognitive operation in a complete gestalt structure; Secondly, it describes the steps of frame shifting and the relations between frame components in details, reflecting the dynamic sequence characteristics of verbal humor construction. Thirdly, in this model, asymmetric relations between semantic frames can be represented both before and after the generation of verbal humor.

Based on the above interpretation of the autonomous/dependent coupling model between semantic frames in the generation of verbal humor, the author will analyze the deep construction mechanism of \verbal humor with the following examples.

(1) It has only rained twice this month, one for ten days and the other for twenty days.

(2) Just like pregnancy, it takes time for the talent to show.

As shown in figure 2, for example (1) , when the receiver firstly gets "this month" "rained twice" in the first half of the sentence, "little rain frame"is first activated in cognitive operation , namely, the starting frame, and when the receiver subsequently gets "one for ten days and the other for twenty days", the receiver finds semantic construction conflicts with the original starting frame. Thus, combined

with encyclopedic knowledge, "rainy frame" is activated, with "little rain frame" sinking and "rainy frame" rising. This is the first step of humor generation-frame shifting, which is also the premise and necessary condition of humor generation. At the same time, in addition to speech, referring to the daily semantic frame, the "rainy framework" contains at least one schematized feature sub-structure: " rainy with low frequency"; The "rainless frame" also contains at least one feature substructure: " rainless with low frequency". In example (1), the "rained twice" in the first half of the sentence is the specific interpretation value of the feature -- "rainless with low frequency". Meanwhile, the "rainy with low frequency" in the "rainy frame" can be interpreted in detail across the frame. In this way, the "two times of rain" in the "rainless frame" can be used as the independent component and the "low frequency and much rain" feature of the dependent component in the "rainy with low frequency" can realize the independent/dependent coupling, forming the humor temporary frame and storing the actual concept behind the humor effect, namely, "low frequency of rain but long duration of single scene". This is the second step in the formation of verbal humor, namely the construction of autonomy/dependency coupling. The humorous effect is achieved after the frame shifting and the independent/dependent coupling. It should be added that humor effect must be distinguished from the concept of humor. Humor belongs to the category of the speech effect, but the same concept can be reflected by different words. Like "I was frightened in sweats" and "I was frightened to two bowls of cold sweat", the two reflect the same concepts, but words effect is different. The latter obviously uses unconventional quantifier "bowl" to measure sweat, which is more humorous than the former. Similarly, as shown in figure3, example(2) also deals with the sequential activation and autonomous/dependent coupling of the two frames: "breeding frame" and "talent frame". First, the "breeding frame" with high cognitive prominence is activated by the addressee. With the proceeding of actual discourse, in order to obtain complete semantic information, the "talent frame" is further activated and its cognitive status is enhanced, while the "breeding frame" sinks in this process and is no longer highlighted. To be specific, in the stage of autonomy/dependency coupling, "takes time" is a specific interpretation of the secondary structure "showing condition" of the "talent frame" that is subsequently activated. Among them, the "showing condition" serves as the dependency component in the autonomy/dependency coupling and provides the elaboration site; The "talent frame" serves as an autonomous component, filling in the elaboration site provided by the dependency component, and humor is generated in the frame shifting between the two frames and the autonomy/dependency coupling of components, and the concept reflected by humor semantics is stored in it. Through cases (2), we can also find that the activation of humorous speech frame is not completely the way words appeared successively by serial driver, but relating to the degree of prominence in cognition or discourse, which further confirm the asymmetry between the semantic frames in the role of verbal humor generation, also in line with our proposed independent/dependent coupling frame model in this study. The generation patterns of verbal humor in example (1) and example (2) are shown as follows:
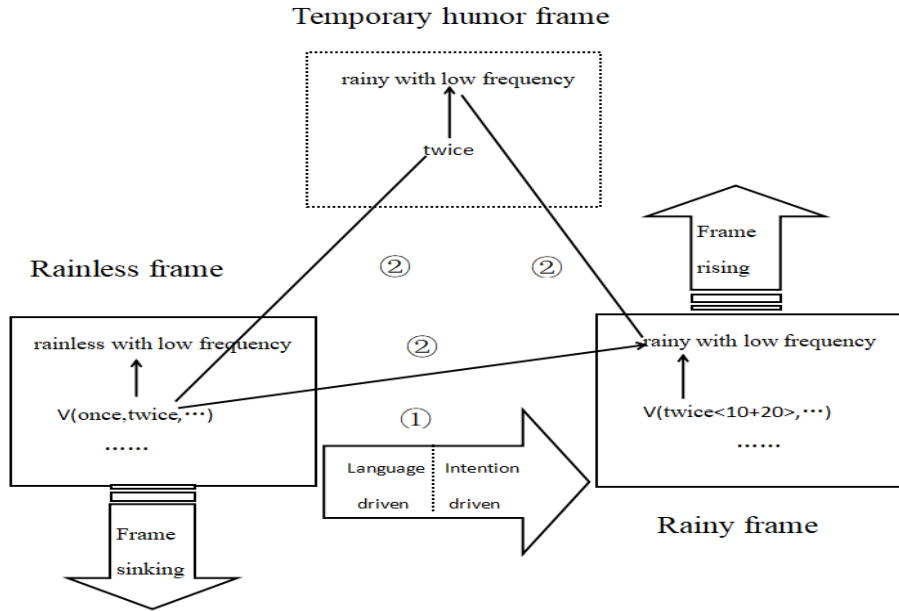
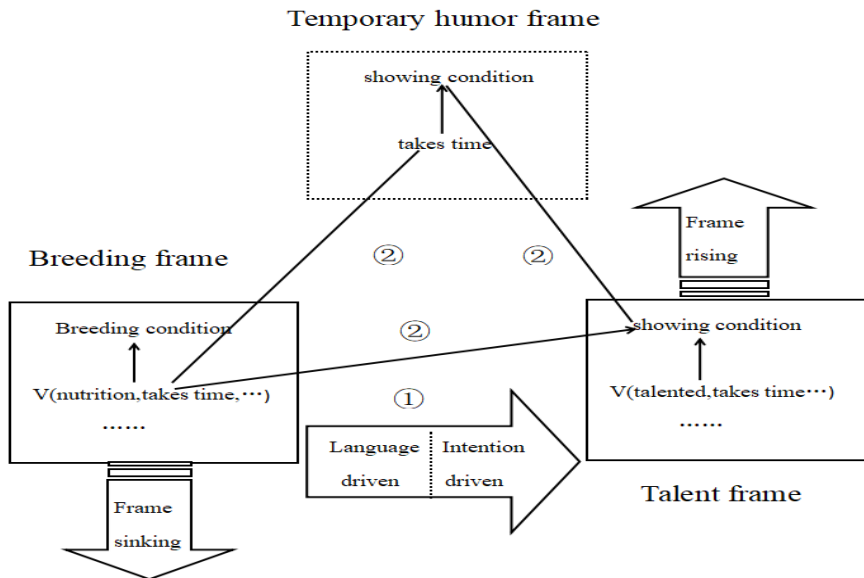*Figure 2 Independent/dependent coupling frame model for example 1*

Figure 3 Independent/dependent coupling frame model for example 2

3. Conclusion

In recent years, the study of verbal humor from the perspective of cognition has become popular, and presents two research mainlines:frame theory and conceptual blending theory. However, little attention has been paid to the asymmetric relationship and dynamic interaction between concepts involved in the construction of verbal humor. Based on the frame theory and the autonomy/dependency theory, this paper attempts to establish the "autonomy/dependency framework coupling" model to analyze the motivation of the construction mechanism of humorous speech, enhance the explanatory power of the autonomy/dependency theory, and reinforce the deficiencies in previous studies. The following two findings are made:1) The independent/dependent coupling of inter-frame components and the integration of frame shifting provides a new idea for the interpretation of the verbal humor generation.2) The construction of verbal humor involves two steps: frame shifting and independent/dependent frame connection, among which frame shifting also includes inter-frame activation and cross-frame displacement.

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