The Structure and Diagramming of Metaphorical Argument Based on Conceptual Integration Theory

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Abstract

Based on cognitive mechanism of conceptual blending and Freeman's diagramming theory, we build the structural analysis model of metaphorical argument. Firstly, the diagramming methods are described under three situations: the elements in blended space come from one of the input spaces, the elements are blended by two input spaces, and there are emergent elements in blended space. Then, the global architecture of the diagramming model is provided, and its way of applications is depicted through two actual cases. This model clears the methods of analyzing and diagramming metaphorical argument.

Keywords: metaphorical argument; conceptual blending; Freeman's diagrams; argument structure; argument diagramming

1. Introduction

Metaphor is an important figure of speech in rhetoric, but more importantly, it is also an important way of thinking for people to grasp the abstract and complex nature of the objective world. Metaphor can help people understand the implicit objective laws, which cannot be comprehended easily by using our perception of the world. Meanwhile, some dimensions in the superstructure that need to be noticed by people will also be highlighted through metaphors. Therefore, the widespread use of conceptual metaphors in science, politics, and daily life makes it necessary for informal logic, a discipline aiming to research argument analysis and evaluation in everyday discourse and various special disciplines [1], to examine the role of metaphors as a way of thinking in argumentation. In this way, when conducting argumentation and evaluation, we will not be confused by the unreasonable assertions covered by emotional effects that "seem" to be attached to arguments or supporting relationships. For this purpose, based on cognitive mechanism of conceptual blending, the structure of metaphorical argument is analyzed and diagrammed intuitively, in order to clarify the position of conceptual metaphors as a way of thinking in the argument structure.

2. The Research Progresses of Metaphorical Argument Structure

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Metaphorical argument refers to the form of argument that contains conceptual metaphors explicitly or implicitly. The current research mainly uses Toulmin's model as an entry point. By collecting and distinguishing metaphorical expressions in source domain and target domain and establishing metaphorical mapping, the elements are added to the corresponding modules of Toulmin's model to form a new conceptual metaphors argumentation model. Scholars who study the structure of metaphorical argument include Cristian Santibanez, Cihua Xu, Yicheng Wu, Qiaoyang Zhang, etc.

2.1 Basic metaphorical argument model

Santibanez's main idea is based on the "Metaphor is a mapping from source concept to target concept" proposed by George Lakoff and Mark Johnson [2]. Firstly, he extracted metaphorical expressions from the text information, distinguished two conceptual domains involved in metaphors, namely source domain and target domain, and named corresponding conceptual metaphors relationship. Secondly, he described the context logic in the source domain, characterized various aspects of the domain source, and then established the mapping relationship between the source domain and the target domain, determining the corresponding language expression in the target domain. Thirdly, he tried to clarify the argument support relationship among the propositions in the source domain and described the argument structure of the vehicle according to

Toulmin's model. Finally, according to the mapping mechanism of conceptual metaphors, in the target domain, he uses the Toulmin's model corresponding to the vehicle to describe the argument support relationship among the propositions in the tenor. Here is the case analyzed by Santibanez in his article [3]:

According to Cardemil, in Chile "the lady of the house does not give orders, does not know what to say; the kids come home at all hours, dinner is late, there is no money for food, the budget is wasted on activities that had not been considered previously, and the husband goes out to get drunk, wasting the chances of the family for the future".

This discourse contains very traditional metaphors, referring to "administrative institutions" as "family". In this way, the "president" corresponds to the "the lady of the house" or "the mother" in the family. The claim of this text in the source domain is "the lady of the house is not a good mother", and the ground (data) provided to it includes "the lady of the house does not give orders", "the kids come home at all hours", etc. Its "warrant" is "all good mothers have to show authority in the house to be a good mother". Based on this, the author gives the Toulmin's model of the source domain, as shown in Figure 1.

As shown in Figure 1, Santibanez uses the conceptual metaphors of the president and mother as backing, which is defective obviously. In Toulmin's model, backing is used to ensure the authority of the warranty [4]. The conceptual metaphors relationship between the president and the mother here does not guarantee "All good mothers have to show authority in the house to be a good mother", as a result of the irrelevance between warranty and backing.

Then, Santibanez imitated the supporting relationship between the premises and conclusions in the vehicle to construct tenor's Toulmin's model, as shown in Figure 2.

Compared with Figure 1, Figure 2 omits modality and rebuttal, because these two parts are not mentioned in the text and are null in the source domain. In addition, backing, that is, the source domain and target domain have metaphorical mapping, is omitted. According to the mapping relationship shown in Table 1, the grounds and claims of the two graphs can correspond.

Table 1. **The mapping relationship between source domain and target domain in Santibanez model**

Lady of the house / the mother（source domain）	President（target domain）
The mother does not give orders.	The president does not give orders.
The mother does not know what to say.	The president does not know what to say.
The kids come home at all hours.	The people are in disorder.
Dinner is late.	The projects of the parliament are late.
The budget is wasted on activities that had not been considered previously.	The national budget is badly organized.
The husband goes out to get drunk.	The secretaries of the administration do whatever they want.

In this way, Santibanez believes that the target domain argument has the following structure: seven propositions are used as ground, "all good presidents have to show authority in the administration to be a good president" as warrant, and they support the claim of "the president is not a good president".

2.2 Metaphorical argument model based on argumentation chain

Xu and Wu noticed two shortcomings in the Santibanez model. On the one hand, it is not accurate enough to use conceptual metaphors as the "backing" in the source domain; on the other hand, decomposing the argument structure of metaphorical mapping into two graphs destroys the integrity of Toulmin's model. Therefore, they improved the above model based on Toulmin's argumentation chain idea, as shown in Figure 3 [5].

The ground at the left end of the model is the seven propositions about the hostess in Figure 1, and the warrant in this figure is the same as that in Figure 1, but the backing is modified to "it is a common sense". The claim "the mother is not good" in Figure 1 is used as both the claim of the previous argument and the ground of the next sub-argument in this model. The warrant of the latter sub-argument is a seven-pair mapping relationship. The backing of this warrant is the conceptual metaphor "nation is a family", and the claim obtained is "the president is not good". In this way, Xu and Wu solved the two shortcomings of inaccurate backing and the separation of Toulmin's model in the Santibanez's model.

2.3 Metaphorical argument model based on argumentation chain with rebuttal and modality

Zhang claims that the above model has the following defects: firstly, it does not emphasize the accuracy of conceptual metaphors; then, it does not consider the two elements of rebuttal and modality in Toulmin's model. Therefore, he added rebuttal and modality modules to the model, as shown in Figure 4 [6].

The model consists of three sub-arguments. Each sub-argument adds corresponding modalities, which are "presumably", "necessarily", and "presumably" respectively. In the third sub-argument, Zhang added the module of "culture cannot be changed", so that the model also includes the rebuttal. However, this rebuttal is not mentioned in the original text (*Speech by Jack Ma at the Human Resources Conference of Alibaba Group*). The original text is that "*For human being, you said you changed me. I really don't know how to change. If it's something made by God, God won't let you change it easily. Any change will go against the laws of God and will cause problems* (cf. example 2)." According to the metaphor "company is person" considered in this model, the source domain where the vehicle is located should be "person", and the target domain where the tenor is located is "company". Jack Ma pointed out that "person's character may not be changed", that is, it points to the "character" in the source domain. At the same time, he clearly and repeatedly pointed out "the character of a company can be cultivated and perfected", that is, he did not indicate "culture cannot be changed". Therefore, "culture cannot be changed" cannot be used as the rebuttal of the third sub-argument.

According to the above derivation process, one can establish a one-to-one mapping relationship between source domain and target domain, that is, the two should be isomorphic. In this way, argumentation component that a proposition serves in the source domain should completely correspond to the target domain. If "character cannot be changed" in the source domain corresponds to the target domain, then "culture cannot be changed". But this example shows that when an argumentator makes a metaphorical argument, he may emphasize the difference between the source domain and the target domain, and the properties of the source domain itself may not be valid in the target domain. According to this idea, the conceptual metaphors in Figure 4 as backing (2) cannot be used to ensure the authority of warrant (2), and its qualifier (2) should not be "necessarily". Therefore, treating metaphor as a

mapping between two domains may not be accurate enough for metaphorical argument. We can reconsider the essence of metaphor from the perspective of conceptual blending, and then analyze the basic structure of metaphorical argument.

3. The Cognitive Mechanism of Conceptual Blending and Freeman's Diagramming Model
3.1 The cognitive mechanism of conceptual blending

Unlike Lakoff and Johnson's perception, metaphor is not just a mapping from the source domain to the target domain, but the integration of different mental spaces. According to the definition of Gilles Fauconnier and Mark Turner, mental spaces are small conceptual packets constructed as we think and talk, for purposes of local understanding and action [7]. Metaphorical expressions trigger at least two input spaces. The input spaces will form a new blended space through the process of composition, completion, and elaboration. When performing conceptual blending, two identical input spaces need to be related to each other through cross-space mappings, and then projected into the blended space after compression.

Give an example to illustrate the theory of conceptual blending. The metaphor of "a shot in the arm" is used below to express "give someone/something the help or encouragement they need" [8].

VW's pickup man
Wolfgang Bernhard: Taking on a troubled brand.

He won't start his job until February – and Wolfgang Bernhard has already earned his future employer, German auto giant Volkswagen, many times his salary. When, in October, VW announced the 44-year-old turnaround specialist would become the No. 2 under CEO Bernd Pischetsrieder, investors celebrated by raising VW's market cap by h 1 billion in a single day.

Volkswagen obviously needs a shot in the arm…
Newsweek, December 27/January 3, 2005: 58

This text is composed of two input spaces. Input space 1 is "hiring space": agent is Volkswagen, action is hiring new staff, and implicit patient is new director. Input space 2 is "injection space": agent is doctor or nurse, action is administering injection, and patient is patient. The two are identical, and cross-space mappings can be established. After compression, a blended space can be formed: the agent is the new director, the action is hiring as administering injection, and the patient is

Volkswagen. It can be found that the structure in the blended space is not a simple addition and comparison of two input spaces. The agent, action, and patient in the input spaces have gone through the processes of completion and compression to the blended space. The basic paradigm of conceptual blending theory is shown in Figure 5 [7].

In Figure 5, the top space represents generic space, which generally stores generic concepts such as "agent", "action", and "location", that is, what the inputs have in common. The left and right ends are input space 1 and input space 2 respectively, in which specific concepts under the generic concept such as "Zhang San", "fight", and "classroom" are stored. At the bottom is the blended space, and what is stored is still the concrete concept like hyponyms. The solid line in the model indicates that the two have the same identity, and the mapping relationship can be established, and the dashed line indicates that they are related, or even the same concept. It can be seen that in the two input spaces, there are some points without any solid or dashed lines connected to them. This shows that these concepts will only exist in the input spaces and will not enter the blended space in any way. Similarly, in the input spaces, there are points that are not connected by solid lines or dashed lines, which indicates that there are some points in the blended space that do not enter from the input spaces. According to this model, it can be found that not all components in the source domain and target domain can establish a mapping relationship. The components with cross-space mapping are only a subset of each space, so the source domain and target domain are not isomorphic. In addition, the isolated points in the blended space indicate that after the integration of the source domain and the target domain, some new properties will emerge. These properties are derived from neither the source domain nor the target domain, so conceptual blending does not mean simple addition of two input spaces. For example, "This surgeon is a butcher" contains negative evaluation [9]. This evaluation does not exist both in the input space of "the surgeon treats with a scalpel in the operating room" and in the input space of "The butcher cuts the flesh with a cleaver in the abattoir".

3.2 Freeman's diagramming model

Consider the relationship between cognitive mechanism of conceptual blending and argument structure. In metaphorical argument, if metaphor is to be used as part of the argument structure, the final decisive effect should be blended space. The elements in the blended space are closely related to the two input spaces. If the input spaces are omitted and only the blended space is used as a part of the argument structure, the whole argument model cannot show the role of the metaphor as the core element in it. Therefore, two input spaces should also be included in the argument model. However, if it is added directly to Toulmin's model, the location of it is difficult to determine. If it is similar to the idea shown in Figure 3, and the blended space is used as the warrant of the argument, its backing should contain "input space 1" and "input space 2". This will be unnecessary and will destroy the basic structure of Toulmin's model.

Regarding the argument structure containing multiple reasons and multiple conclusions, Beardsley proposed a graphical method of argument in 1950 [10] and distinguished simple, serial, convergent, and divergent argument structures [11]. Later, S. N. Thomas introduced linked arguments on this basis to show the argument structure of multiple premises supporting the conclusion [12]. Michael Scriven and Trudy Govier not only considered positive argument, but also introduced negative support, that is, The objection to his conclusion [13],[14]. Scriven's perfection is also reflected in the graphical method of missing premises, using letters to indicate unstated assumptions. These graphical methods are collectively referred to as the standard approach. James B. Freeman believes that the standard approach is aimed at analyzing argument texts, which are arguments as products; while Toulmin's model is argument in dialogue and communication, that is, arguments as process or procedure. He integrated the two and proposed an integrated approach to argument macrostructure [15]. Freeman's model contains the core components of Toulmin's model and incorporates argument structures such as linked and convergent. It is suitable for constructing metaphorical argument models based on cognitive mechanism of conceptual blending.

Freeman's diagrams deleted the backing and warranty in Toulmin's model, and retained ground (premise or reason), claim (conclusion), modality and rebuttal. Here is the argument structure of Freeman's diagramming model. (a), (b), (c), and (d) in Figure 6 represent simple, divergent, convergent and linked structure with modality, respectively. The M in the box represents modality.

If the rebuttal needs to be considered, the module of "rebuttal" should be added to the corresponding position, as shown in Figure 7.

In Figure 7, two rebuttal components are added,

and the components containing R_1, R_2 … point to the conclusion ①, indicating the refutation to the conclusion, called rebutting defeater. The component containing U_1, U_2 … points to modality M, indicating a refutation to the relationship between the premise and the conclusion, called undercutting defeater [16]. Next, analyze the structure of metaphorical argument based on conceptual blending theory through Freeman's diagramming model.

4. Diagramming of Metaphorical Argument Based on Conceptual Blending Theory

In metaphorical argument, the components that play a supporting role in the argument should be the elements in the blended space. These elements are either from input space 1, or from input space 2, or the integration of corresponding elements in input space 1 and input space 2, or the emergent elements. They have nothing to do with the two input spaces and are the nature of the blended space itself. For elements that are unique in input spaces, because they have not entered the blended space, they do not play a role in the argument; therefore, they are not marked in the blended space. Each reason in the blended space has a different structure for supporting the conclusion, such as serial, convergent, linked, etc., so the supporting structure between the various elements and conclusions in the metaphor must also be expressed in the process of diagramming.

Before providing the global architecture of our model, the diagramming of the metaphorical argument should be discussed in three circumstances: the elements in blended space come from one of the input spaces, the elements are blended by two input spaces, and the elements are emergent in blended space.

4.1 Diagramming of the metaphorical argument: the elements in blended space come from one of the input spaces

This situation is relatively simple; the source of the elements needs to be clarified in the blended space in the diagram. Suppose input space 1 is I_1, and the elements contained in it can be represented by I_{11}, I_{12}, …, I_{1i}. For the element set that has not entered the blended space, it is only necessary to indicate it in input space 1. As for the element set that has entered the blended space directly and has not undergone a change in nature, the same symbol is used in the blended space to express it, and a dashed line with an arrow between the corresponding symbols indicates the input relationship. For elements in input space 2, i.e. I_{21},

I_{22}, …, I_{2j}, the representation method is the same as in input space 1. In this way, in the blended space, there will be elements from two input spaces. Arrange them along the main diagonal to the lower right corner will facilitate the description of the supporting structure between these elements and the conclusion. This kind of argument diagramming method is shown in Figure 8.

As shown in Figure 8, the elements I_{11}, I_{12} and I_{15} come from input space 1, and elements I_{23} and I_{24} come from input space 2. Here, just by arranging those nodes in the middle and connecting them with dotted lines with arrows, the origin of the corresponding metaphorical elements in the blended space can be reflected.

4.2 Diagramming of the metaphorical argument: the elements are blended by two input spaces

Similar to the previous case, if one of the elements in the blended space are blended by two input spaces, the source of the element can be expressed in the form of B (element 1, element 2) (B means blending), and it is connected with the corresponding elements in the left and right input spaces by dotted lines with arrows. Similarly, in order to facilitate the description of the supporting relationship between them and the conclusion, just add them to the array in the main diagonal. This kind of argument diagramming method is shown in Figure 9.

In Figure 9, I_{12} and I_{23} belong to the former case, and B_1, B_4 and B(I_{15}, I_{25}) are integrated elements. If space permits, B (I_{15}, I_{25}) can be used to portray the source of the element directly. If the space is limited, it can be presented in the figure in a way similar to B_1 and B_4 with simple letters and subscripts, because the dotted linewith arrows can already indicate the source of the elements. Some elements may integrate more than one element in each space. The diagram method is similar to that in Figure 9. For example, mark it as B (I_{16}, I_{26}, I_{27}), and three dotted lines with arrows are used to connect the node with the corresponding element in the figure.

4.3 Diagramming of the metaphorical argument: the emergent elements in blended space

The emergent elements do not come from any input space, so you only need to use E_1, E_2, …, E_k to represent them in the blended space and arrange them under the main diagonal array (E stands for emergent). There is no need to use any lines to connect it to other elements. This kind of argument diagramming method is shown in Figure 10.

There are two emergent elements E_1 and E_2 in

figure 10, which are not connected to the two input spaces. Since the elements in input space 1 and input space 2 can roughly correspond (not completely), arranging E_1 and E_2 below the main diagonal will not affect the display of the integrated elements above.

4.4 The global architecture for the diagramming model of metaphorical argument

After displaying the diagramming of metaphorical argument based on conceptual blending theory in various situations, it is necessary to put the metaphorical argument in the entire argument structure to show the position of the metaphorical argument in the model. The architecture of the entire model is shown in Figure 11.

The model shown in figure 11 looks more complicated, because it contains almost all possible elements and structures. First, the metaphorical argument component based on conceptual blending is in the dashed box. I_1 and I_2 are two input spaces. The node I_{12} comes from input space I_1, and there is no corresponding element in input space I_2, so the position of I_{22} corresponds is empty. The node I_{24} comes from the input space I_2, and the corresponding element I_{14} exists in the input space I_1. However, I_{14} does not enter the blended space, so it is not connected to the argument structure. B_1 and B_3 are integrated elements. They reflect the contents of I_{11}, I_{21} and I_{13}, I_{23} respectively, but they are not the same completely after composition, completion, and elaboration. Therefore, it is the integrated elements B_1 and B_3 that enter the argument. The nodes E_1 and E_2 are emergent elements in the blended space, so they are still included in the dashed box but no dashed line connects them to the input spaces. It can be seen that the internal elements of the blended space play a different role in the argumentation process. For example, I_{24} and E_2 support argument 5 with a linked structure, E_1 and argument 1 support argument 3 with a convergent structure, and B_3 supports argument 2 and then supports argument 4, which obeys the serial structure. Modality has also been added to the entire architecture, indicating the strength of support between each premise and conclusion. The left and right ends also contain components representing rebuttals, and the rebuttals containing U_1 and U_2 at the left end are used to doubt the supporting relationship from E_1 and argument 1 to conclusion 3. That is to say, although E_1 and Argument 1 are correct, they are not necessarily related to the derivation of Conclusion 3. This rebuttal is an undercutting

defeater. The rebuttal containing R_1 and R_2 at the right end is used to refute the authenticity of argument 5, which is rebutting defeater.

When adopting this model, the elements of the convergent structure or the linked structure may be far apart. At this time, the arrangement of the elements in the two input spaces needs to be adjusted, and related elements need to be arranged closely as much as possible. In this way, the crossing of lines can be avoided with a high probability.

5. Case Study

Next, use the diagramming model of metaphorical argument based on conceptual blending theory proposed in this paper to analyze some specific examples. In order to make the diagrams more intuitive, modality is omitted here. Firstly, consider an example where a metaphor exists within a certain argument. Example 1 claims that exposing ankles poses health risks [17].

Example 1: Medically speaking, ① <in winter, "rolling trouser legs and exposing ankles" poses health risks>. ② <First, it is easy to catch colds>. ③ <The foot is called the "second heart" of the human body>. ④ <There are many important tissues here>. Once the foot is affected by cold air, for people, it is easy to catch a cold. ⑤ <Secondly, it is easy to cause joint diseases>. ⑥ <Many middle-aged people now have arthritis and rheumatism. The main reason is that they did not pay attention early>. ⑦ <Showing ankles in winter is easy to damage joints>, it will cause joint diseases in the long term. ⑧ <Thirdly, it is possible to aggravate dysmenorrhea>.

Argument 3 in example 1 is a metaphorical component, and its specific meaning needs to be clarified through analysis. The input space 1 is the heart; meanwhile, the input space 2 is the foot. The first sub-component in the input spaces is the subject, so I_{11} and I_{21} are "heart" and "foot" respectively. The second sub-component is nature, so I_{21} refers to "the most important organ of the human body". In the integration process, the subject is taken as I_{21} "foot" and the nature is taken as I_{21} "the most important organ of the human body". The true meaning of argument 3 is obtained through composition, that is, "foot is an important organ in the human body", which is recorded as 3*. Then, the argument 2 "it is easy to catch colds" can be obtained through the linked structure of argument 3* "foot is an important organ in the human body" and argument 4 "there are many important tissues here". The conclusion 1 "exposing ankles poses health risks" can be derived just using argument 2. Similarly, "aggravate dysmenorrhea"

and "easy to cause joint disease" can also conclude that "there are health risks" independently, so they support conclusion 1 with a convergent structure.

Next, analyze the example of "*Speech by Jack Ma at the Human Resources Conference of Alibaba Group*" in Figure 4 [6]. This metaphor is not restricted in a certain fragment, it relates to the whole text.

Example 2: ① *The other is "nourishment."* ② *What is nourishment?* ③ *Character and destiny are related to each other.* ④ *We often say that character determines destiny, and how this person's character is closely related to his destiny.* ⑤ *Liu Bang and Xiang Yu have completely different characters. Who is the best in terms of talents? One can fight and the other can think over.* ⑥ *the same is true for a company. The character of a company determines how long the company can go and how good its destiny is.* ⑦ *The character of a company can be cultivated and perfected.* ⑧ *I haven't figured out the character of the person until now. There are various theories, some say that a person's character is innate, and some say it's acquired. I don't know. Anyway, I am a little tired to change my character today.* ⑨ *However, the character of the organizations and companies can be improved.* ⑩ *We are shaping a very interesting character today, we can perfect and restrain it.* ⑪ *Humans are created by heaven, and organizations are man-made. If God creates them, there is no way to change them. However, organizations are man-made by us, and we are humans, so we have the opportunity to change them.*

⑫ *For human being, you said you changed me. I really don't know how to change.* ⑬ *If it's something made by God, God won't let you change it easily. Any change will go against the laws of God and will cause problems.* ⑭ *But if there is a problem with our organizational character, it is our incompetence.* ⑮ *Of course, it cannot be said the incompetence is from Peng Lei, Ma Yun, Lu Zhaoxi or Dai Shan.* ⑯ *No, We are incompetent. The "WE" generation is incompetent, right?*

⑰ *What is the character? It is a kind of culture. The culture can be perfected by constructing institution.* ⑱ *For culture, we think that we need more time and institution to perfect it, and the radiant side of human nature needs to be exposed.*

⑲ *I hope that in the next one or two years, we will discuss the construction of this character culture together.* ⑳ *In fact, we have a culture. In other words, what we show is a kind of character, such as whether our speech is good, whether the manner is proper.*

First, sort out the main connotation of each sentence of the text in the argument, and the result can be portrayed in table 2.

Table 2. **The main connotation of each argument in Example 2**

Argument number	Main connotation for each argument
①,②	Null.
③,④	Character and destiny are closely related to each other.
⑤	Take Liu Bang's example to prove that "character and destiny are closely related to each other".
⑥	Corporate culture determines corporate destiny.
⑦,⑨,⑩,⑪-a,⑭,⑮,⑯	Corporate culture can be perfected.
⑧, ⑪-b, ⑫,⑬	Character is not easy to perfect.
⑰-a,⑳	Character is culture.
⑰-b,⑱	Institution and time can perfect the culture.
⑲	We need to build the corporate culture.

In Table 2, the discourses ① and ② only lead to the "character" instead of making an argument, so there is no argument connotation. The conclusion of the entire text is the argument ⑲, that is, "we need to build the corporate culture". ⑰-b and ⑱ discuss not why it is necessary to build a corporate culture, but how to build a character culture, which is not an argument that can support the argument ⑲. Some argument connotations correspond to multiple statements, that is, the meaning of multiple statements is the same, so when analyzing the argument structure, one of them can be chosen as a representative. From this, we can select the items participating in the argument, including ③, ⑤, ⑥, ⑦, ⑧, ⑰-a (because ⑰-b does not participate in the argument, ⑰-a is replaced by ⑰) and ⑲. The argument structure of Example 2 is shown in Figure 13.

The dashed box in Figure 13 is the metaphoric component. I_1 and I_2 are two input spaces, which are the character space and the cultural space. I_{11} and I_{21} represent the controllability of vehicle and tenor, the former represents "difficult to perfect", implying argument ⑧. The latter represents "can be perfected". Obviously, the demonstrator chose

I_{21} "can be perfected" when synthesizing the blended space. I_{12} and I_{22} represent the scope of vehicle and tenor. The former is "people" and the latter is "company". Since the main object of the argumentation is the company, I_{22} enters the argument. I_{13} and I_{23} represent the main object discussed by vehicle and tenor, that is, character and culture. The arguer believes that character and culture have the same identity, so both enter the blended space at the same time. B_3 is the integration of character and culture, which implies the argument ⑰. I_{14} and I_{24} represent the main functions of vehicle and tenor, and both have the effect of changing destiny, so B_4 extracts the common nature of the two, which means changing destiny.

Now, the argument structure should be analyzed according to the Figure 13. Integrating I_{21}, I_{22}, and B_3 simultaneously reflects the object, subject, and controllability of the argument. The linked structure of them reflects that "corporate culture can be perfected", that is, argument ⑦. By integrating B_3 and B_4 in a linked structure, the "culture (character) can change destiny" can be derived, that is, argument ③. In addition, the argument ③ can also be supported by the argument ⑤, namely, the examples of Liu Bang and Xiang Yu, so there is a convergent structure here. Combining the argument ③ with the main object "company" discussed by the author, we can get "corporate culture determines corporate destiny", that is, argument ⑥. Only by discussing ⑥ "corporate culture determines corporate destiny" and ⑦ "corporate culture can be perfected" does not lead to the conclusion ⑲, that is, "we need to build the corporate culture ", and the necessity to improve corporate destiny should be added. Therefore, it is necessary to add a premise that does not appear on the surface but is actually used, that is, the missing premises @, which means, "it is necessary to improve the corporate destiny". In this way, the claim ⑲ can be concluded by the argument ⑥, ⑦ and @ through the linked structure.

6. Summary and Future Research Directions

By reviewing the development for the structure research of metaphorical argument, namely the Santibanez's basic metaphorical argument model, Xu and Wu's metaphorical argument model based on argumentation chain and Zhang's metaphorical argument model based on argumentation chain with rebuttal and modality, this paper clarifies the theoretical sources, basic structure, advantages and disadvantages of these models. On this basis,

the argument model was improved from "Toulmin's model" to "Freeman's diagramming model", and the cognitive mechanism of metaphor was improved from "mapping theory" to "conceptual blending theory". A new metaphorical argument model was established, and the diagram methods of each module are provided with some examples. In the future, the relationship between the integrated objects can be more clearly defined in the model, and it can be shown in a certain way whether the integration is causality, space-time, identity, part and whole, or intention, and so on. In addition, this model can be used to analyze the internal rationality of metaphors, which can be adopted to evaluate the pros and cons of the argument.

Appendix: The Chinese Original Text of Examples
Example 1:
从医学上讲，①<冬天"卷裤腿，露脚踝"存在健康隐患>。②<一是容易受凉感冒>。③<脚部被称为人体的"第二心脏">，④<这里分布着很多重要组织>，一旦受凉很容易感冒。⑤<二是容易引发关节疾病>。⑥<现在很多中年人得了关节炎、风湿，很大原因跟自己以前不注意有关>，⑦<冬季露脚踝很容易伤害关节>，长期下去会引发关节疾病。⑧<三是有可能加重痛经>。

Example 2:
①另外一个是"养性"。②养性是什么？③性命相关，性格和命运是相关的。④我们经常说性格决定命运，这个人的性格怎么样，跟他的命运是很有关系的。⑤刘邦、项羽两个哥们性格完全不一样，才华能力你说到底谁好，一个能打，一个能想。⑥企业也是如此，一个企业的性格是什么，决定这个企业能走多久，这个企业的命运有多好。⑦企业的性格是可以培养出来的，是可以完善的。⑧人的性格我到现在没搞清楚，各种说法都有，有的说人的性格是天生的，有的说是后天的，I don't know，反正今天要改我的性格是有点累。⑨但是集团的性格、公司的性格是有机会改善的。⑩我们今天是在塑造一个很有意思的性格，我们可以完善，可以约束。⑪人是上天造的，组织是人造的，是上天造的就没法改了，但是组织是我们人造的，我们是人，就有机会把它改变。
⑫人的话，你说把我改了，真不知道怎么改。⑬上天造的东西，上天不会轻易让你改它的东西的，一改就是违背天理，要出问题的。⑭但是假设我们的组织性格有问题，那是我们这帮人无能。⑮当然不能说彭蕾无能，马云无能，陆兆禧无能，戴珊无能。⑯No，我们无能，

We这代人无能，对不对？

⑰性格是什么？是一种文化，文化是要靠制度建设完善的。⑱文化这个东西，我们现在觉得越来越需要的是时间，需要制度去完善，需要把人性中光芒的一面露出来。

⑲我希望我们在未来的一两年内，一起去探讨建设这种性格文化。⑳其实我们有文化，换句话说，展现出来的东西就是一种性格，比如讲话是不是好，举止是不是得当。

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Biography Note

Xianbo Li is a Ph.D. candidate in the Si-Mian Institute for Advanced Studies in Humanities, East China Normal University, majoring in Foreign Linguistics and Applied Linguistics. His current research interests include Informal Logic and Computational Pragmatics.
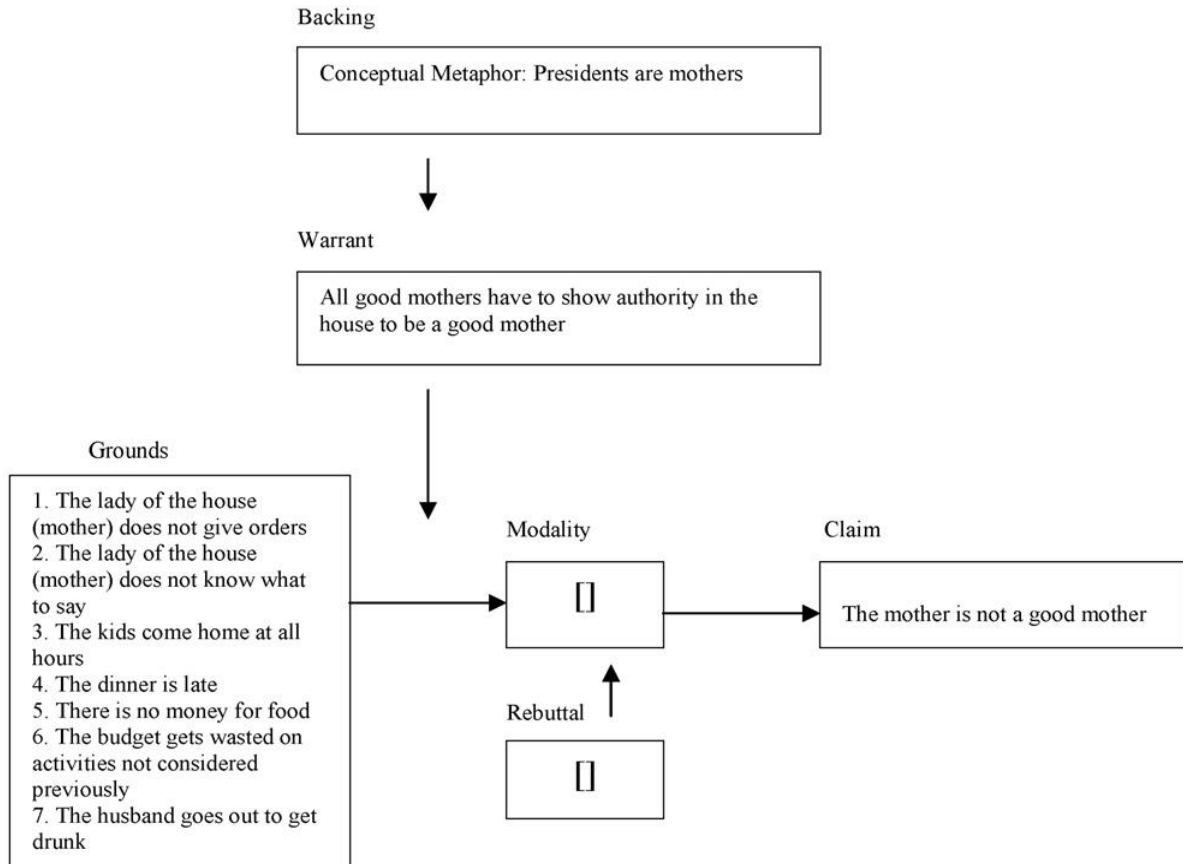
The List of Figures

Backing

Conceptual Metaphor: Presidents are mothers

↓

Warrant

All good mothers have to show authority in the house to be a good mother

Grounds

1. The lady of the house (mother) does not give orders
2. The lady of the house (mother) does not know what to say
3. The kids come home at all hours
4. The dinner is late
5. There is no money for food
6. The budget gets wasted on activities not considered previously
7. The husband goes out to get drunk

Modality

[ ]

Claim

The mother is not a good mother

Rebuttal

[ ]

Figure 1. **Schematic diagram of the argument structure in the source domain of the Santibanez model**

Warrant

All good presidents have to show authority in the administration to be a good president

Grounds

1. The President does not give orders
2. The President does not know what to say
3. The people are in disorder
4. (The projects of the Parliament are late)
5. (The National Budget is badly organized)
6. (The National Budget is unclear and disorganized)
7. (The Secretaries of the Administration do whatever they want)

Claim

The President is not a good president

Figure 2. **Schematic diagram of the argument structure in the target domain of the Santibanez model**
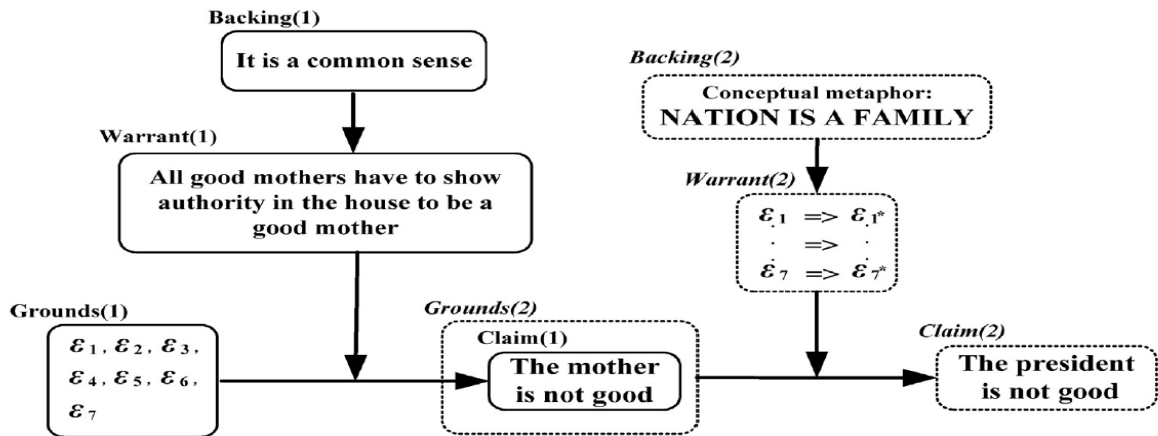
Figure 3. **Metaphorical argument model based on argumentation chain**
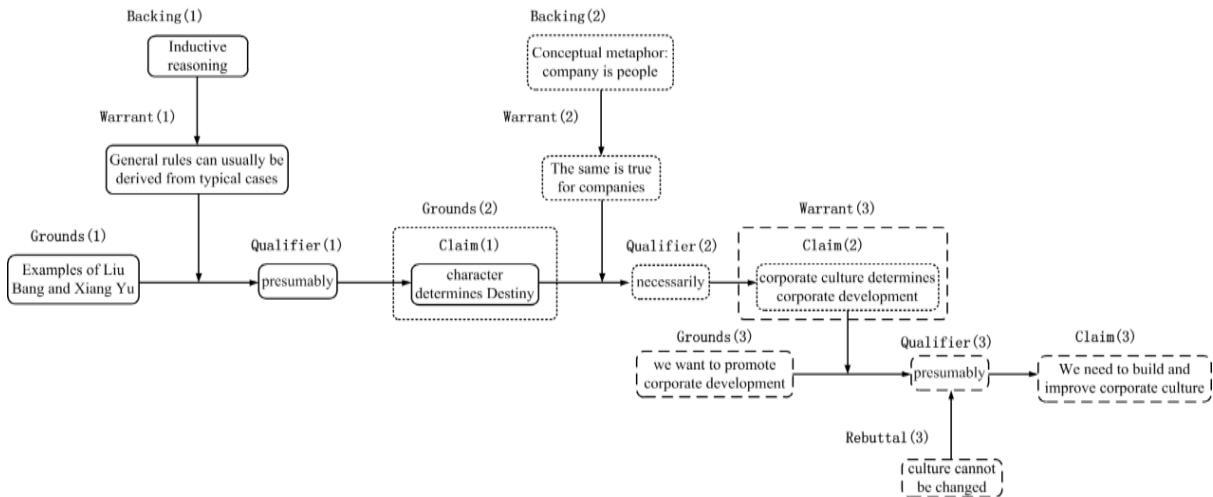
Figure 4. **Metaphorical argument model based on argumentation chain with rebuttal and modality**
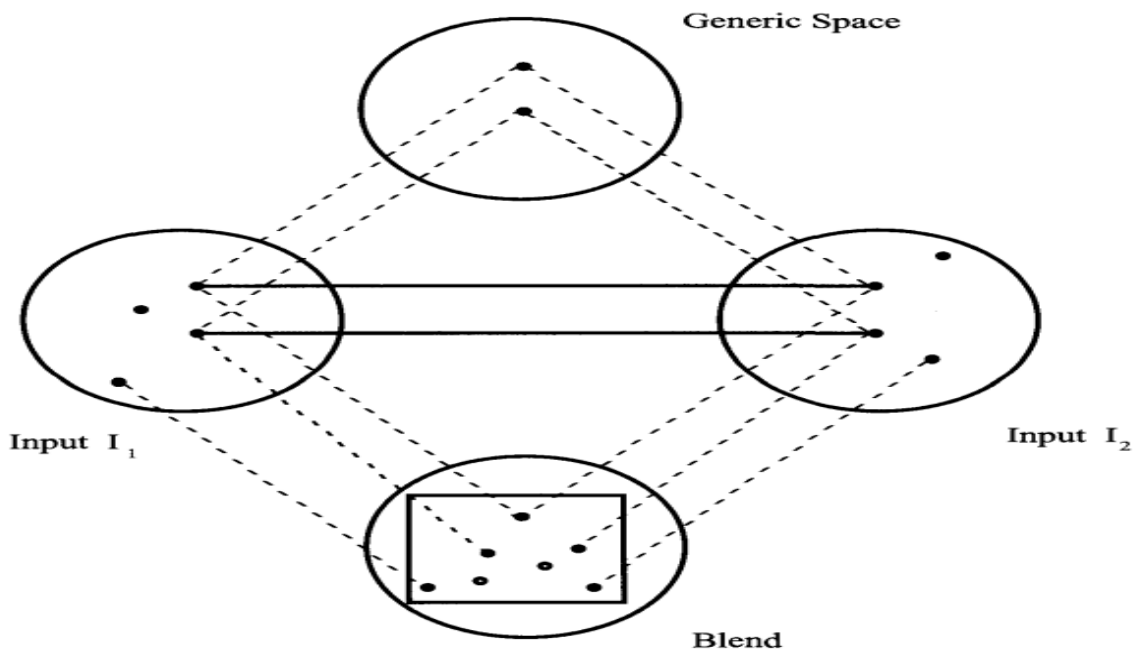
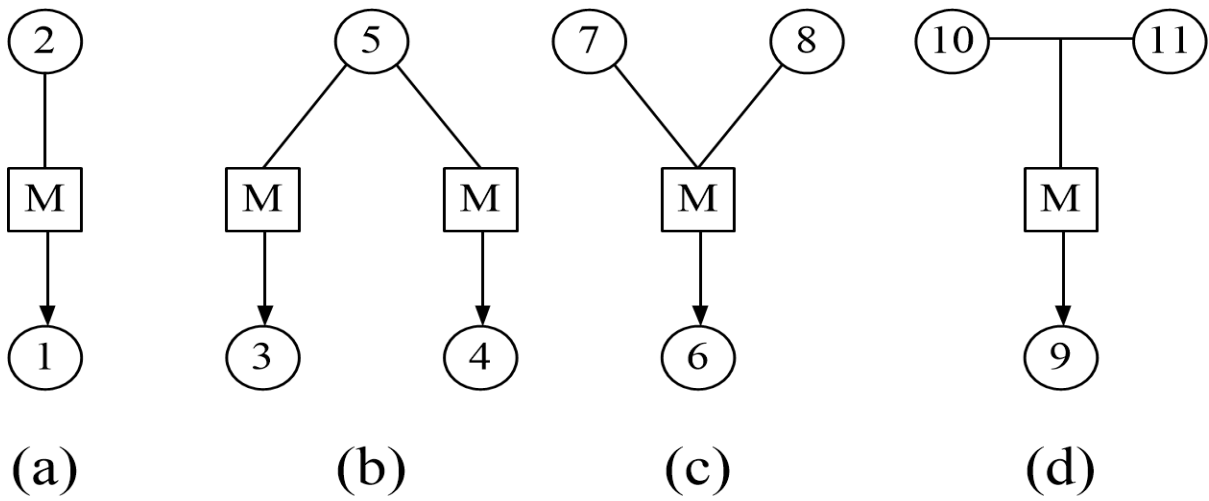Figure 5. **The basic paradigm for cognitive mechanism of conceptual blending**

Figure 6. **Argument structure with modality in Freeman's diagrams**
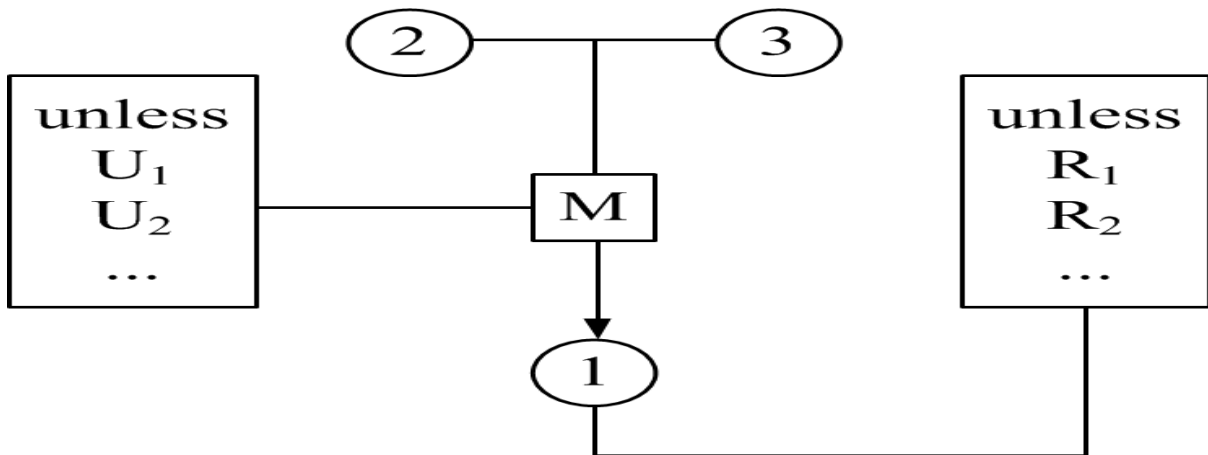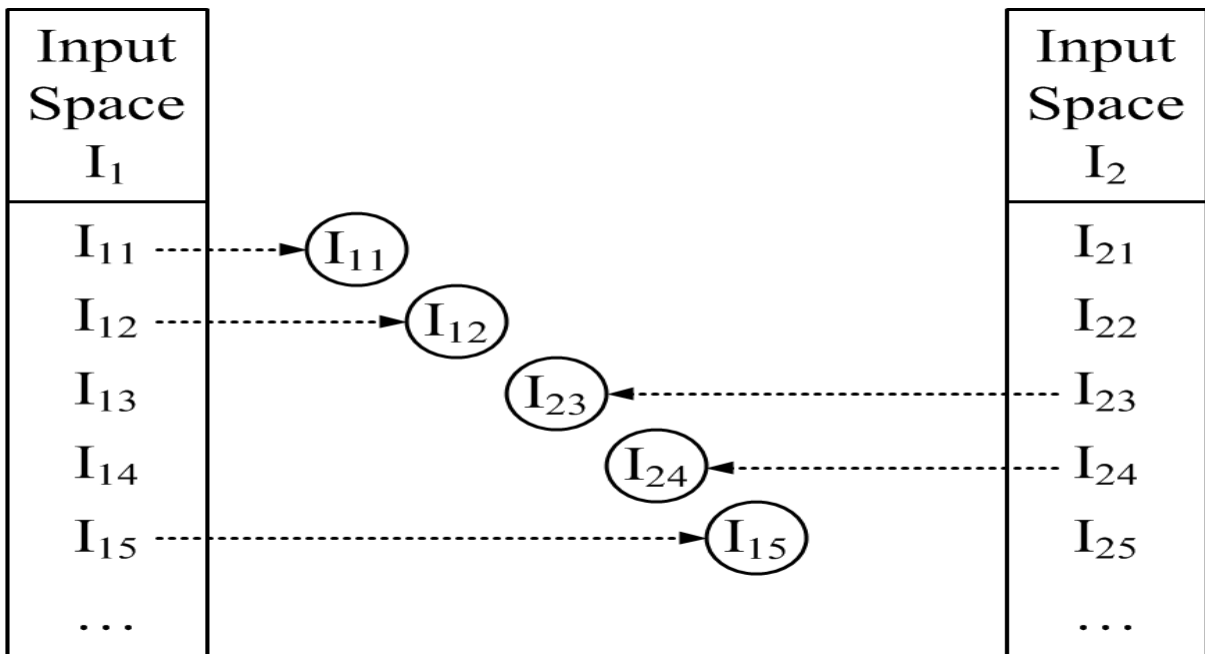

Figure 7, **Freeman's diagrams with rebuttal**

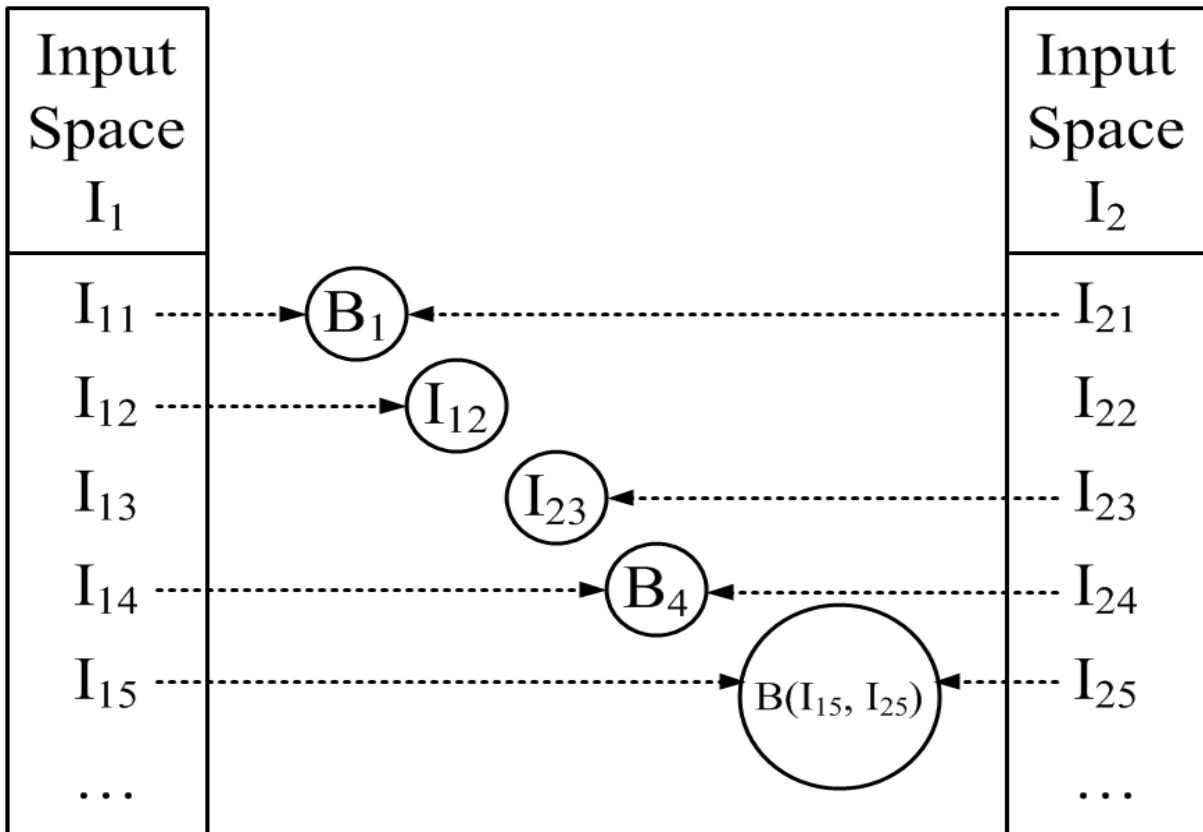Figure 8. **Argument diagramming of the elements coming from one of the input spaces**

Figure 9. **Argument diagramming of the elements blended by two input spaces**
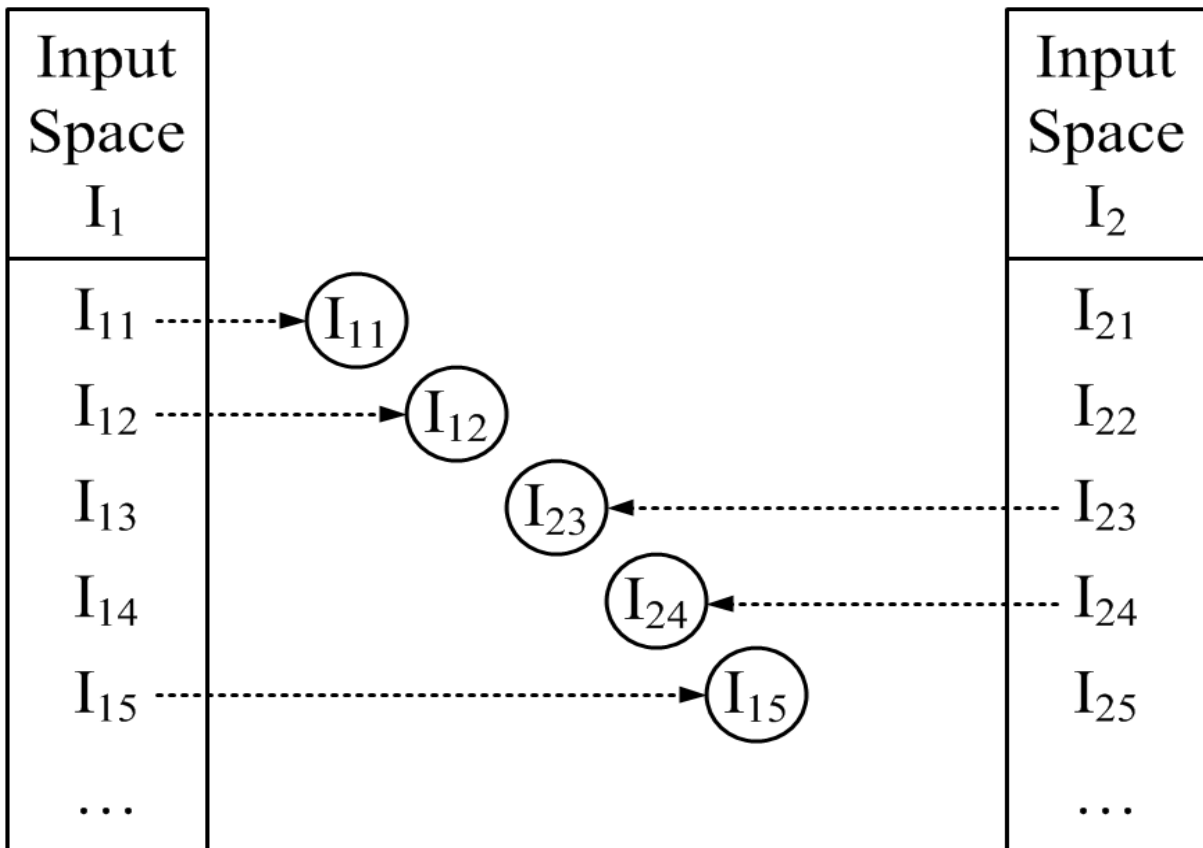
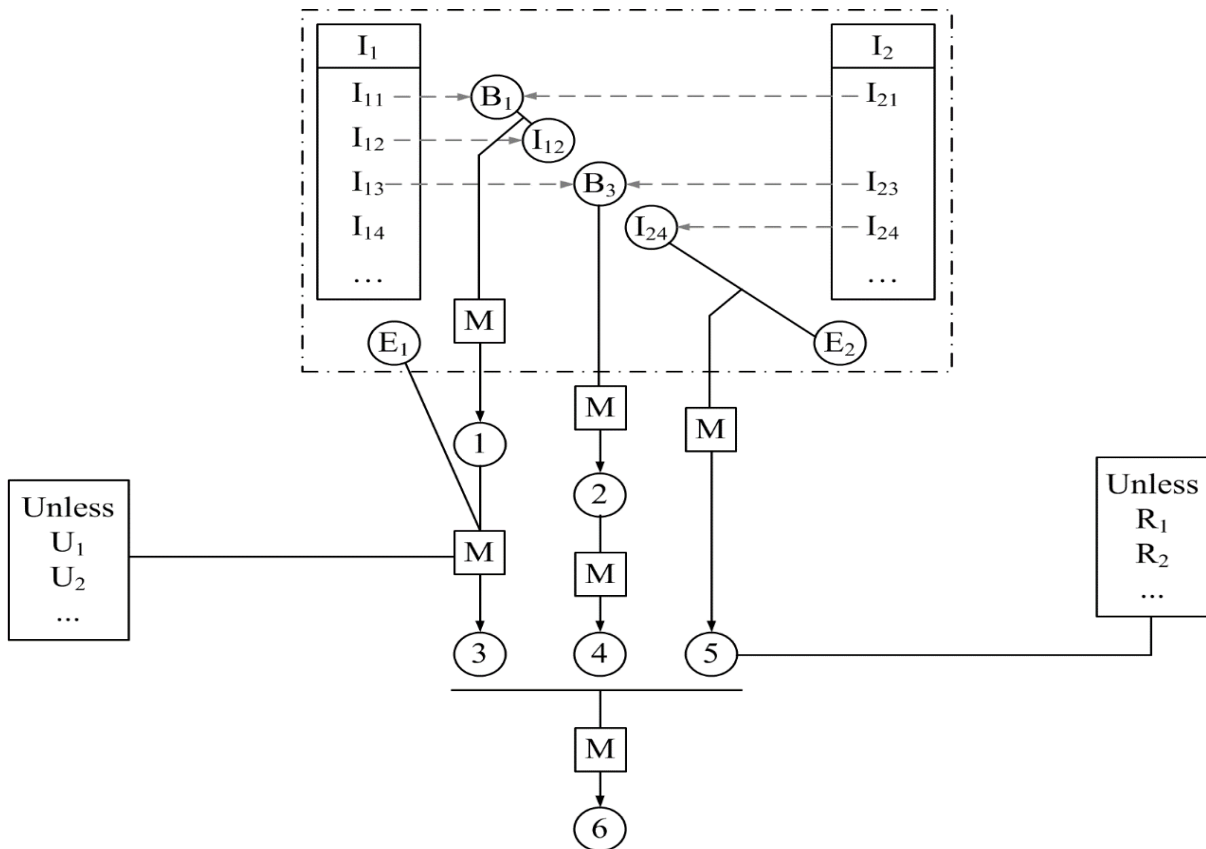Figure 10. **The argument diagramming of emergent elements in blended space**

Figure 11. **The global architecture for the diagramming model of metaphorical argument based on conceptual blending theory**
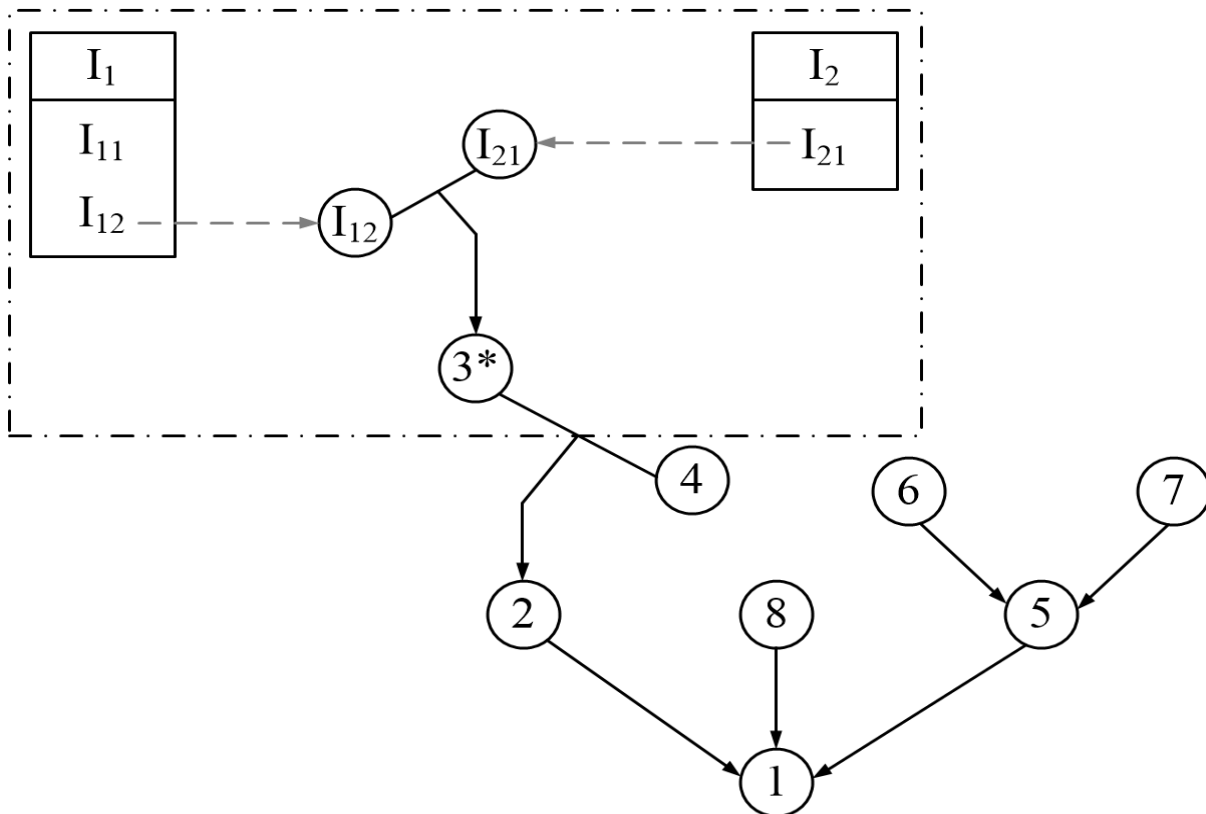

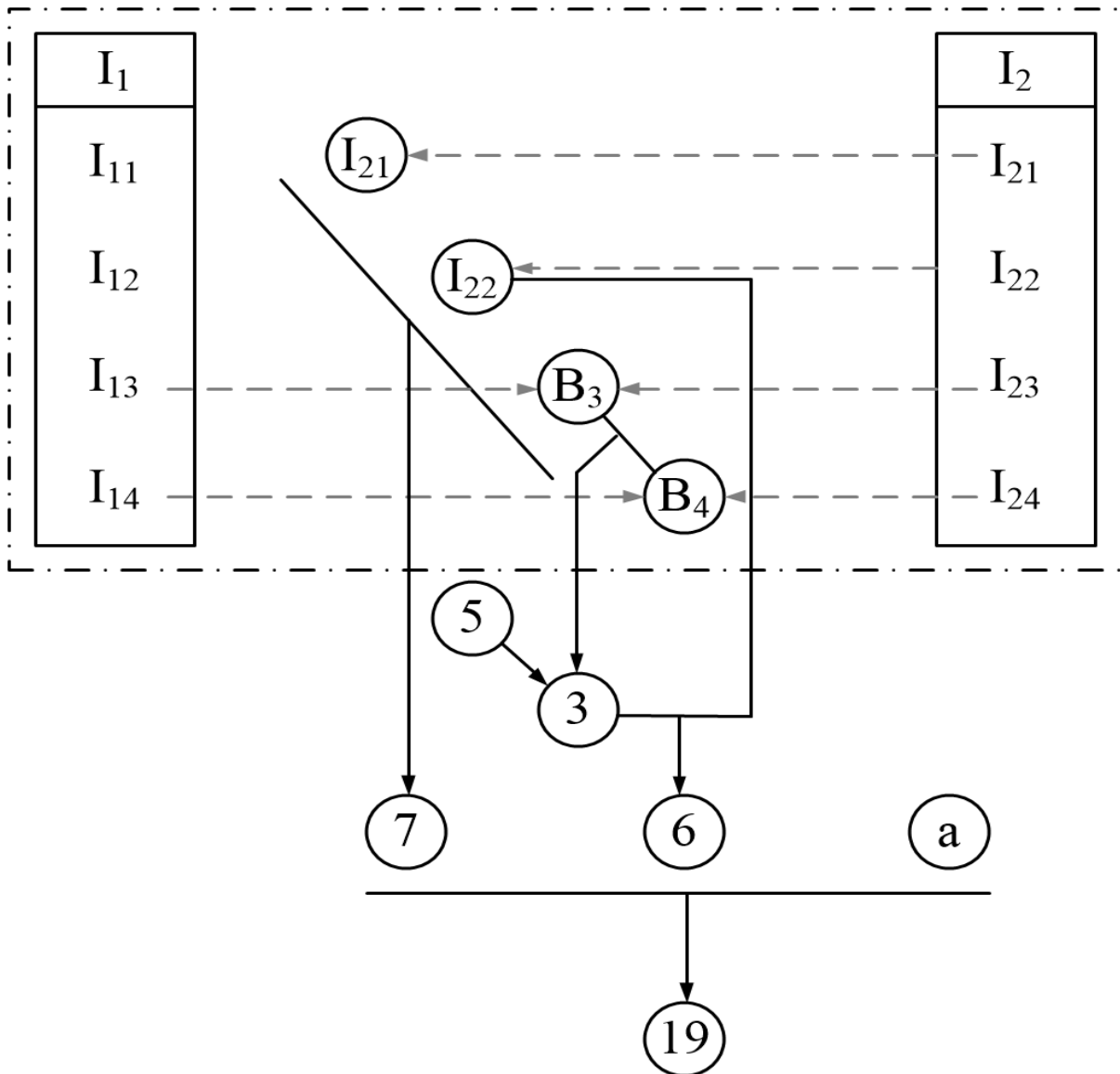Figure 12. **The argument structure of Example 1**

Figure 13. **The argument structure of Example 2**