

An ECM Analysis of Coherent Functions of Thematic Structures

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Abstract: Thematic structures have been extensively studied for the powerful textual functions they display. This paper explores the cognitive mechanisms underlying the coherent functions of thematic structures in literary text with the application of Event-domain Cognitive Model (ECM). It has been found that the cognitive mechanisms for coherence are reflected in four aspects: centralizing and constant progressions achieve coherence by revealing linear and hierarchical, dynamic and static, prominent and gestalt features; parallel and centralizing progressions by displaying prominent feature; constant and extended progressions by embodying dynamic and static features.

1. Introduction

A text is a semantic unit of language in use (Halliday & Hasan, 2009). The most important distinguishable feature between a text and a non-text is that the former has texture while the latter has not. The texture of a text embodies itself in a text that the text is a unified whole concerning its context and that the text gives a coherent sense. Therefore, text of any form must be coherent in general. Textual coherence includes its coherence with context semantically and pragmatically as well as its inner coherence at language level. Thematic structure connects minor topics in question by linearity as well as hierarchy to compose larger topics at different layers. As the text progresses, thematic structure presents the global topic. The internal components of thematic structures have studied from either communicative function or systemic-functional grammar perspectives. Cognitive linguists believe that language is not an autonomous system. It is the product of objective realism, human's bodily experience, cognition and physical basis. Accordingly, a text, as a written form of language, reflects people's experience and cognitive model towards the world and analyzing it from cognitive perspective can reveal the nature of language and human's cognitive mechanism involved.

This paper attempts to study thematic structures from a cognitive perspective by applying the theory of Event-domain Cognitive Model (ECM), to explore cognitive mechanisms underlying thematic structures, by analyzing texts selected from *Tess of the D'urbervilles* by Thomas Hardy.

2. Thematic Structures and Coherence

In order to construct organic and coherent text, sentences in must connect with each other in various ways. The connections can be achieved through structural mechanisms, parallelism and non-structural mechanisms. As one of important textual organizing structural mechanisms, thematic structure has been studied from functional perspective and cognitive perspectives.

2.1 Functional Perspective

The notions of theme and rheme have been discussed by linguists in the past decades. Weil (1978) used *point of departure* and *enunciation* to describe the structural division of a clause. Mathesius, for the first time, put forward the theory of "actual division of the sentence" based on communicative function of a sentence, dividing a sentence into two parts: *theme* and *rheme*, that is, *the starting point of expression* and *the core of expression*. Halliday (1967, 1968, 1994) emphasized that *theme* is the initial element in a clause and the point of departure for the clause as a message, while *rheme* is all that has been left in the clause.

Studies (Daniel & Mihaela, 2013) have not only exemplified that thematic structure, especially

thematic progression, can enhance textual coherence but also put the theory of thematic progression into practical writing or translation to improve textual coherence. These studies are of theoretical and practical significance and deepen people's understanding for the function of thematic structure. Language, as a useful tool for people to exchange their thoughts, not only reflects social and cultural factors but also reflects people's thinking model (Li & Gao, 2014). Thematic structure, as an important structural mechanism of people's language, also reflects people's thinking model. Therefore, thematic structures have been studied by many scholars from cognitive perspectives.

2.2 Cognitive Perspective

Studies (Liao, 2004; Wang, 2005; Liang, 2007; Alvin, 2000) have uncovered that the process of selecting theme reflects people's cognitive methods and cognitive perspectives when getting to know the physical world. Furthermore, the theory of ECM, schema theory and the role of inferences have been applied to finding the cognitive mechanisms of thematic structure. These studies do open a new horizon, while the coherent functions of thematic structures from ECM perspective needs to be analyzed further.

2.3 Coherence

Coherence is not only a key factor for texts of any form but also plays an important role in logical inferences.

From textual perspective, various covert factors influence textual coherence. It is helpful to cultivate a kind of global consciousness to produce coherent texts. However, the cognitive process involved in the coding and decoding language has not yet been touched upon (Cheng, 2003; Zhang, 2006).

Cognitively, text coding and decoding involves complex cognitive process and this cognitive process cognitive methods (salience, conceptual metaphor and iconicity) could explain text coherence (Wang, 2005).

Epistemologically, coherence has also been studied from the perspectives of people's intuition, the nature of it under different contexts and its internal structure. While others attempted to use coherence as a tool to study the nature of propositions, the relations between theories, relations between hypothesis and its relevant background knowledge. (Olsson, 2005; Roderick, 1977; Adolfas, 2013)

3. Event-domain Cognitive Model (ECM)

Cognitive Model (CM) refers to the relatively fixed mental structure formed through human experience and the way they perceive and conceptualize human experience (Wang, 2005), characterized by embodiment, gestalt and internalization. While the Idealized Cognitive Model (ICM) maintains that ICM is the abstract, unified and idealized perception of the experience and knowledge about some certain field by people from certain cultural background. Human beings generally embody and perceive the physical world through "Event-domain", which is in accordance with human cognitive law. A basic EVENT mainly includes two core elements: Action and Being.

The main cognitive features of Event-domain Cognitive Model (ECM) include linearity & hierarchy, gestalt, salience, dynamic & static state. Therefore, the explanatory force of ECM is more powerful than ICM and possesses the ability to explain the cognitive mechanisms of thematic structures in texts.

4. Data selected from the novel *Tess*

85 pieces of natural descriptive paragraphs reflecting Tess' complex character, her physical and mental activities (exclude the dialogues between speakers) are collected from the novel.

The thematic progression of the data have been classified and the total piece number and word number of texts belonging to one of the identified progressions have been computed. Among all 85 pieces of texts, 56 pieces of texts display centralizing progression, covering 65.9% of total text number. The total word number of this kind of texts is 5007, covering 69.4% for the total word number of the data. 15 pieces of texts display constant thematic progression, covering 17.6% of the total text number. The word number of it is 1052, covering 14.6% of all word number. 5 pieces of texts display parallel progression, covering 5.9% of the total text number, and the word number of it is 445, covering 6.1% of the total word number. 5 pieces of texts display Centralizing & parallel progression, the word number of it is 424. Both of them covering 5.9% of the total text number and

the total word number. 2 pieces of text display constant & extended progression, covering 2.3% of the total text number, and the word number of it is 191, covering 2.6% of the total word number. Only 2 pieces of texts display centralizing & extended progression, covering 2.3% of the total text number. The word number of it is 115, covering 1.5% of the total word number.

Secondly, by applying ECM features to analyzing the texts which belong to one of the above thematic progressions, it has been found that: (1) centralizing progression texts reveal linear & hierarchical, feature, dynamic & static gestalt and prominent features. (2) for constant progression texts, every 5 pieces of texts reveal static & dynamic, prominent and gestalt feature of ECM. (3) the parallel progression and centralizing & parallel progression texts all display prominent feature. (4) While for extended & constant progression texts, 3 pieces of texts reveal static & dynamic feature, (5) 2 Centralizing & extended progression text all display dynamic & static feature of ECM.

5. ECM Analysis of Thematic Structures

5.1 The Coherent Mechanisms

Analysis of linear and hierarchical features.

Sample 1 *Phases of her childhood // lurked ... As she...to-day, // ...her twelfth year in her cheeks, or her ninth sparkling from her eyes; and even her fifth // would flit over ...* (pp. 9)

From the division of themes and rhemes, the first sentence expresses the basic meaning, the second and the third, beginning with new themes respectively, describe the rheme of the first from different aspects. The thematic progression, therefore, is centralizing progression. The inner coherent mechanisms can be revealed by analyzing the ECM features it displays.

At the first layer, the first sentence puts forward the whole Event, the Action of which is “lurk”, and the Beings of which are: (1) her childhood; (2) her aspects. The second and the third sentence suggest the second layer of the EVENT: The Action (lurk) includes its sub-actions: A_1 (walk, see) and A_2 (flit). The Being (her childhood) includes its sub-beings: B_1 (twelfth year), B_2 (ninth) and B_3 (fifth). At the third layer, the three sub-beings of the Being (her childhood) respectively includes their own classified information: C_1 (her cheeks), C_2 (her eyes) and C_3 (curves of mouth). These are the hierarchical relations of the EVENT. Meanwhile, the three sub-beings of Being (her childhood) are parallel with each other. They embody a kind of linear relations. By using linear and hierarchical methods to organize the text, the coherence of it is achieved.

Dynamic and static features.

Sample 2 *She might have stayed..., but...odd appearance and manner // returned.....she // dropped away ...* (pp.12)

The first sentence is a transitional sentence and has little relations with the main idea of the text. After the theme and rheme of the second sentence express the basic meaning, the third one, beginning with a different theme, describes the rheme of the second from another aspect.

EVENT 1 put forward by the second sentence contains the Action (returned), the sub-action (make) with its typical characteristic D_1 (anxious) and the Being (mind). These elements hint that EVENT 1 is a static mental EVENT. EVENT 2 by the third sentence includes Action (dropped, bent) and the Being (she, steps). These elements hint that EVENT 2 is a dynamic physical EVENT. The first EVENT implies the heroine’s mental state. Then the second EVENT implies the physical activity that the heroine takes under the mental state implied by EVENT 1. As this kind of organizing method is accord with the rule of people’s mind governing their physical activity, the two EVENTS connect with each other and the sample text achieves its internal coherence.

Prominent features.

Sample 3 *Her loyal...him // lay so deep down...with no sort of personal fear: if he // had entered... he would...* (pp. 221)

The first sentence expresses the basic idea, the second begins to describe the rheme of the first. So it is a thematic progression. The first puts forward a whole EVENT. It includes Action (lay) with its typical characteristic D_1 (so deep) and Being (confidence), which suggest the main idea. The second puts forward a sub-event for the whole EVENT. It includes Action (entered) with its typical characteristic D_1 (with a pistol) and Being (he) with its classified information C_1 (if). These elements help the sub-event make prominent an extreme aspect of the whole EVENT. Therefore, the sub-event becomes connected with the whole EVENT and the sample text becomes coherent.

Gestalt features.

Sample 4 *But this...her, was// a sorry and mistaken... It was // they... Walking... She// looked upon herself... But ...she // was making a ... Feeling... she //was quite... She //had been made to... anomaly.(pp.75)*

The first sentence puts forward a whole EVENT. The following five sentences put forward five sub-events. Sub-event 1 by the second sentence includes Action (was) and the Being (they) with its classified information C_1 (out of harmony). With these elements, sub-event 1 presents the whole EVENT from the aspect of evil moral standards. With the elements of Action (looked upon) and the Being (she, herself) with its classified information C_1 (figure of Guilt), sub-event 2 presents it from the aspect of Tess' moral conservatism. Sub-event 3 includes the Action (was making) and the Being (distinction) with its classified information C_1 (where there...no difference). With these elements, sub-event 3 presents it from the aspect of the heroin's self-torturing. With the elements of Action (was) with its typical characteristic D_1 (quite in accord) and the Being (antagonism), sub-event 4 presents it from her self-torturing. Sub-event 5 presents it from self-denial. All the sub-events connect with each other and with the whole EVENT, make it coherent.

5. 2 ECM Features of Constant Progression

Sample 5 *Then she //became aware... She // blushed,...; when...she // stealthily removed..., where she // covered... Then she // fell...,...the rose remaining in her breast // accidentally pricked her..Tess // was steeped...: she // thought this...(pp.35)*

EVENT 1 includes Action (became aware) and Being (she, spectacle), showing that it is a static mental EVENT. EVENT 2 includes Action (blushed, said) and Being (she), showing it a dynamic physical one. EVENT 3 includes Action (removed) and Being (she), a physical dynamic EVENT. So is EVENT 4. EVENT 2, 3 and 4 describe the dynamic physical actions the heroine underwent when she was under the guidance of the mental static state described by EVENT 1. EVENT 5 by the fifth sentence includes Action (fell) with its typical characteristic (then) and Being (reflecting), showing it a static mental EVENT. EVENT 6 includes Action (pricked) with its sub-action A_1 (looking downwards) and Being (thorn), showing that it is a dynamic physical one. The sub-action A_1 was carried out when the heroine was in the mental state implied by EVENT 5. And the Action (pricked) is the result of sub-action A_1 . EVENT 7 includes Action (steeped) and Being (Tess, fancies, superstitions), showing it a static mental one.

Sample 6 *However, Tess // became humanely beneficial ..., and to help them ... or, by preference..., which she // had learned ...; and being deft-fingered it // was a kind of work... she excelled.(pp. 29)*

The theme is "Tess". The theme "she" of the second sentence refers to the theme "Tess". So the first and the second sentences share the same theme "Tess". The following two sentences describe the rheme of the first from different aspects. The first sentence puts forward a whole EVENT. The following two respectively put forward one sub-event of the whole EVENT. Sub-event 1 includes Action (learnt) with its typical characteristics D_1 (when ...owned cows) and Being (she). These elements suggest that sub-event 1 makes prominent the time when the heroine mastered the skill. Sub-event 2 includes Action (was) and Being (work) with its classified information C_1 (in which she excelled). With these elements, the sub-event 2 makes prominent the skill of the performer. By making prominent different perspectives of the whole EVENT, the two sub-events become connected with the whole EVENT and the corresponding sentences become connected with each other. The sample text becomes coherent.

5. 3 ECM Features of Parallel Progression

Sample 7 *He // was..., and she // sat..., and d'Urberville // gave her.. No sooner...so than she // flushed ..., took out ..., and wiped the spot on her cheek... His ardor // was nettled ..., for the act on her part // had been... (pp.46)*

The theme "d'Urberville" of the third sentence refers to the theme "he" of the first sentence. The theme "his ardor" of the fifth sentence is an abstract noun which describe the performer's emotion, so it can be seen as a part of the theme "he" of the first sentence. The same is true of the theme for the sixth sentence. The theme "for the act on her part" can be seen as a part of the theme

“she” of the second sentence. From these analysis, the first, the third and the fifth sentence share the same theme “he”. The second, fourth and the sixth sentence share the same theme “she”. The thematic progression of this sample text can be classified as parallel progression. By analyzing the ECM features of this text, the cognitive mechanisms for the coherence of it can be revealed.

The six sentences in this sample text put forward six EVENTS. EVENT 1 put forward by the first sentence includes Action (was) with its typical characteristic D_1 (inexorable) and Being (he). With these elements, EVENT 1 implies Alec’s insistence on his unreasonable request. The Action (sat) with its typical characteristic D_1 (still) and Being (she) in EVENT 2 enable this EVENT to imply that Tess’ refusal of the unreasonable request. The two EVENTS contrast with each other and make prominent Tess’ quality of great perseverance. EVENT 3 by the third sentence includes Action (gave) and Being (kiss) with its classified information C_1 (mastery). With these elements, this EVENT imply Alec’s shamelessness. EVENT 4 includes Action₁ (flushed) with its typical characteristic D_1 (with shame), Action₂ (wiped) and Being (she), which help this EVENT imply Tess’ purity and self-esteem. EVENT 3 and 4 contrast with each other and make salient Tess’ purity and her self-esteem. EVENT 5 includes Action (was nettled) with its typical characteristic D_1 (at the sight) and Being (his ardor), which help the EVENT indicate Alec’s fiery temper. EVENT 6 includes Action (done) with its typical characteristic D_1 (unconsciously) and Being (the act). EVENT 5 and 6 contrast with each other and the good virtue of the heroine is made prominent. By contrasting several sets of EVENTS, the good qualities of the heroine are repeatedly made prominent. The sentences which imply the corresponding sets of EVENTS connect with each other and the sample text becomes coherent.

5. 4 ECM Features of Centralizing & Parallel Progression

Sample 9 *The only exercise ...// was after dark; and it // was then... She // knew...liberty. It // is then... She // had no fear...; her sole idea // seemed...which,...//is so... (pp.75)*

After the theme and rheme of the first sentence express a basic idea, the rhemes of the second, the third and the fourth sentence all describe the rheme of the first sentence from different aspects. The thematic progression of this part of the sample text can be classified as centralizing progression. The meaning of the rheme for the fifth sentence is opposite to the meaning of the rheme for the sixth sentence. So the thematic progression for the latter part can be roughly classified as parallel progression. The coherent mechanisms of this sample can be revealed by analyzing its ECM features.

The first sentence of this sample text put forward a whole EVENT for the thematic progression part of the text. The second sentence to the fourth one put forward three sub-events for the whole EVENT. Sub-event 1 by the second sentence includes sub-action (seemed) as well as its typical characteristics (solitary) and sub-Being (she). These elements enable this sub-event to make prominent the mental state of the heroine when taking exercise. Sub-event 2 includes Action (knew how to hit to) and Being (she, moment). These elements help this sub-event make prominent the time when the heroine took exercise. Sub-event 3 includes sub-action (become) with its typical characteristic (attenuated) and sub-being (plight of being alive). These elements enable this sub-event to make prominent the mental state of the heroine. The three sub-events make prominent different aspects of the whole EVENT and become connected with the whole EVENT. Therefore, this part of the text become coherent. For the parallel thematic progression part of text, The three sentences put forward three EVENTS. EVENT 1 by the fifth sentence includes Action (had no fear) and Being (she, shadows). These elements help EVENT 1 indicate that the heroine likes darkness and to be alone. EVENT 2 includes sub-action (shun) and Being (her sole idea, mankind). These elements enable this EVENT to indicate that the heroine was afraid of humankind. EVENT 3 includes Action (is) with its typical characteristics C_1 (terrible) and C_2 (pitiable) and Being (mass). These elements help this EVENT again indicate that the heroine was afraid of humankind. EVENT 1 contrast with EVENT 2 and 3 and the heroine’s fear of humankind is made prominent. Therefore, the three EVENTS become connected with each other and this part of the text become coherent. Meanwhile, the view this part of the text makes prominent presents the reason why the heroine took exercise after dark, thus connecting this part to the first part of the text. The whole text becomes

coherent.

6. Conclusions

With the application of ECM, this paper explores the cognitive mechanisms underlying the coherent functions of thematic structures.

First, the coherent cognitive mechanisms about the selected texts are reflected in the following four aspects. I. For centralizing progression texts which imply linear & hierarchical feature of ECM, the cognitive mechanisms for the internal coherence of each of them are: the first/second sentence puts forward a whole EVENT, then the following sentences put forward a series of sub-events. The sub-events form linear relations to illustrate the whole EVENT from different perspectives. By this way, the sub-events become connected with the whole EVENT. And the text becomes coherent. II. For texts which imply the dynamic & static feature of ECM, whatever the thematic progression the text belongs to, the coherent cognitive mechanisms for each of these texts are as follows: the first sentence/sentences in the text put forward a dynamic EVENT/EVENTS, then the following sentences put forward a series of static mental EVENTS to illustrate the static mental state of the performer when he /she carries out the dynamic physical EVENT, or vice visa. By this way, the EVENTS in the text connect with each other and the text achieves its internal coherence. III. For texts which imply the gestalt feature of ECM, whatever the thematic progression the texts belong to, the coherent cognitive mechanisms for this kind of texts are: the first/second sentence puts forward a whole EVENT for the text, then the following sentences put forward a series of sub-events to present the whole EVENT from different aspects. The sub-events become connected with the whole EVNET and the internal coherence of the text is achieved. IV. For the three categories of thematic progression texts which displaying prominent feature of ECM, the coherent cognitive mechanisms are the following: A. for centralizing progression texts and constant progression texts, the coherent cognitive mechanisms are: the first/second sentence puts forward a whole EVENT for the text, then the following sentences put forward a series of sub-events to make prominent different aspects of the whole EVENT. The sub-events become connected with the whole EVENT and the text become coherent. B. For parallel progression texts, the coherent cognitive mechanisms are: by contrasting several sets of EVENTS, certain qualities of the performer are repeatedly made prominent. The corresponding EVENTS become connected with each other and the text become coherent. C. For centralizing & parallel progression texts, the coherent cognitive mechanisms are: for centralizing progression part of the text, the coherent cognitive mechanisms are accord with those of the centralizing progression texts which implying prominent feature. The cognitive mechanisms for the coherence of the parallel progression part of the text are accord with those of parallel progression texts. Both parts make prominent the same main idea and the two parts connect with each other. The text becomes coherent.

Second, the cognitive mechanisms governing the coherence of the novel are reflected in the following four aspects. First, by displaying the linear & dynamic feature of ECM, the sub-events implied by the two categories of data form linear relations to describe the whole EVENT of the novel from different aspects. By this way, the sub-events become connected with the whole EVENT. The corresponding language descriptions become connected with each other and the novel become coherent. Second, by displaying dynamic & static feature of ECM, the performer's good qualities implied by her dynamic physical actions and the constant static mental activities connects the plots of the novel together and push the plots proceed forward until the end of the story. The coherence of the novel is achieved. Third, by displaying prominent feature of ECM, by making prominent repeatedly the performer's other two qualities throughout the whole novel are repeatedly made prominent and the image of the heroine become coherent. Four, by displaying gestalt feature of ECM, two character traits of the heroine are presented repeatedly in different phases of the novel. The consistence of the heroine's character is gained and the image of the heroine becomes coherent.

It can be concluded from these findings that it is people's cognitive mechanisms that determine the internal coherence of thematic structures. Meanwhile, the findings also indicates ECM possesses powerful explanatory force to fully and reasonably explain language at textual level.

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