Application of DRT in College English Reading Teaching

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Abstract: Discourse Representation Theory is a dynamic semantics theory (DRT). It breaks away from the restriction of first-order predicate logic and extends the processing object to discourse above a sentence. The study of natural language by DRT involves not only the truth condition of sentences, but also the specific context, which is in line with the cognitive process of understanding language. The application of DRT in College English reading teaching helps students understand the cognitive relationship between sentences in a text and helps students understand the connotation of a text.

1. Introduction
Discourse Representation Theory (DRT) is a dynamic semantics theory. It is a kind of semantics view about natural language. It originates from Montague grammar and its semantics view. The motivation of DRT is to try to solve the problem of the prefix of donkey clause and the lack of treatment of tense and aspect in model semantics. Formal semanticists also regard language as an abstract system. Sentences represent the form and content of propositions. DRT regards meaning as a psychological phenomenon and an externalization of human thought. It is interested not only in the truth condition of sentences, but also in how the listener understands sentences. The processing of follow-up sentences depends on the previous ones, and the additional information becomes the basis for understanding more follow-up sentences. Therefore, it is of great practical significance to study the application of DRT in College English reading teaching.

2. Interpretation of inter-sentence anaphora in English reading by DRT
DRT consists of three parts: syntactic rules, construction rules of DRS (short for Discourse Representation Structure) and interpretation of DRS in the model. The syntactic rules give a syntactic algorithm for English. The construction rule of DRS gives the transformation mode between linguistic form and semantics. The interpretation part of DRS in the model is to explain DRS with the semantics method of truth conditional model theory. Among the three components, DRS is in the core position, because DRS is the semantic characterization of English sentence sequence by DRT.

2.1 Anaphora
Anaphora is a relationship between two linguistic units (e.g. lexical items) A and B. Under this relationship, the interpretation of A depends in some way on the interpretation of B. A is called anaphor and B is antecedent. Anaphora refers to the same concept or co-reference in semantics between the antecedent and the antecedent. This relationship is called "antecedent" because in the linear sequence of language, the antecedent appears before the antecedent.

2.2 Sentential anaphora and inter-sentential anaphora
For example, the reflexive pronoun "himself" in the example sentence "Florendo was not confident of himself" refers to the Florendo in the sentence. Besides, the pronouns he and her in the example
sentence Florendo loves Fanny. He fascinates her point to the proper nouns Florendo and Fanny in the preceding sentence respectively, which belong to the inter-sentence foreword.

2.3 Construction of DRS in long sentences in English reading to find discourse reference for prepositional pronouns
To construct DRS for longer sentences solves the problem of finding the meaning of the predicate pronoun, which reflects two distinct features of discourse comprehension different from single sentence comprehension: incremental and coherence. The recipient of the discourse understands the sentences in order of the order of the sentences. The understanding of the latter sentences is based on the understanding of the former sentences. And discourse is a whole of meaning coherence. In addition to the first sentence, the meaning elements in each sentence after the first sentence should be reflected in the previous sentence, so that the recipient of the discourse can get a consistent and coherent understanding.

3. Quantitative expression of DRT in college English reading teaching
Based on the syntactic anaphora, DRT further extends the interpretation of anaphora to donkey clauses. This is a special antecedent sentence pattern between pronouns and indefinite nouns. The following example sentence contains an indefinite noun phrase in the relational clause of the full-name sentence. Outside the relative clause, a pronoun refers to the indefinite NOUN phrase, which is a basic form of donkey clause.

3.1 Semantic processing of English Noun phrases
In terms of semantic processing of English NOUN phrases, DRT takes note of the quantitative significance of plural nouns and numeral phrases, draws on the advantages of the Generalized Quantifier Theory (GQT), which is very effective in dealing with the quantitative meaning of noun phrases, and regards generalized quantifiers as the relationship between two sets.

In order to be more intuitive and vivid, DRS in the example sentence Most people are good is represented by block diagram, as shown in Figure 1 below. If we use P and G to represent the set of "people" and individuals with "good" attributes respectively, and #A to represent the number of elements in set A, then the semantics of this example sentence is \#(P \cap G) > \#(P - G). That is to say, there are more individuals with both "people" and "good" attributes than those with only "people" but not "good" attributes. This is the semantic interpretation of the sentence, which regards the logical meaning of the generalized quantifier most as the relationship between two sets.

3.2 The domain ambiguity of quantitative sentences in DRT still exists
For example, there are two ways to understand the example sentence “Four sisters buy a car”: distributive reading and collective reading. Whether each of the four sisters bought a different car, or whether they bought a car together. In order to better distinguish the two ways of understanding, DRS in this example sentence is represented by block diagram. (a) represents the former way of understanding, while (b) represents the latter way of understanding. As shown in Figure 2 below.
4. Time expression of DRT in college English reading teaching

DRT can also accurately describe the complexity and relevance of sentences in English reading. Sometimes verbs can be divided into tense (past tense, present tense and future tense), aspect (progressive aspect and perfect aspect) and even event and state sentences from the so-called temporal perspective. In addition, there are time prepositional phrases in English sentences to express time. In a word, the above phenomena are all related to time factors to varying degrees, and should be analyzed from the perspective of time.

4.1 DRT depict the complex relationship of sentence Series in terms of time

In the example "A woman entered the Greenhouse. She was wearing a sweater. Fanny served her a juice." the three sentences are time dependent. The first and third sentences are event sentences, and the second is state sentences. The DRS of this example sentence is:

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< \{ n, e, t, x, y, s, t', u, w, e', t", z, r, u' \}, \{ e \subseteq t, t < n, \text{woman}(x), \text{the Greenhouse}(y), e: \text{enter}(x, y), \text{so}\text{t}', t" < n, e \subseteq s, u = x, \text{sweater}(w), s: \text{be wearing}(u, w), e' \subseteq e", t' < n, e < e', \text{Fanny}(z), \text{Juice}(r), u'= x, e': \text{serve}(z, u' r) >
\]

"e \subseteq t" indicates that the time when the "x enter y" event occurs is included in the time indicated in the first sentence. "t < n" means that the time mentioned in the utterance is earlier than the time of utterance. "Sot" means that the duration of the state of "u be wearing w" coincides with the time mentioned in the second sentence. "t'< n" means that the time mentioned in the second sentence is earlier than the time of utterance. "e \subseteq s" means that the time when the "x enter y" event occurred is within the duration of the "u be wearing w" state, that is, the person who entered the Greenhouse wore a sweater before and after the event. "e \subseteq t" indicates that the time of occurrence of "z serve u' r" is included in the time mentioned in the third sentence, while "e < e" indicates that the event described in the third sentence occurs after the event described in the first sentence. Fanny gave her beer only after the woman in sweater entered the Greenhouse. This series of sentences is complex in terms of time, which is difficult to describe in previous model semantics, but can be accurately and meticulously depicted in DRT.

4.2 DRT represent sentence tense and aspect

The example sentence “Fanny has bought a cat.” Its DRS is <n, s, t, x, y>, \{t = n, t \subseteq s, \text{Fanny}(x), e\psi s, \text{cat}(y), e: \text{buy}(x, y)\}. The completeness of the active verbs in the example sentence is represented as a state. This state is the result of an event: the state begins at the end of the event and is expressed in e\psi s. That is to say, the event of "Fanny Buying Cats" resulted in the result of "Fanny owns cats". "t = n" means that the time mentioned in the utterance is the same as the time spoken, while "t \subseteq s" means that the time mentioned in the utterance is within the time range of the state.
5. Conclusions
In summary, DRT not only inherits the truth conditional semantics research on propositional truth, but also pays more attention to how readers understand sentences. DRT breaks away from the restriction of first-order predicate logic, expands the processing object to discourse above a sentence, reveals the anaphoric relationship between nouns and pronouns across sentences, and solves the semantic problem of "donkey clause". DRT accurately describes plural nouns and numeral phrases, and absorbs the advantages of the generalized quantifier theory. It regards the generalized quantifier as the relationship between two sets, and constructs DRS with generalized quantifier in a similar way to form a double condition. Therefore, the application of DRT in College English reading teaching is in line with people's cognitive process of understanding language.

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English Audiovisual Teaching Model Integrating New Media Technology.

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