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Connectivity of Discourse Connectives and Its Role for Generalized Argumentation

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Abstract. There are three major accounts of discourse connectives: Fraser's General Account, Schiffrin's Coherence-based Account and Blakemore's Relevance-theoretic Account. They all acknowledge the connectivity of discourse connectives, but they explain in different ways. Their difference consists in characterizations of the role of discourse connectives: the first considers the connectives as signaling the semantic relation between discourses, the second takes them to be the joints of text structure, and the third thinks of them as guiding the cognitive inference as regards utterance interpretation. Thus, we have three kinds of connectivity of the discourse connectives: semantic connectivity, structural connectivity and cognitive connectivity. These three kinds of connectivity can respectively contribute to understanding the thesis of Generalized Argumentation proposed by Ju Shi'er that argumentation is a sequence of discourses.

1 Introduction

Discourse connectives are expressions like "but", "moreover", "well", "so", "or", "then", "and", "in addition", etc.[1] These expressions have a common function in discourse: each occurrence of them, to some extent, signals a specific relation between the preceding and following discourse units. It can well be claimed that such a common function shows the "connectivity" of discourse connectives. Though since the 1980s discourse connectives have been systematically and profitably studied, it is in this paper implausible and pointless to examine all the existing theories of discourse connectives, and what we shall focus on is the three major approaches: Fraser's General Account (section 2), Schiffrin's Coherence-based Account (section 3) and Blakemore's Relevance-theoretic Account (section 4). They give different characterizations of the connectivity: the first considers the connectives as signaling the semantic

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[1]Besides "discourse connectives", this class of expressions also has many other names like "discourse markers", "discourse operators", "cue phrases", "discourse particles", etc. According to [21], "discourse connectives" and "discourse markers", the two terms which are most frequently used, differ in their extension. For example, Schiffrin includes "and" and "because" in her "discourse markers", while Carston ([6]) removes them from her "discourse connectives". But in fact, this difference arises not from how to label the class of expressions but from how to delimit it. Therefore, these different terminologies do not pose any substantial issue. In some of our quotations, the quoted scholar may use a different terminology, but here we use the name "discourse connectives".

relation between discourses, the second takes them to be the joints of text structure, and the third looks upon them as guiding the cognitive inference as regards utterance interpretation. Thus, we have three contrastive kinds of connectivity of the discourse connectives: semantic connectivity, structural connectivity and cognitive connectivity. However, it should be noted that, as we shall see, they are respectively argued in different theoretical frameworks having distinct theoretical purposes and therefore are endowed with different theoretical roles. In this sense, the three kinds of connectivities are not exclusive. Moreover, they have integral and cooperative contribution to understanding the central thesis of Generalized Argumentation, pioneered by the logician Ju Shi'er ([14]): argumentation is a sequence of discourses in contrast to the formal notion of argumentation (section 5).

2 Fraser's General Account

We call Fraser's approach to discourse connectives[2] a "general account", because he is concerned with "general properties of the entire class" ([10]) of connectives. This differs from other approaches which are chiefly motivated by relatively more specific theoretical concerns.[3] As he underscores: "I focus on how they might be characterized as a part of one's knowledge of the language: how discourse markers should be defined as a linguistic category, the nature of their meaning, and how they are to be interpreted." ([8])

Fraser puts forward three conditions for defining discourse connectives.

The first is what we can call the "lexical condition": "A discourse connective is a lexical expression, for example, *but*, *so*, and *in addition*." ([11]) This condition is intended to exclude some syntactic and prosodic features like "stress", "pauses", and "intonation" as well as non-verbal expressions such as a frown or a shrug. Moreover, discourse connectives do not constitute a single grammatical class, and they can be conjunctions (such as "and", "but", "so", "however", etc.), adverbs (such as "consequently", "conversely", "essentially", etc.), and prepositional phrases (such as "in addition", "as a result", "to repeat", "to sum up", etc.), which are regarded by Fraser as the three main lexical sources for discourse connectives. ([9])

The second is what we can call a "syntactical condition": in a contiguous discourse comprising segments S_1–S_2, "a discourse connective must occur as a part of the second discourse segment."[4] ([11]) Therefore, the syntactical relation between

[2]Fraser himself takes "discourse markers" to be his terminology. However, considering the convenience and integrity of our discussion, we will uniformly adopt "discourse connectives".

[3]For example, Schiffrin's coherence theory and Blakemore's relevance theory, which will be subsequently introduced, have more specific theoretical appeal. Briefly, the former studies how some connectives contribute to making a discourse coherent; the latter goes into the role of connectives in the cognitive interpretation process of an utterance.

[4]This requirement is obviously strange, because connectives like "though", "despite (this/that)" can

the discourse segments and a discourse connective can be canonically formed as "$S_1 - DC + S_2$". This form can be exemplified as follows:

α. The alarm clock went off this morning, but Lee did not wake up.
β. The alarm clock went off this morning. But Lee did not wake up.

Two supplementary remarks are needed for this second condition. First, some discourse connectives can be used not only in segment-initial position, but also in segment-medial or segment-final position. So, we can have β_1, β_2, and β_3 as follows:

α. The alarm clock went off this morning.
β_1. However, Lee did not wake up.
β_2. Lee, however, did not wake up.
β_3. Lee did not wake up, however.

Second, in the formula "$S_1 - DC + S_2$", "S_1" can represent a set which includes many discourse segments ($\alpha_1, \alpha_2, \alpha_3 \ldots \alpha_n$) as its elements, while "S_2" represent only one discourse segment β. So, the original formula can thus be transformed into "$\alpha_1, \alpha_2, \alpha_3 \ldots \alpha_n - DC + \beta$". In the case where "$S_2$" represents a set which includes the finite discourse segments ($\beta_1, \beta_2, \beta_3 \ldots \beta_n$) as its elements, and "$S_1$" represents only one discourse segment α , we can have the formula "$\alpha - DC + \beta_1, \beta_2, \beta_3 \ldots \beta_n$".

The third condition of the definition can be labeled as a "functional condition": a discourse connective signals the semantic relationship between the interpretation of its hosting discourse segment and that of the foregoing one, and it does not contribute to the semantic meaning of its hosting discourse segment.[5] The functional condition exhibits the essential property of discourse connectives which we focus on: "connectivity". The connectivity of a discourse connective consists in its function of signaling a "semantic connection" between the interpretations of the two relevant discourse segments, and in fact every kind of semantic connection signaled determines a special class of discourse connectives. On Fraser's view, we have three functional classes:

Contrastive Connectives, which signal direct or indirect contrast between S_1 and S_2. The typical examples are "but", "alternatively", "conversely", "however", "although", "in contrast", "on the contrary", "yet", etc.

Elaborative Connectives, which signal that S_2 elaborates on the information contained in S_1. The typical examples are "and", "above all", "also", "furthermore", "in addition", "in other words", "more importantly", etc.

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of course be contained in the first discourse segment. Also, Fraser ([10]) takes the form "$DC + S_1, S_2$" as one of the possible syntactic arrangements of *DC*s. This inconsistency between [10] and [11] may be explained away by claiming that, from a formal point of view, putting a *DC* between the two alleged connected items (like "$S_1, DC + S_2$", in contrast to "$DC + S_1, S_2$") can highlight its connectivity in a more obvious way.

[5] See [8, p. 387], [12, p. 186], [9, p. 944], [10, p. 191] and [11, p. 299].

Inferential Connectives, which signal that S_2 is inferred on the basis of S_1. The typical examples are "so", "as a conclusion", "as a result", "it follows that", "hence", "therefore", "thus", etc.

Concerning the connectivity of discourse connectives, there are three points should be noted. First, according to Fraser, the contrastive, elaborative or inferential relationship between S_1 and S_2 signaled by a given connective can either be explicit or implicit. In other words, both (or either) of the two discourse segments whose semantic relationship is signaled by a contrastive, elaborative or inferential connective can receive an explicit or implicit reading. This point can be illuminated by the following examples about "but":

α. John likes to dance, but Wang likes to read.
β. Messy thought he would be late for the conference, but he was not.

For α , the contrasts between "John" and "Wang" and between "dance" and "read" are explicit, and the two discourse segments are literally and explicitly read. For β, the contrast between what Messy thought and what the case was is explicit, and obviously the two discourse segments are literally, thus explicitly, read.

γ. Catherine got up late yesterday (S_1), but she was not late for the class (S_2).
δ. A: Steven did not drive his car today. (S_1)
B: But I have never seen him driving! (S_2)

For γ, the contrast actually takes place between what is causally implied by S_1, to wit, Catherine would be late for the class and what the case was, to wit, she was not late. For δ, the contrast may lie between what is presupposed by S_1, to wit, Steven has a car and what is implied by S_2, to wit, he may have no car.[6]

The second point engaging our attention concerns a special kind of use of discourse connectives. For the formula "$S_1 - DC + S_2$", either S_1 or S_2 or both can be replaced with the piece of contextual information implied. The following examples respectively show these three possibilities:

Here is a case where "S_1" is replaced by a piece of contextual information:

α. Context: Victor, seeing Lisa turn around and ready to go.
Victor: **But** don't leave me.

Here is a case where "S_2" is replaced by a question implied by contextual information:

[6] As we have said above, Fraser describes such a kind of contrastive relationship signaled by "but" as implicit. In fact, this is inappropriate. Though we shall not amplify this remark, it should be noted that, obviously, to be sure, such a kind of contrast occurs between an explicit and an implicit discourse segment, but this does not follow that the contrast itself is implicit. Moreover, the connective "but" here also plays a role as the incentive for the interpreter to look for the implicit content in the first segment, and this explicit guiding function of "but" strongly shows that the contrastive relationship signaled by "but" is not implicit.

β. Victor: I know that you are free now.
Lisa: **So**? [what do you want to ask me?][7]

Here is a case where both "S_1" and "S_2" can be filled with contextual information:

γ. Context: Lisa, upon suddenly encountering his boyfriend embracing her best friend.
Lisa: **So**! [my suspicion is totally right.]

These three possibilities show that the connectivity of discourse connectives is exhibited not only by their function of connecting two explicit discourse segments but also by their function of connecting one or more pieces of contextual information.

The third point is that discourse connectives do not create the relationship between S_1 and S_2. Given the interpretations of S_1 and S_2, a discourse connective is used just for signaling, expressing, or making explicit the relationship intended by the user of the discourse connective between their interpretations. Clearly, there may be many possible relationships between the given interpretations of S_1 and S_2, and the use of a discourse connective can contribute to the recognition of the exact relationship intended by the user. See the following examples:[8]

α. This flight takes 5 hours, **but** there's a stop-over in Paris.
β. This flight takes 5 hours, **and** there's a stop-over in Paris.
γ. This flight takes 5 hours. **So**, there's a stop-over in Paris.

As is shown by the examples, S_1 and S_2 enjoy a contrastive, elaborative or inferential relationship which can be respectively signaled by "but", "and", and "so". If the discourse connectives are absent, the hearer may fail to recognize which kind of relationship between S_1 and S_2 is intended by the speaker.

From the above analysis, we can say that Fraser attempts to characterize a "semantic connectivity" of discourse connectives, namely that the connectives signal the semantic relation between the preceding and following discourses. By contrast, Schiffrin studies discourse connectives against a particular theoretical background, namely the theory of discourse coherence.

3 Schiffrin's Coherence-Based Account

In contrast to Fraser's general account, Schiffrin is more interested in how to use and distribute discourse connectives to secure and add to the coherence of everyday discourse. As Rouchota indicates, this theoretical concern is based on an obvious assumption:

[7] As Fraser ([11]) indicates that this use of *DC* is quite restricted.

[8] These examples are borrowed from [10].

> The most important property of texts, crucially involved both in text generation and in text comprehension, is that texts are coherent. Coherence is analyzable in terms of a set of coherence relations, i.e., a set of implicit relations that bind/hold the text together. ([18])

We must first be clear about Schiffrin's definition of "discourse". Schiffrin sees discourse as a set of utterances. It is widely accepted that an utterance is a physical event and instantiates a sentence in a specific context. The preference for discourse-as-utterances is backed up by its two advantages in [20]:

First, it naturally takes into account the contextualization of the linguistic structure of sentence, an unavoidable phenomenon in the everyday use of language. Second, following from this first point, we should not stop at a single utterance for understanding a discourse, because the patterns and sequential arrangements of the different utterances also contribute to the understanding. Therefore, for Schiffrin, defining a discourse as a set of utterances can both reflect the function of the discourse (that is, how the discourse is to be used in a given context) and the form of the discourse (that is, the combination mode of the discourse). Furthermore, Schiffrin locates the utterances in different types of planes which constitute a discourse model:

Exchange Structure. This plane specifies the result of the turns all participants in a talk take in every utterance communicated. It includes "questions", "answers", and "greetings". Therefore, the utterances may be seen in this plane as a sequence of, for example, ["a greeting" — "a question" — "an answer" — "a greeting" — …] in which the bar "—" represents a turn.

Action Structure reflects "constrained linear sequences"[9] of speech acts which are situated relative to speakers' identities, social settings, the preceding speech acts and the speech acts intended to follow. In short, in this plane, we see sequences of situated speech acts.

Ideational Structure includes propositions as its units which are called as "ideas" and there are three different relations between the ideas: cohesive relations[10], topic relations, and functional relations[11].

Participation Framework reflects the speakers' recognition of relations between speakers and hearers and of her attitude toward the discourse.

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[9] As is outlined in [19, p. 25], these sequences "are not randomly ordered, there is a pattern and a predictability to their occurrences."

[10] Schiffrin ([19], p. 26) regards cohesive relation as "established when interpretation of an element in one clause presupposes information from a prior clause because of the semantic relationship underlying a text." The two sentences: A. Grice was a smoker; B. He has already stopped smoking.

The cohesive relation between the discourse segment A and the segment B, according to Schiffrin, lies in the fact that the phrase "stopped smoking" in the segment B presupposes the information that Grice smoked which can be derived from the segment A.

[11] On Schiffrin's view ([19], p. 26), ideas may function not only as descriptive background but also as "specific instances to illustrate a generalization, or reasons which support a position".

Information State "reflects the ongoing organization and management of knowledge and meta-knowledge as it evolves over the course of discourse". ([9])

In Schiffrin's coherence-based account, discourse connectives are initially defined as "sequentially dependent elements which bracket units of talk". ([19], p. 31) In order to clarify this obviously vague definition, Redeker adds more details to it, based on his review of Schiffrin's work:

> Discourse markers are linguistic, paralinguistic, or nonverbal elements that signal relations between units of talk⋯by virtue of their sequential position as initial or terminal brackets demarcating discourse units.[12] ([17])

Schiffrin further describes the function of "signaling relations between units of talk" shown in the above definition as "propos[ing] the contextual coordinates within which an utterance is produced and designed to be interpreted". ([19], p. 315) Here, we must be clear that the function of "proposing the contextual coordinates" for the utterance to be interpreted is in fact a function of evincing two kinds of linkage.

First, a discourse connective links the utterance to the prior and (or) following utterances as well as to the speaker. For example, the connective "but" makes a link between the utterance and the speaker on the grounds that it can make the speaker continue her action, and likewise, it makes a link between the current utterance and the preceding text on the grounds that it can "return a speaker to an earlier point of the text". ([19], p. 324)

Second, it is because of the occurrences of discourse connectives that, as we have indicated above, the utterances can be located in the five planes of talk. In other words, discourse connectives can link the utterances to "either a single plane or across different planes". ([15])

There are examples showing how discourse connective link some utterances to a single plane. The connectives "so" and "because" can link "a greeting", "a why-question" and "an answer": "Sorry, Madam!", "**So**, why are you late again?", "**because** my clock was still not alarming this morning!". It is obvious that "so" and "because" represents two turns in the exchange structure, and in this sense the three utterances are integrated and defined on the exchange structure. "Because" can also link two speech acts expressed by two utterances causally sequenced; in this case, the two utterances are integrated and defined on the action structure. "Because" can likewise link two ideas expressed by two utterances which are in causal relation, and in this case, the two utterances are integrated and defined on the ideational structure. "Because" can additionally link the utterances which make explicit the speaker's

[12]This definition throws into relief the divergence over the range of discourse connectives between Fraser and Schiffrin: the former only regards linguistic expressions as the connectives, while the latter embraces paralinguistic ("oh", "y'know") and nonverbal elements.

recognition of relations between the speaker and hearers: "Is there anyone can kindly answer this gentleman's question why I am entitled to keep you silent?", "**because** you are teacher, sir." Obviously, the "because" gives voice to what is recognized by the speaker about the relation between the two interlocutors, and in this sense, the utterances are manifestly located in the participation framework. And then, "Because" can link utterances integrated and defined in the information state: "Wang, I do not understand why you were absent on Jerry's wedding", "My dear Lee, that is **because** I had known before how bad the Jerry's wedding would be." Obviously, the "because" causally introduces what only Wang had known about Jerry's wedding to the knowledge set shared by Lee and Wang, and this knowledge set is therefore causally upgraded by the utterance following the connective "because". In this sense, the "because" contributes to causally changing the information state over the course of verbal communication.[13]

In Schiffrin's coherence-based account, discourse connectives are considered, on the one hand, as "a kind of discourse glue" ([8]) which integrates utterances on the planes of talk, and on the other hand, as a kind of "grease" which makes the discourse run smoothly. These two aspects in fact show the function of discourse connectives for guaranteeing the coherence of discourse structure. In this sense, Schiffrin's Coherence-based account characterizes a structural connectivity of discourse connectives.

4 Blakemore's Relevance-theoretic Account

Before we go into Blakemore's relevance-theoretic account of discourse connectives, it is necessary to briefly introduce Relevance Theory(RT hereafter).[14]

[13] Here is a conversation showing how discourse connectives link utterances across different planes (the utterances in the conversation are numbered and lined; the connectives are marked by squares:

A: Hi①, **well** here is the thing, don't you know Chomsky will come by my university tomorrow?② **And** I promise you his coming by this time.③

B: **But**, my dude, your promise has always been empty.④

A: **Anyway**, you will regret if you don't come to my university tomorrow, ⑤ **because** the information source is quite reliable.⑥

Analysis: Obviously, "well" and "And" link the first three utterances with the plane of "Exchange Structure" since both represent the turns between "a greeting" (①), "a question" (②)and "an answer" (③). The "But" between "③" and "④" links the planes of "Action Structure", "Participation Framework" and "Ideational Structure", because "③" is expressed by a speech act(a "promise"), the phrase "my dude" signals the recognition of the relation between the interlocutors, and "④" expresses an evaluative idea about A's promise. The "Anyway" connects two ideas respectively expressed by "④" and "⑤", and then like "④", "⑤" is included on the plane of "Ideational Structure". At last, the "because" introduces a meta-knowledge expressed by "⑥" which specifies the reliability of the information that Chomsky will come by A's university, and in this sense this connective links the plane of "Information State" with that of "Ideational Structure" represented by "⑤".

[14] [22] and [7] are the vanguards of RT.

RT identifies itself as a scientific psychological study which aims at describing and explaining why and how human beings can verbally communicate with one another. It advocates an inferential account of communication. According to RT, the speaker produces an utterance which is relevant to the conversation, and the hearer can use his knowledge of the situation and his general reasoning abilities to infer what the speaker must have intended to convey. ([24]) A successful communication between them will be achieved if the hearer selects and uses the adequate evidence for verifying his hypothesis about what the speaker intends to convey. The "adequate evidence" here indicates "an adequately selected set of background assumptions" ([22]). "Relevance", which is technically defined in the theory, is key to that inferential process. And the definition of "relevance" contains two comparative parts, the **contextual effects** achieved by an utterance and the **cognitive processing effort** incurred in figuring out the contextual effect(s). Further, other things being equal, the greater the contextual effects or the smaller the cognitive processing effort, the greater the relevance of an utterance. ([24]) In RT, "contextual effect" means a result of interaction between the new information transmitted by an utterance and old information delivered by background assumptions. It comes in three varieties ([22]):

Contextual implication: with the introduction of the information of an utterance, a new piece of information is derived from the previously held background assumptions.

Strengthening: with the introduction of the information of an utterance, a piece of previously held information is strengthened.

Contradiction: with the introduction of the information of an utterance, if a contradiction arises between this new piece of information and a previously existing one in the context, the weaker one will be erased from the background assumptions.

On RT's view, the success of communication depends on the "**optimal relevance**" of the utterance communicated which is defined as this: an utterance is optimally relevant if and only if its contextual effects balance its processing costs. In other words, (1) the utterance is relevant enough for it to be worth the hearer's effort to process it, which means that it achieves adequate contextual effects, and (2) the utterance is the most relevant one compatible with the communicator's abilities and preferences. ([22]) Additionally, RT identifies what the hearer can expect from the utterance communicated through what relevance theorists call the **communicative principle of relevance**: every act of overt communication (like an utterance) communicates a presumption of its own optimal relevance.[15]

[15] Blakemore ([4], p. 63) clearly tells us how to correctly understand such a principle: "this principle should not be construed as a suggestion that every act of overt communication is in fact optimally relevant: communicators can be mistaken about the relevance of the information they communicate, and the presumption of relevance they communicate can be false. The point is simply that every act of overt communication is evidence of the communicator's belief that the information they want to communicate is relevant. Nor should the principle be construed as a claim that communicators always succeed in being

According to the communicative principle of relevance, in a successful communication, the speaker produces an optimally relevant utterance, and the optimal relevance simultaneously specifies that the hearer selects, between the numerous sets of background assumptions, the adequate one for verifying his hypothesis of what the speaker intends to mean, since the contextual effects arisen out of the interaction between the information expressed by the utterance and this chosen set of background assumptions balances the processing costs paid for figuring out the contextual effects.

In this relevance-theoretic picture, the point of use of a discourse connective is to constrain the interpretation (recovered by the hearer) of the utterance which is introduced by the connective for achieving optimal relevance, by minimizing interpretative costs. More precisely, when a discourse connective is used, the speaker intends it to guide the hearer to choose the inferential route in which the kind of contextual effects produced can be balanced by the hearer's processing costs so that the optimal relevance is achieved. It follows that, according to Blakemore, the use of the discourse connective is intended to make the hearer recognize that he is expected to access a particular set of contextual assumptions that enable him to interpret the relevant utterance in such a way that optimal relevance can be achieved.[16]([4], p. 96) With this notion of constraint on relevance, we can divide discourse connectives into three broad categories which correspond to the three types of contextual effects:[17]

(1) The discourse connective allows the derivation of contextual implication.
(2) The discourse connective strengthens an existing assumption.
(3) The discourse connective causes the contradiction and elimination of an existing assumption.

The connective "so", "after all" and "but" are respectively the epitome of each type. See the examples in the following:

α. Lenard can open Jane's safe (A). So, he knows the combination (B).
β. Lenard can open Jane's safe (A). After all, he knows the combination (B).
γ. Lenard can open Jane's safe (A). But, he did not open it (B).

For α , by pointing out that the hearer is expected to follow an inferential route in which the segment B is a conclusion inferred from the segment A which is the premise in the inference, the speaker of α is indicating that the segment B is relevant by virtue of being a contextual implication. ([4], p. 95)

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optimally relevant. Communicators can be mistaken about the contextual and processing resources of their audiences."

[16]Blakemore ([3], p. 137) claims that given that discourse connectives "ensure correct context selection at minimal processing cost, they can be regarded as effective means for constraining the interpretation of utterance in accordance with the principle of relevance."

[17]See [4, p. 95] and [3, p. 138]. The three types of connectives correspond to Fraser's "inferential connectives", "elaborative connectives" and "contrastive connectives".

For β, by pointing out that the hearer is expected to follow an inferential route in which segment B is a premise for the deduction of segment A, the speaker of β is indicating that segment B is relevant by virtue of strengthening an existing assumption. ([4], p. 95)

For γ, segment B gains its relevance due to the fact that it contradicts and eliminates an assumption presumed to have been made manifest by segment A, namely that Lenard opened Jane's safe. ([4], p. 95)

Discourse connectives guide the hearer to find an inferential route. In the process of inference, the hearer will choose a set of background assumptions to interpret the speaker's utterance in question. As a result of the interpretation, the context effects achieved by the utterance and the cognitive processing effort paid to calculate the context effects can reach a balance, and the utterance gets the optimal relevance. Therefore, the discourse connectives in RT do not signal the semantic relations, nor do it glue or grease the discourse on text structure, but they guide and constraint the cognitive process of utterance interpretation. In this sense, we say that they have "cognitive connectivity".

5 The Connectivity of Discourse Connectives in Generalized Argumentation

Theories abound about the relation between discourse connectives and argumentation. Here are three important ones.

The French linguists Ducrot and Anscomre ([1]) defend what they call "radical argumentativism": every lexical item has argumentative orientation as its semantic property, and any language use means a concomitant argumentation. This theoretical position begins with analyzing how discourse connectives interact with argumentation. On one side, discourse connectives signal the argumentative relation between semantic content of premises and that of the conclusion. On the other side, the meaning of discourse connectives is argumentatively constrained.[18] In other words, every use of discourse connective must take account of how such use is required for an argumentative purpose.

Developed by Carel and Ducrot ([5]), the theory of "semantic blocks" is a descendant of "radical argumentativism". A "semantic block" is defined as an organized argumentative sequence of discourse segments including premises, discourse connectives and a conclusion. The discourse connectives are supposed to be the structural joints of such argumentative sequence. Moreover, "the meaning of a discourse fragment cannot be described without reference to the sequential structure of which it is

[18]For example, it seems odd to use "and" to connect the contrasting (or inconsistent) premises in an argumentation, and we thus use "but" instead. The sentence that "Thomas is short **but** he runs very fast, so he is recommended to the 100-metre sprint" seems more appropriate than the sentence that " Thomas is short **and** he runs very fast, so he is recommended to the 100-metre sprint."

part." ([23]) We can say thus that, without the discourse connectives indispensable to this sequential structure, the meaning of the premises or the conclusion of the argumentative sequence cannot be described. In this sense, the discourse connectives are construed by the theory of semantic blocks as structurally required for understanding the meaning of discourse segments.

In contrast to the above two theories, Jacques Moeschler ([16]) provides a pragmatic approach. He deploys the procedural meaning[19] of discourse connectives to analyze how the causal, temporal and inferential connectives indicating causal relations constrain the process of argumentation. His general conclusion is that "one of the most efficient ways to connect an argument with its conclusion is by means of a connective which gives precise instructions on how an argument can support a conclusion." ([16])

Obviously, the first theory characterizes the semantic interplay between discourse connectives and argumentation, which is partly based on the semantic connectivity of discourse connectives, and as we have seen above, their signaling role in the theory is otherwise unfounded. Semantic Blocks Theory throws into relief the structural connectivity of discourse connectives in that the discourse connectives therein are regarded as indispensable "discourse glue" for an argumentative discourse sequence. It is also quite clear that Moeschler describes a pragmatic relation between discourse connectives and argumentation in virtue of the idea that discourse connectives can lead the addressee to an inferential route to get the expected interpretation of utterances, and as we have said, this idea corresponds to the cognitive connectivity of discourse connectives. Therefore, there may be two common points between them: 1. as we analyzed above, the three kinds of connectivity of discourse connectives contribute to their theoretical accounts of argumentation; 2. the underlying notion of argumentation takes an argumentation to be a formal-rules-governed process from premises to a conclusion. What we shall do next is this. First, we introduce a novel theory of argumentation which offers a broader-sense notion of argumentation, namely "Generalized Argumentation", and its methodology for argumentation researches. Then, we shall specify why and how the three kinds of connectivity can also methodologically contribute to the generalized argumentation through a concrete case.

5.1 Generalized Argumentation

The logician Ju shi'er comes up with "Generalized Argumentation" according to which the notion of argumentation has a "broader" sense. Ju Shi'er ([13, 14])

[19] Blakemore ([2]) initially distinguishes procedural meaning from conceptual meaning. As far as she is concerned, what is most characteristic of discourse connectives is that they encode procedural information, which means that discourse connectives do not encode a conceptual constituent but information about the inferential route the hearer should take in order to arrive at the intended interpretation (which, itself, is a conceptual representation). We can also say that the cognitive connectivity of discourse connectives characterized in section 4 is based on such procedural meaning.

propounds this notion in that he finds the orthodox formal notion too "narrow":

(1) It springs from the western culture, namely what he calls "mainstream culture". The notion of argumentation (and argumentative rules) from other (exotic) cultures is left out. As a result, it is practically plausible that an argument would be valid for the mainstream culture but unacceptable relative to others and vice versa.[20]

(2) It takes "sentences" as the argumentation basics, "formal validity" as what an argumentation aims at, "inference rules" as how an argumentation is conducted, "premises-conclusion" as what an argumentation is organized, and the "absolute rationality" as the evaluative criterion for an argumentation to be successful. This notion of argumentation fully ignores genuine argumentation sensitive to multicultural contexts.

In order to cover such context-sensitivity the orthodox approaches dismiss, Generalized Argumentation tends to characterize the argumentation differently: it takes a sequence(or sequences) of discourses(or "speech acts" in Ju's terminology) in place of sentences as its basics, "binding agreement in social interaction", instead of "formal validity", is regarded as the goal of argumentation, "Four principles"[21] , totally differing from the formal inference rules, guide how an argumentation proceeds, "function-discourses", a departure from "premises-conclusion", is construed as what an argumentation is organized, and it is not the "absolute rationality" but the "local social norms and individual preference" that decides whether an argumentation is successful. Such a broad-sense notion of argumentation introduces at full range (cultural) context-sensitivity to argumentation study so as to capture genuine argumentation sensitive to multicultural contexts.

Overall, Generalized Argumentation refuses to just look upon argumentation as a formal, abstract and culture-neutral reasoning process. The success or failure of an argument is relative to a specific local culture:

> By general[ized] argumentation we mean conduct of a rule-based language game between two or more agents in a given cultural context.

[20]See [13]. Ju Shi'er shows and analyzes how, according to Evans Pritchard's ethnographic research, a valid argument through the lens of mainstream culture turns out to be unacceptable for the African Azande people.

[21]See [14]: 1. "Context-understanding Principle": the argumentation participants must take account of social and cultural contexts (including the social norms and customs relative to each participant) for grasping the meaning of discourses; 2. "Argumentative Function Principle": the participants must determine the way the produced discourses bear the optimal functions constrained by social norms for achieving the goal of the argumentation; 3. "Expression Principle": the participants must bring out the discourses in an argumentation complying with social norms and verbal preference, because each arguer's discourses come from cultural and educational background, social status, idiomatic expression and etc.;4."Partitional Strategy Principle": an argumentation may be partitioned as several sequences of discourses, each of which exhibits the strategy of arguing of the participants, and how to partition the sequences in order to achieve the consensus of attitudes relative to the argued matter must conform to the related social norms.

> Starting from some premise, it aims to induce the agents or participants to reject or accept a certain conclusion. Here the agents belong to a cultural group and a corresponding society, and language includes verbal language, body language, visual language and other symbols. ([13])[22]

Ju Shi'er ([13]) employs a crafted "meta-deductive method" (relative to the mainstream culture) to prove the proposition that "the rationality of logic is relative to culture". ([13]) This proposition means that there is not any unconditional and universal way to prove whether a logic is rational or not, and this question can only be answered within the very cultural context in which the logic is used and evaluated. For example, as Ju ([13]) claims, only in the context of Azande can whether their logic is rational or not be determined. Thus, the rationality of argumentation hinges on culture, because, if the rationality of logic running through the argumentation is culturally relative, the rationality of the argumentation must then be culturally relative. The pressing question now is rather methodological: if only within a cultural community can the argumentation which takes place in that community be evaluated, how can we evaluate the argumentation occurring in a certain cultural community where we are not in. After all, we do not want argumentation studies to be culturally exclusive. Ju Shi'er ([14]) proposes a methodology what he calls "Localized Research Procedure" (hereafter LRP). It advocates empirical study on argumentation and thus urges logicians to go out into cultural fields and to see how argumentation therein actually happens. As he argues,

> Only in the very world that the participants in a given argumentation capture can their discourses, their rules for producing them, the sequences of discourses and the relation between the sequences take on their original sense. ([14])

LRP specifies five stages about how logicians go into the very world for seeking the unknown (or possible) local theories of argumentation (especially the argumentation strategies and rules) in different cultural fields, and they can be summarized as follows:

Stage One: glean and sift the social-cultural background information relevant to argumentation including social norms and customs, idiomatic arguments in ordinary life, political system, local religion and etc.

Stage Two: carry out the deep fieldwork to gather the first-hand argumentation data in order to know the genuine argumentation having taken place in that cultural context.

[22] We should note that this definition of Generalized Argumentation is to some extant updated in [14]: the "rule-based language game" is replaced with "a sequence of discourse", the "premise-conclusion analysis" is replaced with "discourse sequence analysis", and the "reject or accept a certain conclusion" is replaced with a "binding agreement in social interaction". But the claim that argumentation is culturally relative remains unchanged.

Stage Three: distill and analyze the argumentation data gathered on Stage Two into the candidates of argumentation strategies and rules.

Stage Four: identify and justify the strategies and rules spelled out on Stage Three. On this Stage, only those candidates of argumentation strategy and rule which are justified as conforming to the social norms and customs will be initially legitimate.

Stage Five: Verify the initially legitimate strategies and rules. We can verify them either by our target groups' approval or by some real argumentation cases whose success does follows from them.

For the sake of space, we will not go into more details about LRP, but it is quite clear that LRP requires a tremendous amount of data work. According to Stage One shown above, the argumentation strategies and rules relative to a cultural context draw from the argumentation data we collect in that context, and any kind of social-cultural background information to be garnered is desperately countless. More importantly, Ju Shi'er's LRP ([14]) in a general way tells us that on Stage One we should collect many kinds of argumentation data relative to a given cultural field, such as "social norms and customs", "language habits", "political systems", "local religions" (or etc.), stepwise digging into that field, so as to build localized theories of argumentation, but it might be necessary to further indicate and explore a particular and concrete aspect of a given kind of information that our information collection and analysis work can begin with.

5.2 Methodological role of the connectivity of discourse connectives for Generalized Argumentation

My proposal is that we can begin with collecting and analyzing the argumentation data of a given cultural context about the role of discourse connectives in argumentation. Here are three reasons why the connectivity of discourse connectives can play such a methodological role for Generalized Argumentation.

First, generally speaking, an argumentation composed of a series of discourses needs discourse connectives to signal the semantic relation between the discourse units. According to Generalized Argumentation, the goal of argumentations is to reach a binding agreement in social interaction, and the object of such an agreement may be still a discourse bearing its own semantic and pragmatic meanings. In order to correctly understand how such a discourse can be the result of an argumentation process, the participants must be clear not only about its semantic and pragmatic relation with the discourses preceding it but also about these relations between those discourses. Discourse connectives are in this sense required, because they can make these relations explicit so that it becomes more accessible for the participants to know them. Thus, we can say that the semantic connectivity is required for obtaining the goal of argumentations.

Second, given that discourse connectives play a crucial role in hanging scattered discourses together as a whole, when an argumentation is defined as a sequence

(or sequences) of discourses, discourse connectives are helpful linguistic evidence for studying, for example, how a localized argumentation relative to a given cultural group is organized, whether different cultural groups use the discourse connectives in different ways, and even if for some exotic cultural groups that does not use discourse connectives at all, it would be theoretically fruitful to go into their distinct ways of integrating the discourses as an argumentation. Thus, we can say that the structural connectivity contributes to the organization of argumentations.

Third, Generalized Argumentation argues that "only in the cognitive context can the meaning of a given discourse be interpreted" ([14]), and the RT theorists, as we have already seen in section 4, give an appealing theory of how the cognitive connectivity of connectives contributes to (cognitive) context-sensitive discourse interpretation. In this sense, we can say that the cognitive connectivity is most crucial to understanding the discourses comprising an argumentation.

If the connectivity of discourse connectives is methodologically illuminating for the study of generalized argumentation, how can it be so? Our answer is this: the three kinds of connectivity play a role as the reference in revealing how discourse connectives used by people living in a given cultural field can be argumentatively interpreted. In other words, through the analysis of the semantic, structural and cognitive connectivity of the discourse connectives used in the cultural field we can show how these discourse connectives are used for an argumentative purpose. We shall now turn to outline a general method through a particular case "THEREFORE".

We suppose that our logicians working in a given cultural context recorded an argumentation expressed by the following sequence of discourses (S_1–S_5), some discourse connectives (DC_1–DC_3), and a connective which may represent *THEREFORE*:[23]

S_1	DC_1	S_2	DC_2	S_3	DC_3	S_4	*THEREFORE**[24]	S_5

Chart.1

As we have specified in section 2, the semantic connectivity of connectives corresponds to the contrastive, elaborative and inferential relation between discourse segments. Obviously, the inferential relation often couched in THEREFORE is, among the others, most intimately related with the argumentation understood within the mainstream culture: when THEREFORE connects some premises and a conclusion, we can say that this connective is argumentatively interpreted, because an argumentation

[23] "*THEREFORE*" just represents a general concept which may be instantiated by our familiar connectives such as "therefore", "thus", "hence", "consequentially", "so", etc. We do not assume that the connectives exactly used in this cultural context have one-to-one counterparts in English.

[24] "*THEREFORE**" is a particular connective used in this cultural context for instantiating the general concept of "THEREFORE".

is widely known as being composed of some premises and a conclusion. However, due to the fact that the generalized argumentation is no longer an inferential process from some sentences (premises) to another (a conclusion) but a sequence of discourses in pursuit of a binding agreement between arguers, we cannot still say that a connective is used for a generalized argumentation if it signals the inferential relation between premises and a conclusion. Thus, we need some other way to characterize the argumentative orientation of THEREFORE*.[25]

Our solution is this: *based on its semantic connectivity, the THEREFORE* in the sequence "S_1–S_5" is argumentatively used in a given cultural field if and only if there is an S_6 following from S_5 and making manifested, in one way or another, the binding agreement about S_5 between the arguers.* See the following chart:

Chart.2

Several remarks are necessary. First of all, the fact that the goal of a generalized argumentation is achieved is made explicit by S_6 because S_6 is the evidential counterpart to the binding agreement on S_5: S_5 is what is agreed upon by the arguers and S_6 is the manifestation of this agreement. Second, S_6 can not only be utterances like "OK*", "I AGREE*", "ALL RIGHT*", "LET'S DO IT TOGETHER*", "YOU ARE RIGHT*" (etc.)[26] but also be actions. Imagine that the speaker convincingly argues, "……, THEREFORE*, YOU MUST GO AWAY", and then the addressee goes away. The addressee's action of going away manifests the binding agreement about "YOU MUST GO AWAY". Third, the semantic connectivity expressed by "THEREFORE*" indicates the argumentative relation between a partial sequence of discourses (S_1–S_4) and the other partial sequence of discourses (S_5–S_6) in which S_6 is the manifestation of the binding agreement about S_5. This manifestation can reflect arguers' understanding of the meaning of S_5, and more importantly, this manifestation makes it perspicuous that the connectivity of "THEREFORE*" in question is **semantically** relevant. Thus, by claiming that the semantic connectivity of THEREFORE* enables it to be argumentatively used, we mean that such semantic connectivity enables THEREFORE* to connect S_1–S_4 with S_5–S_6 in which S_6 follows from and manifests the content of S_5.

[25] Put differently, the semantic connectivity expressed by "THEREFORE*" must not be explained as "inferential relation" as we usually conceive of in non-generalized argumentation. It must have a new sense in Generalized Argumentation.

[26] Like in the case of "*THEREFORE**", these capitalized utterances are the ones used in the cultural context, instantiating the general concepts which can be exemplified by our familiar English utterances namely "OK", "I agree", "All right", "Let's do it together", "You are right".

Now we turn to the structural connectivity of THEREFORE*. Our question is how the structural connectivity contributes to the argumentative use of THEREFORE* which makes a generalized argumentation including THEREFORE* go in a structurally organized way. Obviously, as regards the orthodox notion of argumentation, the structural connectivity allows THEREFORE* to be argumentatively used because it glues premises and a conclusion. Just as what we have seen in the case of semantic connectivity, the structure of generalized argumentation is described not as "premises-conclusion" but as the sequence of discourses beginning with "arguers' disputes over an issue in a given context and ending up with reaching consensus, eliminating or shelving the dispute" ([14]). Put more simply, a generalized argumentation is a "disputes-consensus" sequence of discourses. So, when we attempt to explain the argumentative use of THEREFORE* in virtue of its structural connectivity, we need to specify that its structural connectivity allows the "disputes-consensus" sequence of discourses orderly glued. Our specification includes two parts:

Positive Part: *based on its structural connectivity, the THEREFORE* in the sequence "S_1–S_6" is argumentatively used in a given cultural field if and only if "S_1–S_4", "S_5" and "S_6" respectively and orderly correspond to the bearers of "DISPUTES", "CONSENSUS", and "A MANIFESTATION OF CONSENSUS".* See the Chart. 3:

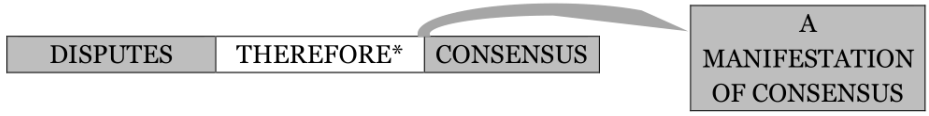

Chart.3

Negative Part: *based on its structural connectivity, the THEREFORE* in the relevant sequence is argumentatively absent in a given cultural field if and only if the status of "S_5" as the "CONSENSUS" is uncertain and "S_6" corresponding to "A MANIFESTATION OF CONSENSUS" turns out to be absent.* See the Chart. 4

Chart.4

By Positive Part it is easy to see how the structural connectivity of THEREFORE* contributes to its argumentative use: it enables the putative components of a generalized argumentation, namely "DISPUTES", "THE CONSENSUS" and "A MANIFESTATION OF CONSENSUS", to be regimented into a sequence of discourses in an ordered way.

By Negative Part we intend to evince that, based on its structural connectivity, the argumentative absence of THEREFORE* is tantamount to the absence of a complete structure of generalized argumentation. That is to say, without THEREFORE* our doubt or uncertainty arises about whether S_5 is indeed the bearer of the "CONSENSUS" since without the discourse marker THEREFORE* it is unclear whether the arguments given by some arguer really end up with S_5. The arguer might continue to produce another discourse as her final " CONSENSUS". Owning to such uncertainty about the status of S_5 it would thus be considerably difficult to secure THE MANIFESTATION OF CONSENSUS.

Finally, we go into the cognitive connectivity of THEREFORE*. As we have shown in a previous example:

α. Lenard can open Jane's safe (A). **So**, he knows the combination (B).

by pointing out that the hearer is expected to follow an inferential route in which the segment B is a conclusion inferred from the segment A which is the premise in the inference, the speaker of α is indicating that the segment B is relevant by virtue of being a contextual implication. If this contextual effect is achieved with the least cognitive processing efforts, the segment B secures optimal relevance. Thus, the cognitive connectivity of a connective can be said to consist in guiding the hearer to follow the inferential route towards the optimal relevance. This is also how it enables the connective in question to be inferentially, or say, argumentatively used. Just as what we have seen in the above two cases, given the difference between the orthodox notion of inference and the notion of generalized argumentation, it would not be workable to directly apply our current analysis of the cognitive connectivity in question to the THEREFORE* used in a given cultural field from the perspective of Generalized Argumentation. However, it does not mean that, on the basic idea about optimal relevance, we cannot specify how the cognitive connectivity allows the THEREFORE* of a given cultural field to be argumentatively used.

Our specification is this: *based on its cognitive connectivity, the THEREFORE* in the relevant sequence is argumentatively used in a given cultural field if and only if there is an argumentative route T guided by the THEREFORE* in which the CONSENSUS could secure its optimal relevance in the argumentative sequence of discourses.* See the chart. 5:

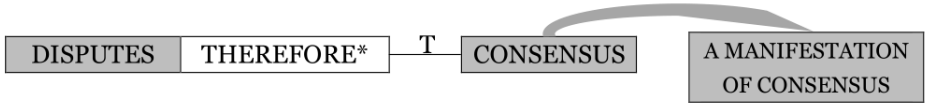

Chart.5

By "CONSENSUS could secure its optimal relevance" we mean that the CONSENSUS, namely the very contextual implication from the DISPUTES, could be reached

with the least cognitive processing. Some remarks are necessary.

Remark 1 "CONSENSUS **could** secure its optimal relevance" does not exclude the possibility that the CONSENSUS does not secure the optimal relevance. The THEREFORE* may be used in an untimely and misplaced way relative to some argumentative context. For example, the speaker and hearer do not know that they have no common ground over what the intended CONSENSUS is: the speaker thinks of "we must take an umbrella for walking dog" as the commonly intended CONSENSUS between her and the hearer, while the hearer thinks of "we must take an umbrella for walking" as the commonly intended CONSENSUS. Thus, if, after some clarifications from the two, they establish a common ground that the intended CONSENSUS is "we must take an umbrella for walking" as the hearer initially thinks of, this very CONSENSUS initially could not secure the optimal relevance by the speaker's original application of THEREFORE*, because it was initially applied not to this very CONSENSUS but to the speaker's initially intended CONSENSUS. In this case, the hearer would be initially at more cognitive expense: he needs to put more cognitive efforts to figure out the contextual effects produced by the discourses about "walking dog" than those about the discourses just about "walking".

Remark 2 What count as a timely and fitting use of any discourse connective is culturally context-dependent. In the relevance-theoretic picture, when a discourse connective is used, the speaker intends it to guide the hearer to choose the argumentative route in which the kind of contextual effects produced can be balanced by the hearer's processing costs so that the optimal relevance is achieved. Then, one of the important empirical works the logicians must do is design the tests to see whether, facing the discourse sequence without the THEREFORE* and the original sequence (including the THEREFORE*), the subject in a given cultural field will take different time to affirm the derivation of the CONSENSUS. This kind of comparison can not only be carried out between the different individuals in a certain cultural group but also be done between different cultural groups.

Remark 3 Relative to the study of generalized argumentation, the cognitive connectivity construed in the relevance-theoretic account seems to be methodologically more promising in contrast to the other two kinds of connectivity. Given the LRP proposed by Generalized Argumentation, logicians are urged to undertake empirical researches on logic in a non-mainstream cultural context. And as is indicated in Remark 2, the relevance theory of discourse connectives offers a feasible and probably fruitful method to conduct the related empirical researches. How such method can be employed for some concrete questions concerning the generalized argumentation, such as whether there would be divergence between different cultural groups over the cognitive efforts relative to the same contextual effect, may be an engaging question to explore in future work.

6 Conclusion

In this paper, we first introduce three main approaches to discourse connectives. Though all of them agree that discourse connectives have connectivity, they spell out it in different theoretical considerations and give three kinds of connectivity.

Fraser concentrates on the syntactic, semantic, and functional description of the expressions from a quite general point of view. As far as he is concerned, the connectivity of a discourse connective lies in its function of signalling the semantic relationship between the discourse segment which hosts it and the preceding discourse segment. We call it "semantic connectivity".

Schiffrin's study on discourse connectives serves as part of the study of discourse coherence. In Schiffrin's coherence-based account, the connectivity of discourse connectives refers to both the function of a kind of "discourse glue" which integrates utterances on the planes of talk and the function of a kind of "grease" which makes the discourse run smoothly. We call it "structural connectivity".

Blakemore's approach to discourse connectives must be understood within RT. In RT, the connectivity of a discourse connective consists in the constraint it imposes on the hearer's contextual information selection such that the hearer's strategy of interpreting the utterance which is introduced by the connective achieves the greatest number of contextual effects with the least cognitive processing efforts (or in other words, it achieves the optimal relevance). Therefore, we call it "cognitive connectivity".

Then, we discuss why and how such three kinds of connectivity of discourse connectives can contribute to the study of Generalized Argumentation. The semantic, structural and cognitive connectivity can allow discourse connectives relative to a given cultural field to be argumentatively used in their own way. Given the example about THEREFORE*, here are what we have shown generally:

The semantic connectivity allows a discourse connective to be argumentatively used by the connective connecting the partial sequence of discourse (S_1–S_4) with the partial sequence of discourse (S_5–S_6) in which S_6 follows from and manifests the content of S_5.

The structural connectivity allows a discourse connective to be argumentatively used by the connective enabling the putative components of a generalized argumentation, namely "DISPUTES", "CONSENSUS" and "A MANIFESTATION OF CONSENSUS", to be orderly regimented into a sequence of discourses.

The cognitive connectivity allows a discourse connective to be argumentatively used by the CONSENSUS securing optimal relevance.

There is still much to say about the role of discourse connectives for Generalized Argumentation. Here is one. As we have stressed before, a generalized argumentation is no longer "premises-conclusion" secured by formal inference rules but discourse sequences guided by Four Principles: "Context-understanding Princi-

ple", "Argumentative Function Principle", "Expression Principle" and "Partitional Strategy Principle".There is thus an obvious question: what is the role of discourse connectives for these guiding Principles? We shall sketch our answer as follows:

For "Context-understanding Principle", the use of discourse connectives leads arguers to find out the context which are contributing to an argumentation. In other words, the semantic, structural or cognitive connectivity of a discourse connective helps us to pick up the context relevant to the argumentation in question.

For "Argumentative Function Principles", our use of discourse connectives contributes to evaluating whether the produced discourses bear the optimal function for achieving the goal of a given argumentation. That is to say, if a discourse connective is adequately used in a given cultural context, the function of the produced discourses would be easier to be optimal for achieving an argumentative goal.

For "Expression Principle", if the arguers in a given cultural context use discourse connective actually in virtue of their own social norms and verbal preference, we can say that they comply with "Expression Principle". In some certain cultural context, the arguers may entirely ignore the use of discourse connectives along all the way, but if it is so on grounds of their own social norms, their argumentation can still be thought to abide by Expression Principle.

For "Partitional Strategy Principle", it is fairly possible that some social norms in a certain cultural context regulate how to partition the discourse sequences for optimally achieving an argumentative goal by using some discourse connectives. By collecting these putative social norms about the use of discourse connectives, we may well see how the arguers in this cultural context distinguish the discourse sequences for achieving the consensus of attitudes.

We flesh out our answer in future work.

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语篇连接词的连接性及其在广义论证中的作用

胡扬

摘　要

语篇连接词研究有三种主要理论进路：弗雷泽（Fraser）的一般理论、希夫林（Schiffrin）的连贯论以及布莱克莫尔（Blakemore）的关联论。三者认同语篇连接词的连接性，却对其给出了不同的解释。这种解释差异的根源在于，语篇连接词在三种理论框架下中有不同的功能设定：在一般理论里其用于标示语篇元素的语义关系，在连贯论里其用于建立文本结构，而在关联论里其用于引导与话语解释相关的认知推理。因此，语篇连接词实际上有三种连接性：语义连接性，结构连接性和认知连接性。这三类语篇连接性有助于理解鞠实儿提出的“广义论证”，即论证是语篇序列。

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