

Discourse connections

6.1 Introduction

The most salient phenomenon of discourse is the fact that sentences or utterances are linked together. For this “connectedness” and “texture”, which is an indispensable prerequisite for successful communication, two concepts are used: cohesion refers to the connections which have their manifestation in the discourse itself. Among these explicit cohesive ties, referential elements realized by pronouns have the function of pointing backward or forward in discourse (Section 6.2). Coherence, on the other hand, pertains to the connections which can be made by the reader or hearer based on knowledge outside the discourse (Section 6.3). The analysis of discourse relations between textual segments typically yields a hierarchical organization, as pointed out by Rhetorical Structure Theory (Section 6.4). This approach served as the starting point for further studies, which proposed alternative ordering principles of discourse relations and demonstrated that connections occur on several textual levels simultaneously (Section 6.5). Within that framework, connectivity theory investigates discursive texture on the basis of the dialogic and the discursive principles, differentiating between the three levels of conjunction, adjunction and interjunction (Section 6.6).

6.2 Cohesion

This first section deals with the connections evident in the discourse, with **cohesion**. In a sequence like “Mary got pregnant. She married” the fact that *she* refers to *Mary* is an example of cohesion, while the interpretation that her pregnancy was the reason for her to marry is an example of coherence (see Section 6.3). Both cohesion and coherence are included in de Beaugrande and Dressler’s (1981) seven standards of textuality (see Section 3.7).

6.2.1 Types of cohesive ties

Michael Halliday and Ruqaiya Hasan (1976), who were already introduced in Section 3.6 within the framework of systemic functional linguistics, were the first to analyze cohesion. They distinguished between five types of cohesive ties, which constitute texture above the level of individual syntactic units.

a. *Substitution*

Substitution is the replacement of a word(group) or sentence segment by a “dummy” word. The reader or hearer can fill in the correct element based on the preceding clause(s). Three frequently occurring types are nominal (1), verbal (2) and clausal (3) substitution, depending on the grammatical unit that is replaced.

(1) These biscuits are stale. Get some fresh *ones*.

(2) A: Have you called the doctor?
B: I haven't *done* yet, but I will *do*.
A: Well, I think you should *do*.

(3) A: Are they still arguing in there?
B: No, it just seems *so*.

b. *Ellipsis*

Ellipsis is the omission of a word or part of a sentence which can be recovered from a neighboring clause. Ellipsis is closely related to substitution and can be described as “substitution by zero”. The division that is normally used is nominal (4), verbal (5) and clausal ellipsis (6).

(4) These biscuits are stale. Those are fresh.

(5) He participated in the debate, but you didn't.

(6) Who wants to go shopping? You?

c. *Reference*

Reference concerns the relation between a discourse element and a preceding or following element (see Section 6.2.2). Reference deals with a semantic relationship, whereas substitution and ellipsis deal with the relationship between grammatical units: words, sentence parts and clauses. In the case of reference, the meaning of a dummy word can be determined by what is imparted before or after the occurrence of the dummy word. In general, the dummy word is a pronoun.

(7) I see John is here. *He* hasn't changed a bit.

- (8) *She* certainly has changed. No, behind John. I mean Karen.

But reference can also be achieved by other means, for instance, by the use of a definite article or an adverb, as in the following examples:

- (9) A man crossed the street. Nobody saw what happened. Suddenly *the* man was lying there and calling for help.
- (10) We grew up in the 1960s. We were idealistic *then*.

d. *Conjunction*

Conjunction is the relationship which indicates how the subsequent sentence or clause should be linked to the preceding or the following (parts of the) sentence. This is achieved by the use of conjunctions (also known as connectives, e.g. *and*, *but*), adverbs (e.g. *moreover*, *however*) or prepositional phrases (e.g. *in addition*, *on the other hand*). The following are examples of four frequently occurring relationships: additive, temporal, causal and adversative. The relationship can be hypotactic (as in the a-examples, which combine a main clause with a subordinate clause or phrase) or paratactic (as in the b-examples, which have two main clauses).

1. additive

- (11) a. *Besides* being mean, he is also hateful.
 b. He no longer goes to school *and* is planning to look for a job.

2. temporal

- (12) a. *After* the car had been repaired, we were able to continue our journey.
 b. The car was repaired. *Afterwards* we were able to continue our journey.

3. causal

- (13) a. He is not going to school today *because* he is sick.
 b. Ann got a beautiful job last year *and* now she is rich.

4. adversative

- (14) a. *While* June was wet, July was dry.
 b. June was wet. *But* July was dry.

e. *Lexical cohesion*

While the previously mentioned types a. to d. belong to grammatical cohesion, lexical cohesion refers to the links between the content words (nouns, full verbs, adjectives, adverbs) which are used in subsequent segments of discourse. Two types of lexical cohesion can be distinguished: **reiteration** and **collocation**.

Reiteration includes not only repetition but also synonymy. Reiteration can also occur through the use of a word that is systematically linked to a previous one, for example, *young* and *old*. In general, reiteration is divided into the five following types.

1. **repetition** (often involving reference)

(15) A *conference* will be held on national environmental policy. At this *conference* the issue of salination will play an important role.

2. **synonymy** (often involving reference)

(16) A *conference* will be held on national environmental policy. This *environmental symposium* will be primarily a conference dealing with water.

3. **hyponymy/hyperonymy** (e.g., the relation of *flower* to *tulip* and vice versa, subordination and superordination)

(17) We were in town today shopping for *furniture*. We saw a lovely *table*.

(18) Did you see the wooden *igloos* in this new town? Oh, they build even stranger *houses* here.

4. **meronymy** (part-whole relationship)

(19) At its six-month checkup, the *brakes* had to be repaired. In general, however, the *car* was in good condition.

5. **antonymy** (opposite meaning)

(20) The *old* movies just don't do it anymore. The *new* ones are more appealing.

Collocation, the second type of lexical cohesion, deals with the relationship between words on the basis of the fact that these often occur in the same surroundings. Some examples are *sheep* and *wool*, *congress* and *politician* or *college* and *study*.

(21) *Red Cross* helicopters were in the air continuously. The *blood bank* will soon be desperately in need of *donors*.

(22) The hedgehog *scurried* across the road. Its *speed* surprised me.

In the five main types of cohesion (substitution, ellipsis, reference, conjunction and lexical cohesion), the interpretation of a discourse element is dependent on another element that can be pointed out in discourse. In (22), for instance, the correct interpretation of the word “speed” is only possible by reading the preceding sentence within which the word “scurried” is of primary importance.

The **texture** of discourse can oscillate between the two poles of “tight” and “loose”. Tight texture corresponds with a high density of cohesive ties in a text, while loose texture implies the presence of fewer cohesive devices. As regards paragraph structuring in a text, the texture is tighter within paragraphs than across paragraphs, since topics may drift or change from one paragraph to the next. Accordingly, it is reasonable to regard texture as a scalar phenomenon, since

it can vary within a text or between different genres. For instance, children's bedtime stories characteristically contain many cohesive ties in the form of lexical repetitions, which make the narrative easier to understand. Legal texts such as laws tend to use many repetitions to prevent misunderstanding and misinterpretation. In experimental poetry, on the other hand, relatively few cohesive ties may be present, owing to the interpretative openness of such texts, as shown by Example (9) in Section 4.5.

In her investigation of lexical cohesion across genres, Tanskanen (2006) shows that face-to-face conversations and spoken monologues (e.g. prepared speeches) have similar preferences. At the same time, their lexical cohesive profiles differ from written monologues (e.g. academic writing): the two spoken genres show more simple lexical repetition but less collocation than academic writing. Moreover, the spoken genres contain a higher number of cohesive ties in total, which constitute an increased cohesive density. However, due to more production time, academic writing shows a more varied use of cohesion, characterized by a wider range of cohesive ties. The cohesive profile of computer-mediated dialogue (e.g. mailing lists) is closer to spoken discourse, owing to its strongly interactive organization.

Hoffmann (2012) demonstrates that personal weblogs make use of cohesive strategies similar to written monologic texts, as opposed to spoken dialogic ones. This means that weblogs contain fewer substitutions and repetitions than spoken dialogues, whereas collocation and conjunction are relatively frequent in weblogs.

6.2.2 Referential elements

Among the various types of cohesion, referential elements have received particular attention in discourse studies, so they merit closer examination. Pronouns in discourse are “search instructions”, since they point to other phrases or passages in the same text for their interpretation, as indicated by the following two examples.

(23) John said that *he* was not going to school.

(24) When *he* came in John tripped over the blocks.

Pronouns with backward reference, as in the case of (23), are subsumed under the term **anaphora**. The term is derived from a Greek word which means “to lift up” or “to bring back”. Pronouns with forward reference, as in (24), are covered by the term **cataphora**: *cata-* is the opposite of *ana-*. Both types are summarized by the superordinate term of **endophoric** reference. In the examples mentioned here, “he” can also refer to another person that is not explicitly mentioned in the preceding or following discourse but is merely present in the situational context. Then it is called **exophoric** reference, which is equivalent to deixis (see Section 7.3).

Anaphoric relations are not only found when personal pronouns are used. See the following Examples (25) and (26), which contain a “pro-verb” and a demonstrative pronoun, respectively. Example (26) additionally illustrates the phenomenon of “extended” reference: a demonstrative pronoun can refer not only to single phrases but also to complete clauses, which could even be extended into paragraphs.

(25) If John is not going to school, then I won't *do* it either.

(26) They broke a Chinese vase. *That* was careless.

The research into anaphora is focused on the following question: How are anaphoric pronouns interpreted and which factors play a role in the interpretation process? Compare the following discourse fragments.

(27) Mary said nothing to Sally. She would not understand the first thing about it.

(28) Mary told Sally everything. She could not keep her mouth shut.

In (27) “she” can only refer to “Sally”. In (28) both references are grammatically possible. While in (29), “she” can only refer to “Sally”.

(29) Mary told Sally everything. She could not keep her mouth shut and Mary really told her off for doing it.

An interesting phenomenon can be observed in the following sentences.

(30) Julius left. He was sick.

(31) He was sick. Julius left.

(32) He was sick. That's why Julius left.

In (30) “he” can refer to Julius. In (31) it is much more plausible that “he” refers to someone other than Julius, while in (32) “he” can be interpreted as referring forward to “Julius”. These differences can be explained by assuming an interpretation principle suggested by Peter Bosch (1983).

(33) **Principle of natural sequential aboutness**

Unless there is some reason to assume the contrary, each following sentence is assumed to say something about objects introduced in previous sentences.

On the basis of this principle, according to Bosch (1983), the “he” in (31) cannot be interpreted as Julius. The fact of Julius leaving says nothing about the preceding sentence: “He was sick.” In (32), on the other hand, the word “that” indicates that something is going to be said which is linked to the preceding sentence. This indication is reinforced by the reader's knowledge that one consequence of “being

sick” is found in the words which follow, that is, that sickness can be a reason for leaving. It is for this reason that the sentence about Julius can be linked to the preceding sentence. This interpretation is, therefore, very much dependent on the reader’s general knowledge. This can also be seen in the following example, in which the relation is the same as in (32).

(34) He screamed. That is why Julius left.

As someone’s screaming is not usually a reason for that same person’s leaving, it can be assumed on the basis of the interpretation principle that the second sentence does not say anything about the person in the first sentence. Thus, the “he” in (34) cannot be interpreted as referring to “Julius”.

Experimental research has determined which factors play a role in the interpretation of anaphora. In an experiment conducted by Susan Ehrlich (1980), subjects were given sentences of the following type.

(35) Steve blamed Frank because he spilled the coffee.

(36) Jane blamed Bill because he spilled the coffee.

The time it took for the subjects to determine which name was the antecedent for the anaphoric pronoun “he” was measured. Most of the subjects determined that “he” in sentence (35) referred to Frank. This decision did not require grammatical knowledge but general knowledge. Spilling coffee is clumsy and inconvenient and is, therefore, a reason for blame. If Steve is blaming Frank, then it is most likely the latter who spilled the coffee. The use of general knowledge is a pragmatic factor. In (36) this knowledge is not necessary for the interpretation of “he”. Knowledge of grammar makes it clear that “he”, being a male-gender pronoun, can only refer to Bill.

If pragmatic factors always play a role in the interpretation of anaphora, then the subjects would have spent equal amounts of time in determining the antecedent for both sentence (35) and (36). If, however, readers first apply their grammatical knowledge and only then their general knowledge, if necessary, then the interpretation of (36) will take less time than that of (35). After all, in the case of (36) grammatical knowledge is sufficient. The experiment did indeed prove that the interpretation of (36) took less time than that of (35). This led to the conclusion that pragmatic factors only play a role when grammatical clues are lacking.

Finally, it must be kept in mind that the linear organization of a piece of discourse is a prerequisite for the interpretation of referential elements. In the case of hypertexts, which have a non-linear layout, reference across textual nodes is problematic, since authors cannot predict the order in which the nodes are read by recipients (see Section 4.6).

6.3 Coherence

The notion of **coherence** was introduced only a few years after cohesion. It was defined as a continuity of sense that is not explicitly present in the text but cognitively constructed by readers and hearers (de Beaugrande and Dressler, 1981; Brown and Yule, 1983). In principle, the presence of cohesion is not necessary for a sequence of sentences to be understood as coherent, as demonstrated by Example (37).

- (37) Bill: What time is it?
 Joan: The postman's been already.

In this case, Joan's reply does not contain any cohesive ties but can still be understood as a coherent response to Bill's question owing to common ground based on shared knowledge. Furthermore, according to the cooperative principle (see Section 2.4), Bill will assume that Joan's reply is a relevant answer to his inquiry, so that he can draw the necessary inferences. For instance, if both Bill and Joan know that the postman always comes to their house at 11 a.m., then the answer indicates that it is presently after 11 o'clock.

However, real-language data show that instances of coherence without cohesion are quite difficult to find, since cohesion strongly supports the construction of coherence. Interlocutors strategically use cohesive devices to make sure that coherence can be established. As a result, coherence construction can be considered a collaborative and interactive process between addresser and addressee. **Collaboration** is not restricted to dialogue but also occurs in monologic texts, as writers anticipate readers' inferencing strategies and employ cohesive devices that lead recipients to the intended interpretation. During the reception process, readers collaborate with writers by actively searching for such cohesive clues (Tanskanen, 2006).

Coherence is thus a result of discourse comprehension strategies and can be further described by a few general assumptions (Bublitz, 2006): language users have intuitions about coherence, which means that they can judge whether a sequence of sentences is more or less coherent. For instance, if the sentences of a fairy tale are rearranged, coherence is likely to disappear. In addition, interlocutors expect coherence as a **default assumption**, so that they permanently try to make sense of discourse even if connections are not immediately obvious, as in the case of Example (37). To some extent, coherence is variable and scalar, since its construction depends on the personal experiences and world knowledge of individual recipients, which can vary considerably. For instance, technical texts may require some expert knowledge for the establishment of coherence. Accordingly, the same recipient may construct coherence more easily in a second reading of a text, after additional knowledge has been acquired.

If propositions are the building blocks of discourse (see Section 5.2), then discourse relations are the cement between the blocks. Below are some examples from the many different kinds of discourse relations that exist. We are looking at the relation between the two sentences in each discourse fragment.

- (38) a. The government has taken emergency measures. They will become effective next year.
- (39) a. The president will probably run for reelection next year. This was announced yesterday by the White House press secretary.
- (40) a. The president was not available for comment. At that particular moment he was receiving his Chinese counterpart.

In (38a) the follow-up sentence elaborates on one constituent, “measures.” In (39a) the second sentence encapsulates the first sentence. In (40a) the situation is different: the follow-up provides an explanation for the content of the first sentence.

The relations in (38a) and (39a) add very little to the meaning of the sentences. In (40a), however, a meaning element is added. This can be seen if the sentences are rewritten as one single sentence. Only in (40b) will a meaning-laden conjunction be necessary.

- (38) b. The government has taken emergency measures which will become effective next year.
- (39) b. The White House press secretary announced yesterday that the president will run for reelection next year.
- (40) b. The president was not available for comment as he was receiving his Chinese counterpart at that particular moment.

Research into discourse relations has concentrated on those links between sentences which bear meaning. This is not the case in Examples (38a) and (39a). This discourse does not contain a meaningful link between the main sentences and the relative clause in (38b) and the object clause in (39b). The link in Example (40b), however, does have its own meaning: *reason*.

In the research done into (meaning-bearing) discourse relations, two basic types are distinguished: the additive relation and the causal relation. The additive relation can be traced back to a conjunction and as such is related to various types of coordination. Among the coordinating relations are those which can be represented by words such as *and* (conjunction or addition), *but* (contrast), *or* (disjunction) or an equivalent of these words. Below is an example of a contrast relation.

- (41) John bought a present for his mother. (But) he forgot to take it with him.

A causal relation can be traced back to an implication, and is as such related to subordination. The most important causal relations are the seven types distinguished in traditional grammar:

- (42) cause
John did not go to school. He was sick.
- (43) reason
John did not come with us. He hates parties.
- (44) means
Would you mind opening the door? Here is the key.
- (45) consequence
John is sick. He is not going to school.
- (46) purpose
The instructions should be printed in capital letters. It is hoped that in this way, difficulties in reading them will be avoided.
- (47) condition
You can get a job this summer. But first you have to pass your exams.
- (48) concession
He was rich. Yet he never gave anything to charity.

These discourse relations can be distinguished as follows. A cause indicates a consequence that is outside the domain of volition. A reason always indicates that a volitional aspect is present. A means is a deliberate utilization of an instrument in order to achieve a volitional consequence. A purpose is a volitional consequence. A condition is a necessary or possible cause or reason for a possible consequence. A concession is a cause or reason for which the expected consequence fails to occur, or the yielding of a point.

Discourse relations can be grouped or classified according to specific characteristics which they share. One of these characteristics is the **semantic-pragmatic dimension**. The literature includes various definitions of these terms. The following are fairly common. Semantic relations connect segments on the basis of their propositional content, the locutions of the segment, linking the situations that are referred to in the propositions. Pragmatic relations connect segments on the basis of their illocutions (see Section 2.3).

A good example of a semantic relation is (43). A hearer can interpret John's hating parties as a reason, without having to deal with the illocutions of the segments. It is the two situations in the consecutive sentences that are related: the situation "hating parties" in the last sentence is a reason for the situation "not

coming along” in the first sentence. An example of a pragmatic relation can be seen in the following sequence.

(49) I’ll get the groceries. I have to go shopping anyway.

In this example, the relation does not pertain to the two situations in both sentences, but to the illocutions. After all, “going shopping” in the last sentence is not necessarily a reason for “getting the groceries” in the first sentence as far as its propositional content is concerned. If this were the case, then anyone who was ever to go shopping would also get the groceries.

It is, however, sometimes difficult to draw a precise boundary between the semantic and pragmatic relations. For example, is the relation in (48) semantic or pragmatic? The relation is a semantic one in a world where it is very unconventional for someone who is rich not to make donations to charity. But the relation is pragmatic when the speaker has the apparent intention of making an accusation.

A special subset of pragmatic relations is rhetorical relations. These are the relations with which speakers or writers apparently have the intention of bringing about a change in opinion, position or behavior of readers or hearers. Usually the five following rhetorical relations are distinguished.

- (50) evidence
No single measure has had an effect. The traffic jams are still as bad as ever.
- (51) conclusion
The window is open. There must have been a burglar.
- (52) justification
Now I am throwing in the towel. I’ve tried it ten times.
- (53) solution
No single measure has had an effect. With this proposal our goals will be achieved.
- (54) motivation
Do you want to know more? Send us a stamped self-addressed envelope.

Other types of pragmatic relations are distinguished in the literature as well, for example the following by Eve Sweetser (1990): **epistemic**, **speech act** and **metalinguistic** relations. Epistemic relations are pragmatic relations, expressing a writer or speaker’s conclusion based on a causal relation in reality. An example is (55), which shows that the speaker’s knowledge that the “he” has drunk a lot produces the conclusion about the headache. The connection then does not lie in the external reality, but in the mental domain of the speaker.

(55) He must have a headache. He has drunk too much.

In a speech act relation the speech act is motivated by reference to a situation constituting the reason for it, for example: “What are you doing tonight, because there is a good movie on”. Metalinguistic relations refer to discourse itself, for example: “In conclusion I would like to remark ...”

In this section various sorts of discourse relations have been presented. Section 6.4 introduces a notable theory on how to analyze these relations, while in Section 6.5 some problems and research topics concerning discourse relations are dealt with. Section 6.6 elaborates on a more recent approach entitled *connectivity theory*.

6.4 Rhetorical Structure Theory

Several attempts have been made to create a method for the analysis of discourse and discourse relations between text segments. One of the best-known proposals is the **Rhetorical Structure Theory (RST)** by William Mann and Sandra Thompson. This theory, developed in the 1980s, has its origins in work on computer-based, automatic text generation and text summarization. It considers discourse to be a hierarchical organization of text segments.

An RST analysis starts by dividing a text into minimal units, such as independent clauses. Then the connection between these units is labeled by choosing a relation name. Mann and Thompson propose a set of over 20 relations. They distinguish **subject matter relations** and **presentational relations**, a division that roughly corresponds to the semantic-pragmatic dichotomy. A schematic overview of this classification is given below.

(56) Classification of RST relations

a. *Subject matter relations*

Elaboration, Circumstance, Solutionhood, Volitional cause, Volitional result, Non-volitional cause, Non-volitional result, Purpose, Condition, Otherwise, Interpretation, Evaluation, Restatement, Summary, Sequence, Contrast

b. *Presentational relations*

Motivation, Antithesis, Background, Enablement, Evidence, Justification, Concession

Mostly, the units in a relation are either nucleus or satellite. This means that one member of the pair, the nucleus, is more essential to the writer’s purpose, while the supporting element is the satellite. A pair consisting of a nucleus and a satellite unit is called a span. Spans can be linked to other units or spans, so that the text

as a whole is connected together into a hierarchical structure. The largest span created in this manner encompasses the whole text.

Below is an example of a text and the corresponding RST diagram. The text is divided into six units, beginning with the title, indicated by numbers which have been added.

- (57)
1. Leading indicators
 2. Steep declines in capital spending commitments and building permits, along with a drop in the money stock pushed the leading composite down for the fifth time in the past 11 months to a level 0.5% below its high a year ago.
 3. Such a decline is highly unusual at this stage in an expansion;
 4. for example, in the three most recent expansions, the leaders were rising, on average, at about a 7% clip at comparable phases in the cycle.
 5. While not signaling an outright recession,
 6. the current protracted sluggishness of the leading indicators appears consistent with our prognosis of sluggish real GNP growth over the next few quarters.

Unit 4, which refers to previous expansions, forms evidence for unit 3, which states that the present declines are unusual. Units 3 and 4 together are a span that elaborates the “steep declines” that are mentioned in unit 2. Units 5 and 6 interpret the span that is formed by units 2–4. Unit 5 provides limits on the degree of interpretation, while unit 6 provides the interpretation. Finally, unit 1 is a title that prepares the reader for what is to come. Note, though, that the preparation relation was not included in the original classification.

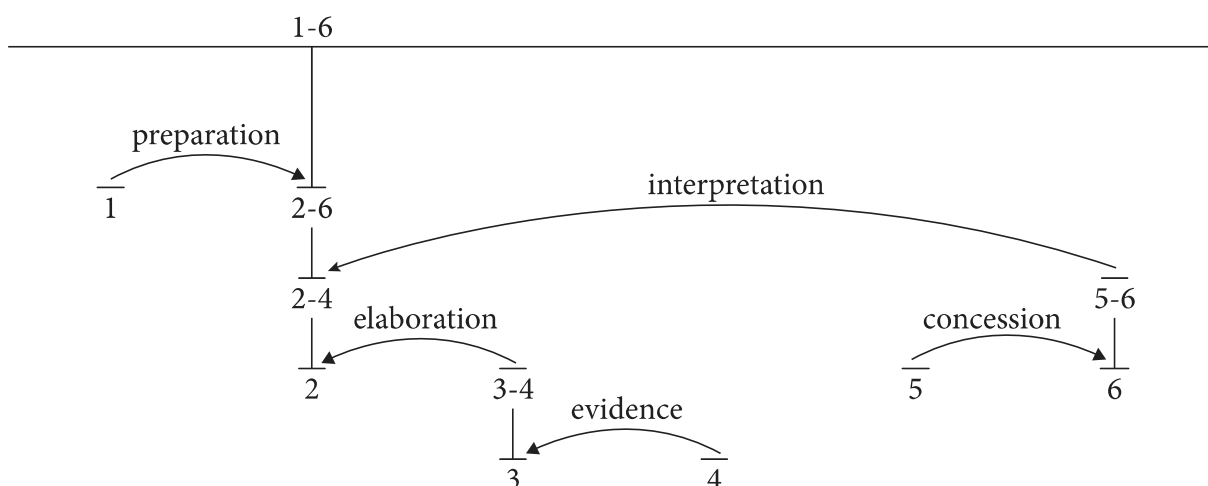


Figure 1. RST analysis of text (57)

6.5 Discourse relation research

RST has been an important and influential stepping stone in the development of discourse relation research. However, being the center of attention, it has also been the subject of debate and critique in the past few decades. In the discussion seven topics can be distinguished that are dealt with in this section. One major point of criticism is the fact that the set of relations in RST is purely descriptive, not doing justice to the differences between specific relations, but throwing them all on two heaps. To this date, no agreement has been reached on exactly which relations and categories should be distinguished. As a result, there is no generally acknowledged standard set of relations.

Second, as often as not, a set of relations is presented without further structuring. There is no order in the classification. Sanders et al. (1992) argue that a set of discourse relations must not only be descriptively adequate, but also be psychologically plausible. In their view, the latter does not apply to, for example, RST, as the relations that Mann and Thompson distinguish are all on the same level. However, some relations (e.g., volitional cause and evidence) are more similar than others (e.g., volitional cause and contrast). Sanders et al. propose a classification based on the assumption that discourse relations are ordered in the human mind by four fundamental ordering principles which they call “primitives”:

(58) Sanders et al.’s four primitives

1. Basic operation: Each relation has a *causal* or an *additive* component.
2. Source of coherence: Each relation is coherent on *semantic* or *pragmatic* grounds.
3. Order of segments: This distinction only applies to causal relations. These have a *basic order* when the antecedent (e.g., cause) is to the left of the consequence (e.g., result) and a *non-basic order* when the antecedent is to the right of the consequence.
4. Polarity: A relation is *positive* when the basic operation connects the content of two text segments as given and *negative* when it connects the content of one of the segments with the negation of the content of the other.

The four **primitives** can be combined in order to obtain twelve classes of discourse relations. The set of relations can then be organized in terms of its own “meaning characteristics”: when a relation contains causality, it belongs to a different group than a relation that is not causal. The cause-consequence relation, for example, is defined as Basic Operation = Causal, Source of Coherence = Semantic, Order = Non-Basic, Polarity = Positive. An example of this is (59).

- (59) Last week it rained a lot in Scotland, because there was low pressure over Ireland.

A third point of attention is the definition of discourse relations, i.e., the assignment of the “correct” relation label. Owing to the vagueness of the description, it cannot be unequivocally determined which relations are applicable in an analysis. Consider the following example.

- (60) Sue is corporate president. You should take this to her.

Is this a reason relation or a conclusion? If the accent is put on the first sentence, are the relations of motivation or justification also possible? If so, a fourth problem arises: relations are applicable that in, for example, RST belong to two separate categories of relations, in this case subject matter (e.g., reason) and presentational (e.g., motivation). The view that perhaps two (or more) relations can hold at the same time is known as the **Multi-Level Hypothesis (MLH)**. In essence it argues that discourse relations can exist on more than one level simultaneously, thus on both a semantic and a pragmatic level.

Two fervent supporters of MLH are Moore and Pollack (1992). They claim that the interpretation of discourse requires the co-existence of so-called informational and intentional relations. Informational relations, corresponding to semantic relations, pertain to the relation between information in two consecutive text segments. Intentional relations correspond to pragmatic relations. They concern the notion that texts are meant to realize changes in a reader’s mental state. Moore and Pollack use the following example to prove that two relations exist at the same time. According to them, a volitional cause as well as an evidence relation applies between the two text segments: the first sentence can be both a volitional cause and evidence for the action in the second sentence.

- (61) The president supports big business. He’s sure to veto House Bill 1711.

A fifth important issue in discourse relation research is the **nucleus-satellite division**. If there is an asymmetry between the parts of a relation, e.g., if one member of the pair is more essential to the writer’s purpose, then the most important element is the nucleus. In (61), for example, the first sentence would be the satellite in case of a volitional cause or evidence relation. In additive relations such as (62), there can be two nuclei, but not necessarily. The context decides which one is the nucleus. If in the case of (62) the topic in the context is forgetfulness, then the second sentence is the nucleus. If the topic is the fact that John loves cooking, then the first sentence is the nucleus.

- (62) John prepared a pie for his parents. (But) he forgot to put it in the oven.

Sixth, there is the order of the parts. In (63), for example, the condition comes after the statement, but the reverse order is also possible, as in (64), where the concession precedes the statement. This raises some intriguing questions. Is there a marked and unmarked order of parts? And if so, under what conditions will an unmarked order appear?

- (63) You can go to that party this Saturday. But first you have to clean up your room.
- (64) He liked taking care of his sister's kids. Yet he and his wife never had children themselves.

A last issue worth mentioning is the division into explicit and implicit relations. This depends on the presence or absence of a conjunction. In the examples given above, such as (62), it is clear that the use of conjunctions is optional. Moreover, a conjunction can indicate more than one relation. Look again at Example (63), in which the word *but*, often indicating a coordinating contrast relation, marks a conditional relation. The question is under which conditions the use of conjunctions can enhance comprehensibility.

6.6 Connectivity theory

Both the formal linking devices and unexpressed discourse relations are taken into account by connectivity theory, developed by Renkema (2009a). This approach provides a “discourse grammar” that uses **connectivity** as a neutral term for any linking phenomena between syntactic units, including cohesion and coherence. Using RST as a point of departure, it proposes an alternative taxonomy of connections that relies on two fundamental principles and three levels of connections, which will be introduced in the following.

The theoretical framework of connectivity theory comprises the discursive and the dialogic principles. According to the **discursive** principle, discourse is regarded as an expanded macroproposition (see Section 5.4). This means that discourse is the result of *intraclausal* connections used *interclausally*. Consider the following examples, which illustrate the transformation from syntactic structures into discourse.

- (65) Alcoholic people may die early.
- (66) If people are alcoholic they may die early.
- (67) There is much danger in alcoholism. It can lead to early death.

Example (65) is a simple sentence that establishes a link between the two concepts of alcoholism and early death. In (66) this connection appears in the form of a complex sentence containing a conditional clause with *if*. In (67) this cause-effect relation is verbalized by two separate main clauses. This process of expansion could be further continued, with the result of an entire paragraph on the topic.

The **dialogic** principle refers to the permanent interaction between text producer and recipient. It is based on the premise that audience orientation is significant in both written and spoken discourse, since both writers and speakers try to inform, persuade, instruct, etc. the readers and hearers. The addresser to some extent anticipates the addressee's expectations and reactions and on this basis proceeds after the end of syntactic units. If such implied reader responses are formulated as questions, the written text appears as a dialogue (see Section 4.3). The anticipated questions do not only depend on the factual content but also on genre conventions. For instance, in short stories and novels the implied reader might ask "What happened next?", while in advertisements and commercials the reader could be expected to pose the question "Why should I buy this product?". In order to separate these reactions from actual questions in the interrogative mood, these assumed inquiries are called *quaestios*. By analogy with "transition-relevance places" in conversation analysis (see Chapter 9), the positions in discourse that may trigger a *quaestio* can be labeled "reaction-relevance places". Of course, this theoretical approach does not assume that all continuations can be accurately predicted but merely argues that discourse can be generally understood in dialogic terms.

On the basis of these two principles, discursive connectivity can be investigated at the three levels of conjunction, adjunction and interjunction, each of which can again be subdivided into three further categories (see Table 1). It should be noted, though, that the term *conjunction* here has a wider meaning than in the model of cohesion by Halliday and Hasan, as outlined earlier (Section 6.2).

Table 1. Three levels of connectivity (adapted from Renkema, 2009a)

Connectivity level	Definition	Subdivisions
1. Conjunction	linking form to form	a. Location b. Ordination c. Combination
2. Adjunction	linking information to information	a. Elaboration b. Enhancement c. Extension
3. Interjunction	linking addresser to addressee	a. Expressing b. Processing c. Impressing

The threefold distinction can be basically illustrated by metaphorically regarding discourse as masonry, consisting of clauses that form the building blocks. Conjunction covers the links between segments and thus the cement between the building blocks; adjunction refers to the content features of segments and thus to different materials of the building blocks; and interjunction means the ways in which building blocks are composed by masons and architects to fulfill the needs of those who benefit from the building.

- a. **Conjunction** refers to the possible ways in which formal segments of discourse are connected. As regards the three subdivisions, “location” pertains to the sequence of segments, including anaphoric and cataphoric directions of referential pronouns (see Section 6.2.2). “Ordination” refers to the syntactic structuring, such as subordination and coordination, and to content, regarding the distinction between nucleus and satellite (see Section 6.5). Finally, “combination” refers to a variety of cohesive devices (see Section 6.2.1), including zero linkage without an explicit marker.
- b. **Adjunction** pertains to the addition of pieces of information that are communicated by the propositions of individual clauses. Fundamentally, information is conveyed by connecting nominal “concepts” with verbal “events” to form a proposition. For instance, in a simple sentence such as *Bill rode his bike* the person is the concept, while the activity is the event. On this basis, three subtypes of adjunction can be distinguished, as illustrated by the three following extracts.

(68) Mary went to the market. It was a small market in the suburbs.

(69) Mary went to the market. It was a pleasant walk.

(70) Mary went to the market. Her husband took care of the children.

In the case of “elaboration”, information is added to concepts. Along these lines, in (68) the size and place of the concept *market* are specified. “Enhancement” means additional information on events such as Mary’s activity in (69), which is further described in the second sentence. If information is added to both concepts and events, this is called “extension”. For instance, in (70), the second sentence introduces the related concept *her husband* and an alternative activity. Adjunction relations are always present in discourse, while interjunction relations are optional, since the addresser does not always discursively join the recipient after segment boundaries.

- c. **Interjunction** is the level on which the addresser contacts and interacts with the addressee. This can be explained with the help of the Organon model (see Section 2.2), which establishes a sender communicating with a recipient about extralinguistic phenomena.

These three angles are exemplified by the following extracts.

- (71) They are almost asleep. Well, that is a sign of lack of interest.
- (72) They are almost asleep. It was such a hard day.
- (73) They are almost asleep. Your speech was too long.

In (71) the second sentence serves as a symptom for the speaker's thoughts, so that it illustrates the subcategory of "expressing". In Example (72) background information is provided to explain the content of the first sentence, which results in the subtype of "processing". The second sentence in (73) is a signal to the hearer, arguing that the addressee's speech was too tiresome, so that it belongs to the subtype of "impressing". In the connectivity model, adjunction and interjunction are further subdivided into a fine-grained taxonomy of discourse relations (see Renkema, 2009a).

The connectivity model can also be utilized in terms of applied linguistics. For instance, connectivity plays a significant role in active and passive discourse competence. As far as the acquisition of connectives in childhood is concerned, the additive relation with *and* is used earlier than cause and reason expressed by *because*. Moreover, the temporal sequence with *and then* is acquired earlier than contrast. More complex relations, such as concession, are employed by children at a later point in time.

6.7 Summary

Connections above the level of syntactic units are fundamental in discourse, irrespective of whether they are explicitly indicated or not. From the perspective of cohesion, discourse connections can be realized in several ways. Lexical cohesion, based on content word classes, can be distinguished from grammatical cohesion, which includes substitution, ellipsis, reference and conjunction. Explicit cohesive ties are not necessary for the construction of coherence, but in most texts they significantly support recipients during the comprehension process. Cohesion has repercussions on the classification of discourse, since genres may differ in the density and choice of cohesive ties. This is an issue that still offers many research opportunities for future studies.

Research into coherence has yielded a number of possible discourse relations between neighboring syntactic units at the discursive microlevel of sentences and utterances. If the distribution of relations is investigated at the macrolevel, the results can be used for a hierarchical and diagrammatic representation of discourse relations, as proposed by Rhetorical Structure Theory. RST has been the point of

departure for several further approaches to discourse relations. Along these lines, connectivity theory proposes a structural analysis at three levels. While conjunction covers linkage between linear forms, adjunction deals with the ways information is added, and interjunction refers to collaboration between interactants. This leads to the question of how discourse is linked to context, which will be addressed in the following chapter.