10. Presuppositions

10.1 Introduction

10.1.1 The Phenomenon

We have encountered the notion of presupposition when we talked about the semantics of the definite article. According to the famous treatment by Bertrand Russell (1905), the definite article comes with an existence condition and a uniqueness condition:

(1) *The king of France is wise.*
⇔ (i) There is a kind of France.
(ii) there is not more than one king of France,
(iii) that individual is wise.

In modern notation: $x[\text{KING OF FRANCE}(x) \quad y[\text{KING OF FRANCE}(y) \rightarrow x=y] \quad \text{WISE}(x)]$

Russell's proposal treats the two conditions of existence and uniqueness as regular semantic conditions, on a par with what the sentence asserts, (iii). However, there are important differences between (i) and (ii) on the one hand, and (iii) on the other. This shows up in various cases, for example, when we embed the sentence under negation:

(2) *The king of France isn't wise.*
does not entail (iii), but still entails (i), (ii).

Peter Strawson (1950), essentially following Frege, argued that one has to distinguish between the normal semantic content of a sentence and conditions that have to be satisfied that a sentence gets a truth value at all. For him, (i) and (ii) were such conditions, which he called **presuppositions**.

I will follow Van der Sandt (1988) and use the notation Φ » Ψ to express that a sentence Φ presupposes a sentence Ψ. For example, we have:

(3) a. *The king of France is wise.* » *There is a king of France.*
b. *The king of France isn't wise.* » *There is a king of France.*

10.1.2 Tests for presuppositions

There are various tests that help to identify the presuppositions of an utterance. The classical test for presuppositions is that they survive under negation. In this they differ from entailments.

(4) a. *The king of France is wise.* » *There is a king of France.*
The king of France is not wise. >> *There is a king of France.*

b. *The king of France is wise.* *The king of France is intelligent.*
(Assuming wisdom entails intelligence.)
The king of France is not wise. / *The king of France is intelligent.*

Sometimes it is helpful to perform this test in form of a dialogue. Notice that speaker B still accepts that there is a king of France, and denies only that this individual is wise.

(5) A: *The king of France is wise.*
B: *No, I don't think so.*

Strawson used this property to define the notion of presuppositions:

(6) Strawson's definition: $\Phi >> \Psi$ iff $\Phi \quad \Psi$ and $\neg\Phi \quad \Psi$.

But certain forms of negations can be used to deny a presupposition, especially if the negation is stressed, or comes in the form of *it is not the case that*.

(7) a. It is not the case that the king of France is wise. France is a republic, not a monarchy.

b. The king of France is NOT wise, since France is a republic.

Such reactions are called **presupposition protest**. The fact that some negations can be used to protest against a presupposition makes the negation test less than ideal.

A better tests for presuppositions is the **modality test** that works with modal operators like *it is possible that*, or *perhaps*. The presupposition of a sentence is entailed by both the non-modalized and the modalized form of the sentence. This contrasts, of course, with the non-presuppositional parts.

(8) *The king of France is wise. There is a king of France.*
Perhaps the king of France is wise. There is a king of France.
Hence: *The king of France is wise. >> There is a king of France.*

Also, a presupposition of a sentence survives when put into the form of a yes/no question. This is called the **question test**.

(9) *The king of France is wise There is a king of France.*
Is the king of France wise? There is a king of France.
Hence: *The king of France is wise. >> There is a king of France.*

Furthermore, the sequence presupposition + sentence generally makes a good text, whereas the sequence sentence + presupposition is problematic and sounds redundant. This is different in typical cases in which the non-presuppositional parts of a sentence are involved. This is called the **conversation test**.

(10) *There is a king of France, and the king of France is wise.*
**The king of France is wise, and there is a king of France.*

10.1.3 Standard examples of presuppositions

So far we have looked at cases of presuppositions that are introduced by definite descriptions. There are many other cases. For example, Frege (1892) discussed sentences like *Kepler died in misery*, and observes that this sentence can be understood only if the name *Kepler* is taken to refer to some person. Here are a few other examples (cf. also Van der Sandt 1988):

(19) a. Possessives:
Mary likes her car. » Mary has a car.

b. Change of state verbs like *stop, start, continue* (Sellars 1954):
Jones stopped beating his grandmother. >> John has been beating his grandmother.

c. Temporal clauses introduced by *while, before, since* etc. (Frege 1892, Heinemäki 1972): *Since Strawson's article appeared, semantics is more fun >> Strawson's article appeared.*

d. Quantifiers (Strawson 1952)
All of John's children are asleep. >> John has children.

e. Grading particles like *only, even, also, too* (Horn 1969):
Only Muriel voted for Hubert. >> Muriel voted for Hubert.
Even Muriel voted for Hubert. >> It is (was) unlikely that Muriel voted for Hubert.
Muriel, too, voted for Hubert. >> Someone else besides Muriel voted for Hubert.

f. Contrastive stress (Chomsky 1971), clefts (Keenan 1971):
The BUTCHER killed the goose. >> Someone killed the goose.
It was JOHN who caught the thieve. >> Someone caught the thieve.

g. Factive verbs like *realize, regret, discover* (Kiparsky & Kiparsky. 1970):
Tom regrets that the goose has been killed. >> *The goose has been killed.*

h. Special implicative verbs like *manage, fail* (Karttunen & Peters):
Bill managed to catch the fish. >> *It was difficult for Bill to catch the fish.*
Mary failed to arrive. >> *Mary was expected to arrive.*

i. Counterfactual conditionals (Karttunen 1971):
If Kennedy would not have been president, he would not have been assassinated. >> *Kennedy was president.*

10.1.4 Projection of Presuppositions

Another important issue relating to presupposition is: What are the presuppositions of a complex expression, given the presuppositions of the constituent expressions?

The simplest assumption is the cumulative hypothesis: We just combine the presuppositions of the parts.

(11) *The king of France regrets that he has stopped beating his grandmother.*
>> *There is exactly one king of France.*
>> *He has stopped beating his grandmother.*
>> *He has been beating his grandmother.*
>> *He has a grandmother*.

But this is not always true:

(12) *Bill said: "The king of France is bald".*
Bill claimed that the king of France is bald.
Not: >> *There is a King of France.*

Karttunen (1973) is the first systematic account of presupposition projection. He distinguishes three types of constructions:

- **holes**: Presuppositions of embedded expressions are projected (e.g., negation, *perhaps*)
- **plugs**: Presuppositions of embedded expressions are blocked (e.g., quote).
- **filters**: Presuppositions of embedded expressions are blocked under certain conditions.

An example for presupposition filters are the consequent clauses of conditional sentences. The filtering conditions are as follows: If Φ presupposes Ψ, then a conditional sentence *if* Ω *then* Φ presupposes Ψ unless Ω entails Ψ.

(13) a. *If John made coffee, his wife will be happy.*
>> *John has a wife.*

b. *If John is married, his wife will be happy.*
Not: >> *John has a wife.*

10.1.5 Presupposition Theories

A number of theories have been developed to cope with the phenomenon of presuppositions in natural languages.

One common approach due to Strawson is to assume that if a presupposition of a sentence is violated, then the sentence does not have a truth value. Not having a truth value was interpreted as a third truth value in addition to **true** and **false**, namely, **undetermined**, often written "*" For example, the sentence *The (present) king of France is wise* would have an undetermined truth value when uttered, say, in 1905. This truth value has to be accounted for in the way how we interpret semantic operators, like negation, disjunction, the conditional, etc.. For example, we have seen evi-

dence that there are two types of negation, one that can affect the presupposition of a sentence, and one that cannot. We can define truth tables for these two types of negation, called **strong** (—) and **weak** (¬), as follows:

(14)

Φ	¬Φ	—Φ
1	0	0
0	1	1
*	*	1

Examples:

(15) a. *The king of France is not wise.* (weak negation, undetermined in our world.)

b. *It is not the case that the king of France is wise*. (strong negation, true in our world.)

10.1.6 Semantic and pragmatic presupposition theories

We will not go further into theories that work with three truth values to capture the effect of presupposition. What we should notice at this point is that these theories try to account for the effect or presuppositions within truth-conditional semantics: The notion of truth conditions is expanded so that it includes a third truth value. They are **semantic** theories of presuppositions.

Such semantic theories can be contrasted with **pragmatic** theories of presuppositions, as suggested by Sellars (1954).

> In an utterance of a sentence A a speaker S presupposes a sentence B iff it would be incorrect for S either to assert A or to deny A unless he believes B and believes that the hearer shares this believe.

This notion of **speaker's presupposition** has been refined by Robert Stalnaker and Lauri Karttunen in various articles, starting in 1972, and more formally by Heim (1983). We can deal with it in a framework of dynamic interpretation particularly well.

10.2 Presuppositions in Dynamic Interpretation

10.2.1 Presuppositions as requirements for input information states.

Recall that dynamic interpretation assumes that the meaning of a sentence Φ is its potential to modify a common ground, or more specifically, the way how it changes an input information state to an output information state. Now, if Φ has a presupposition Ψ, then this presupposition must already be established in the input information state. Otherwise Φ cannot be processed.

For example, a sentence like *The king of France is wise* requires an input state s in which it is already established that there is one, and only one, king of France. Otherwise, we may either say that the sentence cannot be applied to s, or that s is reduced to the absurd information state, . Here we will say the latter; this allows us to keep the treatment of sentences as total functions (defined for every information state). If a sentence Φ can be applied to an information state s, we will say that s admits Φ:

(16) s **admits** Φ iff s + Φ ≠ .

Once an information state is empty, it does not admit any information:

(17) + Φ = , for every sentence Φ.

If a sentence Ψ is already established in s, we have s + Ψ = s, that is, input state and output state are the same. The following notation, introduced in Heim (1992), is convenient:

(18) a. s + Φ = same iff s + Φ = s
b. Φ **is established in** s iff s + Φ = same.

We can now define what it means that a sentence φ presupposes y:

(19) Φ **presupposes** Ψ, that is, Φ >> Ψ,
iff for all s S such that s + Φ ≠ : s + Ψ = same.

That is, for all states s that admit Φ, the information Ψ is already established.

10.2.2 The presupposition operator

We also can define an operator that says that a sentence should be treated as presupposed. Let us follow Beaver (1994) and write ∂Ψ to indicate that Ψ should be treated as presupposed. It is interpreted in the following way:

(20) s + ∂Φ = s, provided that s + Φ = same,
= , else.

This allows us to treat the regular semantic content and presuppositions at the same level by conjoining them. That is, if a sentence Φ presupposes Ψ and has the non-presuppositional content Ω, then we can make the presupposition Ψ of Φ "visible" by writing ∂Ψ Ω instead of Φ. See the following examples:

(21) a. *Only Muriel voted for Hubert*: ∂M N,
where M stands for a sentence expressing that Muriel voted for Hubert,
and N stands for a sentence expressing that no other person voted for Hubert.

b. s + [∂M N] = s + ∂M + N,
where s + ∂M = s if s + M = same, else .
Hence: s + [∂M N] = s + N, if s + M = same, else .

(22) a. *It was the BUTCHER who killed the goose*: ∂P B,
where P stands for the sentence expressing that some person killed the goose,
and B stands for the sentence expressing that the butcher killed the goose.

b. s + [∂P B] = s +∂P + B,
where s + ∂P = s if s + P = same, else .
Hence: s + [∂P B] = s + B, if s + P = same, else .

This assumption of presuppositions also allows us to treat the existence and uniqueness conditions that come with definite descriptions:

(23) *The king of France is wise*:
∂ x[KF(x)] ∂¬ x y[¬ x=y KF(x) KF(y)] x[KF(x) W(x)]

The addition of a presupposition operator ∂ to the set of logical operators has far-reaching consequences. In particular, it makes conjunction **non-commutative**. Assume that Φ presupposes Ψ, that is, we can write Φ as [∂Ψ Ω], and that s is a state in which Ψ is not established yet. Then the conjunction [Ψ Φ], short for Ψ [∂Ψ Ω], should be fine with respect to s: The first sentence, Ψ, establishes this information in the output state s′, at which the sentence Φ is interpreted. But [Φ Ψ], short for [∂Ψ Ω] Ψ, leads to the absurd information state, as the presupposition of Φ is not satisfied in s.

(24) Assume: s + ∂Ψ ≠ same, that is, s + ∂Ψ = ,
then s + [Ψ [∂Ψ Ω]] = (s + Ψ) + [∂Ψ Ω] = ((s + Ψ) + ∂Ψ) + Ω
— may be different from ,
but s + [[∂Ψ Ω] Ψ] = (s + [∂Ψ Ω]) + Ψ = ((s + ∂Ψ) + Ω)+ Ψ
= , as s + ∂Ψ = .

There are natural-language examples which show that conjunction actually is non-commutative. The conversation test for presuppositions made use of that phenomenon.

(25) a. Muriel voted for Hubert, and only Muriel voted for Hubert.

b. *Only Muriel voted for Hubert, and Muriel voted for Hubert.

(26) a. Someone killed the goose, and it was the BUTCHER who did it.

b. *It was the BUTCHER who killed the goose, and someone killed the goose.

(27) a. There is a king of France, and he is wise.

b. *The king of France is wise, and there is one.

In general, conjunctions that consists of the presupposition first, followed by the sentence, are fine, but bad the other way round. The reason for this is obviously that it is pragmatically awkward to state something with respect to a common ground s that is established in s already:

(28) A sentence Φ is an inappropriate utterance with respect to s if s + Φ = same.

Notice that, if Φ >> Ψthe sentence [Φ Ψ] should be inappropriate for every information state s: Either s does not contain the information of the presupposition Φ, then s + Φ fails, or if s does contain the information Ψ, then (s + Φ) + Ψ fails, as we have (s + Φ) + Ψ = same.

10.2.3 Presupposition Projection in Dynamic Interpretation

The framework of dynamic interpretation offers a promising perspective on the problems of presupposition projection. In the following, we will consider a variety of complex sentences where one constituent sentence contains a presupposition. For simplicity, I will work with the sentence that contains the possessive noun phrase *John's wife,* which carries the presupposition that John is married.

We expect that the projection behavior can be derived from the ordinary meaning of the semantic operators in dynamic interpretation, that is, that no special rules are necessary to take care of the projection of presupposition. In this the dynamic framework differs from earlier, non-dynamic approaches such as Karttunen & Peters (1979). See Heim (1983) for discussion.

First, let us consider **conjunctions**.

(29) a. John has a motorbike, and John's wife has a car.

b. John's wife has a car, and John has a motorbike.

In both cases the presupposition that John is married ends up as a presupposition of the whole sentence. That is, every information state at which (29.a) or (b) is interpreted must contain the information that John is married. This follows straightforwardly from our representation:

(30) a. s + [B [∂M C]] = s + B + ∂M + C

b. s + [[∂M C] B] = s + ∂M + C + B,

where M: John is married, B: John has a motorbike, C: She (= John's wife) has a car.

In both cases s must already contain the information that John is married; otherwise it has to be accommodated. This follows from the way how we interpreted " " in dynamic semantics. For example, in (a), s + B is a new information state that satisfies ∂M only if s already satisfied ∂M.

Things are different in case the first conjunct contains the presupposition of the second conjunct:

(31) John is married, and John's wife has a car.

s + [M + [∂M + C] = s + M + ∂M + C

Here the whole sentence does not presuppose that John is married. Rather, the first clause provides that information explicitly. In fact, the sentence would be inappropriate (in the sense of (28)) if it were already established in s that John is married, as we then would have s + M = same. Again, this

follows from the interpretation of " ": Once we have updated s with M to s + M, the presupposition ∂M is satisfied for this local input information state (s + M).

In general, we have that [Φ_1 Φ_2] presupposes Ψ if either Φ_1 presupposes Ψ, or Φ_2 presupposes Ψ and Φ_1 does not entail Ψ. These are precisely the filter conditions that Karttunen (1974) identified.

Now let us consider **negation**:

(32) a. John's wife doesn't have a car.

This sentence will be interpreted as carrying the presupposition that John is married, that is, negation does not affect presupposition, it is a "hole" for presupposition, in Karttunen's terminology. This is what our dynamic interpretation rule for negation gives us:

(33) s + ¬ [∂M C]
= s — [s + [∂M C]]
= s — [s + ∂M + C]

We see that ∂M is interpreted with respect to the input state s, hence the input state s must satisfy the condition that John is married. This is the intended result: Negation does not affect the presence of presuppositions.

Let us now turn to **conditionals**. We consider here cases in which the sentence carrying the presupposition is in the consequent:

(34) a. If John has a motorbike, then his wife has a car.

b. If John is married, then his wife has a car.

(35) a. s + [B → [∂M C]]
= s — [[s + B] — [s + B + ∂M + C]]

b. s + [M → [∂M C]
= s — [[s + M] — [s + M + ∂M + C]]

We see that the presupposition ∂M is evaluated at the input state s incremented with the antecedent, s + B in (a) and s + M in (b). These cases differ in the same way as we have observed with conjunction. In the first case, the presupposition ∂M should already be satisfied in s. In the second, we find that after s is updated with M, the presupposition ∂M is already satisfied in s + M, hence it need not be satisfied in s already. As a matter of fact, if ∂M is already established in s, then s + M would be an inappropriate change, as it would not add any new information to s.

In example (b) we have assumed that the antecedent clause, M, is identical to the presupposition of the consequent, ∂M. But this is not necessary. All that is required in order to satisfy the presupposition of an update like s + [Φ_1 → [∂Ψ Φ_2]] is that the state s + Φ_1 contains the information Ψ. It may be that s does not contain the information Ψ itself, but the information [Φ_1 → Ψ]. This is because, if s + [Φ_1 → Ψ] = same, then (s + Φ_1) + Ψ = same. Example:

(36) If John is a scuba diver, he will bring his wet suit.

It seems that (36) quite easily has a conditional presupposition: If John is a scuba diver, then he has a wet suit. The difference between these two cases is perhaps just that ordinary information states easily allow for a relation between being a scuba diver and owning of wet suits, but not for a relation between having a motorbike and being married.

Exercise:

What is the projection behavior for presuppositions that originate in the antecedent part of a conditional? Does our representation make the right predictions?

10.2.4 Accommodation of Presuppositions

Very frequently, it seems that the presuppositions of a sentence are not satisfied, and the sentence can nevertheless be used effectively in communication.

(37) The King of Lesotho died yesterday.

Even if you didn't know that Lesotho had a king, you can understand this sentence. It seems that you tacitly add the assumption that there was a king of Lesotho to your beliefs, and then interpret the sentence. Other examples:

(38) a. I only ate a banana yesterday.

b. We regret that we do not accept checks.

Again, one can understand (38.a) even if it was not established yet that the speaker ate a banana yesterday, and one can understand (b) even if one was not informed before that checks are not accepted.

This phenomenon has been called **accommodation** by David Lewis (1979), and was noticed early on by Karttunen and Stalnaker:

> "But granting that ordinary discourse is not always fully explicit [...], I think we can maintain that a sentence is always taken to be an increment to a context that satisfies its presupposition. If the current conversational context does not suffice, the listener is entitled and expected to extend it as required. He must determine for himself what context he is supposed to be in on the basis of what was said and, if he is willing to go along with it, make the same tacit extension that his interlocutor appears to have made. This is one way in which we communicate indirectly, convey matters without discussing them." (Karttunen 1974).

> "...a speaker may act as if certain propositions are part of the common background when he knows that they are not. He may want to communicate a proposition indirectly, and do this by presupposing it in such a way that the auditor will be able to infer that it is presupposed. In such a case, an speaker tells his auditor something in part by pretending that his author already knows it." (Stalnaker 1974).

What is going on here can be described as follows:

- H assumes that s is the common ground, the information that S and H agree upon.
- Now S utters a sentence Φ that has a presupposition Ψ that is not satisfied in s, that is, $s + \Phi =$.
- H does not have any information that would make Ψ unacceptable. Hence H changes the assumed common ground s to a common ground s' that is reasonably similar to s, and where the presupposition Ψ of Φ is satisfied, that is, $s' + \Psi$ = same. Then Φ is interpreted with respect to s', and $s' + \Phi$ can result in some non-absurd state.

This should not give the impression that accommodation is an exceptional repair strategy that has to set in if something went wrong. Rather, it is a relatively normal way of conveying information.

10.2.5 Minimal Accommodation or Accommodation of Presupposition

Once we accept the idea that an information state s that does not admit a sentence Φ can be accommodated to a state s' that does, two important issues arise: **What** do we accommodate, and **when** do we accommodate? In this section we will discuss the first question; in the next we will turn to the second.

There are two plausible answers for the question what it is that we accommodate. The following are the rules formulated from the perspective of a hearer.

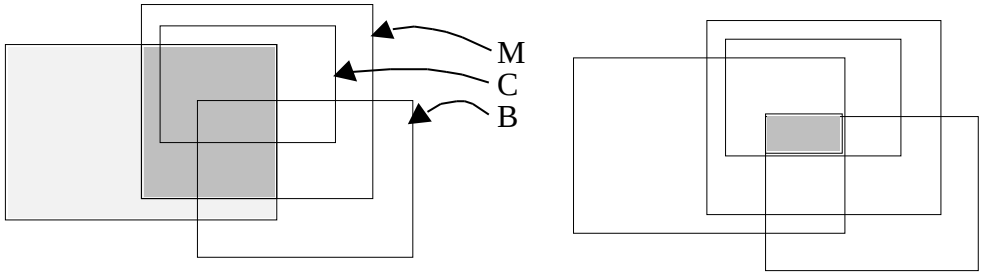
- **Minimal accommodation:** If you want to compute s + Φ, but s does not admit Φ (typically, because some presupposition of Φ is violated), then change s minimally to an s′ (that is still compatible with your general assumptions) such that s′ does admit Φ, and compute s′ + Φ.
- **Accommodation of presupposition**: If you want to compute s + Φ, but s does not admit Φ because Φ presupposes Ψ, and s + Ψ ≠ same, then change s to s + Ψ (if this is still compatible with your general assumptions) and compute (s + Ψ) + Φ.

These strategies may yield different results. Let us discuss the following example:

(39) *John has a motorbike and his wife has a car.* » *John is married.*.
Abbreviated as [B C] » M

Assume that the input state s does not contain the information M, that John is married, but that this information is not contrary to what the hearer knows either. Accommodation of presupposition would simply accommodate s to s + M first, and then update this state with the conditional sentence. This results in (s + M) + [B C].

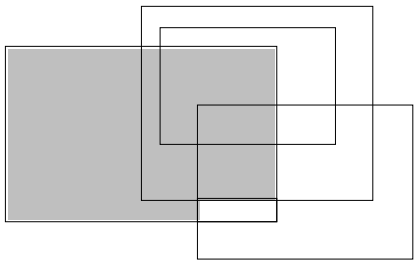
(40)



Accommodation of s to s′ = s + M s′ + [B C]

Minimal accommodation would proceed differently. Notice that it would be sufficient to accommodate the sentence [B → M], that is, *if John has a motorbike, he is married*., which leads to a smaller change of the input state s to s″ (notice that s′ s″):

(41)



Accommodation of s to s″ = s + [B → M] s″ + [B C], as above.

Minimal accommodation is a relatively complex process: It asks us to find out, among many candidates, that information state s′ that admits Φ and differs as little as possible from s. This means that we have to be able to compare pairs of information states and determine whether they are more or less similar to each other. Also, it may very well be that there isn't a unique minimally changed s′, but that there are several candidates s′, s″ etc. that all are minimal changes from s, although in different dimensions. Accommodation of presupposition, in contrast, is a relatively straightforward process: If a sentence Φ triggers a presupposition Ψ, which presumably is can be derived from the linguistic form of Φ, then a hearer would not have to compute a minimally different information state s′, but simply could update s with Ψ.

What do we actually accommodate? In the above example, it seems clear that we do not accommodate a conditional sentence. A speaker that hears the sentence *John has a motorbike and his wife has a car* and does not know that John is married certainly will accommodate the information that John is married, and not the information that if John has a motorbike, then he is married.

So do we always have accommodation of presupposition instead of minimal accommodation? Perhaps not. Consider the following example:

(42) Mary is a scuba diver, and she will bring her wet suit.

Sentence (42), as a whole, need not presuppose that Mary has a wet suit, but rather that if she is a scuba diver, then she has a wet suit, or perhaps that scuba divers in general have wet suits. This is even more obvious with conditional sentences:

(43) a. If Mary is a scuba diver, she will bring her husband.

b. If Mary is a scuba diver, she will bring her wet suit.

Here, (43.a) most likely triggers the presupposition that Mary has a husband, whereas (b) triggers the presupposition that if Mary is a scuba diver, she has a husband.

10.2.6 Global or Local Accommodation

Let us now turn to the issue **when** accommodation takes place. This question arises if a presupposition is triggered within a complex sentence [... Φ ...], where Φ » Ψ. There are two extreme options:

- **global accommodation**: If s does not admit [... Φ ...] because s does not contain the information Ψ, accommodate s to an s′ that admits [... Φ ...] (either minimally, or by accommodation of the presupposition Ψ).
- **local accommodation**: If s does not admit [... Φ ...] because s does not contain the information Ψ, start processing [... Φ ...] as far as possible. In this process, s will be changed to some s′. Only when s′ + Φ is to be interpreted, accommodate s′; to s″ that admits Φ (either minimally, or by accommodation of the presupposition Ψ).

Let us discuss a variety of cases to see which type of accommodation is preferred. We start with **negation**.

(44) *John's wife does not have a car.*
s + ¬ [∂M C], = s — [s + ∂M + C]

Let us assume that s does not satisfy the presupposition M yet. and that we accommodate the presupposition. Let us assume that we accommodate the presupposition that John is married, M. The most obvious way to proceed would be to add s at the very point at which ∂M is interpreted (so-called "local accommodation"). This would yield the following representation:

(45) Local accommodation of M:
s + ¬ [∂M C] (in case s + ∂M =) = s — [s + M + ∂M + C]

Is this what we want? Not quite: Notice that the added information M now will **not** survive, as [s + M + = ...] is subtracted from s! But when we accommodate, on hearing the sentence *John's wife does not have a car*, that John is married, then we clearly assume that John is married after we have accepted this sentence. -- Hence it seems that we rather should accommodate the presupposition before we even interpret the negation (so-called "global accommodation"):

(46) Global accommodation of M:
s + ¬ [∂M C] (in case s + ∂M =) = s + M + ¬ [∂M C]

Hence it seems that global accommodation is preferred over local accommodation, at least for negation. Are there any instances where we actually have local accommodation? One case in point that could be interpreted along these lines are so-called presupposition-denying negations:

(47) a. It is not the case that John's wife has a car -- John is not married at all!

b. I didn't meet John's wife -- John is not married at all!

However, notice that these conversational moves are very special and require that the corresponding unnegated presuppositions have been uttered before or can be contextually inferred. So maybe we should look at a different explanation for these cases.

Let us now turn to **conjunction**. In this case it does not matter whether we accommodate locally or globally, as we always end up with the same result:

(48) *John has a motorbike, and his wife has a car.*

(49) a. Local accommodation:
s + [B [∂M C]] = (in case s (+ B) + ∂M =) = s + B + M + ∂M + C

b. Global accommodation:
s + [B [∂M C]] = (if s (+ B) + ∂M =) = s + M + [B [∂M C]]

In this case it does not matter whether we accommodate locally or globally, as we always end up with the same result: The accommodated information stays in the resulting common ground.

In section 10.2.5 we have discussed whether we have accommodation of presupposition or rather minimal accommodation. We have seen that we may make an argument for minimal accommodation for a sentence like (42) *Mary is a scuba diver, and she will bring her wet suit*, which means that this sentence leads to the accommodation of *if Mary is a scuba diver, she has a wet suit*. However, another way of viewing this case is to assume that local accommodation is possible as an option. That is, that Mary has a wet suit is accommodated only after the sentence *Mary is a scuba diver* is processed, and this accommodation is facilitated by the fact that we generally know that scuba divers have wet suits. In contrast, with a sentence like *Mary is a scuba diver, and she will bring her husband*, there is no such natural preference for either local or global accommodation.

What about **conditionals**? As conditionals are defined with the help of subtraction, we expect that local and global accommodation does make a difference:

(50) *If John has a motorbike, then his wife has a car.*

(51) a. Local accommodation:
s + [B → [∂M C]] = (in case s (+ B) + ∂M =)
= s — [[s + B] — [s + B + M + ∂M + C]]

b. Global accommodation:
s + [B → [∂M C]] = (in case s (+ B) + ∂M =)
= s + M + [B → [∂M C]]

As with the case of negation, the accommodated information does not survive when accommodated locally. This is contrary to what we observe: A speaker that accepts (50) accommodates the information that John is married for good. Hence we should assume that there is a tendency towards global accommodation (at least where local and global accommodation makes a difference).

Exercise:

Investigate the case of accommodation for presuppositions in the antecedent of conditionals. What do you observe? Which predictions are made by our representations? Do we tend towards global accommodation or local accommodation?

10.2.7 Binding vs. Accommodation of Presuppositions

Van der Sandt (1992) has observed an interesting parallelism between how languages deals with presuppositions, and how it deals with anaphoric expressions.

(52) a. If John has a car, he will wash his car regularly.

b. If John is a neurotic, he will wash his car regularly.

(53) a. If John is married, his wife will be unhappy.

b. If John has a motorbike, his wife will be unhappy.

In (52.a), the antecedent clause introduces a discourse referent for the car, and the definite NP *his car* in the consequent picks up that discourse referent. We don't have to assume right away that John has a car. However, in (b), the antecedent clause does not introduce any discourse referent for a car, and the definite NP in the consequent leads to the introduction of a discourse referent in the main box, in DRT-terms. In the consequent clause of (a), the discourse referent was bound, in the consequent clause of (b), it was "accommodated".

The situation in (53) is quite similar. In (a), the presupposition that John has a wife is satisfied by the antecedent clause, whereas in (b), it has to be accommodated.

Another example that makes a similar point:

(54) a. John drank beer, and Sam drank beer, too.

b. If John drank beer, then Sam drank beer, too.

The presupposition of *too*, that someone else besides Sam drank beer, is not projected to the whole sentence (where it would have to be accommodated). Rather, it is bound by the antecedent sentence, which states that John drank beer.

The following example can be dealt with in a similar way, as a kind of bridging:

(55) a. If a car stands in front of my house, I'm sure the windshield will be broken.

b. If Mary is a scuba diver, she will bring her wet suit.

In example (55.a) a discourse referent for a car is introduced by the antecedent sentence. The definite NP *the windshield* refers to the windshield of that car. In DRT terms, the discourse referent of this NP is not introduced in the main box, but rather in the box of the consequent clause. This introduction is warranted by the general knowledge of speaker and hearer that cars have windshields. Quite similar, in (b), the presupposition that Mary has a wet suit is not accommodated for the input state, where it would stay for good. Rather, it is just introduced locally, after the information that Mary is a scuba diver has been processed. As before, this accommodation is warranted by a piece of general knowledge, namely, that scuba divers in general tend to have wet suits.

10.2.8 Global Accommodation and Compositionality

Global accommodation poses a problem for compositionality. Assume that the consequent of a conditional triggers a presupposition that has to be accommodated globally as in:

(56) Global accommodation: *If John has a motorbike, his wife has a car.*

$s + [B \rightarrow [\partial M \quad C]]$

(in case $s (+ B) + \partial M = \quad) = s \underline{+ M} + [B \rightarrow [\partial M \quad C]]$

$= (s \underline{+ M}) — [[(s \underline{+ M}) + B] — [(s \underline{+ M}) + B + \partial M + C]]$

The problem is that the presupposition ∂M that John is married is introduced deeply embedded within the conditional clause, but it should lead to an accommodation of the input information state s before we even start with interpreting the conditional clause. This is a compositionality problem,: the meaning of an expression (the possessive NP *his wife*) has a non-local effect on interpretation.

Van der Sandt (1992) developed a theory within DRT that can cope with this phenomenon. In essence, presuppositions that cannot be locally satisfied can be projected to the main DRS, or perhaps to intermediate DRSs. Certain conditions must be satisfied, however. For example, the following sentence allows only for a local accommodation of the presupposition triggered by *his wife*, as otherwise the anaphoric binding relations could not be satisfied.

(57) If a man has a motorbike, his wife has a car.