

Towards a DRT-based Account of Adversative Connectors

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Abstract

The paper presents an exploratory DRT-based account of the adversative connector *doch*. It is assumed that *doch* is weakly ambiguous between various relations of contrast, and an underspecified meaning is defined in the framework of UDRT Reyle et al. (2005). It is shown how in concrete discourse, a particular reading is selected from the underspecified meaning representation, depending on the information structure of the sentence, as well as on the syntactic and prosodic properties of the respective *doch*-use. This process is modelled in the framework of the most recent version of DRT Kamp et al. (2005) and the version of DRT that takes into consideration the focus-background division of the sentence Kamp (2004).

1 Introduction

The German adversative connector *doch* (Engl. *though, but*) is notoriously ambiguous. It has at least five syntactically and prosodically different uses that belong to different parts of speech and express various discourse relations, such as correction, semantic opposition and concession. For instance, *doch* may express the relation *semantic opposition*, as in (1), where two mutually excluding properties are applied to different individuals. In cases like that, *doch* is unaccented, placed before the forefield of the German sentence and categorized as a conjunction:

- (1) Hans ist reich, doch Peter ist arm.
'Hans is rich but Peter is poor.'

The connector *doch* may also express different kinds of *concession*, as in (2a) and (2b), where the first conjuncts are interpreted as giving rise to the expectation that the second conjuncts do not hold true. This form of concession is also called *denial of expectation*. Here, *doch* is either accented, placed in the initial field of the sentence and categorized as conjunct adverb (as in (2a)), or is a conjunction (as in (2b)):

- (2) a. Das Pferd war klein, seine Beine waren kurz, und DOCH war es der schnellste Renner weit und breit.
 b. Das Pferd war klein, seine Beine waren kurz, doch es war der schnellste Renner weit und breit.
 ‘The horse was small, his legs were short, and yet he was the fastest runner far and wide.’

Another form of concession that *doch* may express is *concessive opposition*, as in (3), where the first conjunct and the negation of the second conjunct are interpreted as consequences from a contextually given claim, e.g. here *the forest paths are strenuous*. Here it is again the conjunction *doch* that we deal with.

- (3) Die Waldwege sind steil, doch nicht lang. (from Sæbø (2003))
 ‘The forest paths are steep but not long.’

There are further various kinds of *correction* marked by *doch*, like for instance in (4), where the B-utterance asserts the opposite of what utterance A asserts, thus denying the truth of A. Here, *doch* is accented, may be used in isolation and is categorized as a response particle.

- (4) A: Es stimmt nicht, dass Peter verreist ist.
 ‘It is not true that Peter has left.’
 B: Doch(, es stimmt).
 ‘It IS true.’

A similar case is (5), where at some point in a conversation either speaker A or speaker B asserts “Peter is coming to the cinema” and later A learns that Peter is out of town and B then draws the conclusion that if Peter is out of town, he is not going to the cinema. The *doch*-utterance here does not correct A_n but the earlier utterance A_0/B_0 . The *doch*-variant that expresses this relation is accented, placed in the middle field of the German sentence and is categorized as an adverb.

- (5) A_0/B_0 : Peter kommt mit ins Kino.
 ‘Peter is coming to the cinema.’
 A_n : Peter ist verreist.
 ‘Peter has left.’
 B_n : Er kommt also DOCH nicht mit ins Kino.
 ‘So he is not coming to the cinema, after all.’

Another example of correction expressed by *doch* is (6), where the B-utterance corrects what the speaker believes is a misconception of the hearer as regards the whereabouts of Peter. This use of *doch* indicates here that A should know that Peter is out of town and should not have claimed that he is coming to the cinema. In corrections like that, *doch* is unaccented, placed in the middle field of the German sentence and categorized as a modal particle.

- (6) A: Peter kommt mit ins Kino.
 ‘Peter is coming with us to the cinema.’

B: Er ist doch verreist.
 ‘He has left, as you should know.’

All uses of *doch* illustrated by (1)-(6) involve a certain degree of contrast. Semantic opposition is the mildest form of contrast where two entities are compared with respect to some properties. Concession involves default expectations that are incompatible with what is asserted, and correction can be seen as an extreme kind of contrast where the contrasted elements mutually exclude each other. I will use the term contrast as the generic term for these relations.¹ Furthermore, all uses of *doch* are historically related, cf. Hentschel (1986). These facts suggest that *doch* can be assumed to be *weakly ambiguous* (cf. Pinkal (1985)) between expressing different kinds of contrast. It is therefore legitimate and desirable to try and unify the various uses in terms of a basic meaning of the connector. It is also desirable to give an account of connectors in a formal theory of discourse, since connectors have various important effects on discourse meaning, and formal theories provide the necessary level of precision for adequately dealing with such complex linguistic phenomena like discourse connectors.

Earlier attempts to define a common semantics for all *doch*-variants are too abstract or not elaborate enough Helbig (1988), Karagjosova (2001), Lerner (1987). I am currently not aware of any existing DRT-based accounts of connectors and their discourse effects.

In a recent paper Karagjosova (2007), I propose an unitary analysis of *doch* based on Sæbø’s analysis of German *aber* Sæbø (2003), where the semantics of these connectors is defined in terms of a contrast presupposition involving negation and topic alternatives. I argue there that the meaning of *doch* is best seen as underspecified and define it in terms of an UDRT alternation Reyle et al. (2005), i.e. a sequence of alternative DRSs. Each alternative DRS represents a version of the contrast presupposition that corresponds to some *doch*-variant and involves different information-structural units, depending on the context in which the variant is used and on its syntactic and prosodic properties. I also hint at a disambiguation algorithm that allows to model the construction of discourses with *doch* in DRT starting from the underspecified representation of the connector and employing information about (i) its syntactic and prosodic properties, (ii) the focus-background structure of the sentence that hosts it, and (iii) the structure of the discourse in which it is used.

In what follows, I elaborate on the question of how the construction of discourses with *doch* can be modelled in a DRT-based approach. I present a DRT-based account of the meaning and discourse effect of this connector. The analysis I present is exploratory and rather sketchy. It tries to get by with the existing DRT machinery and leaves a number of technical questions open.

The paper is structured as follows. In section 2, I present the contrast presupposition defined by Sæbø for *aber*. Section 3 introduces my analysis of the semantics of *doch* based on Sæbø. Finally, in section 4 I demonstrate how the construction of discourse representations may look like for two of the *doch*-variants, the conjunction *doch* and the conjunct adverb *doch*.

¹The term *adversativity* is also used generically for all types of contrast relations expressed by connectors like *doch*, *aber* and *but*.

2 The contrast presupposition

The main idea in Sæbø (2003) is that semantic opposition is the basic contrast relation expressed by *aber* from which other kinds of contrast such as various forms of concession can be derived as a result of generating conversational implicatures based on Grice's Maxim of Relevance. The main observation is that *aber* is sensitive to the information structure of the sentence.² More precisely, the contrast between two conjuncts C_1 and C_2 that *aber* indicates, can be seen as a semantic opposition between the contrastive topic of the *aber*-clause C_2 and an alternative to it that is provided by the first conjunct C_1 . For instance in (7), the CT of C_2 , *mittlere*, is opposed to the CT of C_1 , *kleine*, and *kleine* is a contrastive topic alternative of *mittlere*:

- (7) [Für [kleine]_T Betriebe hält sich der Schaden noch in Grenzen]_{C₁}; [für [mittlere]_T aber wird er allmählich ruinös]_{C₂}.
 'For small companies, the harm is yet limited; for intermediate-size companies, however, it is becoming ruinous.'

Based on this observation, Sæbø specifies the basic meaning of *aber* in terms of an assertion and a presupposition in dynamic semantics in the following way: a sentence of the form ' ϕ *aber*' updates the context σ to a context τ iff σ entails the negation of ϕ where the contrastive topic of ϕ is substituted by some alternative, and σ is updated by ϕ . Formally:

- (8) $\sigma \llbracket \phi \text{ aber} \rrbracket \tau$ iff $\sigma \models \neg\phi[T(\phi)/\alpha]$ for some alternative α and $\sigma \llbracket \phi \rrbracket \tau$.

In other words the presupposition requires that the context contains the negation of a sentence which is just like the *aber*-sentence except for its contrastive topic. The contrastive topic of the required sentence is a contextual alternative of the contrastive topic of the *aber*-sentence. Consider again (7), repeated below as (9). The presupposition can be verified, since in the negated *aber*-sentence, we replace its contrastive topic *mittlere* for the alternative, here the contrastive topic of C_1 *kleine*, and get that the harm for small companies is not ruinous. This is entailed by C_1 , since C_1 asserts that the harm is limited.

²An analysis of *aber* based on similar observations is proposed in Umbach (2005).

- (9) [Für [kleine]_α Betriebe hält sich der Schaden noch in Grenzen]_{C₁}; [für [mittlere]_T aber wird er allmählich ruinös]_{C₂}.
 $\sigma \models \neg\phi[T(\phi)/\alpha]$ iff
 $\sigma \models \neg(\text{für mittlere Betriebe wird der Schaden ruinös})[\text{mittlere/kleine}]$ iff
 $\sigma \models \neg(\text{für kleine Betriebe wird der Schaden ruinös})$

The topic of the contrast presupposition is defined in Sæbø (2003) as “the portion of the sentence for which the context provides a substitute”. Contrastive topics are one such case. Sæbø considers further cases which do not involve contrastive topics. He argues that there we deal with an “implicit topic” that in general is the complement of the apparent focus. A simple example is (10), where the focus is *nicht lang*, and the “implicit topic” is the complement of the focus, namely *lang*. The presupposition is verified: in the negated *aber*-clause, we replace the “implicit topic” *lang* for the focus of the first clause *steil* and get that the context entails that the forest paths are steep, which is indeed so:³

- (10) Die Waldwege sind [steil]_α, aber [nicht [lang]_{IT}]_F.
 ‘The forest paths are steep but not long’.
 $\sigma \models \neg\phi[T(\phi)/\alpha]$ iff
 $\sigma \models \neg(\neg(\text{die Waldwege sind lang})[\text{lang/steil}]$ iff
 $\sigma \models \neg\neg(\text{die Waldwege sind steil})$

In Sæbø (2003), the “implicit topic” is reconstructed as a result of pragmatic reasoning that involves a process of accommodation which in turn triggers implicatures which generate the concessive readings of the connector. For instance in (10), the “implicit topic” *lang* vs. *nicht lang* (or its equivalent *kurz*) is identified on the basis of the following reasoning: coordination alternatives require a relevant parallel or Common Integrator (CI) Lang (1977) between them. A CI between *steep* and *long* is more plausible than between *steep* and *not long* or *short* when it comes to forest paths: both *steep* and *long* paths are strenuous. Identifying the CI *forest paths are strenuous* gives us also the concessive opposition reading of the sentence: the first conjunct supports the proposition that the paths are strenuous, whereas the second runs against it. As pointed out in Karagjosova (2007), however, the process of identifying the implicit topic is not entirely clear. Therefore, I assume that in lack of contrastive topics, *aber* pertains to the complement of the apparent focus of the *aber*-conjunct, and the alternative is the focus of the first conjunct. The additional pragmatic reasoning on top of the contrast presupposition described above is needed in order to get behind the reason for treating the complement of the focus of the *aber*-conjunct and the focus of the first conjunct as alternatives.

³The notion of topic utilized by Sæbø does not correspond to the structural topic. It seems that it can be understood in terms of material that is given or inferable in the present context. Consider for instance the case of contrastive topics. Contrastive topics come with a parallel sentence structure and particular intonation (called “hat contour” in German Fery (1993)) that evoke a set of alternative expressions. The mention of the topic of the first conjunct evokes a set of alternatives from which the topic of the *aber*-clause is recoverable and is in this sense given information. In cases like (10), the “topic” is in the scope of the negation, and negation is generally known to trigger the implicature that the opposite is normally the case (cf. e.g. Jacobs (1991)), hence the element in the scope of the negation is in a way given in the context.

3 The semantics of *doch*

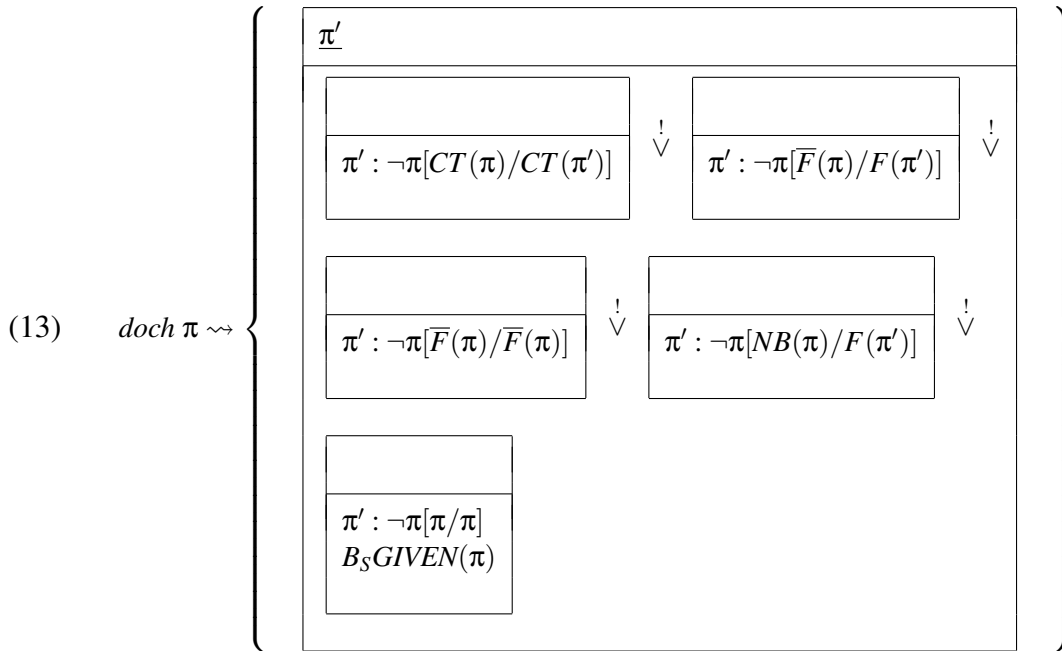
In Karagjosova (2007), I apply Sæbø’s analysis of *aber* on *doch*, since *doch* and *aber* are partly synonymous. I observe there that the information structural units to which *aber* and *doch* pertain when trying to identify and verify the contrast presupposition can be not only contrastive topic or the negation of the focus, but also verum focus, as in (11a), the constituent in the scope of the focussed negation (which I tentatively call “negated background”), as in (11b), or the discourse topic in the case of unaccented middle-field *doch*.

- (11) a. A: Peter [lügt]_α nicht.
 ‘Peter is not lying.’
 B: Er [LÜGT]_{VF} aber.
 ‘But he IS lying.’
 b. Die Waldwege sind steil, doch [NICHT]_F [lang]_{NB}.
 ‘The forest paths are steep but not long.’

I also notice that when *doch* is interpreted as correction, the topic of the contrast presupposition, i.e. the part of the sentence for which the context provides a substitute, is the complement of the apparent focus, and the topic coincides with the alternative, thus reducing the presupposition to the requirement that the context contains a sentence with the reversed polarity. For instance in (12), the focus is on *doch*, and the complement of the focus is *nicht*, since *doch* asserts the sentence that hosts it. The alternative is the sentence negation *nicht* in the preceding utterance. The presupposition is verified, since the context, here utterance A, contains the negation of the *doch*-sentence.

- (12) A: Es stimmt [nicht]_α, dass Peter verreist ist.
 ‘It is not true that Peter has left.’
 B: [Doch]_F, es stimmt.
 ‘It IS true.’
 $\sigma \models \neg\phi[T(\phi)/\alpha]$ iff
 $\sigma \models \neg(\neg(\text{es stimmt nicht, dass Peter verreist ist})[\text{nicht/nicht}]$ iff
 $\sigma \models \neg(\text{es stimmt, dass Peter verreist ist})$

Based on these observations, I argue in Karagjosova (2007) that the semantics of *doch*, as well as that of *aber*, is best captured by enumerating the different ways in which the contrast presupposition may be instantiated in concrete discourse. I formulate the semantics of *doch* as an UDRT alternation, i.e. a disjunction of alternative DRSs, which is a technique used in UDRT Reyle et al. (2005) for specifying the meaning of ambiguous lexical items. The representation in (13) is intended to capture this “meaning potential” of *doch*:



In (13), π and π' are discourse referents for representing clauses, as in SDRT Asher and Lascarides (2003), π is the clause hosting *doch*, and \overline{F} is the complement of the focus F . The representation is intended to express that *doch* triggers the presupposition that there is a sentence π' in the discourse context such that π' is the negation of the result of replacing the respective information-structural unit of π by its corresponding alternative.

The sign ' $\overset{!}{\vee}$ ' is an operator used for representing lexical ambiguity Reyle et al. (2005), and underlined discourse referents are anaphoric referents that have to be bound to an antecedent in the context or accommodated. The first DRS in the alternation takes care of cases like (14) where we have contrastive topics, the second of cases like (15), where *doch* pertains to the complement of the focus.

(14) [Hans] $_{\alpha}$ ist reich, doch [Peter] $_{CT}$ ist arm.
'Hans is rich but Peter is poor.'

(15) Die Waldwege sind [steil] $_{\alpha}$, doch [nicht [lang] $_{\overline{F}}$] $_{F}$.
'The forest paths are steep but not long.'

The third alternative DRS captures cases like (12), repeated below as (16), as well as cases like (2a), repeated below as (17), where *doch* is itself focussed. In both cases, *doch* pertains to the complement of the focus, *nicht*, and the complement of the focus coincides with the alternative.⁴

(16) A: Es stimmt [nicht] $_{\alpha}$, dass Peter verreist ist.
'It is not true that Peter has left.'
B: [Doch] $_{F}$, es stimmt.
'It IS true.'

⁴The reason for not having just $\neg\pi$ in the DRS for this version of the contrast presupposition is the idea that the meaning representation should reflect the contextual conditions under which the *doch* variants are used, more specifically the IS unit to which the respective *doch*-variant pertains.

- (17) Das Pferd war klein, seine Beine waren kurz, und DOCH war es der schnellste Renner weit und breit.
 ‘The horse was small, his legs were short, and yet he was the fastest runner far and wide.’

In a way, the meaning specification of *doch* that I propose in (13) is not strictly unitary since it is a disjunction of a number of possible interpretations. On the other hand, it has a common format, and the various *doch*-readings differ from one another mostly with respect to the IS unit to which the connector pertains. This way the meaning specification reflects the main property of discourse connectors, namely their contextual sensitivity, in a rather straightforward way.

The alternative versions of the contrast presupposition represented in (13) reflect the properties of the context in which the connector is used and which determine the interpretation of the relation that the connector expresses in that particular context. It is in this sense that the meaning of *doch* is underspecified: its interpretation in context requires the selection of one of a number of possible mutually related readings under specific contextual conditions.⁵

The above meaning specification also reflects partly the interpretation of the connector *doch* in the respective context. For instance, when *doch* pertains to the contrastive topic of the *doch*-host, its interpretation is semantic opposition, and when it pertains to the complement of the focus of the *doch*-host, it is a form of concession. However, there are additional contextual parameters that co-determine the interpretation of *doch* in a particular context that are not captured in (13). For instance, in cases when the presupposition is reduced, the interpretation of *doch* may be correction or denial of expectation, depending on whether *doch* is positioned in the middle field (correction) or the initial field (denial of expectation). In what follows, I suggest how these additional parameters come into play in a DRT-based account of the way in which a particular interpretation of *doch* emerges from its underspecified meaning under a particular contextual setting.

4 Towards a DRT-based account

The idea is roughly that the DRS construction is informed by the focus annotated syntactic tree of the sentence hosting the connector. The semantic representations are built by means of DRT-construction rules Kamp and Reyle (1993). The construction rules select the reading that corresponds to the syntactic and prosodic properties of the *doch*-variant that is used in the concrete discourse, as well as to the focus-background structure of the discourse. The selected *doch*-reading is a presupposition that in a further step has to be bound to an antecedent in the context or the context must be accommodated, i.e. the content of the presupposition is added to the context on the background of which the sentence is interpreted.

I next go through two examples that illustrate how the construction of representations of discourses in which *doch* occurs may look like in a DRT-based formalism. I

⁵Cf. Pustejovsky’s cases of lexical underspecification involving a contextual specification of meaning in cases of weak ambiguity (called there “logical polysemy”) Pustejovsky (1998)).

focus on the two clause connecting uses of *doch*, namely the conjunction *doch* and the conjunct adverb *doch*.

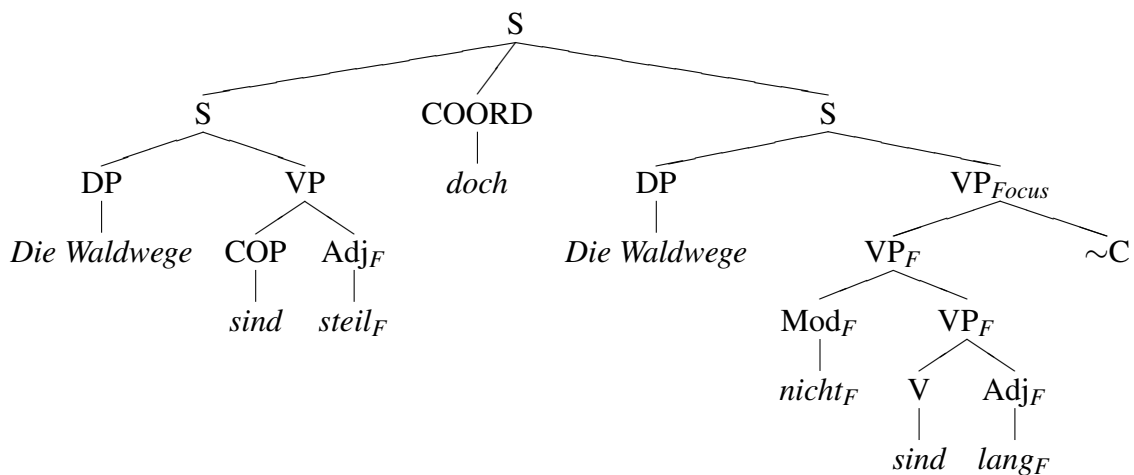
4.1 Conjunction *doch*

The first example involves the conjunctive use of *doch*, as in (18):

- (18) Die Waldwege sind [steil_F], doch [nicht lang]_F.
‘The forest paths are steep but not long.’

The focus-annotated syntactic tree of the sentence is presented in (19):⁶

- (19)



For the assignment of focus to the constituents in the syntactic structure I assume a system like the one proposed in Riester (2005), where semantic-syntactic constraints are defined by means of which syntactic constituents are marked as being part of the focus or the background of the sentence. The sign \sim is Rooth’s focus interpretation operator, and C is a variable that is resolved or accommodated to a set of contextual alternatives Rooth (1992).

In this context, focus is on the VP of the *doch*-sentence, and this is a case where *doch* pertains to the complement of the focus of the conjunct that hosts it. To choose the correct reading for *doch* in this context from the ones specified in (13), we can formulate a DRT-construction rule like CR.doch_{Conj.1} in (20). DRT-construction rules are rules that are applied to the syntactic structure of the sentence. By the application of such rules the discourse representation of the sentence is obtained.

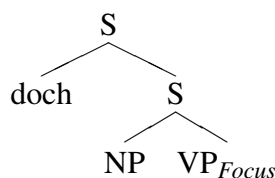
⁶I have represented the complete structure with the elided material.

(20) CR.doch_{Conj.1}

1. Introduce a presupposed speech act discourse referent π' into the discourse universe.
2. Introduce into the condition set of the discourse representation of the sentence the condition $\pi' : \neg\pi[\bar{F}(\pi)/F(\pi')]$.

The application of construction rules is triggered by a particular syntactic configuration. The triggering configuration of this rule would be the one in (21), where the *doch*-sentence must exhibit the particular focus-background structure, here wide focus over VP:⁷

(21)



I must refrain here from a more precise formulation of the construction rule and its application. Obviously, there must be some way to instantiate the parameters $\bar{F}(\pi)$ and $F(\pi')$ with information about the information structure of the *doch*-sentence and its preceding context, possibly by means of operations defined by the construction rule. I will assume for now that there is such a mechanism without elaborating on it, in order to give just the general idea of how construction rules may be used in the case of assumedly underspecified connectors like *doch*. The construction rules that I am envisaging here are not classical since they are formulated for items introducing presuppositions into the discourse. On the other hand, the idea that the appropriate *doch*-reading is chosen depending on the syntactic and prosodic properties of the sentence that hosts the connector, invites such a solution.

In the most recent version of DRT Kamp et al. (2005), the first step of the DRS construction is a preliminary sentence representation in which the presuppositions of the sentence are explicitly represented. The second stage of the DRS construction is the justification of the sentence presuppositions.

In the DRT version that takes the focus-background division of the sentence into consideration Kamp (2004), focus structure is represented as a triple $\langle K_0, K_1, K_2 \rangle$ consisting of a restrictor (a condition that restricts the possible values of the focus variable),

⁷There may be cases where only the negation is focussed, and the adjective (or NP) is backgrounded. In such cases a different rule CR.doch_{Conj.2} must be specified because the IS unit that *doch* pertains to is no longer the complement of the focus, but the element in the scope of the negation (the negated background). I.e., a different reading is triggered by this syntactic-prosodic configuration. For cases where the *doch*-sentence is not negated, as in (i), an operator COMP is required which will look into meaning postulates in order to get us e.g. the antonym of a property, which will be the complement of the focus.

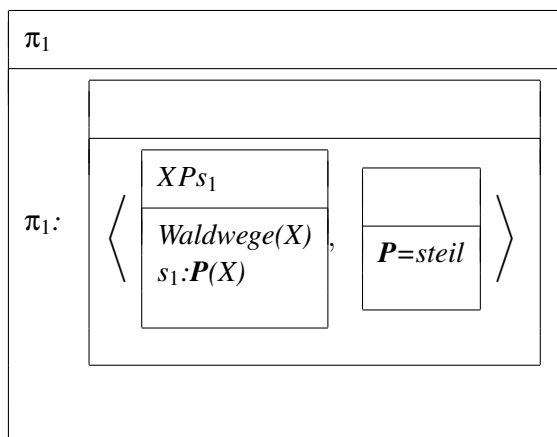
- (i) Die Waldwege sind [steil_F], doch [kurz_F].
 ‘The forest paths are steep but short.’

For the cases involving CT, we will have to formulate yet another rule CR.doch_{Conj.3}.

a focus frame (corresponding to the background) and the focus constituent. I will leave out the restrictor for simplicity in what follows.

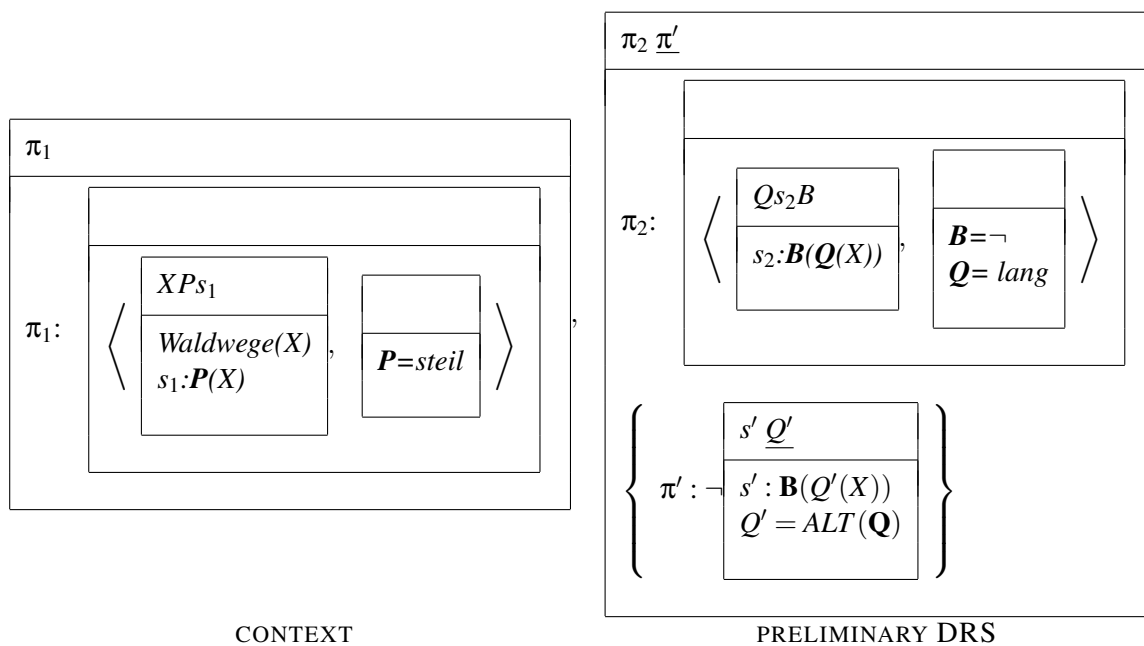
The representation of the first clause is provided in (22). The left part between the angled brackets represents the focus frame, the right part the focus constituent. The focus variables are set in boldface to indicate that they were obtained by abstracting the focus marked constituents from the representation of the sentence thus rendering the focus frame. I ignore here for simplicity the presupposition triggered by the definite description.

(22)



The DRS in (22) represents the context for the interpretation of the *doch*-clause π_2 . The representation in (23) provides the preliminary DRS in which the presupposition introduced by *doch* is explicitly represented.

(23)

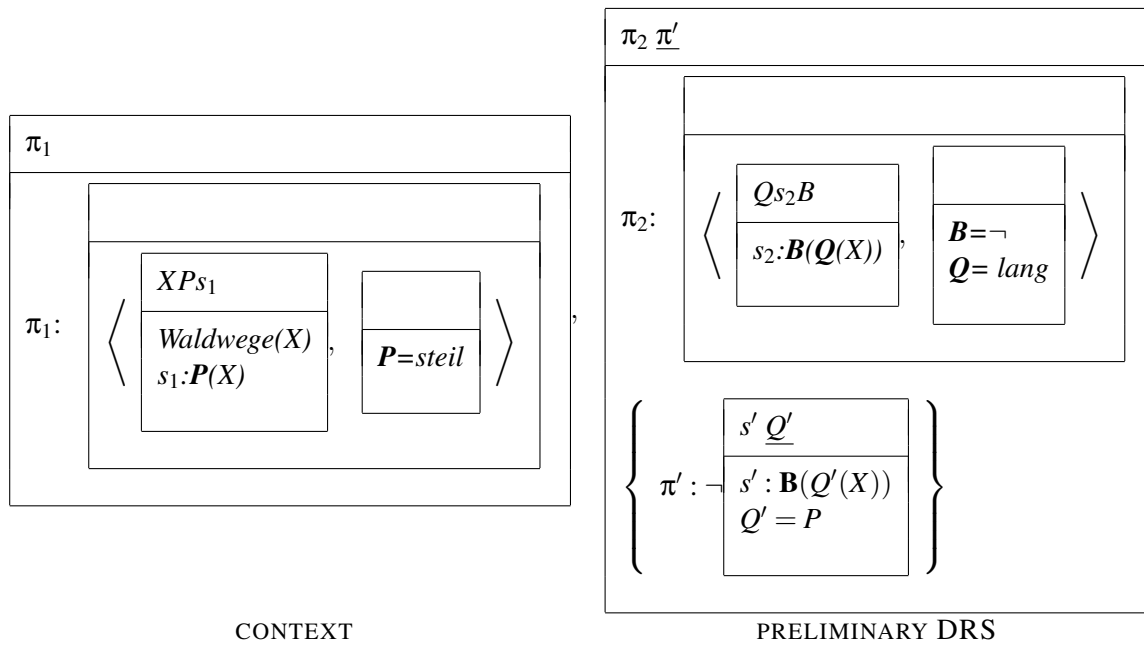


CONTEXT

PRELIMINARY DRS

In the representation of π_2 , there are two focus variables that are extracted from the sentence structure of π_2 , since focus is on both constituents.⁸ The variable B is a variable for the Boolean value of the sentence, which is here negative. The presuppositional part is between the curly brackets. Here the original condition $\pi' : \neg\pi[\overline{F}(\pi)/F(\pi')]$ is transformed into a DRS, where the first condition is the focus frame of π_2 except for the property variable Q' which is to be instantiated by an alternative of Q in the context. The second condition is a requirement to find in the context an alternative to the value of the complement of the focus of π_2 . The focus of π_2 is *nicht lang*, so its complement will be *lang*. The operator *ALT* is intended to get us a contextual alternative to the property *lang*. I.e. *ALT* looks into the context-DRS for an appropriate entity, and this is the property *steil*.⁹ We get as a result the following representation, where we have the presupposition that there is a sentence π' in the discourse context with the content $\neg\neg\text{steil}(\text{Waldwege})$:

(24)

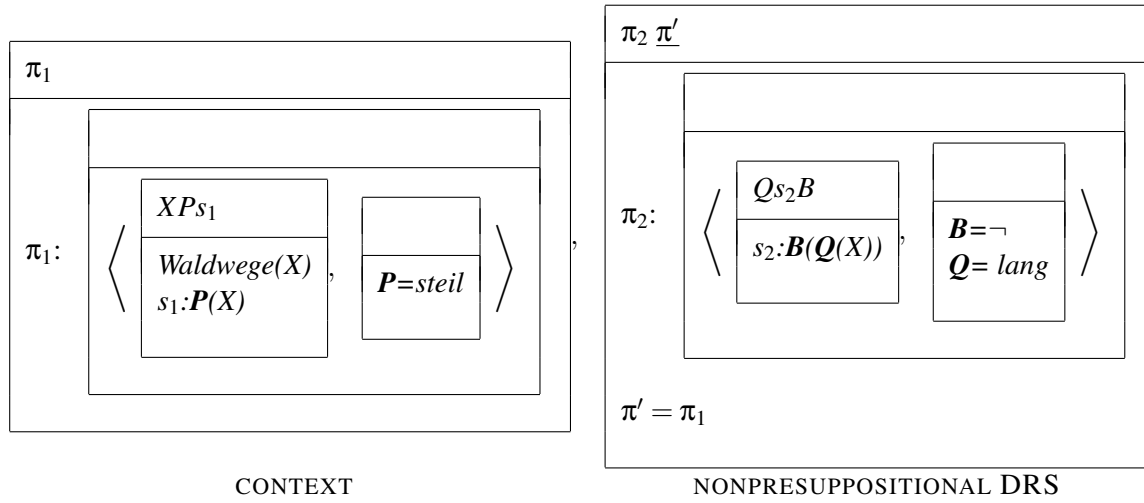


In a third step, the presupposition that there is a sentence π' in the discourse context with the required content is verified: the context contains the sentence π_1 with the same content (*steil(Waldwege)* is the semantic representation of the sentence when we apply the focus variable to the background). So π' can be resolved to π_1 :

⁸How this is done technically is a question that cannot be addressed here.

⁹A more explicit but complicated way is to write in the focus part $B(Q) = \neg lang$, and in the *doch*-presupposition to have the condition $s' : B(Q'(X)), Q' = ALT(Comp(B(Q)))$, where $Comp(B(Q))$ will be $Comp(\neg lang)$ and will give us *lang*, i.e. Q , and *ALT* will get us the alternative *steil*.

(25)



Finally, the new DRS is merged with the context.

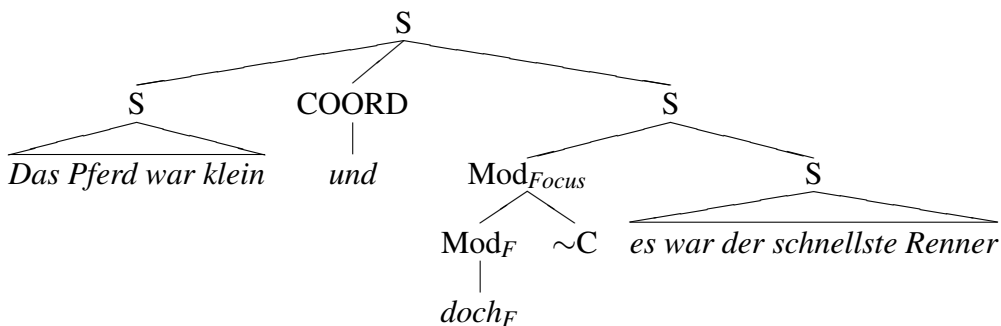
4.2 Accented IF *doch*

The second example involves the conjunct adverb *doch* which is accented and placed in the forefield of the German sentence:

- (26) Das Pferd war klein, seine Beine waren kurz, und DOCH war es der schnellste Renner weit und breit.
 ‘The horse was small, his legs were short, and yet he was the fastest runner far and wide.’

The relevant part of the focus-annotated syntactic structure is given in (27) below, where I assume that *doch* modifies semantically the clause in which it is syntactically integrated.

(27)



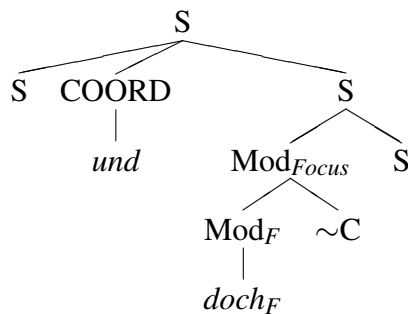
A construction rule for this use of *doch* may look as in (28).

(28) CR.doch_{CA}.1

1. Introduce a presupposed speech act discourse referent π' into the discourse universe.
2. Introduce into the condition set of the discourse representation of the sentence the condition $\pi' : \neg\pi[\overline{F}(\pi)/\overline{F}(\pi')]$.

The triggering configuration of this rule would be the one in (29).¹⁰

(29)

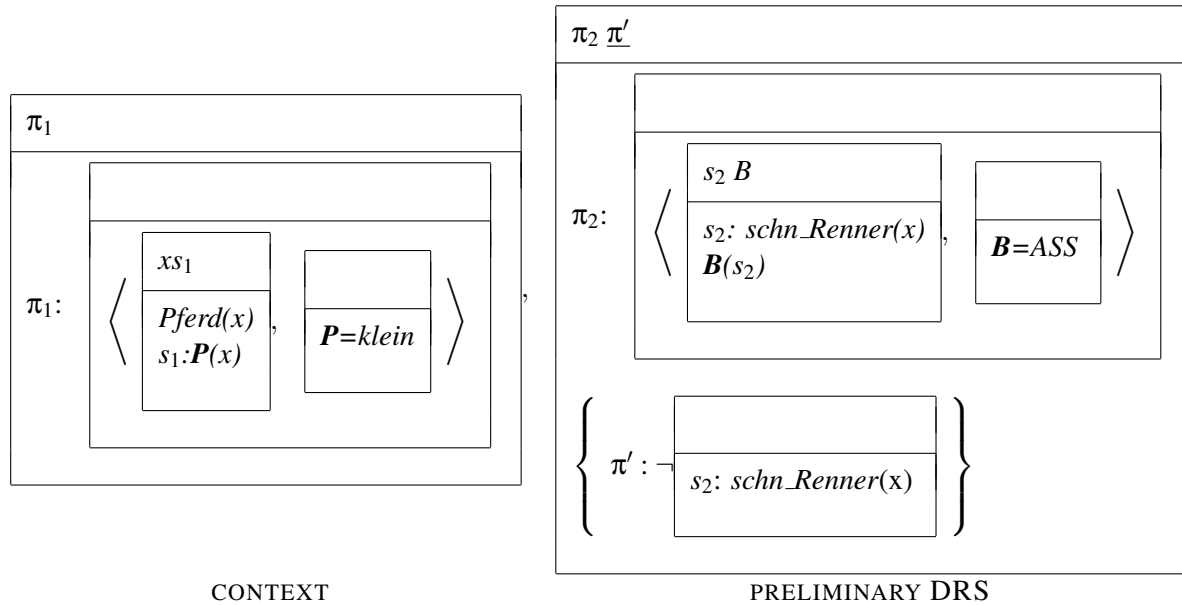


In the first step of the DRS construction we get the representation in (30). Now, the presupposition introduced by CA *doch* should be resolved in the context of the first clause π_1 , since CA *doch* performs just like the conjunction *doch* a clause connecting function. However, π_1 does not provide an antecedent to which π' could be bound. Nevertheless, the intuition is that π' , here that not being the fastest runner, is a natural consequence from π_1 , here that the horse is small. In Karagjosova (forthcoming) and Karagjosova (to appear), I present an analysis of CA *doch* in which the presupposition that CA *doch* gives rise to is bound to a default inference of the first conjunct.¹¹ However, the question of how this idea can be implemented in the present framework is far from trivial and must therefore be postponed for future work.

¹⁰Strictly speaking, we deal here with the host including *doch*, which is syntactically integrated into the host sentence and carries the focus, so that π corresponds to the upper S that is the second part of the coordination.

¹¹I give two alternative explanations of the origin of this default inference. In Karagjosova (forthcoming), it follows from the semantics of the connector that I assume there. In Karagjosova (to appear), I argue that it is an implicature generated as a result of an interaction between focus-induced contrast and discourse linking.

(30)



4.3 Adding discourse relations

A final point concerns the discourse effect of the various uses of *doch*. The discourse representations above do not contain information with respect to the discourse relations that *doch* marks in the respective contexts. As pointed out in section 3, this information is partly captured in the underspecified *doch*-alternation (13). As already pointed out in section 3, the full specification of the type of contrast expressed by a particular *doch*-use occurs when the additional information-structural and syntactic information is combined with the semantics of *doch* in the process of the semantic construction of the discourse. But the result of this interaction is not obvious from the constructed discourse representations. The representations would be more adequate if they contained explicitly relations like $\text{Concession}(\pi_2, \pi')$ or $\text{Correction}(\pi, \pi')$, possibly introduced by means of additional conditions specified in the construction rules for the respective *doch*-variants.

In standard SDRT, connectors like *doch* specify the rhetorical relation Contrast and are treated as anaphoric. For instance, *but* is assumed to presuppose that an antecedent of an appropriate sort exists in the discourse context Asher and Lascarides (2003).¹²

However, *doch*, as well as *but*, can mark not only the SDRT-relation Contrast, but also Correction. This means that we cannot conceive of a connector as hardwired to the introduction of a unique discourse relation.

Further, discourse relations are defined in SDRT independently of the semantics of the connectors which indicate them, since the relations may not be explicitly marked by connectors. However, the relation marked by *doch* cannot always be inferred on the basis of the semantics of the clauses alone. Consider for instance (31), where the

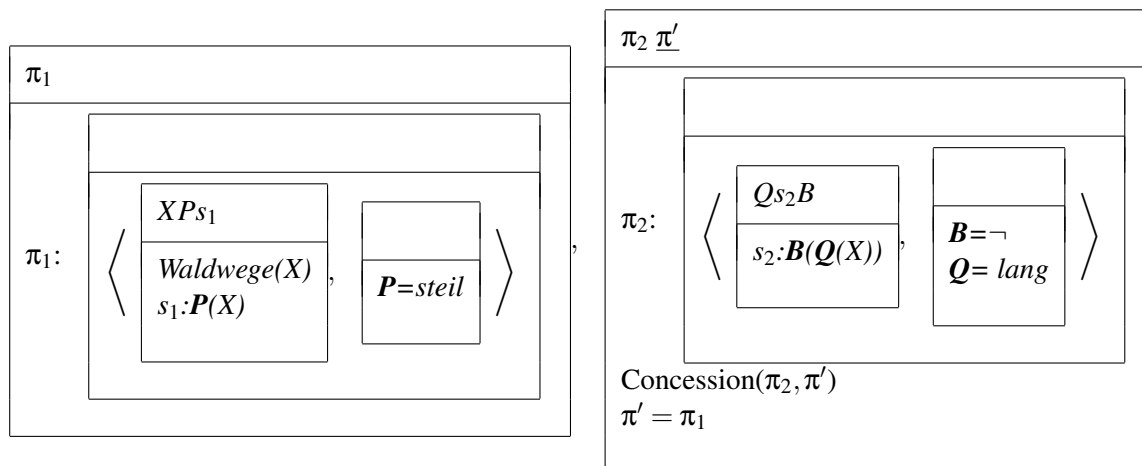
¹²This presupposition does not have to do with the semantics of *but*, but with its status as a two place connector.

doch-sentence confirms the preceding utterance and corrects a previously held contrary opinion of speaker B that is not present in the discourse but must be accommodated. On the standard SDRT account, *doch* would introduce a correction relation between utterances A and B, which would be clearly wrong.

- (31) A: Karl hat gelogen.
 ‘Karl lied.’
 B: Er hat also DOCH gelogen.
 ‘So he lied after all.’

On the account presented here, the semantics of the connector contributes to specifying the relation as well as to finding the correct argument for it. For instance, in (32), which would be the representation of (18) with explicitly represented discourse relation, finding the antecedent of the presupposed clause π' leads also to identifying the second argument of the relation.¹³

- (32)



5 Conclusions

I presented an exploratory DRT-based account of the adversative connector *doch*, motivated by the consideration that connectors are discourse phenomena that should be treated in a formal theory of discourse. Although I leave many important and intricate details for further elaboration, the presented account demonstrates how the complexity of a phenomenon like discourse connectors may be dealt with within existing DRT-based formalisms.

¹³Actually, Concession is not among the inventory of SDRT relations. It is treated as a special case of Contrast. The semantics of Contrast is defined in SDRT in terms of implying that the arguments of the relation are semantically dissimilar (i.e. the constituents are semantically dissimilar), cf. Asher and Lascarides (2003). In the case of Concession, the degree of dissimilarity between the arguments is maximal, i.e. $p \mid \sim \neg q$.

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