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Running head: Discourse transitions

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0. Introduction

Discourse particles and discourse markers (henceforth DMs) are intriguing objects of study, as they promise the researcher ready access to the very fabric of talk-in-progress. They can occur as lexical equivalents or complements of more elusive gestural or intonational cues that subtly guide and modulate the participants' understanding, or they can saliently signal relations between utterances or larger discourse units. My own fascination with DMs originated in my interest in developing a model of discourse coherence, which I will sketch in section 3. Accordingly, my approach is a radically functionalist one, as I will explain in the present section and in section 1, where I discuss my definition of coherence-oriented DMs. In section 2, I narrow my focus to one type of discourse-structuring function, that of marking transitions between segments. I illustrate how these transitions can be identified without depending on the presence of a DM. I then report an experiment that tested the hypothesis that DMs at discourse transitions guide the listener's attention.

0.1. Approach

Most studies of DMs focus on one or more lexical items (words or lexicalized phrases) and investigate their functions in various contexts. Against that background and in the context of developing a theory of language, it is natural to strive for a definition of the *word class* of DMs (see Kerstin Fischer's introduction to this volume). The difficulties in delineating such a class and its syntactic and semantic properties are discussed in Schourup (1999).

For my investigations of DMs in the framework of developing a theory of discourse, that is, a theory of *language use as social action*, I advocate a radically functional approach in which the objects of investigation are not lexical items, but contextually situated *uses* of expressions (Redeker 1991a: 1168f, 2000: 250f).

The discourse-as-action approach has distinctive implications concerning the research questions to be asked, the methods to be used (0.2), and the data to be considered (0.3). First of all, aiming for a coherent functional category strongly suggests a clear distinction between DMs that modulate the interpretation of utterances, and those with discourse-structuring functions, in spite of the fact that various items can fulfill either function. I call the former uses *discourse particles* and the latter *discourse operators* (see section 1).

Functionally divergent uses of lexical items, which in a more semasiologically oriented approach will raise the question of polysemy (how can the same word have

these different functions?), suggest for a discourse-theoretic approach that the functions under consideration may be related in some systematic way (why can these different functions sometimes be realized by the same expressions?). Consider the case of lexical items that can serve as intra-utterance particles (like hedging, focusing, editing, hesitations etc.) and also occur as coherence-oriented discourse markers (i.e., as discourse operators). Instead of asking how the disparate meanings of an item in those uses can come about, the discourse approach will try to identify functional commonalities between those two classes of uses. A good candidate here is Clark's (1996: Ch. 8) concept of grounding, which he conceives of as a collateral activity on a separate 'track' of the interaction realized mostly by nonverbal or paralinguistic means, but also signaled with lexical devices such as editing expressions in repairs and other disfluencies (262-64, 273f) and discourse markers at discourse transitions (345f). Similarly within the more narrowly defined area of coherence-related functions, the flexibility with which many DMs can fulfill a variety of such functions across instances and within a single instance (see e.g. Redeker 1991a, Schiffrin 1987, 2001, this volume) suggests that the different planes, domains or, as I call them, components, should be considered as interrelated parts of one coherence paradigm (see Redeker 2000 and section 3 below).

0.2. Methodology

It is widely acknowledged that the data available to the discourse analyst are not the discourse activities proper, but rather 'frozen' records of talk or writing. Sequential and distributional analyses of those material traces can undeniably yield solid

evidence for particular hypotheses about the functions of an expression or a construction (see e.g. Schiffrin 1987 and in this volume), especially when the analyses include speech prosody (as e.g. in Ferrara 1997, Hirschberg and Litman 1993, and Horne et al. 2001). But the process itself remains elusive, however meticulously we reconstruct what must have happened.

Multiple data sources and research methods are thus called for to provide converging evidence for the empirical claims of discourse theory. Functional claims derived from descriptive and distributional analyses of naturally occurring talk should be tested with the help of participants (for instance by using reader judgments as control variables, see Redeker 1992, 2000: 253-57), with experimentally elicited spoken and written discourse (e.g. Redeker 1986, 1990), and with psycholinguistic experiments to test processing hypotheses (e.g. Bestgen 1998, Bestgen and Vonk 1995, 2000, Tree and Schrock 1999, Redeker 1992, Sanders, Schilperoord, and Spooren 2001; see also section 2 below).

0.3. Data

My main source of data are various collections of spoken and written discourse: experimentally elicited oral narratives in American English (Redeker 1986, 1990), a corpus of descriptive, explanatory, argumentative, and entertaining texts from a Dutch news magazine (Redeker 1992, 2000), and videotaped interview and discussion programs from Dutch television (Redeker 1992).

In my analyses I have focused mainly on monologic stretches of discourse, as they can be found in and compared across all genres. However, I often use data from interactive genres, as my goal is a discourse theory that will do justice to the fact that all discourse genres can ultimately be seen as originating in face-to-face interaction (see Redeker 2000).

To test some of my processing hypotheses, I have measured naming latencies in a cross-modal priming experiment based on original and manipulated versions of fragments of Dutch television talk (see below).

1. Definition of coherence-oriented discourse markers

As I explained in 0.1 above, I will not attempt to give a definition of a word class of discourse particles or discourse markers. Instead, I define what I consider a functionally sufficiently homogeneous class of coherence-oriented marker uses, which I have called discourse operators (Redeker 1991a, 2000: 1168; the definition is similar to that of 'discourse connectives' in relevance theory, e.g. Blakemore 1987: 72-141).

A *discourse operator* is any expression that is used with the primary function of bringing to the listener's attention a particular kind of relation between the discourse unit it introduces and the immediate discourse context.

This definition leaves the nature of the discourse context unspecified: it need not be a linguistic context. This allows for inclusion of discourse-initial discourse operators, which mark a relation with the non-linguistic context (for instance, a situationally-given event or state of affairs).¹

The scope of the discourse operator is only partly specified in this definition. The minimal unit under consideration is an intonationally and structurally bounded, usually clausal *idea unit* (Chafe 1980: 14). The stipulation that the relation marked by the operator has to involve 'the discourse unit it introduces' allows for more global coherence functions like, for instance, the marking of list items, which can involve items of paragraph or chapter length (see Lenk 1998). It excludes expressions like focus particles or intra-sentential interjections (e.g. *ohh*), whose scope does not exhaust an idea unit. This also excludes anaphoric pronouns and noun phrases. While they may have coherence-relevant functions (especially at episode boundaries, see Vonk et al. 1992), they do not *primarily* function as coherence signals; nor do they suggest a *particular kind of relation*.

Note that my definition of discourse operators is wider than many current definitions of DMs (see, e.g., this volume and Schourup's 1999 review). Most importantly, discourse operators need not be optional, need not be syntactically or intonationally independent, and may add truth-conditional content. Included are all intersentential connectives, and (contrary to, for instance, Georgakopoulou and Goutsos 1998) also all clause-combining uses of coordinating and subordinating conjunctions, ranging from simple subordinators and relative pronouns to semantically rich connectives introducing adverbial clauses (*because*, *although*, and

so forth). The class of discourse operators further includes contrastive uses of indexicals (e.g., *now*, *here*, *there*, *today*) and other adverbial expressions, for instance *the next day*; [*today*...]*tomorrow*, that create temporal or spatial chains.

2. Markers of discourse transitions

Within the class of discourse operators, I distinguish ideational and rhetorical connectives from markers of transitions between discourse segments. I will discuss this model in section 3 below. In the present section, I will discuss the role of discourse operators in the management of attention during the processing of sequentially and hierarchically organized discourse units. Most if not all of the functions I will discuss here have been described in the literature, but usually not as examples of the signaling of discourse transitions. I will first discuss an example that illustrates the segmented structure of spontaneous talk. In subsection 2.1, I will present a wider range of segment transitions with examples from spoken and written genres. I will argue that DMs that signal segment transitions function as cues to direct the listener's attention. An empirical test of this claim will be presented in subsection 2.2.

Consider example (1) from an experimentally elicited description of a short fragment from a silent movie (Redeker 1986), presented here in a structured format that shows my analysis of the segmental structure.

(1) [SEsmj]²

- 1 So- the fraulein went into the room where the pilots were
- 2 and- one of the pilots –
- 3 who had/ who
- 4 after- the/ they had made accusations,
- 5 the one who was feeling very down,
- 6 was uh v/ uh upset by the whole thing,
- 7 well, the other pilot was trying to comfort him
- 8 saying
- 9 there's more girls in Vienna,
- 10 and we can go out to the nightclub tonight
- 11 and- kind of drink your- your sorrows away.
- 12 And uh and HE was kind of leading him out the door
- 13 to make sure he wasn't feeling so bad.
- 14 Well, as the fraulein encountered the two men, [...]

In my analysis of this fragment, lines 2-13 present a parenthetically inserted narrative episode that in turn contains two inserted segments, one (lines 3-6) providing extra information to identify the reference to a character in the narrative, and one (lines 9-11) presenting direct speech of a character.

Some, but not all of the transitions into and out of these segments are signaled by DMs. *So* in line 1 marks the beginning of this episode, while *well* in lines 7 and 14 signals returns after parenthetical discourse units. Note that the inserted episode in lines 2-13 is not initially marked as a parenthetical unit. In fact, the temporal

position of those events remains uncertain until the utterance in line 14, when it finally becomes evident that the *fraulein* was not present during the pilots' conversation (she meets them as they come out of the room).

Another case in this example where a parenthetical segment is not introduced with a DM is the reported speech in lines 9-11. The speaker here could have used an "enquoting device" (Schourup 1985), for instance, *oh, well, or you know*. The function of this segment as a quotation (implying, as I will argue in 2.1 below, its parenthetical status), is announced explicitly with the predicate "saying" in line 8. The speaker returns to the story line with *And uh* in line 12.

The parenthetical segment in lines 3-6 is especially interesting, as it illustrates how speakers can introduce background information – here a lengthy disambiguation of the reference "one of the pilots" – with minimal disruption of the story line (Polanyi 1978 called this kind of sequence a "true-start"). Note that the use of this construction need not be motivated by floor-holding concerns: this example comes from a true monolog (speaker and listener knew that the listener's microphone was shut off after they had made initial voice contact and the example occurred at the end of the story).

The discussion of this example illustrates my approach to the analysis of discourse structure: I visualize idea units and segmental structure and then determine the most salient relations between the units. This forces me to consider all possible instances of transitions as well as ideational and rhetorical relations between the units (see section 3), regardless of the presence of a DM.

2.1. Paratactic and hypotactic discourse transitions

Units of discourse above the levels of clause, sentence, and turn-at-talk (for a comprehensive recent discussion see Johnstone 2002: chap. 3) have been widely recognized, for instance in conversation analysis (noted already by Sacks 1968-72/92; see also Houtkoop and Mazeland 1985 and various contributions in Ochs, Schegloff, and Thompson 1996), sociolinguistics (e.g. Labov 1972; Schiffrin 1980, 1987; Polanyi 1989), text linguistics (e.g. Longacre 1983, Mann and Thompson 1988), text comprehension research (Van Dijk and Kintsch 1983), in semantic and computational approaches to discourse (e.g. Polanyi and Scha 1983, Grosz and Sidner 1986), and in the cognitive approaches of Chafe (e.g. 1980), who discusses intonational chunking in spoken discourse in analogy to the typographical paragraph structure in writing, and Clark (1996), who conceives of interaction as 'joint projects' which can contain subprojects and digressions.

Segment transitions and their signaling have mainly been studied for topic shifts or episodes in narratives, focusing on discontinuities in time, space, or personal reference (for a recent example and references to earlier work see Bestgen and Vonk 2000). In computational linguistics, research on task-oriented dialogues led Grosz and Sidner (1986) to the postulation of an "intentional structure" with transitions between subtasks. In contrast to narrative discourse, where transitions between topics or events are most often sequential, task-oriented or procedural discourse often involves subordination following from hierarchical relations between

subtasks. Dialogs, moreover, also contain clarification sequences which interrupt the ongoing discourse and suspend the current “discourse purpose”. Grosz and Sidner (1986) model the intentional structure as a kind of push-down stack, where only the current discourse unit is accessible, unless an inserted unit gets “popped” off the stack to allow resumption of a previously incomplete unit (see Reichman 1978 and Polanyi and Scha 1983 for similar proposals). I will return to these models in subsection 2.2.

Drawing on this earlier research and on the structures I encountered in various genres of spoken and written discourse, I have developed a preliminary classification of discourse segment transitions (see Table 1). I distinguish *paratactic transitions* between segments that follow each other at the same level, that is, one segment is completed and followed by the next one, and *hypotactic transitions* involving interruption or suspension of an incomplete unit with parenthetical material. Examples of paratactic transitions are lists of topics or subtopics, actions, agenda points, and so forth. DMs can signal these transitions prospectively, marking the beginning of a new segment, or retrospectively, closing off the current segment (cf. Schiffrin’s 1987: 322-25 “textual coordinates”). I call these *next-segment markers* and *end-of-segment markers*, respectively (see Table 1).

@@ INSERT TABLE 1 HERE

Parenthetical discourse units, which are bracketed by hypotactic transitions (see Table 1), can vary widely in function and in disruptiveness. The clearest cases of parenthetical segments are *digressions* and *interruptions*, as they are defined in

terms of their effect of suspending or disrupting the topic or purpose of the discourse unit that is in progress.³ *Specifications* and *paraphrases* elaborate on (parts of) an utterance and thus will show some referential overlap with it, while *explicitation*, *clarification*, *background* and meta-communicative or epistemic *comment* segments can contain any information that might help the listener’s understanding or acceptance of some previously presented material. Similar to comments, but referring indexically to an element of “trouble” in the ongoing talk, are *repairs*, defined here as emendations of (part of) an utterance that suggest that the speaker found the initial formulation incorrect or inappropriate (this latter stipulation distinguishes repairs from paraphrases). *Quotations* are also considered as parenthetical discourse units, as they shift the deictic center of the discourse (Bühler’s 1934 ‘origo’) and refer indexically to the context in which the quoted speech was uttered or is imagined to be uttered. I include here fictive quotes like “I was like ‘I don’t believe this!’”, “[...] as if to say ‘...’”, and generic or collective ones like “Everybody says ‘...’” or “We all went ‘AH!’” (cf. Clark and Gerrig 1990: Redeker 1986: 72-78, 1991b).

Example (2) below, from a talk-show interview with a famous Dutch writer of children’s books, contains a particularly rich variety of transitions (codes preceding the lines indicate the type of transition as introduced in Table 1). DMs at segment transitions (set in bold) include paratactic segmentation signals, ‘push’-markers signaling the beginning of a parenthetical segment, and ‘pop’-markers signaling the return from a parenthetical segment. Note here that this return need not actually lead to a continuation of a previous segment. Often the previous context is only

briefly reinstated with a repetition, sometimes accompanied by an end-of-segment marker, after which the speaker moves on to the next unit.

(2) [from interview with Annie M.G. Schmidt, *Hoe later op de avond* 14 Feb

1989]

Dutch original *English gloss*⁴

ns	Maar! we hadden een huismaaister.	BUT! we had a seamstress.
cm	En die noemden we Mietje.	And we were calling her Mietje.
	Maar we noemden geboef	But I think we were calling
	ik iedereen Mietje, toen in	everyone Mietje, back in
	die tijd hoor ,	those days you know ,
cm	waarom dat weet ik niet.	I don't know why,
pop	Maar goed ,	but anyway ,
es	dat was ook een Mietje dus .	so that was also a Mietje. ⁵
ns	En ehm die kwam uit België.	And uh- she was from Belgium.
	En d'r waren- dat was een	And there were- she was a
	Belgische vluchtelingen,	Belgian refugee,
bg	want in in de oorlog,	because in in the war,
sp	in de eerste wereldoorlog	in the First World War
pop	kwamen er allemaal vluchtelingen	all those refugees were coming
	uit België en die g/kwamen dan in	from Belgium, and they were g/
	Zeeland en zochten daar werk.	coming to Zeeland looking for work
pop	En ZIJ was dus huismaaister bij ons.	And so SHE was our seamstress.

Note that the pop-marker *dus* (translated here as *so*) occurs in non-initial position in the original utterance ("En ZIJ was **dus** huismaaister bij ons"), illustrating that

discourse operators in Dutch need not be utterance-initial or utterance-final. The return function is further marked by the heavily stressed pronominal reference *ZIJ* (*SHE*), indicating that a previously introduced referent has not been active in the immediate context and must be retrieved from the discourse record.

In both, examples (1) and (2), storytelling is the speaker's main purpose.

Segmentation and parenthetical embeddings are not limited to narration, however, as the next examples will show.

Example (3), from a discussion of ethical questions about journalists' paying their sources for news, contains parenthetically introduced background information (bg), a quotation (qu), introduced by an *eh* (*uh*) that might be functioning as a 'push'-marker, and a commentary (cm) that is parenthetically inserted inside an ongoing clause.

(3) [from the Dutch television news magazine *Nieuwslijn* 1 March 1989]

Dutch original *English gloss*

	Er broeide duidelijk iets,	There was clearly something cooking,
bg	he , de Surinaamse oud-president	you know , the Surinamese ex-
	Chin A Sen had een paar maanden	president Chin A Sen had said a few
	daarvoor gezegd eh	months earlier uh
qu	we staan voor kerstmis in	we will be in Paramaribo by
	Paramaribo, en dan hebben we	Christmas, and then we will
	die Bouterse ... verjaagd.	have ... chased a way Bouterse.
pop	Nou , tegen die achtergrond kregen wij	Now , against that background we got

informatie over een groep zwaar
 bewapende huurlingen, die aan de kant
 van Brunswijk eh zou gaan vechten.
 Tegen betaling,
 cm **want** kennelijk- vechten ze niet
 alleen maar eh- voor geld, maar
 praten ze ook alleen voor geld,
 pop **ehm**, hebben ze dat verhaal verteld.

zou u 't anders gedaan hebben?
 co B: Da's heel erg makkelijk eh
 gezegd,
 cm als ik dat al zou zeggen,
 pop zeker als je zoals hier op de voorste
 rij zit en de beelden vanaf 'n afstand
 ziet.
 ns Ehm **kijk**, wanneer ooit 't eh ehm 't
 lugubere schaakspel om

Note that *want* (*because*) here does express a semantic causal relation (a reason). Its
 more salient function, however, is its push-marker function, as it most clearly
 addresses the question of contextual relevance of the comment ('why this here?')
 by signaling its parenthetical status.

Example (4) contains more instances of lexically marked and unmarked segment
 transitions. The beginning of this fragment also illustrates a rather frequent
 phenomenon in (media) interviews: The speaker starts with a comment or with a
 qualification of the question (analyzed as a parenthetical segment) before beginning
 his response (marked here with the pop-marker *maar/but*).

(4) [from interview with police inspector in *Rondom Tien* 4 March 1989]

Dutch original *English gloss*

I: Meneer Blaauw, (...) er was veel
 kritiek op 't eh optreden van de Duitse
 politie,
 I: Mister Blaauw, (...) there was a lot
 of criticism of the uh actions of the
 German police,

sp >**want** daar gaat 't om.<
 pop eh in met al z'n facetten en ook al
 z'n lafheid aan de volke vertoond is,
 dan is 't wel in deze zaak geweest.

pop **Maar** d'r is natuurlijk meer aan de
 hand. Want waar het om gAAAt is het
 meest cruciale moment

sp in **overigens** ieder ontvoering of
 gijzeling,
 pop namelijk 't antwoord op de vraag
 moet je nu toeslaan ja of nee.

bg **Let wel**, wanneer de ontvoerde,
 pp de gegijzelde
 pop nog in handen van de ontvoerders
 is.=
 I: =ja.

qu in **by the way** any kidnapping or
 hostage taking,
 pop that is the answer to the question
 should you attack now or not
 bg **Mind you**, while the kidnapped,
 pp the hostage,
 pop is still in the hands of the
 kidnapppers.=
 I: =Yes

sp >**cause** that's what it's about<
 pop uh has been shown to the public in
 all its facets and also in all its
 cowardice, it was in this case.

pop **But** there is of course more going on.
 Because what it is abOUt is the most
 crucial moment

sp in **by the way** any kidnapping or
 hostage taking,
 pop that is the answer to the question
 should you attack now or not

bg **Mind you**, while the kidnapped,
 pp the hostage,
 pop is still in the hands of the
 kidnapppers.=
 I: =Yes

pop B: **Immers**, bij ontvoeringen en bij B: **After all**, in kidnaps and in hostage
 gijzelingen is het uitgangspunt dat het situaties, the basic rule is that the kid-
 leven van de ontvoerde vóór alles gaat. napped's life has the highest priority.
 ns **maar** d'r kan zich natuurlijk een situatie **But** of course a situation may develop
 ontwikkelen, {kucht} waarbij, wanneer {cough} where, if you keep following
 je dat standpunt that view, that view,
 sp dat uitgangspunt dat absoluut is, that principle that is absolute,
 pop blijft volgen, het weleens noodzakelijk it may become necessary that
 zou kunnen zijn dat dat dan wel gaat ten that will then cost the life
 koste van het leven van degene die de of the one who is threatening the
 ontvoerde bedreigt, kidnapped, ...
 cm waar ik 't **overigens** mooi al niet, which **by the way** I really don't-
 eh HE/emaal niet uh **ABSolutely** don't have any
 moeilijk mee heb. problems with.
 pop De vraag is dan, The question then is,
 sp > da's meer een tactische vraag dan > that's more of a tactical question
 nog wat anders, < than anything else, <
 pop **ehm** op welk moment doe je dat. **uhm** at what moment do you do that.
 Segment transitions abound in spontaneous talk; but they can also be found in
 edited writing, as the following two fragments show. Example (5), from a long
 political background article in a Dutch weekly news magazine, illustrates a variety
 of grammatical, typographic, and lexical means, including DMs, for signaling
 segmentation in written discourse. Note that Dutch *ook* (here translated as
 postposed *too*) occurs in sentence-initial position in the original.

(5) [translated from *Vrij Nederland*, 27 June 1987]

	<i>Dutch original</i>	<i>English gloss</i>
	De man die de kroon op deze	The man who perfected this
	ontwikkeling zette was Richard Nixon.	development was Richard Nixon.
	Hij nam als minister van Buitenlandse	He took as Foreign Minister his
	Zaken zijn vriend William Rogers,	friend William Rogers,
bg	een tamelijk zwakke figuur	a rather weak figure
	die weinig van buitenlandse	who knew little
	politiek wist,	of foreign politics,
pop	en benoemde Kissinger tot National	and assigned Kissinger as National
	Security Adviser,	Security Adviser,
	en gaf hem zelfs opdracht	and even gave him orders
cm	(dat heeft Kissinger temminste altijd	(at least that's what Kissinger has
	beweerd)	always claimed)
pop	die Veiligheidsdienst,	to strengthen the Security Service,
bg	die zijn zetel in het Witte Huis	which has its seat in the White
	heeft,	House,
pop	zoveel mogelijk te versterken.	as much as possible.
	Kissinger onderhield persoonlijk de	Kissinger personally maintained the
	betrekkingen met de Russische ambas-	relations with the Russian
	sadeur, Dobrynin, en bereidde ook zijn	ambassador, Dobrynin, and also
	bezoek aan China in het geheim voor,	prepared his visit to China in secrecy,
sp	dus zonder de minister van	that is , without informing the
	Buitenlandse Zaken erin te kennen.	Foreign Minister.
pop	[...]	[...]
ns	Ook Jimmy Carter wilde een eigen rol	Jimmy Carter, too , wanted to play his

transition. That is, a priming effect should occur when a hypotactic transition is marked with a DM (as compared to the same transition without the marker). Furthermore, it is expected that the presence of a pop-marker will help to re-activate the suspended focus space and should thus also show a priming effect. No priming is predicted for markers of paratactic transitions.

As the test words occur within several hundred milliseconds of the boundary, there might still be some residual activation of the concepts from the previous focus space. When the marker is present, the distance between test and boundary is increased, allowing a further decrease of the activation. Replacing the marker with a pause in the 'no marker' condition (as in two of the experiments on *oh* reported in Tree and Schrock 1999) would have disrupted the flow of talk, as the markers were often quite long. Note however that the direction of any effect from residual activation would go against the hypothesis, as it would decrease the reaction time in the 'no marker' condition and thus decrease the predicted priming effect.

2.2.1. Method

Paratactic and hypotactic transitions between discourse segments were identified in two hours of Dutch television talk from political discussions, talk shows, and news magazines. The choice for media talk as opposed to private conversations was a deliberate one. Media talk is designed for the media audience; the listeners in the experiment were thus intended overhearers or auditors of the talk (for general discussions of audience roles see Clark and Carlson 1982, and Bell 1991: 90-95, who adds the intermediate category of 'auditor' between the categories of participants and overhearers).

Two parallel versions of each sound track were created by digitally removing and adding discourse markers. Each version contained marked and unmarked transitions and original as well as manipulated instances, that is, some DMs had been present in the original and some were inserted digitally, and idem ditto for transitions without a marker. The insertion of DMs copied from elsewhere in the same sound track was a very time-consuming effort, and many carefully tuned instances still had to be excluded because they were detected by listeners in a control study, who were instructed to find anything that sounded strange or manipulated. Using both manipulations was important, though, as it ensured that any differences between presentations with and without the DM would not simply be due to the fact that some manipulation had occurred in one condition.

Twelve fragments of 5 to 13 minutes each, preceded by a short training fragment, were presented to 30 listeners in individual sessions. The listeners had two tasks: listening (checked by occasional comprehension questions) and responding to visually presented words by reading them out aloud as fast as possible (naming task). The test words appeared at varying intervals after segment transitions: far enough into the new segment to allow for some referential processing before the test, yet not so far that the contents would too clearly give away the function of the segment (parenthetical or paratactic). Example (7) illustrates (placement of the test word is indicated by [*]).

(7) [from interview with Annie M.G. Schmidt, repeated from example (2)]

Dutch original

English gloss

Maar! we hadden een huisnaaister. En die BUT¹ we had a seamstress. And we were
 noemden we Mietje. Maar we noemden calling her Mietje. But I think we were
 geloof ik iedereen Mietje, toen in die tijd calling everyone Mietje, back in those days
 hoor, waarom dat weet ik niet. **Maar goed**, you know, I don't know why, **but anyway**,
 dat was [*] ook een Mietje dus. En ehm die so that was [*] also a Mietje. And uh- she
 kwam uit België. En d'r waren- dat was was from Belgium. And there were- she was
 een Belgische vluchteling, **want** in [*] in a Belgian refugee, **because** in [*] in the war,
 de oorlog, in de eerste wereldoorlog in the First World War all those refugees
 kwamen er allemaal vluchtelingen uit were coming from Belgium, and they were
 België en die g/ kwamen dan in Zeeland en g/ coming to Zeeland then and were looking
 zochten daar werk. En ZIJ was dus for work there. And so SHE was our
 huisnaaister bij ons. seamstress.

The test words in these cases were *naaister* (*seamstress*) and *onderdak* (*shelter*). The
 pop marker *maar uh* (*but anyway*) and the push marker *want* (*because*) were present
 in one version and absent (cut out) in the other. Example (8) from the same interview
 contains a push-marker *dus* (*you know*) that did not occur in the original, but was
 spliced in for one of the experimental versions. The test word, appearing on screen
 at the time marked here by [*], was *onbekend* (*unknown*).

(8) [from interview with Annie M.G. Schmidt]

Dutch original *English gloss*

Nou, ik weet wel dat ik eh, in vroegere tijd, Now, I know that I uh, at an earlier time, I/
 ik toen ik een jaar of 30 was, **[dus]** nog vóór when I was about 30, **[you know]** before
 [*] de oorlog, of misschien 't begin van de [*] the war, or maybe at the beginning of
 oorlog, dat ik wel hele mooie- probeerde the war, that I did make very beautiful- try

hele mooie verzen te schrijven,

to make very beautiful verses,

Example (9) contains a spliced-in end-of-segment marker *dus* (*so*), which was
 followed on the screen by the test word *taboe* (*taboo*), and an added push-marker
dus (*you know*), followed by the test word *aantallen* (*numbers*).

(9) [from Dutch television talk show *Op leven en dood* 29 July 1989]

Dutch original *English gloss*

En waar men toen over viel was, dat men in And what people objected to then was
 die tijd niet gewend was om te praten over that they were not used to talking about
 fouten binnen de professie. Als d'r al over professional mistakes. If it was talked
 gepraat werd dan mocht 't alleen about at all, it was only allowed behind
 binnenskamers, met collegae, bij congres- closed doors, with colleagues, at
 sen en symposia, maar niet ten aanhore van conferences and symposia, but not to be
 een groot algemeen publiek. **[Dus]** dat was heard by a large general public. **[So]** that
 [*] punt een, en 't tweede punt was, dat er was [*] point one, and the second point
 over die mortaliteit door mij niet gesproken was that I did not talk about mortality in
 werd in termen van percentages, van zoveel terms of percentages, like so many
 procent gaat er fout, maar in termen van percent goes wrong, but in terms of
 concrete getallen. **[Dus]** zo veel [*] concrete figures. **[You know,]** so many
 honderd mensen gingen d'r dood. En dat [*] hundred people died. And that was
 kwam veel harder aan dan alleen maar 't much harder to take than just giving
 noemen van percentages. percentages.

Overall, there were 180 test points in the twelve fragments, including 52 sites
 where one version contained a push marker, 39 pop-marker sites, 67 paratactic

transitions, and 22 fillers where a test word occurred after an ideational or rhetorical discourse operator.

2.2.2. Results and discussion

Figure 1 shows the naming latencies for the test words at paratactic and hypotactic transitions with and without a marker. As expected, paratactic markers did not facilitate naming; the naming latencies were even slightly longer when the marker was present (678 ms for the versions without the marker and 688 ms with the marker). At hypotactic transition points, however, the presence of a push- or pop-marker did produce facilitation, that is, presumably caused the relevant previous concepts to remain active (in the case of push markers) or to be reinstated more easily (for pop markers). For the 52 push-markers, the average facilitation effect is 36 ms; the mean naming latencies are 693 ms without and 657 with the marker. This effect is statistically significant in the item analysis ($t(51) = 2.8, p < .01$) and in the subject analysis ($t(29) = 2.9, p < .01$). For the 39 pop-markers, the facilitation effect is smaller (28 ms) and the difference is statistically significant only in the item analysis, not in subject analysis.

@@ INSERT FIGURE 1 HERE

Note that the presence of DMs at paratactic transitions did not produce a facilitation effect, although the lexical items used are often the same as those occurring as push- or pop-markers. The alternative explanation that the attentional effect of those hypotactic markers might have been a direct consequence of their lexical

semantics can therefore be ruled out in favor of the discourse-functional explanation proposed here.

3. The parallel-components model of discourse coherence

3.1. A sketch of the model

Transitions between discourse segments are one of three components in the model of discourse coherence I have developed (see Redeker 1990, 1991a, 2000). I assume that each new utterance has to be evaluated with respect to its relation to (i) the current contents of the 'text world' (to borrow Werth' 1999 terminology), (ii) the current discourse purpose, and (iii) its sequential relation to the current context space or (in Clark's 1996 terms) the ongoing 'joint project'. The first two of these components are widely acknowledged in the literature and correspond to the semantic / pragmatic or representational / procedural distinction (e.g. Van Dijk 1979, Sanders, Spooren and Noordman 1992, Blakemore 1987, and various contributions in this volume).⁸ Not usually discussed in the literature (but see Kroon 1998, González 2004, 2005) is the third component, which can be seen as a generalized version of Schiffrin's (1987) *exchange structure* – generalized because the sequential structure component encompasses monologic and dialogic segmentation.

Table 2 presents the units and relations in each of the three component structures in a terminology that is inspired by systemic functional linguistics (cf. Bazzanella in this volume).

@@ INSERT TABLE 2 HERE

The model asserts that each utterance will update the discourse in all three components, though I have found in my analyses that there is usually one relation that is most salient in the overall context.⁹ Not surprisingly, the relations in the three components tend to be parallel in nature, for instance, a supporting argument (*evidence* relation) in the rhetorical structure requires an underlying *cause, result, or reason* relation to hold (to be implied by the speaker) in the ideational structure, and a *concession* or *antithesis* presupposes some kind of implicit semantic contrast.

Table 3 sketches some of the correspondences between relations in the three components (for a more detailed list and discussion of relations and their correspondences see Redeker 2000: 248f).

@@ INSERT TABLE 3 HERE

The model has been tested empirically with various quantitative distributional analyses of discourse markers and with the experiment reported above. The distributional evidence shows that using markers with the most salient function in one of the components tends to reduce the need for more explicit marking in the other components. If a narrator uses many pragmatic markers (that is, markers of rhetorical relations and of discourse transitions), she will tend to use fewer markers

of semantic (temporal, causal, and so forth) relations; and if the semantic and pragmatic complexity of a range of discourse types is controlled statistically, the partial correlation between the density of ideational and pragmatic marking is significantly negative, indicating again a trade-off between the components (Redeker 1990, 1992, 2000). I have taken this as support for the treatment of those three components as constituting one identifiable paradigm of discourse coherence.

3.2. Discourse structure and dialogue structure: bridging the gap

My discussion here has focused mainly on turn-internal or monologic transitions, but the parallel-components model is intended to also apply to relations across turn-boundaries.¹⁰ Interactional (cross-speaker) realizations of end-of-segment markers are end-of-turn markers like *okay?*, *right?*, *no?*, *whatever*, tag questions, trailing off, and so forth. Turn-initial discourse operators like *so* can signal the beginning of a new segment (paratactic transition), introduce a parenthetical segment (e.g. a clarification or repair sequence), or can pop back to a previous topic (e.g. with *but*).

Let me illustrate the parallelism of turn-internal (monologic) and turn-initial (interactional) uses for the paratactic and hypotactic uses of *but* (Dutch *maar*). The monologic use as next-segment marker was illustrated in examples (4) and (6) above. Example (10) shows a paratactic transition where the new segment is produced by a second speaker. Note that B's turn is not a speaker return, nor a rejection of S's contribution. B has been agreeing with S's point before and is now introducing a new aspect into the discussion.

(10) [from Dutch television discussion program *Het Capitool*, 26 February 1989]

Dutch original

English gloss

S: [...] blijkt dus dat er ongeveer 50% weigeraars zijn en het is zeer wel mogelijk dat bij die 50% nou juist de groep zit die seropositief is.
 B: **Maar** niemand stelt zich de vraag waarom er zoveel mensen zich terugtrekken [...]
 S: [...] it becomes evident that there are about 50% refusals and it is very well possible that those 50% do include the group that is HIV positive.
 B: **But** nobody is asking the question why so many people are withdrawing [...]

The parallelism between monologic and interactional occurrences is also evident in Schiffrin's (1987: 152-177) discussion of *but* as a marker of "speaker return" within as well as across turns, which is quite similar to the monologic pop-marker use illustrated in example (2) above. Example (11) contains an interesting partially interactive occurrence:

(11) [from talk show *Op leven en dood* 29 July 1989; G has just explained that he

has to expose healthy persons to anti-depressant drugs in his clinical trial]

Dutch original

English gloss

P: Maar d'r zijn bijwerkingen natuurlijk. Een gezonde student van 20, die eh nou ja, hij eet verkeerd, omdat ie student is, P: But there are side effects of course. A healthy student, twenty years old, he uh well his diet is bad because he's a student,

maar verder is ie gezond.

G: Ja nou, 't ligt niet zozeer aan 't

eten, meestal meer aan 't drinken,

maar hij eet eh hij eet vaak toch wel

redelijk tegenwoordig, dankzij de

mensa's.

pop **maar** 't eh, nee ehm de mensen hebben

geen kwaal en worden toch met iets

behandeld tegen een kwaal en onder-

vinden dan de bijwerkingen die ook een

patient zou kunnen gaan ondervinden.

but apart from that he's healthy.

G: Yes, well, it's not so much the

food, more often the drinking, but

he'll he'll often eat reasonably

well these days, thanks to the

canteens.

But it uh, no uhm the people don't

have an illness and still they get

treated with something against an

illness and will experience side effects

that a patient might also experience.

Mazeland and Huiskes (2001) present detailed sequential analyses of several truly interactional (turn-initial) occurrences of Dutch *maar* (*but*) as a resumption marker.

They identify two "prototypical environments in which resumptions occur" (p.141): after repair sequences and after competing topics. The functions they discuss would be analyzed as pop-marker functions in my model.

Turn-initial and turn-internal uses of resumptive *anyway* (which corresponds to

Dutch *maar* or *maar goed*) in narration are discussed by Ferrara (1997). She

distinguishes resumptions after 'teller-triggered' and after 'listener-triggered'

digressions and finds the former to account for 74% of the cases. In particular, teller-

triggered digressions in her corpus occurred mostly turn-internally, but also across

turns (e.g. after word completion by the listener) and listener-triggered cases often

involved (listener-initiated) joint laughter, again suggesting close parallels between

monologic and interactional uses of the resumptive marker.

marker's semantics with the discourse context. This is why I chose not to address the question of polysemy here and refer the reader to the other contributions in this volume.

4. Concluding remarks

The model of discourse coherence I have discussed here provides a conceptual framework for developing and testing theories about the role of discourse operators in spoken and written, monologic and interactive discourse. I have exemplified this for the subcategory of segment transition markers, which are shown to affect listeners' attentional processing. The methodology employed in this study combines systematic corpus analysis with psycholinguistic experimentation.

Discourse markers in this approach are considered mainly with respect to the effects on the processing and representation of discourse arising from the presence of a marker in a particular type of context. With Schiffrin (1987), I assume that discourse markers select coherence options. In my model, these options are organized in three parallel components: Each discourse unit is considered to contribute to the ideational, the rhetorical, and the sequential structure, one of which is usually the most salient on any particular occasion.

Distributional and sequential analyses of particular markers in my own research and in many studies by others have been essential in refining the model (Redeker 1990, 1992, and 2000). My focus, however, has been on the fully contextualized interpretation of marker tokens in their sequential context with the purpose of identifying generalized types of functions in the three components, and not on the modeling of individual marker meanings as arising from the interaction of the

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Table 1: Turn-internal Discourse Segment Transitions in Spontaneous Talk

Segment Transitions		Typical Discourse Markers	
Id	Description	English	Dutch
es	end of segment	<i>okay?, you know, so</i>	<i>hé?, weet je wel, dus</i>
ns	next segment	<i>okay, so, but, now, well, and</i>	<i>nou, dus, maar, en</i>
di	digression, interruption	<i>by the way, you know</i>	<i>trouwens, overigens, dus</i>
sp	specification, definition	<i>that is, you know, well</i>	<i>namelijk, dus</i>
pp	paraphrase	<i>I mean, you know, that is</i>	<i>ik bedoel, dus</i>
ex	explication, clarification	<i>because, you know, I mean</i>	<i>want, dus, ik bedoel</i>
bg	background information	<i>because, see, well</i>	<i>want, namelijk</i>
cm	comment	<i>you know, I think, I guess</i>	<i>dus, trouwens, overigens</i>
co	correction, emendation	<i>oh, or, I mean</i>	<i>oh, of, ik bedoel</i>
qu	quote	<i>you know, like, well, oh</i>	<i>nou, ja, ach, oh</i>
pop	return	<i>but (anyway), so, now, well</i>	<i>maar (eh), dus, nou, wel</i>

Table 2: Components of discourse coherence

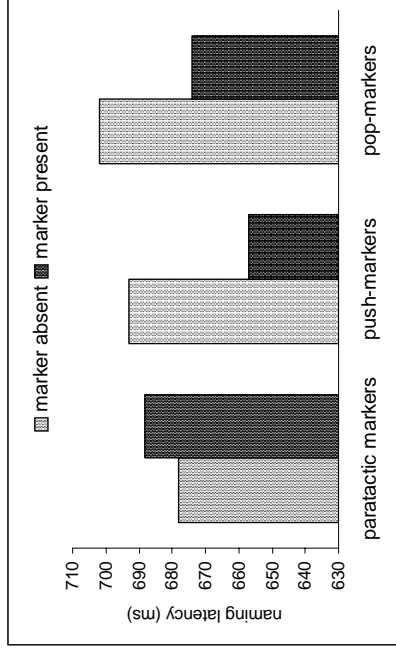
Ideational Structure	
units:	propositions
relations:	semantic relations that hold in the world described by the discourse
Rhetorical Structure	
units:	illocutions
relations:	reinforcement or support of one unit by the other
Sequential Structure	
units:	discourse segments
relations:	transitions to next unit or to/from parenthetically embedded unit

Table 3: Selected coherence relations in the three parallel components

Semantic Relations	Rhetorical Relations	Sequential Relations
(addition of information)*	(next speech act)*	(segment continues)*
temporal relations	contingent act (response)	next segment
elaboration, enablement	motivation, encouragement	comment, digression
alternative, contrast	concession, antithesis	paraphrase; return
cause, reason	justification, support	background segment
result, effect	conclusion	end of segment

* Simple additive relations are taken to be the default whenever no more specific relation holds in the component in question

Figure 1: Naming latencies in cross-modal priming experiment



Notes

¹ I will not discuss discourse-initial uses in this paper, but point this out here to prevent or correct a misunderstanding evident, for instance, in Schourup (1999: 237, 239), who apparently assumes I meant 'discourse segment' where I wrote 'discourse context' (Redeker 1991: 1168). In my usage of the term 'discourse', language is a necessary ingredient, but context is an equally inalienable part.

² Examples are presented in a structured format, roughly one idea unit per line (sometimes line breaks become necessary within a long unit) and with minimal intonational annotations. Syllables with exceptional stress are capitalized. Notable differences in speed of talk are marked by enclosing fast speech in angle brackets (> fast speech <). Other punctuation symbolizes: stops (/), lengthening of final syllables (*word-*), clause-final (comma) and sentence-final (period) intonation, and pauses (...). Indentation shows my interpretation of the discourse segment structure.

³ My description of these categories is rather informal, as their differentiation is not crucial to my main purpose of identifying paratactic and hypotactic discourse transitions. The categorization is intended as a partition (i.e., as exhaustive and non-overlapping). Note that the category of *digression*, for instance, is therefore taken more narrowly than elsewhere in the literature, e.g. in Ferrara (1997), who includes among digressions 'orientational detail' (here: background information) and epistemic comments (here classified as comment segments).

⁴ In translating examples I have tried to preserve the 'flavor' and recreate the idiomaticity of the talk, at times at the expense of literal accuracy.

⁵ Note that the end-of-segment marker *das* (English: *thus*), here translated by *so* for idiomaticity, appears in utterance-final position in the Dutch original (ending the segment after the utterance).

⁶ Willem Pijffers (1992), *Nederland in 20 seconden. Dubbele bodems in de Hollandse moraal [The Netherlands in 15 seconds. Double standards in the Dutch moral]*. Bloemendaal: Aramith (p.15).

⁷ The research reported in this section was supported by a grant from the Royal Netherlands Academy of Sciences and was carried out in the speech laboratory of the Max Planck Instituut für Psycholinguïstiek in Nijmegen.

⁸ Compare also Schiffrin's (1987) ideational structure and action structure, and Sweetser (1990), whose epistemic and speech act uses of conjunctions would both fall in the second component of my

model. In the dynamic semantic account of discourse relations in SDRT, Asher and Lascarides

(2003) distinguish three kinds of relations that would fall in the 'pragmatic' category: *cognitive-level relations*, *divergent relations*, and *meta-talk*.

⁹ 'Overall' is no gratuitous specification here. In testing the reliability of my classifications, I found that even rather long fragments allowed multiple interpretations of a particular relation much more readily than a complete text. Only analyses that are informed by the full context yield satisfactory intercoder reliabilities (see Redeker 1992, 2000).

¹⁰ Kroon (1998) makes a similar point, when she discusses monological (within-turn) and dialogical (across-turns) uses of Latin connective particles, arguing that the within-turn occurrences of what she identified as interactional functions are licensed by diaphony.