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Putting while in context

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Putting while in context

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Abstract:

I present an analysis of the connective while and the way it functions in context, based on a study of a set of while-clauses in two different text types. I propose to view while as one connective with a basic meaning and a number of different surface realizations. I show that different interpretations of while are subject to constraints coming from different directions, and that in determining how a particular interpretation arises attributes of the sentence as well as its context need to be taken into account. In the proposed approach, syntactic structure, semantic meaning and discourse function are closely intertwined.

1 Introduction

One of the chief areas of the empirical research carried out in the the DANDELION project concerns the relationship between the functioning of linguistic constructions in a discourse and their context, or the text type they are part of. Results reported so far all confirm that this relationship merits further exploration. Oversteegen (1994) presented an analysis of a set of Dutch temporal connectives and the influence of contextual properties on their interpretation. Caenepeel (1993) showed how in English aspect and text structure mutually constrain each other. Oversteegen (1995) concentrated on a number of causal and contrastive connectives (primarily in Dutch), and demonstrated how their interpretations can be linked to the contribution they make to various levels of the discourse. Outside DANDELION, recent contributions in a similar vein can be found in Lascarides & Oberlander (1992), Caenepeel & Moens (1994) and Sandström (1994).

The present paper[1] presents an in-depth analysis of one single connective in English, viz. while, and the way its functioning and interpretation are affected by context. While has a number of different interpretations. I will show that constraints on these interpretations come from different directions, and include both attributes of the sentence a while-clause forms part of and the larger discourse context. The conclusions presented are based on a detailed analysis of a large set of sentences containing while-clauses, in two different types of context. Conforming to the objectives of the DANDELION project, the analysis has been restricted to written text.

The while-clauses studied were extracted from two corpora, both of which form part of a larger collection of texts in different languages, the *European Corpus Initiative* (Multilingual Corpus I).[2] The first one consisted of four Sherlock Holmes novels by Arthur Conan Doyle,[3] henceforth referred to as the *CD-corpus*. The other corpus was made up of articles from the British weekly newspaper The Financial Times (the *FT-corpus*). A program developed for DANDELION by Jo Calder made it possible to search for occurrences of while in these corpora and to study them in context. As both text types differ significantly in format I opted for parity in the number of instances of while we studied, rather than in text size. The research presented here is based on 80 instances of while-clauses in each of the text types (160 in total). In selecting the while-clauses, the only criteria applied were that they should occur outside the context of direct speech (as this constitutes a shift in text type, cf Caenepeel (1989)).

The connective while, and its Dutch counterpart terwijl, were already discussed to some extent in two earlier DANDELION deliverables (Oversteegen (1994) and Oversteegen (1995)). Concentrating chiefly on terwijl, Oversteegen distinguishes between a temporal and a contrastive interpretation for the connective. She also follows Spooren (1989) in proposing a

[1] I want to thank members of the HCRC Language Technology Group, and collaborators on the DANDELION project, for stimulating and insightful feedback on the data presented in this paper; the Language Technology Group in Edinburgh, and the Linguistics Research Centre in Santa Cruz, for providing a hospitable, productive research environment; John Bateman, Leonoor Oversteegen and Gisela Redeker, for helpful comments on an earlier draft of the paper; Jo Calder, Claire Grover, Janet Hitzeman, and Marc Moens, for their support and generosity; and Ewan and Maaike-Kamila Klein, for love.

[2] The ECI corpus is distributed by ELSNET.

[3] The titels are listed in the reference section.

further distinction between three types of contrast, viz. Semantic Opposition, Denial and Expectation, and Concession, and argues that Dutch terwijl can express the first two types, but not the third.

The following constitute examples of English while expressing a temporal relationship (example (1)), Semantic Opposition (2), and Denial of Expectation (3). Example (4) shows that while can also express a concessive relationship:

(1) While the children were asleep, Anna called her mother

(2) Anna is very thin, while her sister is quite chubby.

(3) While John has lived in France for many years, his French is still poor.

(4) While jogging is a good aerobic exercise, swimming gives you a better overall workout.

The difference between Denial of Expectation and Concession may not be immediately clear. Spooren (1989) defines it in the following terms. In the case of Denial of Expectation, the first clause gives rise to a certain expectation, which is denied by the second clause. In Concession, the first clause gives an argument in favor of a certain conclusion, the second an argument against it.

Other treatments do not uphold this distinction, but assume one more general category of Concession (eg Quirk et al (1972); Halliday (1985); Grote, Lenke & Stede (1995)). Grote, Lenke and Stede (1995) define this relationship as follows:

> On the one hand, A holds, implying the expectation of C. On the other hand, B holds, which implies Not-C, contrary to the expectation induced by A.

Focusing on English while, I will also treat Denial of Expectation and Concession as a single category. One reason for this part of Spooren's motivation for distinguishing between the two is based on the difference between "expectation" and "conclusion". But the exact nature of this difference is not clear. For instance, *John must speak French* can be said to be a possible inference of the while-clause in (3) - but is this an expectation or a conclusion? Moreover, in the case of the while-clauses in the corpora, instances of the Denial of Expectation relation could also without exception be defined as Concession. Example (3) illustrates this again: the causal-contrastive relationship between the two clauses can be said to be based on a contrast between *John must speak French* and *John's French is still poor* (Denial of Expectation), or *John is fluent in French* and *John is not fluent in French* (Concession). I will therefore adopt as a starting hypothesis that while can express three kinds of relationships: **Co-temporality**, **Semantic Opposition**, and **Concession**.

The rest of this paper is structured as follows. I start off section 2 by considering an important issue for the representation of while in a discourse grammar: does while constitute a single connective with different interpretations, or is there more than one connective while? Heinämäki (1978) assumes the latter, and distinguishes between two connectives while, a temporal and a non-temporal one. I will take the opposite view, and argue that the different interpretations of while can be viewed as surface realizations of a single basic meaning. Both

the basic meanining of while and its interpretations are described in section 2.

I then turn to the issue of how an individual interpretation of while is arrived at. In section 3, I discuss the role of a number of sentence attributes which will license or constrain a particular interpretation, viz. tense and aspect, syntactic/semantic parallelism, semantic contrast, and the position of the while-clause in the sentence.

Although in some cases this information will suffice to single out a particular interpretation, in others it does not; and this is where context comes into play. I will argue that one aspect of context is particularly relevant for the interpretation of a while-clause, viz. the type of temporal entity that is available for reference. I start off section 4 by describing a number of striking differences between the use of while in the two corpora, which include the fact that the CD-corpus contained no instances of concessive while, whereas in the FT-corpus there was just one instance of while eliciting a temporal interpretation. I then give the most salient characteristics of the two text types studied, in terms of their communicative purpose and structure. And finally, turning to each of the corpora individually, I discuss the relationship between the types of while-clauses they contain and their structure.

In section 5, I reiterate the main points of the argument by illustrating how while is interpreted in a number of individual instances, drawing attention to the fact that even absent context may contribute to a particular interpretation.

And in section 6, I give the main conclusions of the research.

2 Basic meaning and interpretations of while

2.1 One connective while

In this section, I propose to view while as a single connective (with one lexical entry) which has a number of different surface realizations (or interpretations). There are a number of different reasons for adopting this position. One is that different interpretations of while are not necessarily mutually exclusive. Consider the following example from the CD-corpus, for instance:

(5) Two of the lads walked up to the trainer's house, where they had supper in the kitchen, while the third, Ned Hunter, remained on guard.

The while-clause clearly has a temporal interpretation; but the sentence also meets Spooren's definition of Semantic Opposition, as

> (...) a relation between two conjuncts each having different subjects, to which properties are attributed that are mutually exclusive in a given context.(Spooren (1989): 31)

Both interpretations are compatible, and the fact that they both apply does not make the sentence ambiguous.

Example (6), from the FT-corpus, can be interpreted as both Semantic Opposition and as Concession, again without giving rise to ambiguity:

(6) While Shorts, with more than 7,500 employees, is still the top employer in the province, supermarket chains such as Wellworth and Stewarts are near the top of the employment league.

In addition to this, the different interpretations of while can be viewed as deriving from the same basic meaning. This basic meaning can be defined as follows: while juxtaposes two eventualities, and asserts that they are true **at the same time**. I will show below that the notion "at the same time" can be interpreted in different ways depending on properties of the sentence and its context.

This definition leaves the basic meaning of while largely underdetermined. This, I believe, is correct, in the sense that indeterminacy constitutes an integral part of the semantics of while and its interpretations; and in sections 3 and 4 I will show that it may serve a particular stylistic function or rhetorical purpose. In fact it is, paradoxically, precisely this indeterminacy which distinguishes while from a number of related temporal and contrastive connectives (such as as, whereas and although): substitution of while by one of these will result in the marking of a more profiled relationship between the clauses involved (be it temporal, contrastive or concessive) and therefore by a more explicit commitment on the part of the writer.

At the same time, the interpretations of while are more profiled than its basic meaning. In the rest of this section, I will give a brief definition of each of the different interpretations of while.

2.2 Temporal interpretations of while

I proposed in the previous section that the basic meaning of while can be defined as marking that two eventualities are juxtaposed and asserted as true at the same time. One possible interpretation of this is that the eventualities are juxtaposed temporally, in the sense that they occupy (at least in part) the same interval on a timeline.

I distinguish between two co-temporal interpretations, viz. Parallelism and Framing.

2.2.1 Parallelism

In the case of Parallelism, the two clauses combined by while are conjuncts; the relation between them is symmetrical in the sense that they have the same syntactic status. The eventualities are described as happening in parallel, and are therefore co-extensive. The following example illustrates this:

(7) Anna placated the child, while John complained to the owner of the dog.

2.2.2 Framing

In the case of temporal framing, the while-clause functions as a temporal adverbial which introduces a time frame for the eventuality described in the main clause. The eventuality in the while-clause includes the eventuality in the main clause, as in the following example:

(8) While I was in the bath the phone rang.

The inclusion, however, need not be strict; this allows for the possibility that the two eventualities are simultaneous:

(9) While I was in the bath Nora listened to the radio.

2.3 Deictic interpretations of while

Two clauses connected by while can also be interpreted as being true **at the same time of evaluation**, and this will result in a different interpretation. Referring to this interpretation as "non-temporal" is slightly misleading: the sentence may still have a temporal dimension, in the sense that it may locate the utterance temporally with respect to the speech point.[4] What is crucial for the "non-temporal" interpretations of while is that the sentence the while-clause forms part of is related to a point of evaluation, or deictic centre in the discourse; I will therefore refer to them as *deictic* interpretations of while.

I distinguish between two deictic interpretations of while, depending on the rhetorical balance between the content of the two clauses, viz. Semantic Opposition and Concession.

2.3.1 Semantic Opposition

In the case of Semantic Opposition while juxtaposes two clauses which are given equal rhetorical weight, and asserts them as both true at the time of evaluation provided. Syntactically, the clauses are conjuncts - a property this interpretation shares with the Temporal Parallelism interpretation. Semantically, they share a semantic common ground and exhibit some kind of contrast . At the discourse level, the juxtaposition is argumentatively neutral: it does not convey any attitudinal bias, on the part of the writer or another point of view source in the text, towards the semantic content of either of the clauses.

The following example illustrates this:

(10) Maaike has a gentle disposition, while Lena has a more fiery temperament.

[4] We will see in section 4, however, that this is only the case in certain types of contexts, viz. contexts where the point of evaluation is provided by the speech point.

2.3.2 Concession

In the case of Concession, while juxtaposes two clauses which do not carry equal rhetorical weight, and asserts them as both true at the time of evaluation provided. Syntactically, the while-clause is subordinated to the clause it combines with - a property it shares with the Temporal Framing interpretation. Semantically, a contrast can be established between possible inferences drawn from both clauses. At the discourse level, the content in the while-clause serves as background to the content of the main clause which, because of its unexpected nature in the light of the information in the while-clause, receives rhetorical emphasis and is put into relief.

The following example illustrates this:

(11) While John is poor, his brother is a millionaire.

3 The role of sentential attributes

In this section, I discuss features at the sentence level which have an effect on the different interpretations of while.

3.1 Temporal interpretations

3.1.1 Aspectual class

Various people have drawn attention to the fact that the temporal interpretation of while puts aspectual restrictions on the predicates of the clauses involved (eg Moens (1987), Oversteegen (1989), Oversteegen (1994) Sandström (1993), Hitzeman (1995)). None of these take into account, however, the fact that there are two temporal interpretations of while, viz. Parallelism and Framing.

In the following discussion of the aspectual restrictions on both types, I use my own adaptation of the aspectual network which Moens (1987) coined as a framework for representing aspectual profiles and the ways in which they can be coerced (Caenepeel (1989)).

An analysis of Parallel co-temporal while-clauses in the CD-corpus[5] shows that just one aspectual constraint applies in the case of the co-ordinate temporal interpretation of while: the predicates in both clauses must be *events* (ie processes, culminations, culminated processes[6], or a combination of these). The following examples illustrate from the CD-corpus illustrate this:

(12) Then I picked up a magazine from the table and attempted to while away the time with it, while my companion munched silently at his toast.

[5] As already pointed out, the FT-corpus contained just one while-clause that could be interpreted as co-temporal.

[6] Or Activities, Achievements and Accomplishments respectively, in the traditional Vendlerian terminology.

(13) At the same moment the wooden-legged man threw himself upon the rudder and put it hard down so that his boat made straight in for the southern bank, while we shot past her stern, only clearing her by a few feet.

(14) He sank his head upon his hands, while the inspector smiled at the effect which his case had had upon the famous London specialist.

(15) We all filed into the front room and sat round the central table while the inspector unlocked a square tin box and laid a small heap of things before us.

Example (13) shows that if a co-ordinate while-clause takes a punctual event (a culmination), it has be given a durative interpretation, ie it will be coerced into a process. This is in line with the proposal put forward in Hitzeman (1995) for the representation of conditions on temporal while-clauses.

It follows from this that co-ordinate temporal while-clauses do not take stative predicates: as we will see below, a stative predicate will make the while-clause subordinate.

I will say that for a while-clause to be interpreted as a a co-ordinate clause expressing Temporal Parallelism, both clauses in the sentence must have the features [event] (and hence [restrictive]), and [durative]).

For a while-clause to be interpreted as a temporal adverbial (Temporal Framing), the conditions are slightly different. As in the case of Temporal Parallelism, the predicate of the while-clause has to denote an extended interval which has boundaries associated with it. Heinämäki (1978) points out that this is due to an inference that applies to all clauses with a temporal adverbial. He explains this inference as follows:

> If the speaker knows that the state of affairs has stayed the same all the time, and is not likely to change, then specifying a shorter period of time and asserting that the state of affairs was true would be inappropriate (...) (Heinämäki (1978): 105)

But a subordinate while-clause need not have to have the feature [event]: it can take a stative predicate, provided it has the features [durative] and [restrictive]. The predicate can therefore be a progressive or a restrictive lexical state, as in the following examples:

(16) While we were studying the map, somebody knocked on the door of the car.

(17) While we were busy studying the map the children played hide and seek.

Unrestrictive lexical states and (non-progressive) perfects, on the other hand, cannot occur in a subordinate temporal temporal while-clause, because the former lacks the feature [restrictive], and the latter the feature [durative]:[7]

[7] Habituals, although in principle unrestrictive, can occur if an extended interval of limited duration is presented as habitual:

> While John drinks his coffee in the morning, Anna gets ready for school.

(18) ? While John has blue eyes, ...

(19) While John has/had left, ...

The requirements [restrictive] and [durative] also allow for a subordinate while-clause to take a culminated process, process, or culmination, provided that, in the case of a culmination, it is possible to coerce the predicate into a durative one:[8]

(20) While I drove home, I went over the events of the afternoon in my mind.

(21) While I kicked the car's tyre, John checked the trunk (cf. Hitzeman (1995))

In some cases, however, event predicates sound odd in a subordinate temporal while-clause:

(22) a ?While Jon wrote a letter the phone rang.
b While Jon wrote a letter Suzie listened to Bach.

(23) a ?While Jon wrote in his journal the phone rang.
b While Jon wrote in his journal Suzie listened to Bach.

I already pointed out that the Temporal Framing interpretation may or may not be strictly inclusive. If the eventuality in the while-clause strictly includes the eventuality in the main clause - something which is usually the case if the event in the main clause is punctual - the while-clause does not combine well with an event. This is not surprising, given that the temporal relationship between the predicates involves reference to the internal portion of the eventuality in the while-clause; event predicates include reference to boundaries or have boundaries associated with them, and thus are not appropriate for expressing strict inclusion.

The predicate of a (strictly) inclusive subordinate while-clause, therefore, has to be durative, restrictive *and* stative - in other words, a progressive or a temporary state:

(24) a While John was writing a letter the phone rang.
b While John was writing in his journal the phone rang.

The examples so far show that the main clause modified by a temporal while-clause can take an extended or a punctual event predicate. It can also take a state, provided that the situation the predicate denotes is temporary (or restrictive); this means that it cannot take an unrestrictive state:

(25) a While Emma manicured her nails, Henk was listening to the radio.
b ?While Emma manicured her nails, Sylvia's hair was blond.

The main clause of a subordinate temporal while-clause therefore must have the feature [restrictive].

Let us recapitulate. We have seen that all temporal while-clauses must have the features [durative] and [restrictive]. In addition to this, co-ordinate temporal while-clauses must have the additional feature [event], while strictly inclusive subordinate while-clauses must have the

[8]Moens & Steedman (1988) describe the types of coercion that may be involved, by decomposing or composing the core event into a nucleus, or through iteration.

additional feature [stative]. If the while-clause is a co-ordinate, the predicate in the clause it combines with must also have the feature [event]; if the while-clause is subordinate, the predicate in the main clause must have the feature [restrictive].

3.1.2 Tense

All temporal while-clauses in the CD-corpus were in the past tense, which is the conventional narrative tense in English (cf Caenepeel (1989), Sandström (1993)). It is worth pointing out, however, that it is possible for a sentence in the present tense containing a while-clause to be interpreted as temporal; but in such a case the present tense will be automatically be interpreted as a narrative present:

(26) Anna placates the child, while John complains to the owner of the dog.

For a while-clause to be interpreted temporally, both clauses must share the same tense. This is not surprising: intuitively, it is a natural condition for two eventualities to be presented as co-temporal. But an additional motivation for this will be given in section 4, where I will argue that the co-temporal interpretation of while is essentially a narrative phenomenon, and that in narrative, a shift in tense signals that the narrative context is discontinued. This means that if a temporal while-clause and the clause it combines with have a different tense, a shift in text type occurs in mid-sentence.

Sentences containing a temporal while-clause therefore must have the feature [continuity of tense].

3.1.3 Position of the while-clause in the sentence

The position of a temporal while-clause will also affect its interpretation. To be interpreted as syntactically co-ordinate the while-clause must be in sentence-final position:

(27) Anna placated the child, while John complained to the owner of the dog.

Placing a temporal while-clause sentence-initially marks it as subordinate:

(28) While John complained to the owner of the dog, Anna placated the child.

A subordinate temporal while-clause may also be placed sentence-finally, so a temporal while-clause in sentence-final position may be either co-ordinate or subordinate. The aspectual type of the predicate may further specify the syntactic while-clause in such cases: if the predicate is stative, only a subordinate interpretation will apply:

(29) The phone rang while John was writing a letter to his mother.

If the predicate is an event, however, the clause will in principle be ambiguous between a co-ordinate and a subordinate interpretation:[9]

[9] This ambiguity will only arise if the relationship between the two clauses is one of non-strict rather than strict inclusion, since in the case of strict inclusion the while-clause can only take a stative predicate.

(30) Anna placated the child, while John complained to the owner of the dog.

In the following section we will see that in such cases other sentential attributes may make a co-ordinate or a subordinate interpretation more salient.

To recapitulate: a co-ordinate temporal while-clause must be placed in sentence-final position, whereas a subordinate one can be positioned both at the beginning or the end of the sentence. In the case of a subordinate temporal while-clause, a shift in the position of the while-clause does not result in a significant change in meaning. Nevertheless the position of the while-clause appears to have some effect on the interpretation of the sentence. Consider again:

(31) a While John was writing a letter to his mother the phone rang.
b The phone rang while John was writing a letter to his mother.

While the sentences in example (31) are both acceptable and semantically equivalent[10], they appear to be pragmatically different. This becomes clear if we apply the method proposed by Van Kuppevelt (1994) (also discussed in Oversteegen (1995)), which uses topic forming questions to determine which (part of) a discourse is functionally prominent:

(32) Q: What happened last night?
While John was writing a letter to his mother the phone rang.

(33) Q: When did the phone ring?
The phone rang while John was writing a letter to his mother.

Halliday (1985) points to a relation between the position of a sentence constituent and its information status: in the unmarked case given information is presented first, while new information is placed towards the end of the sentence. In example (31) (a), the main clause provides new information, which is temporally located by the while-clause, and this is in line with the context suggested in (32). In (31) (b), the positioning of the while-clause in sentence-final position marks it as new; hence it will be more appropriate if the time of the phone call is in focus, as is the case in the type of context proposed in (33).

The contrast between both sentences becomes more clear if *the phone rang* is replaced with *the call came*. The referent of *the call* is presented as given or presupposed; because of this, the substitution works better when the clause it forms part of is in sentence-initial position (the unmarked position for given information), as in (34) (a); if it is placed sentence-finally it sounds slightly odd ((34)(b)):[11]

(34) a The call came while John was writing a letter to his mother.
b While John was writing a letter to his mother the call came.

[10] Hitzeman (forthcoming) shows, however, that temporal adverbials have two readings, viz. a position-definite and a non-position-definite one, and that only one of these (the position-definite one) is available if the adverbial is placed in sentence-initial position. She explains this phenomenon in terms of the semantic partition of the sentence.

[11] What is at issue here is the natural compatibility between the presentation of the constituent *the call* as identifiable and the unmarked position of given information. It is of course still be possible for the clause *The call came* to contain (some) new information, viz. the time the event took place. Thanks to John Bateman for useful comments on this point.

In *the phone rang*, on the other hand, *the phone* is a generic expression, and the sentence sounds more natural if the main clause is in sentence-final position, the unmarked position for new information, as in (35) (a):

(35) a While John was writing a letter to his mother the phone rang.
b The phone rang while John was writing a letter to his mother.

3.1.4 Other sentential attributes

We saw in the previous section that a while-clause in sentence-final position may be either syntactically co-ordinate or subordinate.

Two other factors may affect the syntactic status of such a clause. First, the presence of syntactic parallelism, even if it is not strict, will favour the co-ordinate interpretation:

(36) The inspector hurried away on the instant to make inquiries about the page, while Holmes and I returned to Baker Street for breakfast.

And second, in the subordinate interpretation there tends to be no comma:

(37) a A shower of rain fell while we were on the train (...).
b (?) A shower of rain fell, while we were on the train (...)

These, however, are tendencies rather than strict regularities. In the last instance, the syntactic status of a while-clause in sentence-final position may be left undetermined - particularly if the sentence combines features suggestive of both interpretations, as in the following examples:

(38) Then, lying on his face, he reached down for the lamp and held it while I followed him.

(39) From under this great panoply she peeped up in a nervous, hesitating fashion at our windows, while her body oscillated backward and forward, and her fingers fidgeted with her glove buttons.

3.1.5 Conclusion

I have discussed a number of sentential properties which play a role in the temporal interpretation of a while-clause. They included tense, aspectual class, the position of the while-clause in the sentence, and, to a lesser extent, syntactic parallelism and the presence or absence of a comma. The following table summarizes the main features, and their relation to the sytactic status and the semantic meaning of the sentence.

Attribute	Parallel Interpretation	Framing Interpretation
Aspect	MC1 MC2 durative event	MC restrictive SC durative restrictive
Tense	continuity of tense	continuity of tense
Position	sentence-final	sentence-initial or sentence-final
Syntactic Status	Co-ordination	Subordination
Semantic meaning	Co-extension	Strict or non-strict inclusion

One important issue regarding the role of the sentential attributes discussed remains to be addressed: we have discussed certain features as *necessary* conditions for a particular temporal interpretation of a while-clause, but are they *sufficient* ones? In the CD-corpus, all the sentences, and only the sentences, that exhibit the features discussed in this section, are interpreted as temporal. However, some of the while-clauses in the FT-corpus do too, without this resulting in a temporal interpretation. Consider, for example:

(40) Barclays lost 10 to 334p and Lloyds 9 to 277p, while NatWest also slipped 9 to 255p.

The predicate of the clauses in this example meet the requirements of a temporal interpretation, and both clauses have the same tense. The while-clause is in sentence-final position, and the semi-parallel structures of the clauses, as well as the presence of a comma between them, suggests a co-ordinate (co-extensive) temporal interpretation.

A correct interpretation of the sentence, however, does not require that the eventualities happened simultaneously or in parallel: if Barclays lost 10 to 334p in the morning of the day the article was written, and Nat West slipped 9 to 255p in the afternoon, the sentence will still be true.

To understand why example (40) does not elicit a co-temporal interpretation its semantics and context need to be taken into account. This will be discussed in sections 4 and 5 below.

3.2 Deictic interpretations

3.2.1 Tense and aspect

In section 2, I distinguished between two deictic interpretations of while: Semantic Opposition and Concession.

Both the CD-corpus and the FT-corpus contained instances of while expressing Semantic Opposition. However, there was a striking difference in the use of tense and aspect between the two corpora. In the CD-corpus, all instances of while-clauses expressing Semantic Opposition shared the tense of the clause they combined with (they exhibited the feature [continuity of tense]); and in all cases both the while-clause and the clause it combined with contained stative predicates. The following example illustrates this:

(41) His face was disturbed and troubled, while his clothes were disarranged and untidy.

In the FT-corpus, the distribution of tense and aspect was much freer. As example (42)

shows, some sentences did not display continuity of tense:

(42) Many US firms have laid off partners in cost-cutting exercises, while Peat Marwick axed significant numbers of partners after its merger with KMG.

And while-clauses and the clauses they combined with had event predicates, state predicates (restrictive or non-restrictive), or both:

(43) Hoogovens, the Dutch producer, is in the midst of a four-year cost-cutting drive, while Cockerill Sambre and Arbed, the Belgian and Luxembourg producers, are discussing polling some of their interests.

(44) Of all the 522 companies in the survey, 44 per cent reported sales volumes in December lower than the same period a year ago, while oly 27 per cent said sales were higher.

(45) Gold mining issues were finally up just 0.1 per cent on the group index, while the oil sector ended down 0.35 per cent.

All this suggests that there are no restrictions in principle on the tense and aspect of the predicates in both clauses in the case of Semantic Opposition, but that text type may impose restrictions. This issue will be discussed in in more detail in section 4.

The CD-corpus contained no examples of concessive while-clauses. The FT-corpus, on the other hand, contained 15, all of which had stative predicates and all of which were in the present tense. Some of the sentences could, however, be transposed to the past tense, showing that the use of the present tense is not a necessary requirement for a Concession-relation:[12]

(46) a While success rates are low, those who pass are obtaining something of greater value than the devalued certificate of the past.
b While success rates were low, those who passed were obtaining something of greater value than the devalued certificate of the past.

Stativity and continuity of tense, on the other hand, do appear to be conditions for a concessive while-clause. Compare:

(47) a ? While John was rich, he still isn't happy.
(state + state but no continuity of tense)
b ?While John reached his goal, he still wasn't happy.
(continuity of tense but event in while-clause)
c While John has lots of money, he still isn't happy.
(state + state, present tense and continuity of tense)
d While John had reached his goal, he still wasn't happy.
(state + state, past tense and continuity of tense)

Concessive while-clauses therefore need to have the features [stative] and [continuity of tense].

[12]Whether a past tense concessive while-clause would occur in the context of a report in a newspaper like the Financial Times is another matter. This issue will be discussed in section 4.4. below.

3.2.2 Position of the while-clause in the sentence

As in the case of temporal while, the position of the while-clause also affects the interpretation of deictic while.

For while to be interpreted as concessive it has to be in sentence-initial position. This means that the clause is syntactically marked as subordinate and, in its dependent role, is conceded rather than asserted. The following example from the FT-corpus illustrates this:

(48) While the process cannot be guaranteed, it is remarkable that it can be envisaged at all.

Placing a concessive while-clause in sentence-final position makes the sentence unacceptable if conditions for another interpretation (Co-temporality or Semantic Opposition) are not met:

(49) (?) It is remarkable that the process can be envisaged at all, while it cannot be guaranteed.

A while-clause expressing Concession therefore has to have the feature [sentence-initial].

A while-clause which expresses Semantic Opposition,[13] on the other hand, has to be placed in sentence-final position, where it will be marked as co-ordinate, as in the following examples (from the FT-corpus and the CD-corpus respectively):

(50) Last year, 40 per cent of the school-age population had no access to schools, while another 40 per cent are illiterate when they leave school.

(51) His face might have been chiselled out of marble, so hard and set was its expression, while its eyes glowed with a baleful light.

3.2.3 Contrast

At the semantic level, both Semantic Opposition and Concession involve some kind of contrast between the two clauses involved, but the locus for this contrast is different.

In the case of Concession, as already pointed out, the contrast holds between possible inferences or expectations triggered by, or conclusions that could be drawn from, both clauses (Cf. Quirk (1972), Halliday (1985), Grote, Lenke and Stede (1995)).

Consider:

(52) (...) Japanese production is expected to reach 110m tonnes this financial year and while a drop is expected next year it will not be to the sub-100m tonnes level seen in the mid-1980s.

In example (52), the first clause raises a negative expectation of the strength of Japanese steel production in the near future; the second clause implies a more positive assessment. While juxtaposes both eventualities, and draws attention to the fact that they are true at the same time. In combination with the position of the while-clause in the sentence, this

[13] By this I mean *exclusively* Semantic Opposition; as we will see below a sentence-initial while-clause may combine features of both Semantic Opposition and Concession.

lends the sentence a rhetorical impact that is lacking in the case of Semantic Opposition: the writer grants, admits to, the truth of the first eventuality, but emphasizes that at the same time the second eventuality, which gives rise to a superficially incompatible inference, is also true. The following examples from the FT-corpus also illustrate this:

(53) The play is directed by Harry Landis and while one would not recommend crossing the metropolis to see it, it is an ideal piece for a small stage like the Lyric Studio.

(54) So, while success rates are low, those who pass are obtaining something of greater value than the devalued certificate of the past.

(55) While it dabbles wit CAP reform the Commission has been refusing further short-run amendments to its Gatt offer to cut farm subsidies by 30 percent (...)

To understand the source of contrast in the case of Semantic Opposition it is necessary to introduce another concept first, viz. that of **Semantic Common Ground**. This term, borrowed from Prüst (1993), refers to the shared semantics between two adjacent segments in a discourse. For two clauses to be connected by a relationship of Semantic Opposition, they need to share a Semantic Common Ground, which is established on the basis of matching the semantic content of the clauses as well as their syntactic structure.

Consider the following example:

(56) Gold mining issues were finally up just 0.1 per cent on the group index, while the oil sector ended down 0.35 per cent.

In example (56), the use of the connective while, in conjunction with the semantic properties of the lexical items and the semi-parallel structure of the two clauses will direct the reader towards establishing something like "fluctuations on the stock market" as the shared semantics between the two clauses. The Most Specific Common Denominator (cf Prüst (1993): 12) could be described as "fluctuations in the performance of natural resources on the stock market".[14]

Note that the connective while in example (56) can be replaced by and without loss of meaning at the ideational level:

(57) Gold mining issues were finally up just 0.1 per cent on the group index, and the oil sector ended down 0.35 per cent.

In truth-conditional terms, examples (56) and (57) are identical: in both cases, the clauses will be interpreted as being true at the speech time. The presence of the connective while in example (57), however, draws attention to this. This has the effect of implicitly inviting the reader to compare the two eventualities to each other, and to establish the **contrast** between them. This contrast will pertain to the semantic aspects of both clauses which are not shared between them - in example (57), *gold mining issues* vs *the oil sector* and *up just 0.1 per cent* vs *down 0.35 per cent.*

[14] Prüst proposes a formal way of calculating the Most Specific Common Denominator of two structures in a Discourse Grammar, but this falls beyond the scope of this paper.

In the case of Semantic Opposition, contrast thus ties in with Semantic Common Ground. If there is Semantic Common Ground but no contrast the sentence will sound odd.[15]:

(58) ?John has blue eyes, while Susan has blue eyes too.

At the same time, the contrast between the eventualities in two clauses juxtaposed by while may be weak, and amount to no more than non-identity, making the Semantic Common Ground more prominent. The following examples from the FT-corpus illustrate this:

(59) Many US firms have laid off partners in cost-cutting exercises, while Peat Marwick axed significant numbers of partners after its merger with KMG in 1987.

(60) Barclays lost 10 to 334p and Lloyds 9 to 277p, while NatWest also slipped 9 to 255 p.

Moreover, the contrast cannot always be placed on a single scale. In the CD-corpus, for instance, Semantic Opposition by means of while is often used to juxtapose aspects of a person or scene which are not strictly comparable:

(61) His face was disturbed and troubled, while his clothes were disarranged and untidy.

Both corpora, however, also contain cases of while expressing Semantic Opposition where the contrast between the eventualities is more clearcut - as in the following example from the FT-corpus:

(62) France is putting on its coat in preparation to depart, while the Italian economy is reclining on a couch - still there but feeling very tired.

3.2.4 Clause structure

We saw in the previous section that if while expresses Semantic Opposition, the eventualities in both clauses will share a Semantic Common Ground as well as exhibiting some kind of contrast. At the syntactic level, this is often supported by the fact that both clauses are parallel or semi-parallel in structure. In the CD-corpus, 24 out of the 28 while-clauses that elicited a Semantic Opposition interpretation exhibited this feature; in the FT-corpus, 49 out of 56 while-clauses did. The following examples illustrate that this parallelism may, but need not, be strict; typically, it amounts to different properties or actions being attributed to the subjects of the clauses (cf Spooren (1989)):[16]

[15] The following example from the CD-corpus at first blush seems to contradict this

> Then came the smash, and she stayed on to nurse her lover, while brother Joseph, finding himself pretty snug, stayed on too.

However, there is a subtle but significant difference between the motivations for the identical actions of both protagonists (she stays *to nurse her lover*, he, by implication, *because he finds himself pretty snug*). Without this specification the discourse would be less acceptable.

[16] This is not a necessary requirement, however, as the following example from the CD-corpus illustrates:

> He carried a broad-brimmed hat in his hand, while he wore across the upper part of his face (...) a black vizzard mask (...).

(63) The development bank - Banco Populo Desenvolvimento (BPD) has 20 per cent of bank lending, while its farm-lending subsidiary, Caixa Credito Agraria de Desenvolvimento Rusral (CCADR) has 9 per cent.

(64) Ferrier carried the bag of gold and notes, Jefferson Hope had the scanty provisions and water, while Lucy had a small bundle containing a few of her more valued possessions.

A (semi-)parallel clause structure is not a necessary requirement for a Semantic Opposition relation: the interpretation may also apply in the absence of any kind of parallelism, if Semantic Common Ground can be established between the two clauses and if other iterpretations are excluded. The following example from the FT-corpus illustrates this:

(65) Industrial output over the last 18 months has risen by about 8 per cent, while there are 10.000 fewer unemployed.

Despite the absence of syntactic parallelism, the sentence elicits a Semantic Opposition interpretation. The present perfect in the while-clause excludes a temporal interpretation, while the placement of the while-clause in sentence-final position rules out a concessive one. Semantic inferencing will establish "some upward trend in the economy" as the Semantic Common Ground. In the actual text the Most Specific Common Denominator is made explicit by preceding context; in (66) it is marked by italics (which are mine):[17]

(66) *Performance in some areas has been impressive.* Industrial output over the last 18 months has risen by about 8 per cent, while there are 10.000 fewer unemployed.

If syntactic parallelism is present, however, it will direct the reader towards the establishment of Semantic Common Ground (and, by implication, contrast). In a purely concessive interpretation of while, on the other hand, there will be no parallelism between the two clauses:

(67) So, while success rates are low, those who pass are obtaining something of greater value than the devalued certificate of the past.

3.2.5 Conclusion

In this section I have discussed the main sentential characteristics of the two deictic interpretations of while. In both Semantic Opposition and Concession, while juxtaposes two eventualities and asserts that they are true at the same time of evaluation. Semantic Opposition, however, is characterized by an essential symmetry between the two clauses juxtaposed by while. This is marked by the fact that the while-clause is placed in sentence-final position, and is syntactically co-ordinate to the clause it combines with, and, in most cases, by a (semi-)parallel clause structure. Semantically, the clauses exhibit a Semantic Common Ground as well as some kind of contrast. At the discourse level, the juxtaposition is argumentatively neutral.

[17] This procedure is common in the FT-corpus, and will be discussed in more detail in section 4.4

In the case of Concession, the symmetry between the two clauses disappears. This is reflected in the fact that the while-clause is placed in sentence-initial position and marked as subordinate, and, in most cases, in the absence of syntactic parallelism. Semantically, the contrast between the two clauses is situated at the level of inferences generated by the eventualities described. At the discourse level, the juxtaposition is argumentatively coloured: the while-clause concedes, the main clause asserts.

The following table summarizes this:

Attributes	Semantic Opposition	Concession
Aspect	No restrictions	Stative
Tense	No restrictions	Continuity of tense
Position	Sentence-initial	Sentence-final
Contrast	Common Ground Contrast	Derived Contrast
Syntactic Status	Co-ordination	Subordination
Semantic Meaning	Descriptive Opposition	Concession

4 While-clauses in context

In section 2, I put forward the idea that the way a while-clause is interpreted depends on three factors: the basic meaning of while, sentential attributes, and its context. In this section I explore the role of context in more detail.

4.1 Empirical observations

A first analysis of while-clauses in the two corpora reveals some striking differences between the two types of context. As already pointed out, I studied 80 instances of while-clauses in each of the corpora. Of these, the CD-corpus contained 52 examples of while clauses that could be interpreted temporally; the FT-corpus contained only one. On the other hand, the CD-corpus contained no examples of concessive while-clauses; the FT-corpus contained 15. This meant that all the while-clauses in the CD-corpus were interpreted either as Co-temporal or as Semantic Opposition; and all but one of the while-clauses in the FT-corpus belonged to the categories of Semantic Opposition and Concession.[18]

Second, there was a clear discrepancy between the two corpora in terms of the use of tense and aspect. All but one of the sentences containing while-clauses in the CD corpus were in the past tense; in the FT-corpus, 25 sentences were in the past tense, 48 in the present, and in 7 cases the while-clause and the clause it combined with had different tense. Moreover, there was a marked correlation in the CD-corpus between the aspectual profile of a sentence and its interpretation: in all cases where while was interpreted temporally at least one of the clauses had an event predicate, and in the majority of cases both clauses did; and in all cases where the while-clause expressed Semantic Opposition both clauses were stative. In the Semantic

[18] In fact, all of the while-clauses in the FT-corpus did. As we will see in section 4.4. below, in one while-clause in the FT-corpus which did have a temporal interpretation the temporal component was secondary, and Semantic Opposition was the primary interpretation.

Opposition interpretation in the FT-corpus there was no such correlation: both event and state predicates occurred, without any obvious regularity. In the case of Concession, on the other hand, all clauses were stative.

Finally, in the CD-corpus all while-clauses were in sentence-final position; in the FT-corpus 24 while-clauses were placed sentence-initially.

In the rest of this section I will discuss the function of the while-clauses in both corpora in more detail, and explain the differences between them in terms of the interaction between sentential and contextual properties.

4.2 Discourse structure and text type

4.2.1 Discourse structure in the CD-corpus

My basic premise is that narrative discourse differs from other discourse types in terms of two textual parameters; I refer to those as the bracketing of the speech point, and the construction of a time line. In what follows I give a brief discussion of each of these, and of their chief repercussions.

In most discourse types, the speech point assumes a crucial role as the point of orientation with respect to which states of affairs in the discourse can be situated temporally.[19] One of the distinguishing characteristics of narrative fiction is that the relationship between the actual speech point (the point at which the narrative is produced) and the realm of the story (the states of affairs related in the narrative) lacks this direct connection: following Caenepeel (1993) and Sandström (1993), I will call this the **bracketing of the speech point**. A bracketed speech point is not absent: the production of a narrative, like that of any text, is historically situated. But the temporal/spatial position of the historical author at the time of the text production is extraneous to the realm of the text,[20] and hence does not constitute a point to which textual deixis can revert.[21] This means that in narrative fiction, the organizing principle which in other discourse types constitutes the central point of orientation is lost.

This loss, however, is compensated for by a different structuring principle, the narrative time line. How is such a time line constructed? In Caenepeel (1995), I argued that *tense* and *aspect* play a crucial role in this respect. Because of the bracketing of the speech point, tense loses its deictic capacity, and functions anaphorically instead: states of affairs are temporally related to each other, rather than to the speech point. Tense also assumes the function of marking whether or not the narrative context is maintained: a shift in tense (typically from past to present) indicates that the narrative realm is discontinued and another context type

[19] This is reflected in the fact that in formal-semantic approaches, a tensed sentence is almost always represented as being interpreted at an index which represents the speech point.

[20] Although there may, of course, be an equivalence relationship.

[21] I am chiefly concerned with narrative fiction here, but I would hold that the bracketing of the speech point is not restricted to this genre: it lies at the very heart of the concept of narrative. Even in spoken discourse which purports to narrate actual rather than fictional events, the narrative act involves a procedure of recontextualizing events in a temporal realm independent of that of of the speech point. In narrative fiction, however, this procedure is further reinforced by the textual and fictional character of the text.

(with different rules and conventions) comes into play - typically the discursive realm of the narrator or implied author.[22]

The significance of aspect lies in the fundamentally different roles played by event sentences and stative sentences in a narrative. It has often been pointed out that events move a narrative "forward" (cf. Dry (1983), Kamp & Rohrer (1983), Hinrichs (1986)). It is misleading, however, to think of the relationship between events in a narrative exclusively in terms of temporal updating. Caenepeel and Sandström (1994) show that a relationship of purely temporal sequencing between consecutive events is in itself not sufficient to lend coherence to a narrative: the events must also be **consequentially** related, in the sense that one event can be interpreted as enabling, evoking, leading to, creating the appropriate conditions for, or causing the other one. This consequentiality relationship can be described as the "glue" between events in a narrative, combining them into dynamic event sequences, or **episodic structures**; and it is from these episodic structures, finally, that the **narrative time line** is projected, which constitutes the primary axis of orientation in narrative.[23] This timeline is an abstract construct: Sandström (1993) points out that it need bear no relation in definable terms of precedence etc. to any point on the real timeline; nevertheless it has the same properties, and can be modelled as a dense, linear point structure with intervals.

Thus, an event introduced by a new event sentence in a narrative will be added to the current episodic structure by virtue of being consequentially related to an earlier event, creating the impression that time "moves forward". Stative sentences in a narrative, on the other hand, have a different effect: they ascribe a proposition to a time on the narrative timeline - typically the time reached in the current episodic structure.[24] As a result of this, the current episodic structure ceases to grow, and the point on the time line which has been reached takes on the role of an **embedded point of evaluation** or **embedded deictic centre**, at which the state (and any subsequent states) will be evaluated, i.e. taken to be asserted or hold. Narrative movement is suspended, and the focus of the discourse shifts from narrative development to the properties of entities, places and characters in the story.

In short, the inaccessibility of the actual speech point in narrative fiction is compensated for by the construction of a completely text-internal temporal realm; and within this realm, realized by continuity of tense[25] and the different roles played by events and states, the

[22] With the exception of narratives in the historical present, where the main line narrative will be in the present tense.

[23] Most narratives consist of more than one episodic structure. An episodic structure may be suspended or ended by a long descriptive passage, or a shift to the narrator's discourse; the inception of a new episodic structure will often be signalled by temporal and spatial adverbials (*Two weeks later*; *When he arrived in France*), or at the level of the lay-out of the text, by the opening of a new paragraph or chapter. Episodic structures may be spaced closely together, or interrupted by a long silence, or "gap" on the timeline. In addition to this, it is worth pointing out that a narrative does not always develop in a progressive, linear fashion; it may contain flashbacks and leaps ahead in time, or move between different temporal spheres; and sometimes reconstructing the precise temporal order of the states of affairs that are presented may prove impossible. None of this, however, invalidates our observations about the basic properties of narrative structure: it is only in the light of these properties that deviations can be identified and described.

[24] The time at which a proposition denoted by a state sentence is evaluated may also be provided by a temporal adverbial.

[25] Tense shifts may occur in a narrative, of course. However, such a shift will normally also indicate a shift in context, typically from the narrative realm of fictional events to the discursive realm of the narrator.

alternation between forward movement of time and descriptive or perspectival pause imbues narrative with its own peculiar texture.

Sandström (1993) contains a proposal for capturing the distinction between events and states at the representational level, by viewing event sentences as introducing new discourse referents, and state sentences as ascribing propositions to times. Although I will not elaborate on this in any detail, the approach presented here is completely in line with Sandström's theoretical framework.

The four novels in the CD-corpus belong to the genre of detective fiction, which derives much of its impact from the tension between narrative development and the observation of detail which may be potentially relevant to that development. The stories are related in the first person by an I-protagonist (Dr Watson, Sherlock Holmes' well-known assistant), and are therefore limited to his point of view. They were written at the end of the 19th century, and thus precede the "inward turn" of the novel and experimentation with temporal structure that became the hallmark of the modernist movement at the the beginning of the 20th century. Because of this they conform closely to the prototypical structure of narrative: most of the text is in the past tense, and alternates between linear representation of events and description of characters and scenes punctiliously observed by Watson. Occasionally, a shift to the present tense discontinues the narrative in favour of Watson's musings or reflections.[26]

For our purposes, the most important consequence of the structure of narrative, and the novels in the CD-corpus in particular, lies in the temporal entities that are available for reference. 79 out of 80 while-clauses in the CD-corpus were in the past tense, situating them in the self-contained narrative world where the utterance event is not accesible. With the introduction of events, the internal structure of the time line is developed; with the introduction of states, a point on the timeline is selected as time of evaluation. The repercussions of this will be discussed in section 4.3.

4.2.2 Discourse structure in the FT-corpus

Let us now compare the structure of the Sherlock Holmes novels to that of the articles in the FT-corpus. The articles in the latter differ from the novels in the former in a number of ways. First, and most obviously, in their length and layout (the **mode** of the discourse). Second, in terms of their function and goal (the **field** of the discourse): the Sherlock Holmes stories belong to a genre that is geared towards entertaining the reader, by representing imaginary characters, events and observations in a way that teases the reader's intellect and psychological assumptions; while the articles in the Financial Times primarily aim to inform the reader of actual recent trends and developments in the world of finance and the economy, and, to a lesser extent, the arts and politics. And finally, in terms of their communicative situation (the **tenor** of the discourse): in the Sherlock Holmes novels there is no direct relationship between the time and context of production of the text and that of the textual realm; while a larger shared spacial/ temporal context of production and reception is crucial for the function of the Financial Times articles. This is reflected in the fact that the Sherlock

[26] The corpus contained one instance of a while-clause in such a context, which will be cited in section 4.3. below.

Holmes novels are still capable of serving the same function today as they were a century ago, and are indeed still widely read for entertainment; the articles in the Financial Times can only serve their informative function for a short period of time: they become "out of date" when a new copy is published, or, for some people, as soon as the day after publication. This does not mean it will not be possible to read and understand them as historical documents long after their publication (in the way the Sherlock Holmes novels can be read as historical documents); in their chief role of providing up-to-date information, however, the articles in the Financial Times are bound to a specific deictic context.

The sentences in the FT-corpus can thus be viewed as utterances which stand in a direct relationship to their speech time.[27] This means that there will be an index for the speech time, providing a point to which deixis can revert. This has some important repercussions for the interpretation of tensed sentences. In narrative, we have seen, the bracketing of the speech point is compensated for by events being related to each other anaphorically, and the construction of a time line; tense assumes the role of signalling that the narrative context is continued. In the FT-articles, as in other types of non-narrative discourse, tense will assume the role of temporally locating the referent of tensed sentences in relation to the speech point, rather than anaporically to each other. One result of this is that tense shifts will occur much more often than in narrative, as they will not result in a shift in discourse context (whereas in narrative each tense shift signals the suspension or resumption of the narrative context). Another is that events are not be primarily consequentially related to each other, as they are in narrative, but will typically exhibit non-temporal links that convey the imposing of a rhetorical structure by a reasoning mind (that of the speaker, or in the case of the FT articles, the reporter): explanation, concession, evidence, elaboration... I will refer to those as *rhetorical relations*. And finally, the clear demarcation in functioning between events and states that characterizes narrative disappears. In narrative, the distinctive role played by events and states derives in the last instance from the bracketing of the speech point: in the absence of a deictic centre, events are consequentially related to each other and projected onto a time line, and states are evaluated at a deictic centre on this time line. In non-narrative discourse, both event sentences and stative sentences can be deictically related to the speech time, and will be related to each other by means of rhetorical relations.

The speech time thus constitutes the prime locus for temporal reference for sentences in the FT-corpus - this in clear contrast with the CD-corpus. The repercussions of this for the interpretation of while-clauses will be discussed in section 4.4.

4.3 The function of while-clauses in the CD-corpus

4.3.1 Co-temporality

In section 2, I introduced a distinction between two co-temporal interpretations of while: Parallallism and Framing. I argued that this distinction is reflected in the syntactic status of the clauses, as well as their semantic profile. In this section I will show how in the CD-corpus, it also results in a difference in textual function.

[27] This is a property they share with most other discourse types; the so-called bracketing of the speech time is peculiar to narrative.

The CD-corpus contained 52 instances of co-temporal while-clauses. All of these are placed in sentence-final position. In 46 cases, both the while-clause and the clause it combines with have event predicates. In 6 cases, the predicate of the while-clause is a state but that of the main clause an event. In the former case, the clauses in the sentence are typically (semi-)parallel in structure and describe the actions of different protagonists. Their discourse function lies in presenting events that happen in parallel: I will say that **the time line branches**. In the latter case, the eventuality in the while-clause is presented as happening in the background of the event in the main clause; in such a case only the event in the main clause is projected onto the time line, which does not branch.

Branching of the time line In the previous section I characterized the basic structure of narrative text in terms of dynamic chains of consequentially related events, or episodic structures, being projected onto a time line. The textual sequencing of events in a narrative will invite the reader to look for a consequential relationship between them (something which is almost always possible) and to interpret them as happening one after the other.

In all the sentences containing a while-clause in the CD-corpus the first clause[28] is an event. Depending on preceding discourse, this event will either be incorporated in the current episodic structure, or introduce a new one. If it is followed by another event (be it with or without the connective and) the reader will try to establish a consequential relation between the two events , and interpret them as happening consecutively. Consider the following example:

(68) Convinced that some tragedy had occurred, the coachman rushed to the door and strove to force it, and scream after scream issued from within.

In the absence of a textual indication to the contrary, the event *scream after scream issued from within* will be interpreted as a response to the coachman's rushing to the door and trying to force it. However, the author may want to convey that two (or more) events of equal importance to the narrative occupy the same stretch on the timeline. If this is the case, it needs to be marked textually - otherwise a consequential relation between the two events will be inferred. And this is where one of the main functions of while in narrative lies:

(69) Convinced that some tragedy had occurred, the coachman rushed to the door and strove to force it, while scream after scream issued from within.

With the introduction of while the developing episodic structure will branch temporarily into two parallel lines.

A number of conditions need to be met for while to serve this function. First, it relies on a timeline being constructed, so the sentence must be part of a narrative context. Second, the while-clause must be in sentence-final position: if it is placed sentence-initially, the clause is marked as subordinate and will function as a temporal adverbial. And thirdly, the predicate in the while-clause has to be an event, because only an event can introduce a new discourse referent which can be projected onto the timeline.

[28] This is always the clause the while-clause combines with, since all while-clauses are in sentence-final position

In the CD-corpus, episodic structures branch off into parallel lines to convey different protagonists simultaneously being involved in different actions (as in example (70) below); but the branching may also follow the actions of a group of people as well as the specific action of one member of the group (cf 71), or different activities by the same protagonist that are being performed simultaneously, as in (72):

(70) The man who had addressed us mounted to the box, while we took our places inside.

(71) We all filed into the front room and sat round the central table while the inspector unlocked a square tin box and laid a small heap of things before us.

(72) He sat now with his handcuffed hands upon his lap, and his head sunk upon his breast, while he looked with his keen, twinkling eyes at the box which had been the cause of his ill-doings.

Parallel events or episodic structures juxtaposed by while will be interpreted as taking place in the same spatial location, unless there is an explicit indication of the contrary:

(73) One of these lads sat up each night in the stable, while the others slept in the loft.

Backgrounding A temporal while-clause in narrative may also describe one eventuality as happening in the background of one or more other ones. In such cases, only the event(s) in the main clause will be projected onto the timeline, and the while-clause will function as a temporal adverbial to the main clause. This interpretation arises when the while-clause takes a stative predicate, which will provide a temporal frame for the event in the main clause. The following progressive while-clauses in the corpus illustrate this:

(74) A shower of rain fell while we were on the train(...)

(75) In my haste I (...) dropped my stick while I was chasing Teddy, who had run up the curtain.

In some cases, a while-clause with a past progressive predicate will provide the time frame for an event which was co-temporal with a preceding episodic structure, but was not mentioned at its iconic place because the focus of the narrative at that point was on the development of the episodic structure. The while-clause recapitulates or summarizes the earlier episodic structure, and the event in the main clause starts off a new episodic structure. The predicates in the main clause and the while-clause are in the past perfect to mark the reference backwards to an earlier point on the time line:

(76) Our visitor had recovered something of his assurance while Holmes had been talking, and he rose from his chair now with a cold sneer upon his pale face.

(77) This conversation had occurred while our cab had been threading its way through a long succession of dingy streets and dreary byways.

(78) We had reached our house in Baker Street while we had been talking.

In a small number of instances, finally, temporal while-clauses in the CD-corpus hover between a Parallel and a Framing interpretation. In such cases, the predicate in the while-clause will be an event. The while-clause typically furnishes descriptive detail and is non-consequential in the specific context, suggesting a Framing interpretation; but other features, such as the (semi-)parallelism of the two clauses, or the presence of a comma, point into the direction of a Parallel interpretation.[29]

(79) "Pile it on, men, pile it on!" cried Holmes, looking down into the engine room, while the fierce glow from below beat upon his eager, aquiline face.

(80) Holmes drew one of the chairs into a corner and sat silent, while his eyes travelled round and round and up and down, taking in every detail of the apartment.

(81) From under this great panoply she peeped up in a nervous, hesitating fashion at our windows, while her body oscillated backward and forward, and her fingers fidgeted with her glove buttons.

I would argue that this indeterminacy need not be resolved. I pointed out earlier that the basic meaning of while has a vagueness built into it, and that the degree of specificity of a surface interpretation depends on attributes of the clause and its context. If, as is the case here, these attributes point in different directions, some indeterminacy will remain. In this particular case, the while-clause has the stylistic effect of suggesting both the forward thrust of events and the more static nature of description.

4.3.2 Semantic Opposition

All non-temporal instances of while-clauses in the CD-corpus constitute instances of Semantic Opposition. In all of these the predicates in both clauses are stative. Most of the clauses are parallel in structure, and share a Semantic Common Ground (typically, the physical characteristics of a person or a scene) as well as a some kind of contrast. As already pointed out, this may be a weak contrast, amounting to no more than non-identity:

(82) (...) his face was of an ashen white, while his lips and the corners of his nostrils were tinged with a shade of blue.

(83) Sherlock Holmes sat moodily at one side of the fireplace cross-indexing his records of crime, while I at the other was deep in one of Clark Russell's fine sea-stories

(84) His brows were drawn into two hard black lines, while his eyes shone out from beneath them with a steely glitter.

(85) There were four of them in a row, three of which were simply dirty, while the fourth was shuttered up.

We saw earlier that in its co-temporal interpretation, while cannot not be replaced by and without a change in meaning at the ideational level (from simultaneity to consequentiality).

[29] Provided the two eventualities are interpreted as co-extensive, of course; as we have seen, a strictly inclusive interpretation is not compatible with an event predicate in the while-clause.

In the Semantic Opposition interpretation such a substitution is possible without loss of meaning. The use of while does, however, serve a function at the *textual* level: in addition to being an important stylistic variant of and, it invites the reader to observe and compare different components of a scene, to pause, look and draw conclusions. As we have seen this ties in with one of the main goals of the Sherlock Holmes novels.[30].

4.3.3 Primary and secondary interpretations

Co-temporality/Semantic Opposition Finally, 38 while-clauses in the CD-corpus meet the requirements for a temporal interpretation, but at the same time exhibit the features [Common Ground Contrast] and [(Semi-)parallelism] characteristic of Semantic Opposition:

Consider:

(86) The man who had addressed us mounted to the box, while we took our places inside.

(87) The invalid sank back upon his cushions, tired out by this long recital, while his nurse poured him out a glass of some stimulating medicine.

(88) The inspector hurried away on the instant to make inquiries about the page, while Holmes and I returned to Baker Street for breakfast.

In such passages both interpretations apply, without being incompatible: the discourse conveys that the two events occur simultaneously, but also invites the reader to contemplate related but different aspects of the same scene. The underdeterminedness of the connective is again exploited here, allowing the author to capture both a more dynamic and a more static angle on the same eventualities.

Although no ambiguity arises because the two interpretations are not mutually exclusive, I would hold that one of the interpretations is nevertheless primary. This becomes clear if while is substituted for by and. As in the case of (purely) co-temporal while, such a substitution changes the ideational meaning of the sentence, and results in the events being interpreted as consequential (and therefore as happening in sequence):

(89) The inspector hurried away on the instant to make inquiries about the page, and Holmes and I returned to Baker Street for breakfast.

This suggests that the co-temporal interpretation is the primary one.

4.3.4 While in a narrative context

Let us now reconsider the properties of the while-clauses in the CD-corpus. I pointed out earlier that 52 out of 80 of the while-clauses in the CD-corpus elicit a co-temporal interpretation, either primarily or exclusively. The reason for this should be clear now: the temporal

[30] This may also be one of the reasons why this type of while occurs much more frequently in the Sherlock Holmes novels than in other novels we looked at in the context of this project. Apart from this, individual stylistic preference on the part of the author will of course also play a role.

interpretation requires reference to an extended interval on a time line, and such an interval is naturally made available by a narrative context. It is the presence of a narrative structure, in other words, which "translates" the underdetermined basic meaning of while into a temporal interpretation. However, such an interpretation requires the projection of a discourse referent on the time line, and only events are capable of doing this. This is why in all sentences in which the while-clause is interpreted temporally the predicate of the clause the while-clause combines with constitutes an event. If the while-clause also contains an event predicate, both are normally in parallel on the timeline, and the timeline branches.[31] If the while-clauses has a stative predicate, only the event in the main clause is projected onto the time line, which does not branch.

All the temporal while-clauses in the CD-corpus were placed sentence-finally. For the Parallel ("branching") interpretation, this is a necessary requirement: in sentence-initial position the while-clause would become subordinate. In the Framing ("background") interpretation, on the other hand, the while-clause could be placed in sentence-initial position; here, the position of the while-clause may be related to the thematic structure of the sentence, as well as possibly reflecting a stylistic preference on the part of the author.

The remaining 28 while-clauses in the CD-corpus are interpreted as Semantic Opposition. It is not surprising that all of these are stative: only stative clauses in a narrative ascribe a proposition to a time of evaluation. In 28 out of the 29 clauses, this time of evaluation is the time reached on the time line. In one case, it is the imaginary "now" of Watson; here, the shift to the present tense signals that the narrative is (temporarily) discontinued:

(90) Some have baffled his analytical skill, and would be, as narratives, beginnings without an ending, while others have been but partially cleared up, and have their explanations founded rather upon conjecture and surmise than on that absolute logical proof which was so dear to him.

The CD-corpus contained no instances of a concessive interpretation of while. Such an interpretation, we have seen, is attitudinally coloured in a way the Semantic Opposition interpretation is not: it implies a judgment, a subjective point of view. This means that for the concessive interpretation of while the point of evaluation at which the eventualities in the sentence are asserted as true must be activated as point of view centre (cf. Caenepeel (1989)). The speech point naturally lends itself to this, but as we have seen it is bracketed in narrative, and therefore not available for reference. In the appropriate kind of context, however, a deictic centre on a time line can also be activated as point of view centre; and in the Sherlock Holmes novels this centre could naturally be informed by the perspective of Watson. However, Watson takes on a particular role in the novel, viz. that of an objective observer, faithfully relating the details of scenes but restricting himself largely to the description of what can be perceived. Watson thus furnishes the reader with all the objective information he himself has available, leaving the reader room for assessment and inferencing until Holmes' reflections and conclusions are given. As already pointed out in section 4.2 above, the reason for this is partly historical (the novel precedes the pre-occupation with consciousness and "Free Indirect Style" that became common in the 20th century) and partly genre-specific.

[31] As we have seen, in a small number of cases the while-clause hovers between a co-ordinate and a subordinate interpretation.

The reason for the continuity of tense in the sentences in the CD-corpus, finally, was already referred to earlier: in narrative a shift in tense will signal a shift in context type, and this is impossible within a single sentence.

4.4 The function of while-clauses in the FT-corpus

4.4.1 Semantic Opposition

64 out of the 80 while-clauses in the FT-corpus are interpreted as Semantic Opposition.

In the CD-corpus, aspect was a constant in all cases where while was interpreted as Semantic Opposition: both clauses in the sentence were always stative. In the FT-corpus, this is not the case: the Semantic Opposition clauses have event predicates as well as stative predicates:

(91) Demand for downhill skis has slipped by more than 10 per cent, while the market for cross-country skiss has fallen by 40 per cent, (...)

(92) Boots traded 1,953 contracts with the January 330 calls featuring, while 1,642 Kingfisher changed hands, particularly the January 360 calls.

In addition to this, the clauses in the sentence do not always have the same tense - this again in contrast with the instances of Semantic Opposition in the CD-corpus:

(93) The scale of redundancies is unprecedented. Many US firms have laid off partners in cost-cutting exercises, while Peat Marwick axed significant numbers of partners after its merger with KMG in 1987.

Most of the clauses are parallel or semi-parallel in structure, and in many instances this is extended to a preceding or subsequent sentence:

(94) Steel producers are already coming under pressure. British Steel, which suffered a 27 per cent drop in pre-tax profits for the first six months of 1990-1991, is making more cuts to reduce costs. Hoogovens, the Dutch producer, is in the midst of a four-year cost-cutting drive, while Cockerill Sambre and Arbed, the Belgian and Luxembourg producers, are discussing polling some of their interests.

In almost all cases, the Most Specific Common Denominator is explicitly stated in a sentence preceding the description:

(95) Indeed, one feature of the crisis so far has been a 'decoupling' of foreign exchange markets from bonds markets. Thus the US treasury marked has suffered wild fluctuations over the past week while the dollar has risen.

(96) Although the world prices of gold and oil surged yesterday, their respective stock groups enjoyed less success. Gold mining issues were finally up just 0.1 per cent on the group index, while the oil sector ended down 0.35 per cent.

The Semantic Common Groud is typically a recent political or financial event, or a finan-

cial/economic trend: while is used to juxtapose fluctuations on the stock market performances or initiatives of companies or countries, or, more rarely, the political or financial activities of people:

(97) However, most are interested in only one of the assets. Pearson, for example, would like all or part of the Financial Review, while Mr Maxwell is interest only in The Age.

I already pointed out earlier that in the case of Semantic Opposition the Semantic Common Ground between clauses may be more prominent than the contrast. The following example from the FT-corpus also illustrates this (note the marking of the Most Specific Common Denominator in the introductory sentence):

(98) Several US carriers have already taken drastic measures in the face of the latest slump in what has traditionally been a highly cyclical industry. Continental Airlines has sought protection from its creditors under Chapter 11 of the US bankruptcy code. Pan American has decided to sell its precious north Atlantic routes to London's Heathrow airport to United Airlines for 400m, while Trans World Airlines (TWA) is selling its Heathrow rights to American Airlines for 445m.

The clauses juxtaposed by while in the FT-corpus thus typically describe a recent economic or political event or a financial trend in more detail, by illustrating how it is or was manifested in a number of individual cases. While can be replaced by and without loss of meaning at the ideational level. As in the case of Semantic Opposition in the CD-corpus, the chief function of the connective lies at the textual level: in addition to being a stylistic variant of and, it draws attention to the juxtaposition of the eventualities described and implicitly invites the reader to compare them.

4.4.2 Concession

The FT-corpus contains 15 examples of concessive while.

I have already pointed out that when while expresses a concessive relationship, the emphasis is on the unusualness of the eventualities in both clauses being true at the same time: superficially, they appear to give rise to different inferences or conclusions. The while-clause, by introducing an eventuality which at first seems to contradict (an implication of) that in the main clause, puts the latter in relief and increases its argumentative relevance.

This implies an *assessment* of the eventualities described, and hence a subjective point of view, which is absent in the case of Semantic Opposition. In the instances of concessive while in the FT-corpus, this subjective angle tends to be reinforced by the presence of evaluative, subjective or argumentative lexical items in the sentence or its context. The italicized words in the following examples illustrate this (italics are mine):

(99) The play is directed by Harry Landis and while *one would not recommend* crossing the metropolis to see it, it is an *ideal* piece for a small stage like the Lyric Studio.

(100) *Ironically*, while the country fails *so conspicuously* to educate its people, it is also faced with a critical skills shortage.

At the syntactic level, the asymmetrical relationship between both clauses is marked by the fact that the while-clause becomes subordinate to the main clause, and in the absence of parallelism between the clauses. At the discourse level, it is marked in the way the sentence relates to its context. We saw earlier that in the Semantic Opposition interpretation, a preceding sentence in the discourse typically introduces the Semantic Common Ground between the while-clause and the clause it combines with. In the concessive interpretation, this is not the case. Instead, the while-clause is related to the preceding sentence or discourse segment by means of a rhetorical relation (such as evidence, conclusion, explanation, result, ...). The following examples illustrate this (italics, which are mine, again mark rhetorical or subjective lexical items in the sentence and its context):

(101) The Department of Education and Training (DET) is upgrading the standard of its matric. *So*, while success rates are low, those who pass are obtaining something of greater value than the devalued certificate of the past.

(102) Welcome as they are, the new ideas are *too embryonic* to give the Urugay Round the quick shove it needs if its is to be revived and completed within the current deadline of March 1. While it *dabbles* with CAP reform the Commission has been refusing further short-run amendments to its Gatt offer to cut farm subsidies by 30 per cent, beyond those which were already rejected by the US and Cairns group of farm exporting nations at December's Gatt summit.

Sentences containing a concessive while-clause in the FT-corpus thus typically form part of an exposition or commentary on an economic or political development, on which the journalist presents a particular point of view.

4.4.3 Primary and secondary interpretations

Semantic Opposition/Co-temporality Just one while-clause in the FT-corpus can be interpreted as co-temporal:

(103) Latvians linking arms stood outside the red-brick parliament building in a human barricade while others cut the city centre off with buses, trucks and snowploughs, blocking every road wide enough for a tank or armoured car.

The predicates in this example meet the tense and aspectual requirements for a co-temporal interpretation. But the sentence also has the features [(Semi)parallelism] and [Common Ground Contrast] that characterize Semantic Opposition. A concessive interpretation is excluded by the position of the while-clause.

The sentence therefore allows for two interpretations: Co-temporality and Semantic Opposiiton. These are not mutually exclusive: we already saw in section 4.3 that some while-clauses in the CD-corpus combine features of both. I argued there that in the cases concerned the

co-temporal interpretation was the primary one, because replacing while by and resulted in a change in ideational meaning (the eventualities are interpreted as consecutive rather than co-temporal).

In example (103), replacing while with and does not result in a change in meaning. This suggests that Semantic Opposition, rather than Co-temporality, may be the primary interpretation. This is confirmed if we look at the sentence in context:

(104) LATVIAN civilians rallied in their thousands to guard vital buildings in the capital, Riga, against attack from Soviet troops and tanks yesterday, as the commander of Soviet forces in the Baltics declared that the republic must submit to Soviet power, Reuter reports from Riga.
Latvians linking arms stood outside the red-brick parliament building in a human barricade while others cut the city centre off with buses, trucks and snowploughs, blocking every road wide enough for a tank or armoured car. Barricades of wood, iron poles, fences and even old barrels were piled up high in smaller side streets to hamper movements by troops.
Tanks cruised through Riga on two nights last week and there have been reports that the Soviet garrison has been reinforced by a paratroop unit.

The main clause of the opening sentence of the article contains a past tense event which is deictically related to the speech point (cf. the use of *yesterday*). It also provides the Most Specific Common Denominator for the second sentence (which contains the while-clause). This, as we have seen earlier, is a typical procedure in the case of while-clauses expressing Semantic Opposition in the FT-corpus. At the same time, none of the events in the discourse in (104) introduces an episodic structure (and therefore, by implication, a timeline); all are deictically related to the speech time.[32]

All this suggests that Semantic Opposition constitutes the primary interpretation of the example in (103). The co-temporal interpretation is secondary and is, I would hold, based on a pragmatic inference, arising from the fact that the time frame for the events is one day, and that both events can be assumed to take up the largest part of a day.

Semantic Opposition/Concession In 9 cases in the FT-corpus the features [(Semi-)parallelism] and [Common Ground Contrast], which characterize Semantic Opposition, combine with the feature [Sentence-initial], characteristic of a concessive interpretation. In such cases the underdetermined character of while is exploited: it allows the reporter to suggest an angle on the juxtaposition of the two eventualities without committing him or herself:

(105) While Shorts, with more than 7,500 employees, is still the top employer in the province, supermarket chains such as Wellworth and Stewarts are near the top of the employment league.

[32] This is of course completely in line with what I already argued earlier, viz. that the interpretation of newspaper articles normally does not involve the construction of a timeline. In rare cases, however, a *local narrative context*, with consequentially related events projected onto a time line, may be introduced, typically in eye-witness reports of a local situation. This might have been the case in example (103) - hence the relevance of checking the context.

Note the subtle shift in argumentative balance between the two clauses if the while-clause is placed sentence-finally:

(106) Shorts, with more than 7,500 employees, is still the top employer in the province, while supermarket chains such as Wellworth and Stewarts are near the top of the employment league

Which interpretation is primary in such cases depends on the type of contrast between the eventualities. In all the cases concerned, this was a Common Ground Contrast, with the preceding sentence often specifying the Most Specific Common Denominator between the two clauses:

(107) The scale of growth in the consumer sector has led to some peculiar developments in the structure of the workforce. While Shorts, with more than 7,500 employees, is still the top employer in the province, supermarket chains such as Wellworth and Stewarts are near the top of the employment league.

This suggests that the Semantic Opposition interpretation is the primary one.

4.4.4 While in a non-narrative context

Let us now reconsider the most salient properties of sentences containing while-clauses in the FT-corpus. First, the striking absence of clauses receiving an (exclusively) co-temporal interpretation can be explained in terms of the absence of a timeline required for such an interpretation - this in obvious contrast with the CD-corpus.

The other two categories, Semantic Opposition and Concession, require for their interpretation a point of evaluation. In the FT-corpus, this is naturally provided by the speech time - this in contrast with the instances of Semantic Opposition in the CD-corpus, which are related to a deictic point on the time line. The speech point also constitutes a potential point of view centre, and to the extent that the reporter betrays an attitudinal bias it will be activated as such. In such contexts while is used concessively.

Because the speech time provides a point to which deixis can revert, tense shifts occur more freely in the FT-corpus. In addition to this, events and states do not play the distinctive role they do in narrative, as both can be related deictically to the speech time. Both of these characteristics are prominent in the case of Semantic Opposition, where shifts in tense and aspect are relatively frequent and have little effect on the structure and the continuity of the discourse.

The concessive while-clauses in the FT-corpus, on the other hand, all have stative predicates, and are all in the present tense. The stative profile of the predicates can be related to the the perspectival quality of concessive while. In Caenepeel (1989) I showed that stative sentences have a potential for introducing a subjective point of view which event sentences lack, and that this potential is activated in certain contexts. As we have seen, concessive while-clauses always have a subjective, evaluative slant, and therefore combine naturally with stative predicates.

I already pointed out earlier that the use of the present tense is not a strict requirement for while to be interpreted concessively. However, it is a requirement if the point of evaluation (which, in the case of concessive while, also constitutes a point of view centre) is the speech point. A sentence containing a concessive while-clause in the past tense will be related to an embedded deictic centre. Compare:

(108) a While John meets the requirements for the job, Bill is more reliable. (Point of evaluation: Speech Point)
b Henk considered the matter carefully. While John met the requirements for the job, Bill was more reliable. (Point of evaluation: Embedded Deictic Centre)

In the same way, a past tense sentence containing a concessive while-clause in a newspaper article has to be an indirect representation of a third person's point of view. I argued in Caenepeel (1989) that this is usually the case if the sentence (and other sentences forming part of the same stative discourse segment) is preceded by (or, in the case of a parenthetical, followed by) a **perspectival sentence**. Consider again:

(109) a While success rate are low, those who pass are obtaining something of greater value than the devalued certificate of the past. (Point of Evaluation: Speech Point)
b The Director of the programme argued that the reforms were an improvement. While success rates were low, those who passed were obtaining something of greater value than the devalued certificate of the past. (Point of Evaluation: Embedded Deictic Centre)

None of the while-clauses in the FT-corpus, however, occurred in this type of context: in all cases, the point of evaluation was that of the reporter (the speech point); hence all the instances of concessive while were in the present tense.

5 Final Remarks

Before concluding, two final points merit further attention. The first concerns the way sentential attributes and context mutually constrain each other; the second relates to the fact that even in the absence of an actual discourse context, the reader will normally infer a particular kind of context when interpreting a while-clause.[33]

Let us consider again how a particular interpretation of a while-clause arises. Example (110) meets the aspectual requirements for an inclusive co-temporal interpretation of the while-clause:

(110) The phone rang while I was in the bath.

The absence of Semantic Common Ground excludes a Semantic Opposition interpretation, and a concessive interpretation is ruled out because of the position of the while-clause. Hence

[33] Or, indeed, any other clause or sentence (cf. Caenepeel (1991), Sandström (1993).

the co-temporal interpretation is the only one available.

In example (111), the conditions for a co-temporal interpretation are again met, but a Semantic Opposition interpretation is also possible, because of the (semi-)parallel structure of the clauses and the fact that a Semantic Common Ground can be inferred:

(111) Anna worked on her novel, while John studied for his A-level exam.

In such a case context will decide which of the interpretations is the primary one. In (112) (a), preceding discourse introduces the Semantic Common Ground for the sentence containing the while-clause, making a Semantic Opposition interpretation more prominent. In (112)(b), on the other hand, a time line is established, making salient a co-temporal interpretation:

(112) a 1992 was a busy year for them. Anna worked on her novel, while John studied for his A-level exams.
b They got up at 7 and had breakfast together. Then Anna worked on her novel, while John studied for his A-level exams.

In the absence of discourse context, semantic information and world knowledge will often direct the reader towards a particular interpretation. The following examples illustrate this:

(113) a Barclays lost 10 to 334p and Lloyds 9 to 277, while NatWest also slipped 9 to 255p.
b Barclays lost his gun and Lloyd tripped over it, while Nat slipped.

Aspectually, the predicates in both examples are similar, and both meet the conditions for a co-temporal interpretation. In example (113)(a), however, the fact that the syntactic subjects refer to building societies, as well as the lexical semantics of the predicates, convey that the eventualities describe the performance of the financial institutions. On the basis of this, and genre-based knowledge, the reader will infer that the discourse context is likely to be a report rather than a narrative. As a result, tense will be interpreted as deictic, and the two eventualities will be interpreted as true at the same time of evaluation, rather than as being strictly simultaneous.

In (113)(b), on the other hand, the semantic properties of the predicates suggest that the proper names refer to protagonists; the events in the first part of the sentence can be consequentially related, and on the basis of this the reader will infer that the sentence forms part of a narrative. As a result, tense will be interpreted as anaphoric, and the two eventualities as true at the same interval on a timeline (and therefore co-temporal in the stricter sense).

Now consider:

(114) John's second name is Smith, while his brother is called Jones.

Here, the aspectual structure of the predicates does not allow for a co-temporal interpretation, and the position of the while-clause rules out a concessive one. The clauses are not syntactically parallel in structure, but a Semantic Common Ground can be established, resulting in a Semantic Opposition interpretation.

In the absence of a Semantic Common Ground, the while-clause cannot be interpreted:

(115) ? John's second name is Smith, while his brother is a lawyer.

Finally, in example (116), aspectual structure and sentence structure exclude a co-temporal and a Semantic Opposition interpretation:

(116) While John means well, you can't rely on him.

But a concessive interpretation is available, since the while-clause is in sentence-initial position and it is possible to infer a contrast between conclusions drawn from both clauses. If one of these conditions is not met, the sentence cannot be interpreted:

(117) a ? You can't rely on John, while he means well.
b ? While John means well, he is a nice guy.

6 Conclusion

I have described in this paper how the interpretation of a while-clause arises from the interaction between attributes of the sentence in which the while-clause occurs, and its context. The observations presented were based on an analysis of 160 while-clauses in two corpora representing different text types.

I started off by proposing to view while as a single lexical item, the basic meaning of which I defined as **at the same time**. In section 2, I sketched the surface realizations of this basic meaning: Co-temporality (Parallelism and Framing), Semantic Opposition, and Concession. In section 3, I discussed the role of a number of features at the level of the sentence in contributing to a particular interpretation of while: these included the aspectual structure of the predicates, the structure of the sentence, the type of contrast between the two clauses, and the position of the while-clause in the sentence. In section 4, I considered the effect of discourse context, primarily in terms of the type of temporal entity that is made available for reference. In section 5, finally, I illustrated by means of some examples how, in the absence of actual discourse context, a while-clause will be interpreted on the basis of the presence of particular features and the absence of others (which may exclude competing interpretations), as well as inferences about context based on lexical information, world knowledge and genre-based knowledge.

7 References

Caenepeel, M. (1989) *Aspect, Temporal Ordering and Perspective in Narrative Fiction.* PhD thesis, University of Edinburgh.

Caenepeel, M. (1991) *Event Structure vs Discourse Structure..* In: Caenepeel et.al. (eds) *Proceedings of the Workshop for Discourse Coherence.* University of Edinburgh.

Caenepeel, M. (1993) *Aspect and Text Structure.* DANDELION Deliverable R1.3.1

Caenepeel, M. & Moens, M. (1994) Temporal Structure and Discourse Structure. In: C. Vet

& C. Vetters (eds.) *Tense and Aspect in Discourse.* Berlin: De Gruyter.

Caenepeel, M. & Sandström, G. (1994) A Discourse-level Approach to the Past Perfect. In: Aurnague et al (eds)*Semantics of Time, Space and Movement.* Toulouse: IRIT.

Caenepeel, M. (1995) Aspect and Text Structure. In: *Linguistics* 33, 213-253.

Dry, H. A. (1983) The Movement of Narrative Time. In *Journal of Literary Semantics* 12, 19 - 53

Grote, B. Lenke, N. & Stede, M. (1995) Ma(r)king concessions in English and German. In: *Proceedings of the Fifth European Workshop on Natural Language Generation.*, Leiden.

Halliday, M.A.K. (1985) *An Introduction to Functional Grammar.* London: Edward Arnold.

Hinrichs, E. (1986) Temporal anaphora in discourses of English. In: *Linguistics and Philosophy* 9, 62 - 82.

Heinämäki, O. (1978) *Semantics of English Temporal Connectives.* PhD thesis, University of Helsinki.

Hitzeman, J. (1995) *The Implementation of the English Grammar.* DANDELION deliverable R2.3.3

Hitzeman, J. (forthcoming) Semantic Partition and the Ambiguity of Sentences Containing Temporal Adverbials. To appear in: *Journal of Natural Language Semantics*

Kamp, H. & Rohrer, C. (1983) *Tense in Text.* In: Bauerle, R., Schwarze, C. & von Stechow, A. (eds) Meaning, Use and Interpretation of Language. Berlin: de Gruyter.

Lascarides, A. & Oberlander, J. (1992) Temporal Coherence and Defeasible Knowledge. In *Theoretical Linguistics*, 18.

Martin, J.R. (1992) *English Text.* Philadelphia/Amsterdam: John Benjamins.

Moens, M. (1987) *Tense, Aspect and Temporal Reference.* PhD thesis, University of Edinburgh.

Moens, M. & Steedman, M. (1988) Temporal ontology and temporal reference. In *Computational Linguistics* 14, 15 -28.

Oversteegen, E. (1989) *Tracking Time. A Proposal for the Representation of Temporal Expressions in Dutch.* PhD thesis, University of Amsterdam.

Oversteegen, E. (1994) *Dutch Temporal Connectives.* DANDELION Deliverable R 1.3.2a

Oversteegen (1995) *Causal and Contrastive Connectives.* DANDELION Deliverable R 1.1.3b

Prüst, H. (1993) *Towards a Declarative Theory of Discourse.* LRE Deliverable 61062

Quirk, R. et al (1972) *A Comprehensive Grammar of the English Language.* London: Longman

Sandström, G. (1993) *When-clauses and the Temporal Interpretation of Narrative Discourse.*

PhD thesis, University of Umeå

Spooren, W. (1989) *Some Aspects of the Form and Interpretation of Global Contrastive Coherence Relations.* PhD thesis, University of Nijmegen.

Novels by Sir Arthur Conan Doyle:

- A Study in Scarlet
- The Sign of Four
- Adventures of Sherlock Holmes
- Memoirs of Sherlock Holmes