Putting *while* in context*

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Contents

Abstract

This paper gives 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

There has been a growing awareness in recent years that a full account of the properties and functioning of linguistic constructions cannot ignore the role of the type of context they occur in. Oversteegen (1994, 1995), for instance, demonstrates the influence of contextual properties on the interpretation of Dutch temporal and contrastive connectives, and their contribution to various levels of the discourse. Caenepeel & Moens (1994), Caenepeel & Sandström (1994) and Caenepeel (1995) discuss various ways in which tense and aspect and text structure mutually constrain each other in English. Lascarides & Oberlander (1992) examine the role of temporal connectives in a multi-sentence discourse. And Asher & Lascarides (1995) look at lexical disambiguation in a discourse context.

The central idea behind this work — that linguistic constructions affect and are affected by the properties of the discourse they occur in — merits further exploration. In this article I give an in-depth analysis of one single connective in English, viz. *while*, and the way its functioning and interpretation are affected by context. I compare the behaviour of *while* in two types of text, viz. newspaper articles and novels [1]. Both sets of texts are part of the *European Corpus Initiative* (Multilingual Corpus 1). The first corpus consists of four Sherlock Holmes novels by Arthur Conan Doyle, henceforth referred to as the CD-CORPUS; the second one of articles from the British weekly newspaper The Financial Times (the FT-CORPUS).

For the research presented here I studied 160 instances of while-clauses in context — 80 in each text type. Because of the significantly different format of the text types I opted for parity in the number of instances of *while* studied, rather than in text size. The only criterion applied in selecting the while-clauses was that they should occur outside the context of direct speech (as this constitutes a shift in text type, cf. Caenepeel (1989))[2].

The main argument I will put forward in this article is that *while* has a number of different interpretations, with constraints on these interpretations coming from different directions; and that one important constraint is the larger discourse context.

The rest of this paper is structured as follows. In section 2 I propose a way of describing the basic meaning of *while* and its interpretations. I then

[1] The motivation for selecting these two text types is set out in Caenepeel (1995)

[2] The ECI corpus is distributed by ELSNET. Relevant titles are listed in the reference section at the end of this article. Many thanks to Jo Calder for developing the program which made it possible to identify while-clauses and look at them in context

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 may license or constrain a particular interpretation, viz. tense and aspect, the position of the while-clause in the sentence. parallelism and contrast. In some cases the combined role of these will result in just one interpretation for a while-clause; in other cases some ambiguity will remain, 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*

It is standard to distinguish between two "meanings" of the connective *while*: a temporal and a contrastive one. What is not always clear is whether these should be viewed as different interpretations of the same connective, or whether there are two connectives *while* (eg Heinämäki (1978). 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 reasons for adopting this position. One is that different interpretations of *while* are not necessarily mutually exclusive. Consider, for instance, the following example from the CD-corpus:

(1) 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 in this example clearly has a temporal interpretation; but the sentence also meets Spooren's definition of the contrastive relationship 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. Another motivation for defining *while* as a single connective is that the different interpretations of *while* can be viewed as deriving from the same basic meaning, viz.

> *While* juxtaposes two eventualities, and asserts that they are true AT THE SAME TIME.

This definition leaves the basic meaning of *while* largely underdetermined. But this, I believe, is correct, as indeterminacy constitutes an integral part of the semantics of *while* and its interpretations, and may, as I will show below, 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 or contrastive) and therefore a more explicit commitment on the part of the writer or speaker.

At the same time, the individual interpretations of *while* are more profiled than its basic meaning. In the rest of this section, I will give a short definition of each of these. And in sections 3–5, I will show how different interpretations of the notion 'at the same time' arise from properties of the sentence the while-clause occurs in and its context.

2.2 Temporal interpretations of *while*

The approach to *while* I have sketched so far is that it should be viewed as one connective with a basic meaning (it asserts that two eventualities are juxtaposed and asserted as true 'at the same time'). Whether this basic meaning gives rise to a temporal or a contrastive interpretation depends on the temporal referent at which the eventualities are asserted. In a temporal interpretation, the two eventualities are described as co-temporal in the sense that they occupy (at least in part) *the same interval on a time-line.*

While is usually defined as having one temporal meaning ((e.g. Moens (1987), Oversteegen (1989), Oversteegen (1994) Sandström (1993), Hitzeman (1995)). I propose, however, to distinguish between two temporal interpretations, on the grounds that they differ in terms of syntactic status of the clauses involved, semantic meaning, and and their discourse function. I refer to these temporal interpretations as TEMPORAL PARALLELISM and TEMPORAL FRAMING.

2.2.1 Temporal Parallelism

In the case of Temporal Parallelism, the eventualities connected by the while-clause are described as happening in parallel, and are therefore *co-extensive.* Synctactically, the two clauses combined by *while* are *conjuncts*: they have the same syntactic status. At the discourse level, this interpretation of *while* involves a *branching of the timeline* which is being constructed (this will be discussed in more detail in section 4.3.1 below).

The following constitutes an example of this type of while-clause.

(2) The man who had addressed us mounted to the box, while we took our places inside. (*CD-corpus*)

2.2.2 Temporal Framing

In the case of Temporal Framing, the while-clause introduces a time interval within which the eventuality described in the main clause is located: the temporal relationship is one of *inclusion.* Syntactically, the while-clause functions as an adverbial, and is *subordinate* to the clause it combines with. At the discourse level, the time line does not branch: the eventuality in the while-clause constitutes a *background* to the one in the main clause, which develops the time line (I will come back to this in more detail in section 4.3.1 below). The following example illustrates this:

(3) A shower of rain fell while we were on the train (...). (*CD-corpus*)

It is worth pointing out that the inclusion of the main clause eventuality in the time interval provided by the while-clause need not be strict; this allows for the possibility that the two eventualities are simultaneous:

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

2.3 Contrastive interpretations of *while*

In the contrastive interpretation interpretation of *while*, the notion 'at the same time' is interpreted as *at the same time of evaluation* (rather than at the same interval on a time line). By TIME OF EVALUATION I mean an indexical point in the discourse, which may be either the speech time (as is usually the case in spoken discourse as well 'situated' text types such as letters), or a time at which a subject contemplates or assesses the the eventuality(s) described. In narrative texts this subject may be either the narrator, or a character different from the narrator; in the latter case a time on the narrative time line will function as time of evaluation, or embedded deictic centre (cf. Banfield (1982); Caenepeel (1989)). I will elaborate on this in section 4.2.1. below.

If *while* asserts that two eventualities are true at the same time of evaluation – be it the speech time or an embedded deictic centre – a contrastive relationship between the two will become salient. I distinguish between two kinds of contrastive relationship: CONTRASTIVE PARALLELISM and CONTRASTIVE FRAMING. Again, the two differ at the syntactic, semantic and discourse level.

2.3.1 Contrastive Parallelism

In the case of Contrastive Parallelism, *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, the two clauses share a *semantic common ground* and exhibit some kind of *contrast* (cf. section 3.3.1 below). At the discourse level, the juxtaposition is *argumentatively neutral*: it does not convey any attitudinal bias, on the part of the speaker, narrator, or another point of view source in the text, towards the semantic content of either of the clauses[3].

The following sentence constitutes an example of this type of relationship:

[3] This relationship corresponds to the one Spooren (1989) calls SEMANTIC OPPOSITION, which was already defined in the previous section. I prefer to use the term CONTRASTIVE PARALLELISM, first, because I believe it captures the essential characteristics of the relationship better; and second, because it makes it relationship with both its temporal and its contrastive counterpart more transparent.

(5) Boots traded 1,953 contracts with the January 330 calls featuring, while 1,642 Kingfisher changed hands, particularly the January 360 calls. (*FT-corpus*)

2.3.2 Contrastive Framing

In a CONTRASTIVE FRAMING interpretation, *while* juxtaposes two clauses which do not carry equal rhetorical weight, and asserts them as both true at the current time of evaluation. 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. And 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 [4]

The while-clause in the following sentence expresses a relationship of Contrastive Framing:

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

2.4 Summary

In this section, I have defined a basic meaning for the connective *while* and four interpretations, two temporal and two contrastive ones.

Tables 1 and 2 summarize the main properties of the temporal and contrastive interpretations:

Category	Temporal Parallelism	Temporal Framing
Syntax	Co-ordination	Subordination
Semantics	Co-extension	Inclusion
Discourse	Branching of time line	Background

Table 1: Temporal interpretations of *while*

Category	Contrastive Parallelism	Contrastive Framing
Syntax	Co-ordination	Subordination
Semantics	Common ground and contrast	Contrast
Discourse	Argumentatively neutral	Rhetorical emphasis

Table 2: Contrastive interpretations of *while*

In the rest of this article I will discuss how these interpretations are derived: which kind of information does a language user draw on to determine which in-

[4] In the literature, this relationship is also referred to as CONCESSION (cf. Quirk et al. (1972); Halliday (1985); Grote, Lenke and Stede (1995). Again, I have opted for a different term because it makes the relationship of this interpretation with other interpretation of *while* more transparent. Spooren (1989) makes a further distinction between DENIAL OF EXPECTATION and CONCESSION; but for reasons set out elsewhere (Caenepeel (1995)) I believe this distinction is not relevant or useful for an analysis of *while*.

terpretation applies? I will argue that both sentential attributes and properties of the discourse context play a role.

In the next section I look at the role of sentential attributes.

3 The role of sentential attributes

3.1 Tense and Aspect

3.1.1 Temporal while-clauses

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. [5]

It follows from this that if a sentence containing a while-clause lacks the feature [continuity of tense], the while-clause will automatically be given a contrastive interpretation.

In terms of aspectual restrictions, slightly different constraints apply to the two temporal interpretations. In the case of Temporal Parallelism the while-clause must take an EVENT (i.e. a process, culmination, or culminated process,[6] or a combination of these). As I will show in section 4.3.1. below, this constraint follows naturally from the fact that the Temporal Parllelism relationship involves a branching of the time line under construction: in the absence of an event in the while-clause, the time line cannot branch.

In addition to this, it has to be possible to conceive of the parallel events as having some duration. The while-clause (and its conjunct) can take a punctual event (a culmination), but in such a case the event needs to be coerced into a durative one; within the aspectual framework proposed by Moens (1989), that means it will have to be coerced into a process[7].

The following example illustrates this:

(7) He sank his head upon his hands, while the inspector smiled at the effect which his case had upon the famous London specialist. (*CD-corpus*)

For a while-clause to be interpreted as expressing Temporal Parallelism, it thus needs to have the features [event] and [durative]. A while-clause combining with a stative predicate cannot be interpreted as expressing Temporal Parallelism.

[5] 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 would have a different tense, a shift in text type would occur in mid-sentence, something which is impossible. All temporal while-clauses in the corpora 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.

[6] Or Activity, Achievement or Accomplishment respectively, in the traditional Vendlerian terminology.

[7] 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.

The aspectual requirement for a while-clause expressing a relationship of Temporal Framing is that its predicate in the while-clause must denote an extended interval which has boundaries associated with it; in other words, the eventuality must have the features [durative] and [restrictive]. The reason for the former stipulation is intuitively obvious: a punctual event cannot serve as temporal frame for another state of affairs. The need for the feature [restrictive] is explained by Heinämäki (1978) in terms of an inference that applies to all temporal adverbial clauses:

> 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)

This means that, like its co-ordinate counterpart, a subordinate temporal while-clause (Temporal Framing) can combine with an event, provided the event is, or can be coerced into, a durative one:

(8) Then, lying on his face, he reached down for the lamp and held it while I followed him. (*CD-corpus*)

But unlike in the case of Temporal Parallelism, subordinate temporal while-clause can also combine with a progressive state or a restrictive lexical state, as in the following examples:

(9) A shower of rain fell while we were (*or:* were travelling) on the train (...). *CD-corpus*

Unrestrictive lexical states and (non-progressive) perfects, on the other hand, cannot occur in a subordinate temporal temporal while-clause; the former lacks the feature [restrictive], and the latter the feature [durative]. It follows from this that if a while-clause combines with a (non-progressive) perfect or an unrestrictive lexical state, it will automatically be interpreted as contrastive:

(10) While John has blue eyes, ...

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

Habituals are normally non-restrictive, and because of this are in principle incompatible with Temporal Framing while-clauses. It is possible, however, for an extended interval of limited duration to presented as habitual; in such a case a Temporal Framing interpretation will be accessible:

(12) While John drinks his coffee in the morning, Anna gets ready for school.

3.1.2 Contrastive while-clauses

Sentences containing Contrastive while-clauses need not exhibit continuity of tense:

(13) 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. (Contrastive Parallelism, *FT-corpus*))

(14) While it used to dabble with CAP reform the Commission has been refusing further short-run amendments to its Gatt offer (...) (Contrastive Framing, *FT-corpus*)

Contrastive while-clauses in the corpora show that there are no restrictions on their aspectual class either: they can take event predicates as well as (restrictive and non-restrictive) state predicates:

(15) 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. (Contrastive Parallelism, *FT-corpus*)

(16) So, while success rates are low, those who pass are obtaining something of greater value than the devalued certificate of the past. (Contrastive Framing, *FT-corpus)*

3.1.3 Summary

The discussion in this section shows that a while-clause taking a durative event remains open to all four interpretations outlined above. If a while-clause combines with a (non-progressive) perfect or a non-restrictive state, or if the sentence it occurs in does not exhibit continuity of tense, only a contrastive interpretation will be available.

3.2 Position of the while-clause

3.2.1 Temporal while-clauses

A co-ordinate temporal while-clause (Temporal Parallelism) always needs to be in sentence-final position; a sentence-initial temporal while-clause will be interpreted as a temporal adverbial:

(17) 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. (*CD-corpus*)

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

A subordinate temporal while-clause (Temporal Framing) can be placed sentence-finally as well as sentence-initially. This means that a temporal while-clause in sentence-final position can in principle be either co-ordinate or subordinate. However, the aspectual type of the predicate may resolve this ambiguity: if the predicate is stative, only a subordinate interpretation will apply.

(19) A shower of rain fell while we were on the train (...) (*CD-corpus*)

If the predicate of a sentence-final temporal while-clause is an event, however, the clause will in principle be ambiguous between a co-ordinate and a subordinate interpretation:[8]

[8] 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.

(20) ¿From under this great panoply she peeped up in a nervous, hesitating fashing at our windows, while her body oscillated backward and forward, and her fingers fidgeted with her glove buttons. (*CD-corpus*)

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:

(21) 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 are both acceptable and semantically equivalent 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:

(22) a. What happened last night?
While John was writing a letter to his mother the phone rang.
b. 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 (21a), the main clause provides new information, which is temporally located by the while-clause, and this is in line with the context suggested in (22a). In (21b), 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 (22b).

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 (23a); if it is placed sentence-finally it sounds slightly odd ((23b)):[9]

(23) 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.

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 (24a):

(24) 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.

[9] 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.

3.2.2 Contrastive while-clauses

The position of the while-clause also affects the interpretation of contrastive while-clauses.

For a contrastive while-clause to be interpreted as co-ordinate (Contrastive Parallism), the clause has to be in sentence-final position. If the while-clause is placed sentence-initially, it will receive a Framing interpretation: its content is conceded rather than asserted. If semantic content does not allow for this interpretation, the sentence will sound odd:

a. 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. (*FT-corpus*)

b.(?) While 40 per cent of the school-age population are illiterate when they leave school, another 40 per cent had no access to schools.

Placing a contrastive while-clause in sentence-initial position thus marks it as subordinate. If a concessive while-clause (Contrastive Framing) is placed sentence-finally the sentence will sound odd, unless it is compatible with another interpretation (Co-temporality or Contrastive Parallelism):

a. While the process cannot be guaranteed, it is remarkable that it can be envisaged at all. (*FT-corpus*)

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

3.2.3 Summary

I have argued in this section that if a while-clause is placed in sentence-initial position it will be marked as subordinate, and a (Temporal or Contrastive) Parallelism interpretation will be excluded. If a while-clause is placed sentence-finally, a Contrastive Framing interpretation will be excluded.

3.3 Contrast

Another feature that will effect the interpretation of a while-clause is a semantic one, viz. the presence of a contrast between the content of the two clauses in the sentence.

Contrastive while-clauses rely for their interpretation on the establishment of some kind of contrast, but the focus of this contrast is different in both cases.

To understand the source of contrast in the case of Contrastive Parallelism 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 Contrastive Parallelism, 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:

(25) 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.(*FT-corpus*)

In example (25), 'fluctuations on the stock market' can be viewed 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'.[10]

Note that the connective *while* in example (25) can be replaced by *and* without loss of meaning at the ideational level:

(26) 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 (25) and (26) 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 (25), however, draws attention to the latter. 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 (26), *gold mining issues* vs *the oil sector* and *up just 0.1 per cent* vs. *down 0.35 per cent.*

In the case of Contrastive Parallelism, contrast thus ties in with Semantic Common Ground. If there is Semantic Common Ground but no contrast the sentence will sound odd:[11]

(27) ?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 illustrate this:

(28) 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.(*FT-corpus*)

(29) Barclays lost 10 to 334p and Lloyds 9 to 277p, while Natwest also slipped 9 to 255 p.(*FT-corpus*)

In the case of a Contrastive Parallelism while-clause, the contrast which is central to the interpretation thus relies on the establishment of a Semantic Common Ground. For a Contrastive Framing interpretation, on the other hand, 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:

(30) (...) (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.(*FT-corpus*)

[10] 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.

[11] 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.

In example (30), 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 lends the sentence a rhetorical impact that is lacking in the case of Contrastive Parallelism: 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 example also illustrates this:

(31) 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 (...)(*FT-corpus*)

For the interpretation of temporal while-clauses, the establishment of a contrast does not play a central role. However, it is possible for co-ordinate while-clauses (i.e. while-clauses in sentence-final position) to exhibit features of both a Temporal Parallelism and a Contrastive Parallism interpretation, as the following example illustrates:

(32) The man who had addressed us mounted to the box, while we took our places inside.(*CD-corpus*)

In this example, the position of the while-clause, the continuity of tense, the aspectual profile of the predicates (durative events), and semantic content [12] all support a temporal interpretation; at the same time all of these are also compatible with a Contrastive Parallelism, as is the fact that a Common Ground as well as a Contrast can be established.

This is in line with a number of observations already made earlier, viz. that Temporal and Contrastive interpretations of *while* are not necessarily mutually exclusive; and that the surface interpretation of a while-clause may be ambiguous, and indeterminate. Both of these are motivations for defining *while* as one connective with a single basic meaning.

3.3.1 Summary

I have shown that the establishment of some kind of semantic contrast is central to the Contrastive interpretations of *while*. In the case of Contrastive Parallelism, the establishment of Semantic Common Ground provides the focus for this contrast; in the case of Contrastive Framing, the contrast lies between inferences that can be drawn from the while-clause and its main clause.

The interpretation of a temporal while-clause does not require the establishment of a contrast; in the case of Temporal Parallelism, however, a common ground contrast may be present (and further supported by sentence structure, cf. below), resulting in a Parallelism interpretation that is both Temporal and Contrastive.

3.4 Sentence structure

We saw in the previous section that a temporal while-clause in sentence-final position may elicit either a co-ordinate or a subordinate interpretation. The

[12] As well as the type of context the example occurs in, as we shall see in section 4.

presence of syntactic parallelism, even if it is not strict, will usually make a Temporal Parallelism interpretation salient:

(33) The inspector hurried away on the instant to make inquiries about the page, while Holmes and I returned to Baker Street for breakfast.[13] (*CD-corpus*)

A contrastive while-clause in sentence-final position, on the other hand, will always be interpreted as co-ordinate. As with co-ordinate temporal while-clauses, however, this interpretation is often supported by the the parallel structure of the clauses, which may, but need not, be strict (typically, it amounts to different properties or actions being attributed to the subjects of the clauses):

(34) 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. (*CD-corpus*)

The main role of a (semi-)parallel sentence structure in such cases seems to lie in the fact that it supports the establishment of Semantic Common Ground and Contrast. But it is not a necessary requirement for a Contrastive Parallelism relation: the interpretation may also apply in the absence of any kind of parallelism, if Semantic Common Ground can be established and if other interpretations are excluded. The following example illustrates this:

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

Despite the absence of syntactic parallelism, the sentence elicits a Contrastive Parallelism 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 Contrastive Framing 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 (36) it is marked by italics (which are mine):[14]

(36) *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).

3.4.1 Summary

I have shown that syntactic (semi-)parallelism may serve two functions: in the case of a Temporal while-clause in sentence-final position, it singles out the co-ordinate (Temporal Parallism) interpretation; and in the case of a Contrastive while-clause in sentence-final position, it supports the establishment of Semantic Common Ground.

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[13] Arguably, the presence of the comma in this sentence also supports the Parallism interpretation. In the subordinate (Framing) interpretation there tends to be no comma:

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

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

3.5 Remaining issues

In this section I have discussed the main sentential characteristics of the Temporal and Contrastive interpretations of *while*, which are summarized in tables 3 and 4:

Attribute	Temporal Parallism	Temporal Framing
Aspect	durative event	restrictive (durative) event or state
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
Discourse Status	Branching time line	Temporal background

Table 3: Temporal interpretations of *while*

Attributes	Contrastive Parallelism	Contrastive Framing
Aspect	No restrictions	No restrictions
Tense	No restrictions	No restrictions
Position	Sentence-initial	Sentence-final
Contrast	Common Ground Contrast	Derived Contrast
Syntactic Status	Co-ordination	Subordination
Semantic Meaning	Contrastive Parallelism	Contrastive Framing
Discourse Status	Neutral juxtaposition	Rhetorical emphasis

Table 4: Contrastive interpretations of *while*

A number of issues have not been addressed so far. Consider, for instance, the following example from the FT-corpus:

(37) 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 aspectual requirements of a temporal interpretation, and both clauses have the same tense. The while-clause is in sentence-final position, and all this, in combination with the semi-parallel structure of the clauses and the presence of a comma between them, suggests a co-ordinate temporal interpretation (Temporal Parallism).

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. In other words, the correct interpretation appears to be Contrastive Parallelism.

The following sentence from the CD-corpus shares all the properties of example (37). But here, the stipulation that both events are co-extensive is crucial for a correct interpretation:

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

In addition to this, there are a number of striking differences between the use of while-clauses in the Cd-corpus and the FT-corpus, that cannot be explained in terms of the observations so far. To address these issues, the role of context needs to be taken into account. I turn to this in the next section.

4 While-clauses in context

4.1 Empirical observations

A first analysis of while-clauses in the two corpora reveals some striking differences between the two types of context:

- The CD-corpus contained 52 (out of 80) temporal while-clauses; the FT-corpus had 1 (out of 80).
- The CD-corpus contained 0 (out of 80) concessive while-clauses (Contrastive Framing); the FT corpus had 15 (out of 80).
- 79 (out of 80) 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.
- In the CD-corpus there was a marked correlation between the aspectual profile of the sentences studied and their interpretation: sentences containing a temporal while-clause always contained at least one event. In the FT-corpus there was no such correlation: both event and state predicates occurred, without obvious regularity.
- In the CD-corpus all while-clauses were in sentence-final position; in the FT-corpus 24 (out of 80) 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 terms of the discourse structure of the text type they occur in, and explain the differences between them in the light of this.

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.[15] 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

[15] 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.

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, and hence does not constitute a point to which textual deixis can revert.[16] 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 (with different rules and conventions) comes into play - typically the discursive realm of the narrator or implied author.[17]

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.[18] This time-line is an abstract construct: Sandström (1993) points out that it need bear no re-

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[16] 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.

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

[18] 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 signaled 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 time-line. 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.

lation in definable terms of precedence etc. to any point on the real time-line; nevertheless it has the same properties, and can be modeled 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 time-line — typically the time reached in the current episodic structure.[19] 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. This realm is realized textually by continuity of tense[20] and the different roles played by events and states; and it is the resulting alternation between forward movement of time and descriptive or perspectival pause which 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.[21]

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

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

[20] 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.

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

utterance event is not accessible. With the introduction of events, the internal structure of the time line is developed; with the introduction of states, a point on the time-line 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. Second, in terms of their function and goal: 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: 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 spatial/ 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 Holmes novels are still capable of serving the same function today as they did a century ago, and are indeed still widely read for entertainment. In contrast, 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 also be read as historical documents); but in their chief role of providing up-to-date information, 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.[22] 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 signaling 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 anaphorically 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 will 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,

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

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 Temporal while-clauses

In section 2, I introduced a distinction between two temporal interpretations of *while*: Temporal Parallelism and Temporal 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.

The CD-corpus contains 52 instances of temporal while-clauses. All of these are placed in sentence-final position. 46 express a Temporal Parallism relationship: both clauses have event predicates, they are (semi-)parallel in structure, they describe the (simultaneous) actions of different protagonist, and at the discourse level, *the time line branches*. The remaining 6 express a Temporal Framing relationship: the predicate of the while-clause is a state but that of the main clause an event, the eventuality in the while-clause is presented as happening in the background of the event in the main clause, and, att the discourse level, 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, and to interpret them as happening one after the other.

In all the sentences containing a temporal while-clause in the CD-corpus, the first clause[23] is an event. Depending on discourse context and page lay-out, a new event in a narrative will either be incorporated into 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:

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

(39) 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 time-line. 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:

(40) 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 time-line 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 time-line.

In the CD-corpus, episodic structures branch off into parallel lines to convey different protagonists simultaneously being involved in different actions (as in example (41) 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. (42)), or different activities by the same protagonist that are being performed simultaneously, as in (43):

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

(42) 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.

(43) 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:

(44) 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 time-line, 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 examples from the CD-corpus illustrate this:

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

(46) 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:

(47) 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.

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

(49) 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:

(50) "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.

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

(52) 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 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 Contrastive while-clauses

All non-temporal instances of while-clauses in the CD-corpus constitute instances of Contrastive Parallelism. In all of these both clauses have stative predicates. 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 (which may be weak, amounting to no more than non-identity):

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

(54) 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

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

(56) 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 a co-temporal interpretation, *while* cannot not be replaced by *and* without a change in meaning (from simultaneity to consequentiality). In the Contrastive Parallelism 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.[24].

4.3.3 Primary and secondary interpretations

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] which point to a Contrastive Parallelism interpretation. Consider:

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

(58) 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.

[24] 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.

(59) 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 under-determinedness 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) temporal *while*, such a substitution changes the meaning of the sentence, and results in the events being interpreted as consequential (and therefore as happening in sequence):

(60) 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 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 temporal interpretation, either primarily or exclusively. The reason for this should be clear now: the temporal 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 under-determined 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 projected in parallel on the time-line, and the time-line branches. If the while-clause 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. In the 46 cases of Temporal Parallelism, this is a necessary requirement: in sentence-initial position the while-clause would become subordinate. In the 6 cases of Temporal Framing, on the other hand, the while-clauses could be placed in sentence-initial position; the choice of sentence-final position may be related to the thematic structure of the sentence,and/or it may reflect a stylistic preference on the part of the author.

The remaining 28 while-clauses in the CD-corpus are interpreted as Contrastive Parallelism. 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:

(61) 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 contains no instances of a concessive interpretation of *while* (Contrastive Framing). Such an interpretation, we have seen, is attitudinally coloured in a way the Contrastive Parallelism 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, which naturally lends itself to this, is bracketed in narrative, and therefore not available for reference. But a narrative context, a deictic centre in the self-contained realm of the story 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.

One possible explanation for the fact that this does not occur in the Sherlock Holmes novels (at least not in the context of while-clauses) may lie in Watson's particular role in the novel. Faithfully relating details of scenes and events, Watson furnishes the reader with all the objective information he himself has available, but largely refrains from commenting or interpreting. He thus leaves 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 preoccupation with consciousness and 'Free Indirect Style' that became common in the 20th century,) and partly genre-specific.

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 Contrastive while-clauses

The FT-corpus contains 64 instances of Contrastive Parallelism while-clause, and 15 of Contrastive Framing. The one remaining example has a contrastive/temporal interpretation, and will be discussed in the next section.

Contrastive Parallelism Sentences containing a contrastive while-clause in the FT-corpus have both event and state predicates — this in contrast with the CD-corpus, where only state predicates occurred. The following examples illustrate this:

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

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

Contrastive Parallelism sentences in the FT-corpus also do not always exhibit continuity of tense — this again in contrast with the instances of Contrastive Parallelism in the CD-corpus:

(64) 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.

Both these properties can be explained in terms of the discourse structure of the FT-corpus: because of the speech time provides a point to shich deixis can revert, tense shifts occur more freely than in the CD-corpus, and events and states do not play the distinctive role they do in narrative.

I have argued earlier that Contrastive Parallelism while-clauses rely for their interpretation on the establishment of a Semantic Common Ground. In the FT-corpus, preceding discourse almost invariably provides an explicit indication of the Most Specific Common Denominator (which I have italicized in the following examples):

(65) 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.

(66) 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.

In most cases, a parallel or semi-parallel sentence structure puts the Semantic Common Ground between the clauses into further relief; this parallel structure is often extended to a preceding or subsequent sentence:

(67) 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.

The Semantic Common Ground is typically a recent political or financial event, or a financial/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:

(68) 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.

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. As in the case of Contrastive

Parallelism 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.

Contrastive Framing All sentences in the FT-corpus containing a Contrastive Framing while-clause have state predicates, and are in the present tense. As we have seen in section 3.1.2, neither of these constitute a strict requirement for this type of sentence. At the same time, the examples we studied suggest that there is a strong correlation between Contrastive Frame, stative aspect and 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.

With respect to tense, the present tense is naturally selected if the point of view centre which informs the sentence is the speech point. A sentence containing a concessive while-clause in the past tense is possible, but it will be related to an embedded deictic centre. Compare:

(69) 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 is normally an indirect representation of a third person's point of view. I argued in Caenepeel (1989) that such an interpretation becomes prominent 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:

(70) 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, occur in this type of context: in all cases, the point of evaluation is that of the reporter (the speech point); hence all the instances of concessive *while* are in the present tense.

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 Contrastive Parallelism. 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):

(71) 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.

(72) *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 Contrastive Parallelism 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):

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

(74) Welcome as they are, the new ideas are *too embryonic* to give the Uruguay 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.

4.4.2 Primary and secondary interpretations

Just one while-clause in the FT-corpus can be interpreted as co-temporal:

(75) 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 Contrastive Parallelism. A concessive interpretation is excluded by the position of the while-clause.

The sentence therefore allows for two interpretations: Co-temporality and Contrastive Parallelism. 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 (75), replacing *while* with *and* does not result in a change in meaning. This suggests that Contrastive Parallelism , rather than Co-temporality, may be the primary interpretation. This is confirmed if we look at the sentence in context:

(76) 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, Reuters 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 Contrastive Parallelism in the FT-corpus. At the same time, none of the events in the discourse in (75) introduces an episodic structure (and therefore, by implication, a time-line); all are deictically related to the speech time.[25]

All this suggests that Contrastive Parallelism constitutes the primary interpretation of the example in (75). The co-temporal interpretation is secondary

[25] 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 time-line. 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 (76) — hence the relevance of checking the context.

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.

4.4.3 *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 time-line required for such an interpretation — this in obvious contrast with the CD-corpus.

The other two categories, Contrastive Parallelism and Contrastive Framing, 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 Contrastive Parallelism 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 they can be related deictically to the speech time. Both of these characteristics are prominent in Contrastive Parallelism while-clauses, where shifts in tense and aspect are relatively frequent and have little effect on the structure and the continuity of the discourse.

The examples of Contrastive Framing in the FT-corpus all had state predicates and were all in the present tense. I have explained the former in terms of the natural compatibility between stative aspect and the subjective viewpoint which is inherent to a concessive interpretation; and the latter in the light of the fact that all the relevant sentences in the FT-corpus express the (current) point of view of the reporter, rather than that of an embedded subject in the text.

5 Final Remarks

Before concluding, two final points merit further attention. First, sentential attributes and context mutually constrain each other; and second, even in the absence of an actual discourse context, the reader will normally infer a particular kind of context when interpreting a while-clause.[26]

Let us consider again how a particular interpretation of a while-clause arises. Example (77) meets the aspectual requirements for an inclusive co-temporal interpretation of the while-clause:

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

The absence of Semantic Common Ground excludes a Contrastive Parallelism interpretation, and a concessive interpretation is ruled out because of the position of the while-clause. Hence the co-temporal interpretation is the only one available.

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

In example (78), the conditions for a co-temporal interpretation are again met, but a Contrastive Parallelism interpretation is also possible, because of the (semi-)parallel structure of the clauses and the fact that a Semantic Common Ground can be inferred:

(78) 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 (79a), preceding discourse introduces the Semantic Common Ground for the sentence containing the while-clause, making a Contrastive Parallelism interpretation more prominent. In (79b), on the other hand, a time-line is established, making temporal interpretation more salient:

(79) 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:

(80) 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 NatWest slipped.

Aspectually, the predicates in both examples are similar, and both meet the conditions for a temporal interpretation. In example (80a), 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 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 (80b), 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 time-line (and therefore co-temporal in the stricter sense).

Now consider:

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

Here, the aspectual structure of the predicates does not allow for a 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 Contrastive Parallelism interpretation.

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

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

Finally, in example (83), aspectual structure and sentence structure exclude a temporal and a Contrastive Parallelism interpretation:

(83) 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:

(84) 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) and Contrast (Parallelism and Framing). 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 tense and aspect, the position of the while-clause in the sentence, contrast and sentence structure. 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.

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