A Non-Coercing Account of Event Structure in Pular

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Tulde Gandal an fii Fulɓe ɓen e Haala mun

ABSTRACT

In the light of recent theories of event structure and focus interpretation, this thesis proposes an analysis of the semantic and pragmatic values of the main perfective forms of Pular, a dialect of the Fulfulde language of the West Atlantic branch of the Niger-Congo language family.

The perfective system of Pular shows considerable complexity, there being three basic forms and several other forms with additional morphological marking. The semantic and pragmatic distinction between these forms has up till now resisted satisfactory analysis.

Three basic forms and an additional statively-marked form are considered to constitute the four main forms in the Pular perfective system. An analysis of these forms is proposed in which it is argued that the notion of coercion, found in other proposals on event structure, is inappropriate and its function can be replaced by the use of a richer event structure of events and sub-events.

To capture the appropriate interpretation of the perfective forms, a Neo-Davidsonian logical form is used, building on and elaborating ideas of Higginbotham, in which both event structure and verb focus can be portrayed. This type of logical form is justified in terms of the Carlsonian Kind/Object/Stage distinction, and is considered to portray the mental representation of an utterance in conceptual structure, in the sense of Jackendoff's proposals on the architecture of the language faculty. Further, in conjunction with relevance-theoretic principles of utterance interpretation, Rooth's alternative semantics theory of focus is deployed to show how these logical forms are interpreted and considered felicitous or infelicitous in different contexts.

This analysis of the Pular perfective verb system shows how a layered ontology of events and sub-events can be used to analyse a complex perfective system and constitutes an advance on previous studies of aspectual phenomena in Fulfulde.

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1S - first person singular
1P - first person plural
2S - second person singular
2P - second person plural
3S - third person singular
3P - third person plural
ACTV - active voice
ADJ - adjectival suffix
ANT - anterior suffix
ASR - assertive particle
ASS - associative (suffix or marker)
AUX - auxiliary verb
BEN - benefactive suffix
CAU - causative suffix
CLS - class marker
CLS_{gen} - general class marker
CLS_{time} - time class marker
COMP - complement particle
COM - concomitantive suffix
COP - copula
DEF - definite
DESD - desiderative particle
DIS - distantive suffix
DSLM - dissimulative suffix
EXCL - exclusive
FOC - focus particle
IMPF - imperfective suffix
IMPF/1 - imperfective 1 suffix
IMPF/2 - imperfective 2 suffix
IMPF/3 - imperfective 3 suffix
IMPF/4 - imperfective 4 suffix
IMPV - imperative (= IMPF/1)
INC - incremental suffix
INCL - inclusive
IND - independent
INF - infinitive
INTSF - intensifier
LOC - locative
MAN - manner suffix
MIDD - middle
NEG - negative
OBJ - object
PART - partitive
PASS - passive
PERF - perfective
PERF/1 - perfective 1
PERF/2 - perfective 2
PERF/3 - perfective 3
POSS - possessive
PRES - presentative
RECP - reciprocal
STAT - stative
SUB - subordination particle
SUBJ - subject
SURP - surprise
TARG - target
TEMP - temporal
V/N - verbal noun
WH - question prefix

1. INTRODUCTION

In this thesis I wish to propose an analysis of the meaning of the perfective forms used in the West African dialect of Pular, spoken in the Republic of Guinea. The perfective paradigm of this language shows considerable internal complexity, there being three basic forms and several other forms with additional morphological marking. A simple contrast of imperfect and perfect is therefore insufficient to analyse the interpretation of these forms.

The purpose of this study is threefold. In addition to attempting to discover and state the meaning of the three main perfective forms and a statively-marked perfective form in the Pular language, I will also investigate event structure. There is considerable debate in the literature at the moment as to what event structure is necessary to characterise events, ranging from a simple two-part structure (Pustejovsky, Higginbotham), to a more elaborate two-part structure with coercion (Pulman), to a three-part structure (Moens and Steedman) which also invokes coercion. I will in particular investigate the question of whether a two-part or a three-part event structure is necessary to characterise events and will challenge the view that coercion is the most appropriate way to account for the syntax-semantics relationship of aspectual forms. A third aim of this thesis will be a statement of the role of conceptual structure, such as defined by Jackendoff, in the felicity and disambiguation of utterances. The study will attempt to show how the felicitous use of the perfective forms is licensed by conceptual structure, in particular by the representation of event structure in conceptual structure.

In order to conduct a successful analysis we will need a way of representing the cognitive encoding of verbal meaning as it occurs at the interface between syntax and semantics. To this end I will attempt to justify use of a layered ontology, incorporating the Davidsonian notion of an event entity, and a corresponding 'logical form' which can express the proposed event structure. I will make use of relevance-theoretic notions to show how such a logical form can be successfully interpreted following the syntax/semantics interface.

Section 2 provides an overview and background to the thesis. An outline of the grammar of Pular is given in Section 3, presenting those features of the language that are relevant to an understanding of the thesis, as well as features that are typologically and theoretically interesting. Section 4 provides evidence for the meaning of the Pular perfective verb forms. Questions concerning event ontology are addressed in section 5. Section 6 reviews various ways that event structure has been discussed in the literature and proposes an event structure that will be suitable for analysing the Pular perfective forms. Section 7 considers proposals on focus interpretation and proposes the approach used in what follows. In order to illustrate the proposed event structure, Section 8 considers its application to the English verb system. Section 9, the core of the thesis, shows how the proposed event structure elucidates the meaning of the Pular perfective forms. Section 10 constitutes a summary of the thesis. An appendix has been included to provide an example of continuous text in Pular, showing use of all its main perfective forms.

2. BACKGROUND AND OUTLINE

2.1 The Problem

The aim of this study is to propose an event ontology and event structure which can be used to analyse perfective verb aspect as found in the Pular dialect of Fulfulde, spoken in the Republic of Guinea on the west coast of Africa. In his seminal work, Bernard Comrie defined aspect as "different ways of viewing the internal temporal constituency of a situation" (Comrie 1976:3), following Holt who defines aspect as "les manières diverses de concevoir l'écoulement du procès même" (Holt 1943:6). With regard to perfective and imperfective, Comrie states:

> "...the perfective looks at the situation from the outside, without necessarily distinguishing any of the internal structure of the situation..." (1976:4). "...perfectivity indicates the view of the situation as a single whole, without distinction of the various separate phases that make up the situation..." (1976:16).

Pular has three perfective verb forms, which I will call perfective-1, perfective-2 and perfective-3, following Sylla 1982. They are, with, for the moment, *very* approximate English translations:[1]

(1) **Yaayaa yahi**
John go-PERF/2
...(and) John went (and)...

[1]for abbreviations see page 12.

(2) **Yaayaa yahii**

John go-PERF/3

John went/has gone

(3) **Yaayaa seppu**

John walk-PERF/1

John walked!

(i.e. rather than drove, etc)

It is also possible for perfective-2 to be 'statively' marked:

(4) **Yaayaa no yahi**

John STAT go-PERF/2

John has gone (somewhere)[2]

I will describe and give contexts for the use of these forms more extensively in section 4. In this introductory section I note that, if these forms are perfective, and if perfective, in the words of Comrie, "view[s].. the situation as a single whole, without distinction of the various separate phases that make up the situation", then either we have here more than one way of "viewing the situation as a single whole" or we will need to reconsider Comrie's definition.

Since Comrie's study attention has been paid to aspectual types, delineated by Vendler and others as: *state*, *process*, *achievement* and *accomplishment* (Ryle 1949, Kenny 1963, Vendler 1957,1967, Dowty 1979). The idea that verb aspect is a particular way of presenting the structure of an event situation has also been proposed in recent studies. Pulman, for instance, states:

---

[2]intended to convey that the state of affairs brought about by the event still pertains.

"Determination of aspectual status of a sentence or phrase means working out whether it describes an event or a state, and what semantically relevant internal structure the event or state might have... The aspectual status of a sentence presents a particular way of looking at an episode or situation, or a component of an episode or situation, such that contextual assumptions about its temporal, causal, or relevance relations to other events are required for felicitous interpretation" (Pulman 1997a:279-280).

Pulman introduces here the notion of event structure: "what semantically relevant internal structure the event or state might have" (279). The concept of event structure has been investigated by others such as Moens (1987), Moens and Steedman (1988), Pustejovsky (1991) and Higginbotham (1995). I will be concerned in this study to investigate whether a particular type of event structure is needed to differentiate the four basic perfective forms of Pular.

In this respect, one of the major issues raised by an analysis of events is whether they are best analysed as properties of points of time, properties of intervals of time, or primarily as entities in their own right. Moens for instance "cast[s] serious doubts on the arguments in favour of taking intervals as the basic temporal entities in a description of language...[the] truth of a statement with respect to a period cannot be determined from the truth of that statement with respect to the parts making up the period..." Speaking of the clause *writing a novel* he states:

"Novels can be written in bits and pieces, which would mean associating individuals with sets of broken and unbroken intervals... an

> adequate description of novel-writing events should take the form of a function associating each individual not with the time stretches he spends writing but with the *behaviour* which amounts to his writing a novel" (Moens 1987:33).

I will address the question of an appropriate ontology for events further in chapter 5 before taking up the issue of event structure in chapter 6.

It is not possible, however, simply to apply accepted notions of event structure. There is as yet no agreed definition of event structure. Pustejovsky (1991), for instance, advocates a two-part event structure, based on certain Aristotelian concepts of opposition. Moens and Steedman advocate a three-part event structure with 'coercion' (I present the notion of coercion in 2.2.1). Pulman 1997a considers both definitions of event structure and proposes an event structure which, whilst being more complex than Pustejovsky's, and also using 'coercion', does not go as far as the proposals of Moens and Steedman. He comments:

> "It is implicit in this taxonomy that while it is conceptually possible to assign a tripartite structure to events, it is not necessary to do so for linguistic reasons. My original motivation for this was that... there are no clear examples where all three components of the more complex structure can be accessed independently and simultaneously... Of course, if this proves wrong it is simple to move to a taxonomy based on the more complex structure" (Pulman 1997a:287).

Two themes therefore of this study, running along side the investigation of the meaning of the Pular verb forms, will be an investigation of the nature or

ontology of events in the semantic domain and an investigation of the nature and complexity of event structure and the associated notion of 'coercion'.

2.2 Conceptual Structure

The notion of event structure raises the more general question of the contribution of conceptual structure to sentence (or, more correctly, utterance) meaning. When the authors, who have been cited above, describe aspect as "viewing" a situation, they are using an E-language circumlocution. Chomsky in particular has insisted on the task of linguistics being the investigation of what he calls I-language (internal language) rather than E-language (external language), that is to say an investigation of the internal competence of a speaker or hearer of a natural human language. From this point of view the description of aspect as "viewing a situation" is a circumlocution in E-language terms about what is in reality a cognitive perspective.

Various authors have noted that representation of event structure functions cognitively during the interpretation of syntax. The different interpretations of progressive forms, identical as regards their syntax, is a case in point (Moens 1987:58-59, Moens and Steedman 1988:18-19, Pulman 1997a:289-291, Jackendoff 1997:51-52). The 'meaning' of a verb in a progressive construction can range from an *activity*, as in (5a), to the anticipation of an *accomplishment*, as in (5b), to the repetition of an 'instantaneous' event, as in (5c):

(5) a he is swimming

b he is reaching the top

c he is sneezing

One possible explanation for this difference in interpretation is polysemy of the progressive construction. A more principled approach, however, would be to argue that 'something else' is interacting with a single basic meaning contributed by the progressive construction. The authors listed above propose that this 'something else' is event structure, that is to say that the difference in the event structure of an event of *swimming*, compared to an event of *reaching the top* or an event of *sneezing*, causes the progressive construction to be interpreted differently.

The same phenomenon has been noted in sentences containing *for* time phrases (Moens 1987:50-52, Moens and Steedman 1988:20-21, Pulman 1997a: 281,293-295, Jackendoff 1997:35). In (6a) the time period referred to by the *for* phrase delimits the process of *building* (whether or not the process of *building* culminates.) In (6b), however, in an identical syntactic structure, the *for* phrase refers to a time period associated with but subsequent to the event of *hiring*. In (6c), again identical from a syntactical point of view, the *for* phrase can include both an event of *going* and a subsequent period associated with it. In (6d), moreover, the *for* phrase can denote a significant period of time during which the state obtained even if the state continued after this time:

(6) a he built the house for a week

b he hired the car for a week

c he went into town for an hour

d the diver was under water for an hour

Jackendoff calls this phenomenon, in which identical syntactic structures receive different semantic interpretations, *enriched composition* and on the basis

of it argues for a level of conceptual structure which operates in parallel with syntactic structure, but with a 'grammar' or 'language' its own. He defines *enriched composition* in the following way:

> "The conceptual structure of a sentence may contain, in addition to the conceptual content of its [lexical conceptual structures], other material that is not expressed lexically, but that must be present in conceptual structure either (i) in order to achieve well-formedness in the composition of the [lexical conceptual structure] into conceptual structure (*coercion* to use Pustejovsky's term) or (ii) in order to satisfy the pragmatics of the discourse or extralinguistic context" (Jackendoff 1997:49).

As a consequence of this, Jackendoff sees phonological, syntactical and conceptual structure as three independent systems imposing mutual constraints on each other:

> "The traditional hypothesis of the autonomy of syntax amounts to the claim that syntactic rules have no access to non-syntactic features except via an interface. Given the distinctiveness of auditory, motor, phonological, syntactic and conceptual information, we can expand this claim and see phonology and conceptual structure as equally autonomous generative systems. We can regard a full grammatical derivation, then, as three independent and parallel derivations, one in each component, with the derivations imposing mutual constraints through the interface" (Jackendoff 1997:38).

In Jackendoff's conception, correspondence rules map between syntactic structure and conceptual structure; other correspondence rules map between phonetic structure and syntactic structure. Each of these structural systems has a "language" of its own:

> "The overall idea is that the mind/brain encodes information in some finite number of distinct representational formats or "languages of the mind". Each of these "languages" is a formal system with its own proprietary set of primitives and principles of combination, so that it defines an infinite set of expressions along familiar generative lines. For each of these formats, there is a module of mind/brain responsible for it. For example, phonological structure and syntactic structure are distinct representational formats, with distinct and only partly commensurate primitives and principles of combination.... Each of these modules [phonology and syntax] is domain specific... (with certain caveats...) each is informationally encapsulated in Fodor's (1983) sense" (Jackendoff 1997:41).

Importantly, conceptual structure is seen as the domain over which inference is defined:

> "conceptual structure is the domain of mental representation over which inference can be defined" (Jackendoff 1990:17). "...there has to be *some* level of mental representation at which inference is codified; I take this to be conceptual structure, a level that is *not* encoded in (narrow) syntactic terms" (Jackendoff 1997:32-33).

I will make use of the Jackendoffian hypotheses concerning conceptual structure as a language architecture framework with which to investigate concepts of event structure in the Pular aspectual system.

2.2.1 Coercion

The term 'coercion' has been used in 2.1 and 2.2 above in the brief presentation of the approaches of Moens and Steedman (1988), Pulman (1997a) and Pustejovsky (1991,1993,1995). Since the appropriateness of 'coercion' when applied to events will be one of the themes of this study, we should examine the use of this term by these authors.

Both Pulman and Pustejovsky refer to 'coercion' as "type coercion". Pulman states explicitly that his use of the term is based on "an analogy with type coercion in programming languages" (Pulman 1997a:277). In a similar vein Pustejovsky defines coercion as:

> "TYPE COERCION: a semantic operation that converts an argument to the type which is expected by a function, where it would otherwise result in a type error" (Pustejovsky 1993:83,90;1995:111).[3]

Pustejovsky's main examples of coercion are so called complement coercion:

(7) a John wants to read a book

b John wants a book

c John wants a book to read

---

[3]See Pustejovsky 1995:105ff for a summary of the development of the notion of type coercion as applied to natural language.

Pustejovsky argues that, rather than an approach that enumerates the different syntactic categories of the complement of *want*, one canonical construction should be retained (in the lexicon), in this case a sentential complement, as in (7a), and the other complement types be obtained by coercion of the syntactic form to this semantic category:

> "If, however, the appropriate type is not present in complement position, it is *coerced* by the verb to match the type required by the typing restrictions on the verb... [W]hat this says is that a syntactic expression does not denote a single semantic type. Rather, it assumes a particular semantic type by virtue of context" (Pustejovsky 1995:112).

Clearly this requires that "lexical items are strongly typed" (1995:62). Pustejovsky summarises the implications of this, making a similar distinction to Jackendoff's between syntactic structure and conceptual structure:

> "A major consequence of this approach is that the isomorphism between syntactic and semantic categories cannot be maintained for all levels of linguistic description, nor is it desirable" (Pustejovsky 1995:105).

Pustejovsky does not apply coercion to the aspectual behaviour of verbs in any of his examples.

Pulman's use of 'coercion' is entirely to distinguish different aspectual uses of verbs. He divides events into five 'types' (three simple types and two complex types) and proposes eight 'coercion' functions to act on these types. His approach, in so far as it is relevant to this thesis, is described in chapter 6.

Moens and Steedman[4] application of 'coercion' is also entirely to events. Their use of coercion seems to be independent of Pustejovsky's use and is also presented in chapter 6. I will consider, however, some of their statements here in order to provide us with an overview and to sound a note of caution on potential misunderstanding of this term. "Adding" and "stripping" are both considered to be examples of 'coercion' by Moens and Steedman. For instance, they claim that a process such as *he ran* has a culmination "added" to it in the clause *he ran a mile*. A culminated process such as *he read a novel* is said to have its culmination "stripped" off in *he read a novel for a few minutes* or *he is reading a novel.* However, with respect to the use of these terms, Moens states for the "addition" 'coercion' for instance, that "an extra 'layer' is added to the 'basic' meaning of the category" (1987:45). With respect to the "stripping" 'coercion' he states similarly:

> "This should not be taken too literally: whatever layer of meaning is stripped off is not lost... Saying that [a] culmination point is 'stripped off' just means that that particular part of the meaning complex is not talked about for the time being; the focus has shifted to other layers of meaning" (Moens 1987:45).

In this thesis I take the approach that a well founded study of language phenomena needs to locate these phenomena in the "architecture of the language faculty" As a consequence, the distinction between syntactic structure and conceptual structure, and the location of the interface between these two domains in language processing, is of fundamental importance. Taking this approach, we

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[4]Moens does not use the term coercion in Moens 1987. It is introduced in Moens and Steedman 1988.

would need to decide whether what Pustejovsky, Pulman and Moens and Steedman refer to as 'coercion' is located in syntactic structure or in conceptual structure, or perhaps in the interface between syntactic structure and conceptual structure. Jackendoff clearly locates this type of phenomena either in conceptual structure or in the mapping from syntactic structure to conceptual structure:

> "The conceptual structure of a sentence may contain... material that is not expressed lexically, but that must be present in conceptual structure... in order to achieve well-formedness in the composition... into conceptual structure" (Jackendoff 1997:49).

We will also need to consider the distinction between a static model (of which Pulman's model is an example), which views the total "*écoulement*" of an event, and a dynamic model which is capable of interpreting utterances about events as both the events and the utterances occur. One possibility that I will investigate is that the representation of a maximal event structure is already potentially present in conceptual structure, and what is required in the mapping from syntax to semantics is to activate or bring into "focus" (to use Moens' term) the relevant parts of such an event structure.

2.3 Modelling Mental Representation

We have seen above that Jackendoff proposed a language architecture consisting of a number of "distinct representational formats", and in like fashion that "conceptual structure is [a] domain of mental representation" (Jackendoff 1997:41,1990:17). If we adopt as a working hypothesis Jackendoff's thesis of conceptual structure as a domain of mental representation, linked to syntactic

structure by means of correspondence rules, then one way to represent the meaning of the four Pular perfective forms is to seek a way of portraying the 'mental representation' that corresponds to each of these forms in conceptual structure.

It is clear that such an approach will be concerned more with I-Semantics than E-semantics (Jackendoff 1990:7-16). This does not mean, however, that truth-functional concerns are absent. We can consider conceptual structure as a 'window' through which we view reality. Jackendoff again:

> "...while one might conceivably claim that the structure of visual experience ordinarily models something preexisting in the real world,... linguistic structure must be thought of ultimately as [a] product of the mind. [It does] not exist in the absence of human creators. Nonetheless [it is] experienced as part of the world "out there"... If indeed the world as experienced owes so much to mental processes of organisation, it is crucial for a psychological theory to distinguish carefully between the source of environmental input and the world as experienced. For convenience, I will call the former the *real world* and the latter the *projected world*" (Jackendoff 1995:28).

As regards the relationship of the "projected" world to the "real" world, one of the most important functions of human language is nevertheless as a representation of reality. When two humans are using human language to communicate to each other information about an external situation, if the language they are using cannot successfully correspond to that external situation

then it seems very improbable that it will be successful as a means of communication.

Nevertheless, this emphasis on I-Semantics has consequences for a truth-conditional approach to language. Jackendoff again:

> "If this is the case, we must question the centrality to natural language semantics of the notions of truth and reference as traditionally conceived. Truth is generally regarded as a relationship between a certain subset of sentences (the true ones) and the real world; reference is regarded as a relationship between expressions in a language and things in the real world that these expressions refer to. Having rejected the direct connection of the real world to language, we should not take these notions as starting points for a theory of meaning... Nor does it help to relativise the notion of truth to "truth in a model", unless the choice of model is determined though empirical investigation of the character of the projected world" (Jackendoff 1995:29).

I will nevertheless be concerned in this thesis with an "empirical investigation of the character of the projected world", at least in so far as there is linguistic evidence for it, so the notion of "truth in a model" will be relevant to us. I will also take the stance that, in so far as language is used to represent the real world, we can conduct a truth-functional 'read-out', at any time, of the representation of an utterance in conceptual structure. The success of such a 'read-out' will depend, nevertheless, on the degree of underencoding of the utterance at that point in mental representation.

One way of portraying event structure, or more generally conceptual structure, such that a truth-functional evaluation can be conducted, is by means of some type of logical form. Since the term logical form has been used in a number of different ways in linguistics, it is appropriate at this point to clarify the uses that can be made of that term.

2.3.1 Types of Logical Form

The term 'logical form' has, according to Chierchia and McConnell-Ginet, its origins in two traditions in linguistics - a logicophilosophical one and a Chomskian one. In a discussion of the logical form of Chomskian tradition, LF, they state:

> "It should be born in mind that even though this notion [LF] bears some relation to the characterisations of logical form one finds in the logicophilosophical literature... it is not to be identified with it. LF is a level of syntactic representation where scope and possibly other relations relevant to semantic interpretation are overtly displayed. LF mediates between surface syntactic structures and meaning (truth conditions). As such it is a technical notion of syntactic theory, and we restrict the use of the acronym LF accordingly" (Chierchia and McConnell-Ginet 1990:122).

By contrast, with respect to the formal calculus of logicophilosophical tradition, they state:

> "We might systematically (or compositionally) map the relevant level of syntactic structure into a formal calculus and use the deductive machinery of the calculus to characterise the relevant semantic

> notions.... We could view such a map onto a formal calculus as providing us with logical forms (*lf*s) for English sentences... Such logical forms can further be viewed as abstract characterisations of the mental representations that we associate with sentences." (Chierchia and McConnell-Ginet 1990:144-145).

I will adopt Chierchia and McConnell-Ginet's definition of an "abstract characterisation of the mental representation that we associate with sentences" as a definition for this type of logical form, since it seems compatible with the Jackendoffian notion of conceptual structure. I will also follow Chierchia and McConnell-Ginet, where necessary, in using the abbreviation LF for the "technical notion of syntactic theory" of Chomskian tradition; the term logical form should be understood in this thesis as standing for what Chierchia and McConnell-Ginet define as the "abstract characterisation of... mental representation".

Chierchia and McConnell-Ginet's suggested justification for the use of *lf* in linguistic analysis also appears compatible with the Jackendoffian notion of "conceptual structure as the domain of mental representation over which inference can be defined" (Jackendoff 1990:17):

> "If the mind is a computational device, our recognising semantic relatedness, and in particular our recognising what entails what, would seem to be based on some mental calculus that specifies semantic relations among sentences on the basis of their formal properties... This does not mean, of course, that the mind actually goes through these derivations... our theory is a theory of *what* it is that the mind must

compute, not of *how* it computes it." (Chierchia and McConnell-Ginet 1990:145).

2.3.2 Logical Form and Relevance Theory

Sperber and Wilson view 'logical form' as a property of the "conceptual representation system":

> "The fact that many central processes are inferential puts an important constraint on the conceptual representation system. Conceptual representations must have logical properties: they must be capable of implying or contradicting one another, and of undergoing deductive rules. However, not all properties of a conceptual representation are logical properties. A conceptual representation is both a mental state and a brain state. As a mental state, is can have such non-logical properties as being happy or sad. As a brain state, it can have such non-logical properties as being located in a certain brain at a certain time for a certain duration. Let us abstract away from all these non-logical properties, and call the remaining logical properties of a conceptual representation its *logical form*. It is in virtue of its logical form that a conceptual representation is involved in logical processes and enters into relations such as contradictions or implication with other conceptual representations" (Sperber and Wilson 1986:72).

Kempson expresses the difference between the relevance-theoretic understanding and use of logical form and the Chomskian use of logical form in the following way:

> "On [government and binding] assumptions, the [logical form] of a sentence is a construct of the same type as the S-structure from which it is derived, one of a set of indexed, labelled bracketings which jointly constitute the syntactic analysis of the sentence. By contrast, the logical form of a sentence on relevance-theoretic assumptions is an incomplete expression of a different formal system, that of the internalised language of thought, an inferentially transparent system whose completed formulae display all the properties of formal systems devised to reconstruct inference - no ambiguity, no indexical elements." (Kempson 1988:20).

In their theory of utterance interpretation, Sperber and Wilson propose that the hearer derives the explicature and implicatures which are most relevant to him, *most relevant* being defined as that which maximises *contextual effects* for no gratuitous cognitive *processing effort.* A *contextual effect* is considered as a change in the set of assumptions held by the hearer, which may consist of either the addition of a new assumption, the strengthening of an existing assumption or the erasure of an existing assumption (1986:108-117). *Processing effort* is considered to be the amount of energy expended in the mental effort of processing an utterance (Sperber and Wilson 1986:124).

The following diagram summarises the relevance-theoretic view of utterance interpretation:

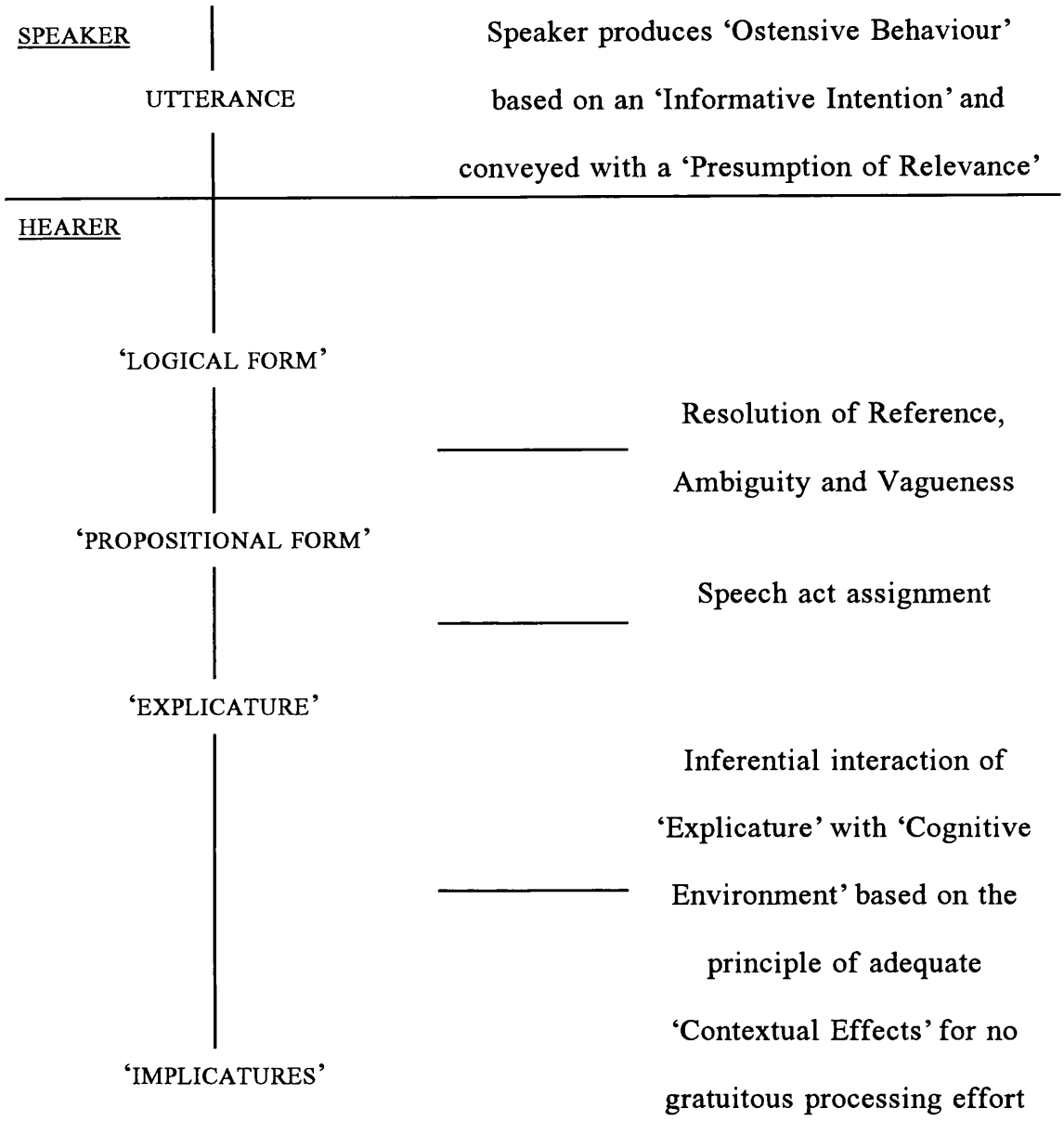

DIAGRAM 1: RELEVANCE-THEORETIC UTTERANCE INTERPRETATION

The construction of an interpretation follows a path from *logical form* to *propositional form*, in which *reference*, *ambiguity*, *vagueness* and *elipsis* are resolved. Subsequent to that, a speech act is assigned to the *propositional form* to produce an *explicature*. *Implicatures* may also be derived in the process of utterance interpretation, by means of inferential interaction of the *propositional*

form and the *explicature* with the most manifest set of assumptions derived from the cognitive environment. All of these processes are governed by the principle of adequate contextual effects for no gratuitous processing effort. Relevance theory proposes that this process of utterance interpretation will terminate as soon as adequate contextual effects have been derived and that the *explicature* or *implicatures* so derived will be taken as the meaning of the utterance.

Kempson points out with respect to the notion of logical form of Relevance Theory:

> "According to this view natural languages are unlike formal languages in not being directly truth-theoretically interpreted, for there are (at least) two levels of representation intermediate between the syntactic characterisation of a sentence as a construct of grammar and the characterisation of real-semantic content, levels which are essential to the translational characteristics of natural language, definitional of input mechanisms. There is not only the logical form of the sentence but also the completed proposition (its 'propositional form'), a representation of the real-semantic content associated with the sentence upon that use" (Kempson 1988:17).

This also has consequences for a truth-functional approach to semantic interpretation as Kempson points out:

> "...it follows that the only sense in which natural language sentences are truth-theoretically interpreted is indirectly (via the propositions the sentence is used to assert), and it follows too that real-semantic interpretation is not a part of the grammar. It is the language of thought

which is semantically interpreted, not the natural language expression" (Kempson 1988:19).

As an example of this property of *underdetermination* in logical form we can consider the resolution of the syntactical subject into a thematic role, for instance as agent or experiencer. This may not be possible during syntactic decoding. The resolution of the thematic role of the subject in (8), for instance, into agent or experiencer, is not possible without wider contextual information:

(8) he cut himself

It is for these reasons of underdetermination and enrichment that I will omit reference to thematic roles, such as agent or experiencer, in logical form. In this case, however, the truth-value of a predication such as *Subject*(John,e) in Neo-Davidsonian form (where e is a bound event variable - see section 5.3 for explanation of this notation) cannot be determined directly, since the thematic role of *John* is not yet resolved.

2.3.3 Logical Form and Events

One of the major challenges presented to formal semantics by natural language is the representation of events. The name of Donald Davidson is closely associated with such an enterprise as a result of his 1967 paper *The Logical Form of Action Sentences*. Of those who tackled the problem before him, Reichenbach discussed the logical form of events in his 1947 work, *Elements of Symbolic Logic*, and, in fact, Davidson's proposals are a development of and reaction to proposals made by Reichenbach. Reichenbachian and Davidsonian proposals will be reviewed in chapter 5.

In this introductory section I will merely sketch the main elements of the way this challenge has been taken up. Reichenbach suggested that a sentence such as *John ran* can by represented in logical form by either "thing-splitting" - roughly r(J) - or by "event splitting" - roughly J(r). That is to say in the first form a thing is said to have a particular property, and in the second form an event is said to have a particular property. Reichenbach uses the term *fact* synonymously with *event*, and at one point proposes a logical form in which an event or fact variable is existentially bound, that is to say he proposes *John ran* could be represented in his notation by ∃v[r(J)*]v, in which r(J)* symbolises a "fact-function" (Reichenbach 1947:269). However he shows no preference for one or other way of doing it, and expresses more interest in the "variable polyadicity" of the function than in the entities that are implied by one or other way of splitting the function. Verkuyl comments on this:

> "the question... seem[s] to be whether Reichenbach's main point, namely that events may be seen as entities... carries over to functions. In my view, the Reichenbachian position is that mathematical functions are entities as well; you may assert their existence and so you may quantify over them" (Verkuyl 1997:21).

Davidson's concern was to show that the compositional contribution of adverbials to sentence meaning is most perspicuously reflected by use of an event variable, that is to say by a logical form in which an 'event variable' allows a sentence such as *John ran slowly*, ignoring tense, to be written as:

(9) $\exists e$ [Run(John,e) & Slowly(e)]

Davidson introduces his argument for an 'event variable' by the observation that we can anaphorically refer to events by *it*, as in: *John bought a car; he did it yesterday*. Verkuyl comments on this:

> "My conclusion is that Davidson's problem with finding no singular term for the anaphoric *it*... is an artefact of his wish to restrict his formalism to a first-order language" (Verkuyl 1997:21).

However the main thrust of Davidson's argument is, I believe, undoubtedly that of compositionality.

Davidsonian/Reichenbachian proposals are not the only attempts to address the challenge to represent events within formal semantics. Within the context of Montagovian semantics, the problem of evaluating events with respect to an instant in time, for instance for telic processes such as *draw a circle* in which a truth evaluation at an instant in time appears not to be valid, led to important proposals by Partee and Bennett to evaluate truth with respect to an interval (see Tichy 1985:263).

In Chapter 5 of this thesis I will review these proposals of Reichenbach and Davidson and, utilising proposals by Carlson on the role of Kind and Stage in individuation, make specific suggestions on the nature of event entities.

2.4 Vendlerian Categories

During the course of this thesis I will make use of Vendlerian event categories in evaluating the event structure being proposed. Consequently I present here a summary of an event analysis based on Vendlerian tests. I draw heavily on the presentation of Dowty (1979) in this section.

Zeno Vendler's work on event categories is an outcome of work by Ryle and Kenny, in turn based on distinctions originally made by Aristotle. (The reader is referred to Dowty 1979:52-55 for a summary and for references to Kenny and Ryle and to Aristotle.)

Vendler categorised events into: *state*, *activity*, *accomplishment* and *achievement*. (As Dowty notes, Ryle and Kenny use a slightly different terminology. *Accomplishments* are called "achievements with an associated task" by Ryle. *Achievements*, also, are called either "lucky achievements" or "achievements without an associated task".) Examples of the Vendlerian categories are:

TABLE 1: VENDLERIAN EVENT CATEGORIES (from Dowty 1979)

States	*Activities*	*Accomplishments*	*Achievements*
know	run	paint a picture	recognise
believe	walk	make a chair	spot
have	swim	deliver a sermon	find
desire	push a cart	draw a circle	lose
love	drive a car	push a cart	reach
		recover from illness	die

Dowty does not comment on the fact that *push a cart* is listed as both an *activity* and an *accomplishment*. He gives the following table as a summary of the Vendlerian tests on which these categories are based (1979:60):

TABLE 2: SUMMARY OF VENDLERIAN TESTS (from Dowty 1979)					
	Criterion	*States*	*Activities*	*Accomplishments*	*Achievements*
1	meets non-stative tests	no	yes	yes	?
2	has habitual interpretation in the simple present	no	yes	yes	yes
3	ϕ *for an hour, spend an hour* ϕ*ing*	OK	OK	OK	bad
4	ϕ *in an hour, take an hour to* ϕ	bad	bad	OK	OK
5	ϕ *for an hour* entails ϕ *at all times in the hour*	yes	yes	no	d.n.a.
6	*x is* ϕ*ing* entails *x has* ϕ*ed*	d.n.a.	yes	no	d.n.a.
7	complement of *stop*	OK	OK	OK	bad
8	complement of *finish*	bad	bad	OK	bad
9	ambiguity with *almost*	no	no	yes	no
10	*x* ϕ*ed in an hour* entails *x was* ϕ*ing during that hour*	d.n.a.	d.n.a.	yes	no
11	occurs with *studiously, attentively, carefully*, etc.	bad	OK	OK	bad

OK = the sentence is grammatical, semantically normal
bad = the sentence is ungrammatical, semantically anomalous
d.n.a = the test does not apply to verbs of this class

'Stative tests' are listed by Dowty as:

"I. Only non-statives occur in the progressive...

II. Only non-statives occur as complements of *force* and *persuade*...

III. Only non-statives can occur as imperatives...

IV. Only non-statives co-occur with the adverbs *deliberately, carefully*...

V. Only non-statives appear in pseudo-cleft constructions...

VI. ...when an activity or accomplishment occurs in the simple present tense (or in any non-progressive tense), it has a frequentative (or habitual) interpretation in normal contexts" (Dowty 1979:55-56).

Dowty however recognises certain problems with Vendler's method of categorisation. With respect to the difference between *activity* and *accomplishment* verbs in particular he notes:

"In fact, I have not been able to find a single activity verb which cannot have an accomplishment sense in at least some special context. *Look for* (*listen for*, etc.) would seem to be the most inherently irresultative of the activity verbs, but it is easy to find a context in which they are accomplishments: If a library has an established search procedure for books involving a definite number of prescribed steps, then one librarian can tell another that he finished looking for a certain book but never found it.

"Furthermore, it may be supposed that those few examples which sound equally felicitous with *for* or *in* adverbials - e.g. Fillmore's (1971) example *He read a book for/in an hour* or *She combed her hair for/in five minutes*,... are all cases where a verb phrase can be read ambiguously as an activity or an accomplishment. In other words, *for* phrases may be restricted to activities exclusively, and alleged "marginal" occurrences of *for*-phrases with accomplishments such as [10] are in fact being read as activities.

[10] ?John painted a picture for an hour" (Dowty 1979:61-62).

This causes Dowty to make an important comment:

> "If this claim is correct, then Vendler's attempt to classify surface verbs once and for all as activities or accomplishments is somewhat misguided. First, we have seen that not just verbs but in fact whole verb phrases must be taken into account to distinguish activities from accomplishments. (In a certain sense, even whole sentences are involved...) ...the possibility of giving accomplishment "interpretations" to activity verbs in special contexts blurs the distinction even further" (Dowty 1979:62).

It is noticeable that the *accomplishments* listed in table 1 are in fact phrasal, that is to say they consist of a verb and an accompanying noun. Ryle's naming of *accomplishment* as "an achievement with an associated task" (or stated the other way round as 'a task with an associated achievement') is perspicuous:

(11) Joe is building a house

If we use the verb *build* by itself, however, we find that the Vendlerian tests do not give unambiguous results. If we apply the relevant tests in (12) we find that there is ambiguity in the categorisation of *build* between an *activity* and an *accomplishment*. If *build* is an *activity* it should be infelicitous in test 4 but pass test 6; if, on the other hand, *build* is an *accomplishment* test 9 should be ambiguous:

(12) a test 4 ?Joe built in a month

b test 6 Joe is building ?entails Joe has built

c test 9 ?Joe almost built

This ambiguity between *activities* and *accomplishments* is presumably that noticed by Dowty above. Difficulty in interpreting these sentences may result from the fact that we do not normally undertake *building* as an activity disassociated from a goal. Whether *build* in to be understood in an utterance as an *activity* or an *accomplishment* will need to be disambiguated by the context. This lends support to a view that event structure at some point needs to be associated with conceptual structure.

Most subsequent writers (e.g. Dowty, Moens, Moens and Steedman, Pustejovsky, Parsons, Verkuyl, Jackendoff, Pulman) investigating the Vendlerian categories have attempted a more compositional approach. The following comment by Jackendoff, concerning his own analysis, is representative:

> "The upshot of [my] analysis is in general agreement with such writers as Verkuyl (1989) and Pustejovsky (1991), who regard the Vendler classes not as a basic division of the aspectual system, but rather as various realisations of a set of more fundamental parameters..." (Jackendoff 1991:40).

One of the concerns of this thesis will be to pursue this question of compositionality.

2.5 Focus Interpretation

Focus phenomena constitute another theoretical area which is relevant to this thesis. We will see in chapter 4 that morphosyntactically marked focus is one of the factors that influence the use of the perfective forms in Pular. The existence of focus phenomena with respect to verbs has received some theoretical

treatment in the context of Hungarian (Szabolcsi 1981, Horvath 1986, Kiss 1987, Brody 1990) and for Hausa (Green 1993). I will wish to consider here the extent to which focus phenomena are involved in the semantics and pragmatics of perfective verbal expressions in Pular.

To do this I will invoke concepts of alternative semantics, as developed by Rooth (1992,1995). The basic notion of alternative semantics is as follows (Rooth's theories were developed in the context of intonational focus):

> "According to the alternative semantics for focus, the semantic reflex of intonational focus is a second semantic value, which in the case of a sentence is a set of propositions" (Rooth 1992:75).

Rooth illustrates this in the following way:

> "The basic idea of alternative semantics can be illustrated with the question-answer paradigm. The question [does Ede want tea or coffee] determines the basic answers "Ede wants tea" and "Ede wants coffee". Similarly, focus in the answer [Ede wants $[\text{coffee}]_F$] indicates that propositions obtained by making substitutions in the position of the focussed phrase - propositions of the form "Ede wants *y*" - are alternatives to the actual answer... Semantically, focus determines an additional focus semantic value, written $[\alpha]^f$, where α is a syntactic phrase" (1995:276).

He states what Breheny (1996) calls an interface condition:

> "the focus semantic value for the sentence $[_S[\text{Mary}]_F$ likes Sue] is the set of propositions of the form 'x likes Sue', while the focus semantic

value for [$_S$Mary likes [Sue]$_F$] is the set of propositions of the form 'Mary likes y'." (Rooth 1992:76).

Since I will be invoking relevance-theoretic notions of utterance interpretation, it is instructive to see how Rooth's theories can be understood in the framework of Relevance Theory. Breheny (1996) compares the approach of alternative semantics:

> "In cognitive terms, the [alternative semantic value] corresponds to what we might call a *background assumption schema*, and the variable x corresponds to a variable over (conceptual) representations." (Breheny 1996:29, italics added.)

Breheny argues that, in the framework of relevance theory, the interface condition follows from the definition of optimal relevance" (Breheny 1996:21-22).

> "Focal stress leads to the evocation of alternatives... by instructing the hearer to construct a representation of such alternatives at... the interface, the level at which a representation of the utterance is constructed" (Breheny 1996:29).

The notion of context also enters into Rooth's theory. He proposes that the context C of an utterance must be a subset of the focus semantic value of the utterance.

In the conclusion to his 1995 article, Rooth points out that different focus phenomena may have different effects. Consequently, in considering the application of verb focus to the perfective system of Pular, it will be necessary to consider the type of focus that is invoked. Rooth claims, for instance, that intonational focus in English has a "weak semantics of evoking alternatives",

whereas a cleft construction has a "strengthened semantics of existential presupposition and exhaustive listing" (1995:296). With respect to focus-sensitive negation, on the other hand, he suggests, following Jackendoff (1972), that the alternatives that focus evokes in the context C are merely "relevant in the discourse" (1995:295).

Chapter 7 will present a fuller account of the theory of alternative semantics, and a relevance-theoretic view of Rooth's theory, prior to the application of the theoretical framework of this thesis to the Pular perfective verbs.

3. GRAMMATICAL OUTLINE OF PULAR

Before I proceed with presentation of data on the use of the perfective forms in Pular, I present in this chapter an outline of the phonological and grammatical systems of Pular, such as will be relevant to this thesis.

The appellation Fulfulde is normally given to the series of dialects of this language, which stretch from the Senegambian region of the West African coast (as far north as Mauretania and as far south as Guinea) to the Cameroonian highlands in central Africa, a distance of some 2500 miles. A southern outpost of the language is found in Benin, and some eastern outposts in Chad.

Three main dialects are spoken in the Senegambian region. In northern Senegal, in the region known by the Fulɓe as Fouta-Tooro, there is a dialect known as Pulaar (or Hal-Pulaar). The dialect spoken in Guinea-Bissau and in the Casamance region of southern Senegal is called Fulakunda. The dialect spoken in Guinea, in the Fouta-Jalon, which is the subject of this thesis, is known as Pular. Fulfulde is the indigenous term for the language in countries further east.

In this thesis I use the term 'Fulfulde' to refer to the dialect group in general. In this chapter I will use 'Fulfulde' when I have reason to believe the features I am referring to are found in most of the dialects of Fulfulde, and 'Pular' or 'Guinean Pular' when, at least as far as the immediately neighbouring countries are concerned, I have reason to believe the features are only found in the dialect of the Fouta-Jalon.

Greenberg was the first to classify Fulfulde definitively as a member of the West-Atlantic branch of Niger-Congo. I will cite briefly his comments and those of Wilson (1989) to situate the study of Fulfulde:

> "From the time of Müller... to the recent theory of Jeffreys... that [Fulfulde] is so remarkable that it could only be explained as an arbitrarily invented children's language, the [Fulfulde] language has always been a subject of special interest to students of Africa... The best known of these [theories as to the origin of the Fulɓe] perhaps is that advanced by Delafosse who considers them a group of Aramaic-speaking Judaeo-Syrians who entered Negro Africa from Cyrenaica about 200 A.D... Linguistically they also seemed unique. The feature of the language which has aroused the most speculation is the alternation of initial consonants, particularly in the substantive, which combines with suffix replacement in the plural to produce surprising results. Thus a member of the [Fulɓe] nation is *pul-lo*, the plural is *ful-ɓe*... As we shall see, this phenomenon, in spite of the wonder it has aroused, is far from unique in this portion of Africa" (Greenberg 1949:24)

Wilson comments on this:

> "Hovering like an incubus over the classification of the West African languages, and more especially of Atlantic, the red herring of the status and origin of [Fulfulde] has continued to cast its shadow. In actual fact material presented by Koelle in the 1850s would have been enough to show its Atlantic lexical affinities and to indicate that its morphophonemics are not unique in this group. Koelle (1854:18)

> relates the tradition that the [Fulɓe] tribe had its origin in the Fouta Toro (north Senegal) and that its great eastward nomadic migration seems to have reached the present northern Nigeria as late as the eighteenth century" (Wilson 1989:83-85).

The two most recent published analyses of Fulfulde dialects are Sylla 1982, of the Pulaar dialect of northern Senegal, and McIntosh 1984, of the Kaceccereere dialect of Nigeria. I will refer to these works during the course of this chapter. My own description of the Guinean dialect of Pular can be found (in language learning form) in Evans 1998.

Understandably Fulfulde shares many of the features of the languages of the Niger-Congo family and the West Atlantic sub-family to which it belongs. It shares with other languages of the Niger-Congo family the use of noun classes (Fulfulde has one of the highest counts of noun classes of all the Niger-Congo languages), an aspectually-oriented verbal system and the use of verb extensions. It shares with some other languages of the West Atlantic sub-family the phenomenon of initial consonant alternation.

In this chapter I present first an outline of the phonology of Pular/Fulfulde such as is relevant to this thesis, followed by a summary of the most important features of the morphology and a delineation of the syntax.

3.1 Phonology

The following is a summary of the consonantal system of Fulfulde:

TABLE 3: FULFULDE CONSONANT SYSTEM

	bilabial	labio-dental	alveolar	palatal	velar	glottal
plosives	**p b**		**t d**		**k g**	**'**
affricates				**c j**		
prenasalised	**mb**		**nd**	**nj**	**ng**	
implosives	**ɓ**		**ɗ**	**ƴ**		
fricatives		**f**	**s**			**h**
laterals			**l r**			
nasals	**m**		**n**	**ɲ**	**ŋ**	
semi-vowels	**w**			**y**		

All consonants can occur in syllable-initial position. In the Pular dialect of Guinea only continuants (except **h**) can occur in syllable-final position.[1] Of these continuants, **f, s** and **w** do not normally occur in word-final position, since they are absent from word-final morphemes. The exception to this is a series of monosyllabic verbal intensifiers in which the continuants and the voiceless plosives are found in word-final position, for example: **kof, ƴem, fes, few, cep, kat, dok**. For instance:

[1]In syllable final position the phonemic difference between **n, ɲ** and **ŋ**, and normally also **m**, is neutralised, and, either homo-organically conditioned by a following consonant, or realised as [**ŋ**] in word-final position (but orthographically represented by **n**) with partial nasalisation of the preceding vowel. Final /**m**/ is distinguished in a few words.

(1) **no wuli kat**

STAT hot-PERF/2 INTSF

it's very hot

In Fulfulde, medial consonants (but not semi-vowels) may be geminate (indicated in writing by a doubling of the letter), e.g. **debbo** *woman*. Consonant clusters also occur medially, consisting, in the Pular dialect, of a continuant followed by a non-continuant, e.g. **wonti** *became*.

There are five vowels in the phonemic system of Fulfulde (Sylla 1982:22):

	fronted	central	back
closed	**i**		**u**
semi-closed		**e**	**o**
open		**a**	

TABLE 4: FULFULDE VOWEL SYSTEM

Vowels may be short or long (indicated in writing by a doubling of the letter), e.g. **laɓi** *knife*, **laaɓi** *clean*.

In the Pular dialect a long vowel cannot be followed by a geminate consonant or consonant cluster. For instance from the root **laam-** *rule,govern* the nominal form *king* is **landɗo** not ***laamdɗo**, as is found in other dialects. When such medial clusters occur as a result of morphological processes, assimilation is often found, as can be seen in this example, where **m** has been assimilated to an implosive dental to form the dental cluster **nd**.

A verb root always carries stress, as do syllables with long vowels or those that are followed by a geminate consonant or consonant cluster. Otherwise stress is placed on alternate syllables. Noun stress follows a similar pattern. Subject and

object pronouns form one stress group with the associated verb but are not themselves stressed. A final short vowel of a verb is not normally stressed. The following are examples (in which primary stress is shown by ´ and secondary stress by `): **jángi, jàngáama, wòniróyta, wárira mo, wàriróya mo, wòniránoyáy mo, òkkaní mo mo mo.**

This section, clearly, provides only the briefest of introductions to the phonology of Pular. Paradis 1992 can be accessed for further information on Fulfulde phonology.

3.1.1 Consonant Alternation

The phenomenon of consonant alternation, a feature of the West Atlantic languages (see Wilson 1989), results in the following system of consonant 'grades' in Fulfulde:

TABLE 5: FULFULDE CONSONANT GRADES

plosive/affricate	**p**	**b**	**d**	**c**	**j**	**k**	**g**	**g**	**g**
prenasalised	**(p)**	**mb**	**nd**	**(c)**	**nj**	**(k)**	**ng**	**ng**	**ng**
continuant	**f**	**w**	**r**	**s**	**y**	**h**	**w**	**y**	**0**

The implosives, the nasals, and **t** and **l** do not take part in this system of alternation. Alternation is governed by noun class, so that a difference may occur between the initial consonant of corresponding verbal and nominal forms, between the singular and plural of nouns, and between concrete and abstract noun forms. For example, for the root **wujj-** *steal*, the following nominal forms exist: **gujjo** *thief*, **wuyɓe** *thieves*, **nguyka** *theft*. Alternation can also occur word internally, for example: **fuuf-** *sprout*, **puupi** *seedlings*, **holsere** *hoof*, **kolce** *hooves*, **suus-** *dare*,

cuucal *courage*, **saafaandu** *wolf*, **caapaali** *wolves*. Since this phenomenon is morphologically governed I will exemplify it further in section 3.2.3 below.[2]

3.2 Morphology

As was mentioned above, Fulfulde shares with the Niger-Congo languages an aspectually-oriented verb morphology (Sylla 1982:85-90, McIntosh 1984:103-105) and the use of verb extensions (Sylla 1982:115-120, McIntosh 1984:73-76,113-115). An extensive system of noun class marking is found in the nominal, pronominal and participle morphology (Sylla 1982:29-33, McIntosh 1984:43-52).

I will present the relevant elements of the verb morphology first, since this is the subject of this thesis, before presenting the pronominal and the nominal systems, followed by the construction of participles and adjectivals. Some readers might wish to glance ahead at the pronominal morphology before starting this section, although the pronominal glosses in this section on verb morphology should be fairly self evident.

3.2.1 Verb Morphology

A Pular verb has the following morphological composition:

(2) root+(extension$_1$)+(extension$_2$)... +aspect/voice+(anterior suffix)

for instance: **jang-id-oy-ay-no**

read-ASS-DIS-IMPF-ANT

used to go to study together

---

[2]This phenomenon of alternation is also found in noun endings and adjectival endings, for instance nouns of the **ngal** class will have one of the endings: **-al**, **-wal**, **-gal**, **-ngal**.

The verb root is invariably of one syllable, except for borrowed words.

3.2.1.1 Perfective and Imperfective Suffixes

The aspect/voice suffix is either perfective or imperfective, with separate paradigms for active, middle and passive voices. I will distinguish passive voice suffixes (PASS) from active and middle voice suffixes, but otherwise not mark active and middle in the glosses since this distinction will not be relevant to the thesis. (The distinction can be deduced from the form of the suffix and the gloss associated with it.) I follow the conventions for ordering and labelling of the perfective and imperfective suffixes of Sylla 1982:

TABLE 6: PULAR PERFECTIVE SUFFIXES

	PERF/1	PERF/2	PERF/3	PERF/NEG
active	0[3] or **-u**	**-i**	**-ii**	**-aali**
middle	**-i**	**-ii**	**-ike**	**-aaki**
passive (PASS)	**-a**	**-aa**	**-aama**	**-aaka**

Since a detailed analysis of the semantic value of the perfective endings is the subject of this thesis, I will defer investigation of the use of the perfective endings till the next chapter, where detailed examples can be given. Since that chapter will not investigate the use of the imperfective, I will nevertheless give examples of uses of the imperfective forms here.

---

[3]The active perfective-1 suffix and the active imperfective-1 suffix can be realised as a null allomorph on some verbs in the Guinean dialect which have a root-final continuant (e.g. **taw**, **ar**), after an extension (section 3.2.1.6) with final continuant (e.g. **yahan**), and before the 1st person single object pronoun (see 3.2.2).

	TABLE 7: PULAR IMPERFECTIVE SUFFIXES				
	IMPF/1	IMPF/2	IMPF/3	IMPF/4	IMPF/NEG
active	0[4] or **-u**	**-a**	**-ay**	**-ata**	**-ataa**
middle	**-o**	**-oo**	**-oto**	**-otoo**	**-otaako**
passive (PASS)	**-e**	**-ee**	**-ete**	**-etee**	**-etaake**

IMPF/1 can only have an imperative or desiderative value (Sylla 1982:105-106,113-114), consequently for ease of reading of the glosses I will normally relabel it as -IMPV (imperative):

(3) **yahu**
go-IMPV
go!

This imperfective form is also used after the desiderative particle, **yo** (DESD) and its negative counterpart, **wata**, (DESD/NEG):

(4) **yo mi yahu**
DESD 1S go-IMPV
shall I go, let me go, I ought to go

(5) **wata mi yahu**
DESD/NEG 1S go-IMPV
let me not go

The distribution of the imperfect forms is entirely syntactically governed and consequently I will not normally distinguish the forms in the glosses. We can see this syntactic determination if we take the imperfective-3 ending as the unmarked imperfect ending, as in (6). In subordinate environments, and where an element is explicitly focussed before the verb by means of the focus particle **ko**

[4]see previous footnote.

(see 3.3.5.1), imperfective-4 is used, as in (7). Imperfective-2 is used on non-initial verbs in a series of imperfectives, as in (8). It can also be used in a statively-marked clause (see 3.2.1.2) with habitual meaning (9). Imperfective-2 also has some uses in temporal clauses (10):

(6) **mi yahay jango**
1S go-IMPF/3 tomorrow
I will go tomorrow

(7) **ko jango mi yahata**
FOC tomorrow 1S go-IMPF/4
I shall go *tomorrow*

(8) **mi yahay, mi joodoo**
1S go-IMPF/3 1S sit-IMPF/2
I will go and sit down

(9) **mido yaha ɲande woo**
1S/STAT go-IMPF/2 day each
I go every day

(10) **nde himo yaha...**
CLS_{time} 3S/STAT go-IMPF/2
as he/she was going...

3.2.1.2 Statively-Marked Clauses

In the section above two examples were given, (9) and (10), in which a pronoun was 'statively' marked. Clauses with both perfective and imperfective verb forms can be statively-marked,[5] and in such cases the verb form is restricted

[5]contrary to some claims that stativity is essentially imperfective (compare Comrie 1976).

to perfective-2 or imperfective-2. This marking is done by means of a pre-verbal stative particle **no** (STAT) when the subject is non-pronominal and by means of a different form of the pronoun (see 3.2.2) if it is pronominal:

(11) **Sa'iidu no moyyi**
Sa'iidu STAT good-PERF/2
Sa'iidu is good/kind

(12) **himo moyyi**
3S/STAT good-PERF/2
he/she is good/kind

I will refer to such uses of the perfective and imperfective as the statively-marked perfective and the statively-marked imperfective.[6] The value of the statively-marked perfective will be investigated in the next chapter; semantic values of the statively-marked imperfective have been indicated at (9) and (10) above.

3.2.1.3 Infinitive and Verbal Noun Forms

The Guinean dialect has both infinitive and verbal noun forms.[7] The same suffix forms are found throughout the Fulfulde dialects. The infinitive suffixes (INF) are: **-ude** (active), **-aade** (middle) and **-eede** (passive). The verbal noun suffixes (V/N) are: **-ugol** (active), **-agol** (middle), **-egol** (passive); for instance **yahugol** *go*. In accordance with the custom of the Fulɓe in Guinea, I will use the verbal noun form as the citation form. The infinitive form is used after 'modals':

---

[6]Stativity is not marked in negative clauses, except in the case of the perfective active for which there is a separate form of the negative suffix **-aa** (PERF/NEG/STAT).

[7]In many other dialects only one of these forms is used.

(11) **himo haani yahude**

3S/STAT norm-PERF/2 go-INF

he/she should go

3.2.1.4 The Progressive Construction

The infinitive is used, uniquely in the Guinean dialect, in a statively-marked clause, to form a progressive[8]:

(12) **midɔ yahude**

1S/STAT go-INF

I am going

3.2.1.5 The Anterior Suffix

I have diagrammed the anterior suffix in (2) as appearing after the aspect/voice suffix (Sylla 1982:89,99-100,112-113, McIntosh 1984:76-77). The tables below give the possible forms of the anterior suffix with the perfective and imperfective suffixes:

TABLE 8: PULAR PERFECTIVE ANTERIOR SUFFIXES

	PERF/1/ANT	PERF/2/ANT	PERF/3/ANT	PERF/NEG-ANT
active	**-uno**	**-unoo**	**-iino**	**-aano**
middle	**-ino**	**-inoo**	**-inoke**	**-anooki**
passive	**-ano**	**-anoo**	**-anooma**	**-anooka**

There is no intended correspondence, as far meaning or function is concerned, between the numbering of the perfective forms without the anterior suffix and the numbering of the forms with the anterior suffix. Clearly the difference between

[8]The semantic value of the progressive is carried by the statively-marked imperfect in other dialects.

some of the forms lies only in the length of the vowel of the anterior suffix: **-no** and **-noo**.[9] However I have retained Sylla's numbering of these forms which does not differentiate them in this way; as a consequence, where the forms are numbered, I have labelled them as if they are a single morpheme, e.g. PERF/1/ANT.[10]

TABLE 9: PULAR IMPERFECTIVE ANTERIOR SUFFIXES

	IMPF/3/ANT	IMPF/4/ANT	IMPF/NEG-ANT
active	**-ayno**	**-aynoo**	**-ataano**
middle	**-otono**	**-otonoo**	**-otanooko**
passive	**-eteno**	**-etenoo**	**-etanooke**

I have again followed Sylla's numbering. The semantic value of the anteriority marker (called "*prétérit*" by Sylla) is given by Sylla as "*le prétérit renvoie toujours à un passé lointain*" (Sylla 1982:99). McIntosh says: "the 'anteriority marker'... sets the action depicted by the verbal complex one step back in time..." (McIntosh 1984:76). Clearly there is some discrepancy between these two definitions but I will not investigate it further in this thesis (see Evans 1998). The distribution of these forms is also not relevant to this thesis.[11]

---

[9]The difference in use of the anterior perfective-1 and the anterior perfective-2 is syntactically determined, the anterior perfective-2 form being used in subordinate environments, focussed environments (3.3.5.1) and in statively-marked clauses; the anterior perfective-1 is used in all other environments. The anterior perfective-3 forms have a separate semantic value (roughly of *it is a while since....*)

[10]From some of the forms, such as **-inoke**, one can see that the perfective-3 ending, in this case **-ike**, should probably be analysed diachronically as two separate morphemes.

[11]The anterior imperfective-3 and the anterior imperfective-4 have the same distribution as the anterior perfective-1 and anterior perfective-2 forms. The

3.2.1.6 Verb Extensions

The following are the main possible forms of the verb extension suffix in Guinean Pular:

TABLE 10: PULAR VERBAL EXTENSIONS		
-an-	benefactive extension	BEN
-id-/-od-	associative extension	ASS
-in-	causative extension	CAU
-indir-/-ondir-	reciprocal extension	RECP
-inkin-	dissimulative extension	DSLM
-ir-/-or-	manner extension	MAN
-or-	concomitantive	CON
-it-	incremental extension	INC
-oy-	distantive extension	DIS
-id-	adjectival extension	ADJ
-in-	adjectival extension	ADJ

For instance:

(13) **mi soodanay mo ɗun**
1S buy-BEN-IMPF 3S CLS_{gen}
I will buy that for him/her

(14) **en jangiday**
2S/INCL read-ASS-IMPF
we will read together

---

anterior imperfective-4 form is used in subordinate environments, focussed environments and in statively-marked clauses.

(15) **mi fowtinay mo**

1S rest-CAU-IMPF 3S

I will give him/her a rest

(16) **hiɓe andindiri**

3P/STAT know-RECP-PERF/2

they know each other

(17) **hiɓe mawninkinii**

3P/STAT big-DSLM-PERF/2[12]

they make themselves out to be important

(18) **mi jangiray doy**

1S read-MAN-IMPF slowly

I will read slowly

(19) **mi gollay, mi jangora**

1S work-IMPF 1S study-CON-IMPF

I will work, and study at the same time

(20) **mi jangitay**

1S read-INC-IMPF

I will read it again

(21) **mi yahoyay**

1S go-DIS-IMPF

I will go there (later)

(22) **himo gandidi**

3S/STAT knowledge-ADJ-PERF/2

he/she is knowledgeable

---

[12]The dissimulation extension is always followed by middle endings.

(23) **no haakini**

STAT leaf-ADJ-PERF/2

it is leafy

The most extensive treatment of Fulfulde extensions to date is Breedveld 1995.

The associative, reciprocal and manner extensions forms **-od- -ondir-** and **-or-** in the Pular dialect are used with middle-voice verbs (if there is more than one of these extensions on a verb, the first one would be of this form.) When one of these 'middle-form' extensions is used, the middle-voice aspectual suffixes are normally replaced by those of the corresponding active-voice suffixes (voice marking having effectively been transferred to the one of the extensions). I will indicate this distinction here by /ACTV and /MIDD, but otherwise will not gloss it since it is not pertinent to the thesis (compare example 18):

(24) **mi joodoray doy**

1S sit-MAN/MIDD-IMPF/3 slowly/carefully

I will sit (down) carefully[13]

More than one verb extension may be present on a verb (consistent with semantic compatibility), though the presence of more than three extensions is

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[13]This has the curious effect of allowing a verb to be marked for both middle and passive voice simultaneously, for instance:

(25) **joodoraa doy**

sit-MAN/MIDD-PERF/2/PASS slowly/carefully

they sat down carefully

(more literally: sitting down was done carefully)

exceptional[14]. There is some ordering of these extensions when more than one is present. Detailed notes on this are not relevant to this thesis. I will remark on only two points, one of morphological interest and one of syntactic interest.

The causative extension normally results in a change in a verb root from a CVVC to CVCC, for instance, for the verb **joodaagol** *sit*, from **jood-** to **jodd-**:

(26) **mi joodoto**
1s sit-IMPF/3/MIDD
I will sit

(27) **mi joddinay**
1S sit-CAU-IMPF/3/ACTV
I will set it down

On a syntactic theme we can also note that Fulfulde does not allow an agent to be expressed in a passive construction; there is no extension that can be used to introduce an agent, unless it can be portrayed as an instrument for which the manner extension would be appropriate:

(28) **dun tayiraa laɓi**
CLS_{gen} cut-MAN-PERF/2/PASS knife-CLS
this was cut by a knife

---

[14]The same extension can be repeated if each use has a separate function, as in:

o yahananaali lan kaydi
3S go-BEN-BEN-PERF/NEG 1S paper-CLS
he did not go for paper for me

From this it can be seen that 'benefactive' is a syntactic category which underdetermines the semantic interpretation.

3.2.1.7 Lexically Passive Verbs

There are a number of verbs in Pular, for which the subject is in some sense an *experiencer*, which take passive suffixes. Examples are: **faalegol** *want*, **giilegol** *be giddy*, **yurmegol** *have compassion*. Such verbs can have objects where semantically compatible:

(29) **miɗo yurmaa mo**

1S/STAT have-compassion-PERF/2/PASS 3S

I have compassion on him/her

3.2.1.8 The 'Impersonal' Passive

Of potential theoretical interest also is the use of the passive with intransitive verbs, as in for instance:

(30) **yahaama ka juulirde**

go-PERF/3/PASS LOC/DEF mosque-CLS

'the mosque was gone to'

(more literally 'there was going to the mosque')

(25) is also an example of this use of the passive. It would seem, in this use, that the verb actually has no syntactical subject.

3.2.2 Pronominal Morphology

The following table shows the pronominal system of Pular. Other dialects of Fulfulde will have the same system, although the forms of the pronouns may differ:

TABLE 11: PULAR PRONOMINAL SYSTEM

	singular (S)				plural (P)	
	subject		object			
1	**mi**	I	**mi, lan**	me	**en**	we (INCL)
			or **-an**[15]		**men**	we (EXCL)
2	**a**	you	**ma**	you	**on**	you (plural)
3	**o**	he,she,it	**mo**	him,her,it	**ɓe**	they

As can be seen, subject and object are only distinguished in the singular pronouns. Like many other African languages, Fulfulde has separate inclusive and exclusive 2nd person plural pronouns, which I will gloss INCL and EXCL. Since

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[15]I will not describe the distribution of **mi** and **lan** here since it is not relevant to us (see Evans 1998); **-an** is used after the active perfective-1 and the active imperfective-1 (imperative) suffixes, in which environment the aspectual ending is realised as the null allomorph (3.2.1.1), e.g.:

(31) **o jonnan**
(o jonn-0-an)
3S give-PERF/1-1S/OBJ
he/she *gave* it to me, he/she did give it to me

(32) **jonnan!**
(jonn-0-an)
give-IMPV-1S/OBJ
give it to me!

Fulfulde has the same basic SVO order as English, for brevity of presentation I will not normally gloss subject (SUBJ) and object (OBJ).

In the case of PERF/2 and IMPF/2, three of these subject markers are realised as final suffixes to the verb rather than in pre-verbal position[16], for instance:

(33) **yahaa**

go-IMPF/2-2S/SUBJ

As mentioned in 3.2.1.2, subject pronouns can also be marked for stativity STAT:

TABLE 12: PULAR STATIVE PRONOMINAL SYSTEM

	singular (S/STAT)		plural (P/STAT)	
1	**midɗo** or **hilan**	I	**hidɗen**	we (inclusive)
			medɗen	we (exclusive)
2	**hidɗa**	you	**hidɗon**	you (plural)
3	**himo**	he,she,it	**hiɓe**	they

The third person pronouns are in fact part of an extensive set of class pronouns (CLS). I list them here according to morphological similarity:

Singular class pronouns: **o** (human class)
nde ndi ndu
nge ngo ngu
ngal ngii ngol
mba
ka ki ko
kal kol
ɗan

[16]This seems to have mislead Labatut into claiming that: "l'aspect de l'énonciation narrative [perfective-2] exclut..., à coup sur, la deuxième personne" (Labatut 1981:68).

Diminutives: **kun ngel**

Plurals: **ɓe** (human class) **ɗe ɗi koy** (diminutive)

For instance:

(34) **bareeru yi'i mboddi; ndu wari ndi**

dog-CLS_i see-PERF/2 snake-CLS_j CLS_i kill-PERF/2 CLS_j

a dog saw a snake; it killed it

Almost all nouns belong to a class, marked in the ending of the noun (see next section). Words that have the same class membership generally have a common semantic feature. Most small animals, for instance, have membership in the **ndu** class, e.g. **bareeru** *dog*, **ndowru** *mouse*. Male and predatory land animals have membership in the **ndi** class, e.g. **mboddi** *snake*, **buutoori** *panther*. Long 'winding' objects have membership in the **ngol** class, e.g. **bukkol** *tail*, **laawol** *road*, **caangol** *river*. Words referring to humans generally have membership in the **o** (singular) and **ɓe** (plural) classes. The plurals of words not referring to humans are distributed between the **ɗe** and the **ɗi** classes. (There is a small semantic difference between these two classes.) Most loan words are assigned to the **o** class.

What I have called here a class pronoun can more accurately be called a class marker. The class ending on a noun is related in form. The deictic and 'discourse' forms of these class markers also function as determiners in noun phrases. For instance:

(35) **nduu bareeru yi'ii mboddi ndin**

CLS_i dog-CLS_i see-PERF/3 snake-CLS_j CLS_j

this dog saw the snake

The deictic forms of the class pronouns have a lengthened vowel: e.g. **oo**, **ndii**, **nduu**. The 'discourse' form has a suffixed **-n** - e.g. **on, ndin, ndun**. As a pronoun the discourse form references the most accessible antecedent of that class, other than the subject of the preceding verb, in the immediately preceding speech context. As such it can be used as a type of switch-reference pronoun:

(36) **ɓay Sa'iidu yi'ii Buubakar, on landii mo...**
when Sa'iidu$_i$ see-PERF/3 Buubakar$_j$ 3S$_j$ asked 3S$_i$
when Sa'iidu$_i$ saw Buubakar$_j$ he$_j$ asked him$_i$...

There is a general pronoun, **ɗun**, used in referring to things, events or situations when a specific class is not available e.g.:

(37) **ɗun moyyaa**
CLS$_{gen}$ good-PERF/NEG/STAT
that is not good

Ɗun does not occur as a class suffix on nouns, but can occur as a suffix on adjectivals (3.2.5) in parallel fashion to other class markers. Consequently I will refer to it as the general class. As a pronoun it plays a role in indexing coreferentiality with a subject pronoun or a topic (see 3.3.5.2) and as a resumptive pronoun in subordinate clauses (see 3.3.7). I will represent this pronoun by CLS$_{gen}$.

A statively-marked pronoun (STAT) is formed for each of these class pronouns by prefixing **hi-**: **hinde**, **hindi**, etc (except for **ɗun**, with which the stative marker **no** is used).

We will come across constructions with independent pronouns (IND), that is to say the form of a pronoun when not in direct subject or object position to a

verb. In the case of the class pronouns they are formed by prefixing **kan-**. For the **o** class the independent pronoun is **kanko**; **kaɲun** is used for the general class **ɗun**.

Possessive pronouns (POSS) are formed by prefixing **ma-** to the class pronouns, with gemination of the following consonant[17]. For the **o** class the possessive pronoun is **makko**; for the general class **mun** or **mu'un** is used.

3.2.3 Nominal Morphology

A Pular noun can have the following morphological constructions:

(38) root+class marker[18]

for instance: **suudu** *house* **cuuɗi** *houses* **fello** *hill* **pelle** *hills*

debbo *woman* **rewɓe** *women*

or (39) root+'theme' vowel+class marker

for instance: **bar-ee-ru** *dog* **bar-ee-ji** *dogs*

gert-o-gal *chicken* **gert-oo-ɗe** *chickens*

(the length of the 'theme' vowel depends on the class)

---

[17]and with loss of prenasalisation. This and the previous paragraph have only attempted to give a basic rule. Some of the forms evidence diachronic assimilation between the prefix and the class marker, for instance **nde** class **kayre** and **mayre**.

[18]Phonetic assimilation that has taken place diachronically between the root and the class ending makes it difficult to indicate the boundary between the root and the class ending in this construction. For instance the root of **suudu** (class **ndu**) and **cuuɗi** (class **ɗi**) is presumably **suuɗ-** *hide*. The root of **debbo** (**o** class) and **rewɓe** (**ɓe** class) is **rew-** *follow*.

Many lexemes also allow a 'numberless' form:

(40) root+'theme' vowel

for instance: **bar-e** *dog(s)* **gert-o** *chicken(s)*

In common with the generality of Niger-Congo languages there is no case marking on the noun.

From the examples given for (38) it can be seen that the initial consonant of such constructions is sensitive to class membership. The system of consonant alternation or consonant 'grades' in Fulfulde was given in 3.1.1 These consonant grades are associated with the nominal classes in the following fashion in the Guinean dialect:

TABLE 13: CONSONANT GRADE BY NOUN CLASS

continuant	plosive	prenasalised
ɓe	**o,ɗi,ƈe**	
nde,ndu[19]		**ndi,ndu**[19]
nge,ngo	**ngal,ngel,ngii,ngol**	**ngu**
	kal, kol	**mba**
ko	**ki**	**ka**
	kun,koy	**ƒan**

For instance, in (38) above, the singular **fello** *hill*, which belongs to the **ngo** class, requires an initial continuant, whereas the plural **pelle** *hills* belonging to the **ƈe** class requires the corresponding plosive grade of the initial consonant, **p**.

[19]The **ndu** class in this dialect appears to be divided into semantic subclasses, some of which have an initial continuant (e.g. **reedu** *stomach*, **woyndu** *well*), and some of which have an initial prenasal (e.g. **ndowru** *mouse*).

Borrowed nouns, invariably assigned to the **o** class for the purposes of concord, may have no class suffix, for instance **saa'i** *time*.[20]

3.2.4 Participles

Pular has an extensive system of participles. They have the morphological construction of verbs with the addition of a class marker representing the subject of the verb.

root+(extension$_1$)+(extension$_2$)... +aspect/voice+(anterior suffix)+class marker

For example: **jang-id-ay-noo-ɓe**
read-ASS-IMPF-ANT-CLS
those who used to study together

There is only one choice of perfective suffix for the participles for each of the voices (e.g. **janguɗo** *one who has studied*) and normally one choice of imperfective suffix (e.g. **jangayɗo** *one who studies, one who will study*).[21]

In contrast to other dialects of Fulfulde, participles in Guinean Pular are not subject to class concord in the initial consonant.

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[20]From the examples given in this section it can also be seen that the class endings arrange themselves according to the consonant grades, as mentioned in footnote 2. The possible endings of nouns belonging to the **ngo** class are:

-ngo e.g. **jungo** *arm*
-go e.g. **hoggo** *surrounding fence*
-wo e.g. **feeteewo** *winnowing tray*
-o e.g. **hoɗo** *village* **fello** *hill*

[21]For the active voice where there is an additional imperfective suffix **-oo-** (associated with a continuant grade of consonant in the class ending); for instance **jangoowo** *studying one.*

3.2.5 Adjectivals

I use the term adjectivals to refer to lexical items other than nouns which have the function of restricting the semantic value of a head noun. Adjectivals in Pular are normally class marked and are normally in the form of perfective participles of statively-used verbs, e.g.:

nagge **horiinge**
cow-CLS_i emaciate-PERF/MIDD-CLS_i
an emaciated cow

There are also a certain number of adjectivals which are not participles. For instance, though there is a verb form **njandugol** *be big*, from which regular participles can be formed, the normal adjectival form is **njano**, etc. Some of these non-participle adjectival forms in the Guinean dialect have initial as well as final class concord, for instance **hidugol** *be old/ancient* has adjectival forms **kidho** (**o** class) but **hidho** (**ko** class). The initial consonant of such adjectivals in the Guinean dialect of Pular conforms to a simplified system of class concord, making use of only two consonant grades:

TABLE 14:CONSONANT GRADE OF ADJECTIVES BY CLASS

continuant	plosive
be	**o,di,de**
nde,ndi,ndu	**ngal,ngel,ngii,ngol**
nge,ngo,ngu	**kal, kol**
ka,ki,ko	**kun,koy**
mba	**dun**

3.3 Syntax

The most important parts of this description of Pular for the purposes of this thesis are the sections on verb morphology and clause syntax. Clause syntax is important to us since, in part, the use of the verb morphology depends on clause construction. I will nevertheless describe the construction of phrases before that of clauses in this section, since it is more basic and certain features of phrase construction are used in clause construction.

3.3.1 Phrase Construction

The syntax of simple phases is:

head+(modifier)+(determiner)

There is class agreement between the head and its modifier, and the determiner if present. I will represent concord by indices:

suudu njandu ndun

house-CLS$_i$ big-CLS$_i$ CLS$_i$

the big house

saare njande nden

town-CLS$_j$ big-CLS$_j$ CLS$_j$

the big town

It can be seen from these examples that the determiner has the form of the 'discourse' pronoun with suffixed **-n** mentioned in 3.2.2. Since this distinction is not relevant to the thesis I will simplify the glosses by only referring to the determiner as CLS.

A genitive construction has the same head-modifier order:

woyndu galle saare nden

well-CLS_i house-complex-CLS_j town-CLS_k CLS_k[22]

the well of the compound in the town

The determiner normally precedes its head when the deictic form of the class marker (3.2.2) is used:

nduu suudu

CLS_i house-CLS_i

that house

It can be postposed for greater emphasis:

suudu nduu

house-CLS_i CLS_i

that 'there' house

The determiner is also preposed when the determiner actually has the pragmatic function of 'discourse reference' mentioned in 3.2.2:

ndun suudu

CLS_i house-CLS_i

that (just mentioned) house

---

[22]The determiner in such genitive constructions normally defaults to the class of the last noun, but can for the semantically precise (the author can testify!) be the cause of considerable argument.

3.3.2 Clause Construction

The basic word order in Fulfulde is strictly SVO for nominal subjects and objects. For pronominal subjects and objects some other orders are possible.

A non-copular clause in Pular, without focussing or topicalisation, has the following syntactical order:

(41) subject+verb+(object)... +(prep+indirect object)+(adverb)

or (42) subject+verb+(object)... +(adverb)+(prep+indirect object)

Two objects are quite common in Pular. Verbs denoting transactions, for instance, can have two objects whose function in the event is not morphologically distinguished:

o jonni mo ngal[23]

$3s_i$ give-PERF/2 $3S_j$ CLS_k

he/she_i gave it_k to him/her_j

I will refer to such objects as being *syntactically direct*. The recipient of the transaction precedes the undergoer of the transaction, subject to the proviso however that pronominal objects precede nominal objects:

o jonni ngal Sa'iidu

3S give-PERF/2 CLS Sa'iidu

he/she gave it to Sa'iidu

As a consequence the role of such participants may be underdistinguished morphosyntactically, and further pragmatic processing (enrichment in the sense

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[23]In any real utterance the choice of perfective-2 or perfective-3 will depend on context. In the following examples, where there is no specific context, the choice is arbitrary.

of Relevance Theory or Jackendoff) may be necessary for the interpretation of such utterances.

An object governed by an associative or reciprocal extension is marked with **e**, a general purpose conjunction,[24] for which I also use the notation ASS (**e** is followed by the 'possessive' form of the pronoun in such constructions.) I will refer to such objects as being *syntactically indirect.* (Since a pronoun form is syntactically determined in this case, rather than having the semantic function of denoting possession, I will also not gloss it as possessive):

(43) **men yaadi e makko**
2S go-ASS-PERF/2 ASS 3S
we went with him/her

---

[24]I have termed **e** a conjunction since is also has the basic use of conjoining noun phrases (but not normally verb phrases). **E** can also function as a time marker, which I will gloss as TEMP:

o aray e asewe
3s come-IMPF/3 TEMP Saturday
he will come on Saturday

and to mark a target, which I will gloss as TARG:

mi nulay e makko
1S send-IMPF/3 TARG 3S
I will send for him

E also has use as a locational marker (see 3.3.3) for which I will use a separate gloss.

(44) **men hiwrondiri e maɓɓe**

1P/EXCL greet-RECP-PERF/2 ASS 3P

we greeted them

3.3.3 Relators

I use the term 'relator' to refer to a class of words which are syntactically coupled with a noun or pronoun and which direct the hearer to understand the locational relation of the participant represented by that nominal to other participants in the eventuality.

There are two basic locational markers in Pular: **e** (LOC) and **ka** (LOC/DEF). If **e** is used without an article the nominal will be understood as indefinite; if **ka** is used the nominal will be understood as definite, and an article cannot be used.[25] More specific relators are formed by adding a locational or orientational word to **e** or **ka**: **e/ka hoore** *on top of*, **e/ka dow** *above*, **e/ka ley** *underneath*, etc:

(45) **mi wallini e taabal**

1S lie-CAU-PERF/2 LOC table-CLS

I laid (it) on a table

(46) **mi wallini e hoore taabal**

1S lie-CAU-PERF/2 LOC top table-CLS

I laid (it) on top of a table

(47) **mi joɗɗini ka danki**

1S sit-CAU-PERF/2 LOC/DEF bed-CLS

I set (it) on the bed

[25]except where **ka** conveys the meaning *at the place/home of.*

(48) **mi joɗɗini ka ley danki**

1S sit-CAU-PERF/2 LOC/DEF underneath bed-CLS

I set (it) underneath the bed

3.3.4 Subject and Object Drop

In considering the use of the Pular perfective forms we will have cause to investigate their use in verb sequences. The phenomenon of subject and object drop is relevant to us since it can take place in such circumstances. Both Sylla and McIntosh recognise the phenomenon of subject and object drop in Fulfulde. McIntosh refers to it as "zero subject" and "zero object" (McIntosh 1982:56,150-151); Sylla refers to it as "*l'anaphorique-zéro*" (Sylla 1982:148-154).

3.3.4.1 Subject Drop

Subject drop takes place in Pular in the context of verb sequences, when the subject of the first verb in the sequence is a noun rather than a pronoun:

(49) **Buubakar dogi, yalti, laawii**

Buubakar run-PERF/2 go-out-PERF/2 escape-PERF/2

Buubakar ran out and got away

If the subject of the first verb is a pronoun this option is not available (50); (51) is ungrammatical:[26]

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[26]This may not be true if the second verb has an adverbial function, as is found in line 61 in the appendix:

o yamiri ɓe tentini

3s command-PERF/2 3P/OBJ emphasise-(CAU)-PERF/2

he ordered them emphatically

This is an aspect of Pular grammar that requires further study.

(50) **o dogi, o yalti, o laawii**
3S run-PERF/2 3S go-out-PERF/2 3S escape-PERF/2
he/she ran out and got away

(51) ***o dogi yalti laawii**
3S run-PERF/2 go-out-PERF/2 escape-PERF/2

(52) is possible with a certain (over)emphasis:

(52) **Buubakar dogi, o yalti, o laawii**
Buubakar run-PERF/2 3S go-out-PERF/2 3S escape-PERF/2
Buubakar ran out and got away

Subject drop can also occur in the absence of a verb sequence, if the subject is manifest from the context and the subject, if expressed, would be a class pronoun (rather than a personal pronoun), as in the examples at (1) and (23).

3.3.4.2 Object Drop

Similar to subject drop, object drop is in general possible (53) if the object if expressed would be a class pronoun and is inferrable from the context. Object drop is also possible with personal pronouns on non-initial verbs in verb sequences (54):

(53) **o ƴetti, o fusi**
3S take-PERF/2 3S break-PERF/2
he/she took (it) and broke (it)

(54) **ɓe ƴetti mo, ɓe focci**
3P take-PERF/2 3S 3P whip-PERF/2
they took him/her and whipped (him/her)

3.3.5 Focussing and Topicalisation

Both focussing (Sylla 1980:168ff, McIntosh 1982:90) and topicalisation (Sylla 1980:172, McIntosh 1982:88) occur in Fulfulde. McIntosh treats the syntactic reflexes of focussing and topicalisation at length (1982:216-230,231-241). Both focussing and topicalisation can be identified morphosyntactically in Pular.

The syntax followed in topicalising or focussing an element in a clause in Pular is:

(55) topic+**ko**+focussed element+(subject)+verb+(object)...

3.3.5.1 Focussing

The morphosyntactic reflexes of focussing in Pular are: the focussed element occurs before the verb (and before the subject, if it is not the subject that is being focussed); a focus particle, **ko**, occurs before the focussed element; and the verb is restricted to one of the perfective, imperfective or progressive forms, perfective-2 in the case of the perfective and imperfective-4 in the case of the imperfective.[27] I will identify the focussed element in the gloss by italics.

(56) **o soodi bireedi**
3S buy-PERF/2 bread
he/she bought bread

---

[27]The morphosyntactic reflexes of focussing, though similar, differ from dialect to dialect. In the Maasiina dialect (Mali), for instance, the focussed element is preposed but **ko** is not used. In the Fuuta Tooro dialect of N.Senegal **ko** is used but the focussed element does not have to be preposed. The verbal reflexes, nevertheless, are the same in all dialects.

(57) **ko bireedi o soodi**

FOC bread 3S buy-PERF/2

he/she bought *bread*

When a pronoun is focussed, the independent form of the pronoun is used:

(58) **ko min soodi**

FOC 1S/IND buy-PERF/2

I bought (it)

3.3.5.2 Topicalisation

The morphosyntactic reflexes (cf. 55) of topicalisation are: the topicalised element occurs before the verb, the subject and any focussed element; unless the topicalised element is a non-pronominal subject, the topicalised element reoccurs pronominally in its normal syntactic position; except in subject position this resumptive pronoun is the general class pronominal form (CLS_{gen} - see 3.2.2). I will identify the topicalised element in the gloss by small capitals.

(59) **min ko maaro mi soodi**

1S FOC rice 1S buy-PERF/2

ME, I bought *rice*

(60) **moodi an kan on piiraano ɗun nii**

husband 1S/POSS CONTRAST 2P beat-MAN-PERF/NEG-ANT CLS_{gen} like-this

you didn't beat MY HUSBAND like this

3.3.6 Copular Clauses

The syntax of copular clauses with nominal subject is:

(61) subject+**ko**+complement

for instance: **Saa'idu ko karamoko**

Saa'idu COP teacher

Saa'idu is a teacher

The syntactic distribution of **ko** as a focus marker (FOC) is different from the **ko** as a copular (COP). The syntax of copular clauses with a pronominal subject is:

(62) **ko**+subject+complement

for instance: **ko a karamoko**

COP 2s teacher

you are a teacher

When the subject of a copular clause is focussed the syntax is:

(63) **ko**+subject+**wonugol**+complement

with a conjugated form of the verb **wonugol** *be*, for instance:

(64) **ko Sa'iidu woni karamoko**

FOC Sa'iidu be-PERF/2 teacher

it's Sa'iidu who is a teacher

The complement of a copular construction cannot be focussed syntactically. It already has that pragmatic force in the example at (62).

3.3.7 Subordination

Subordinate clauses follow their heads in Fulfulde. A participle is used if the relative clause is affirmative and the relating pronoun is the subject of the embedded verb (called by Sylla 1980:173 the *stratégie-sujet.*) Otherwise the pragmatically neutral syntax of relative clauses is (the *stratégie non-sujet* of Sylla 1982:174):

(65) CLS_i+clause+(CLS_i final)[28]

When no additional pragmatic effects are required, the clause-final class marker is the **-n** suffixed form of 3.2.2. Its presence or absence is also determined pragmatically. The position and form of the clause final marker follows similar pragmatic rules to a determiner (3.3.1).

When the relative pronoun is a syntactically direct object (as defined in 3.3.2) it is not repeated in the clause. When the relative pronoun is a syntactically indirect object (as defined in 3.3.2), a resumptive pronoun of the general class is used, for instance:

(66) **danki ki mi waalii e hoore mun kin**
bed-CLS_i CLS_i 1S lie-PERF/2 LOC top CLS_{gen} CLS_i
the bed that I lay on

The clause final class marker has in fact the same options in position and form as the determiner in phrase structure presented in 3.3.1 (in order from least to most marked: **ki...kin, kii ki..., kin ki..., ki... kii**), though its pragmatic conditions of use are not entirely identical to those of the determiner:

(67) **kii danki ki mi waalii e hoore mun**
CLS_i bed-CLS_i CLS_i 1S lie-PERF/2 LOC top CLS_{gen}
that bed that I lie on

(68) **kin ki mi waalii e hoore mun**
CLS_i CLS_i 1S lie-PERF/2 LOC top CLS_{gen}
that (very) one that I lie on

---

[28]The presence of a clause-final class marker, called a 'binder' in Sapir 1971, is apparently widespread throughout Niger-Congo (Williamson 1989:33-34).

(69) **ki mi waalii e hoore mun kii**

CLS_i 1S lie-PERF/2 LOC top CLS_{gen} CLS_i

the one (right here) that I lie on

There is also an general relative pronoun, **ko**, which is used when no specific class is appropriate (yet another **ko**!), which I will gloss as SUB, which syntactically parallels the class pronouns (72).[29] This indefinite relative pronoun does not occur clause-finally if it has no contextual antecedent (73):

(72) **ko o wadi kon moyyaa**

SUB_i 3S do-PERF/2 SUB_i good-PERF/STAT/NEG

it is/was not good what he/she did

(73) **mi andaa ko o soodi**

1S know-PERF/NEG SUB 3S buy-PERF/2

I don't know what he/she bought

---

[29]'Binding' also occurs for focussing purposes in genitive constructions when the modifier is a name:

(70) **nagge nge Sa'iidu ngen**

cow-CLS_i CLS_i Sa'iidu CLS_i

Sa'iidu's cow

or with a possessive pronoun:

(71) **e hino faabo ko an kon**

PRES help SUB_j 1S/POSS SUB_j

here is *my* contribution

'Binding' may also be used to nominalise a clause with an intransitive verb:

(72) **ko o ari kon...**

SUB_k 3S come-PERF/1 SUB_k

his/her coming.../the fact that he/she came...

4. THE PERFECTIVE SYSTEM OF PULAR

The purpose of this chapter is to present data on the meaning and use of the main perfective forms of Pular. The information that is provided in this chapter will be made use of in the analysis of chapter 9, following the proposals on event structure in chapter 6, a description of an approach to the theoretical analysis of focus in chapter 7, and the application of proposals on event structure to English language data in chapter 8.

A perusal of the data gives the impression that differences in use of the perfective forms may be sometimes semantic and sometimes pragmatic. As a consequence, in providing examples, I will generally have to attempt to establish a detailed context of use. Anticipating somewhat the analysis of chapter 7, I will make use of the concept of an 'alternative semantics' evoked by an utterance in attempting to explain the semantic or pragmatic contribution of the perfective forms. In 4.3 I will also make use of relevance-theoretic notions.

I will leave aside the question of whether the verbal system of Fulfulde should be regarded as a 'pure' aspectual system. Perfective forms are most frequently interpreted as referring to the past and imperfective forms as referring to the future, unless the sentence construction constrains the interpretation otherwise. However there are many grammatical constructions in Fulfulde, a good example being time clauses, where a perfective verb form will be interpreted as referring to an event which if it takes place will be in the future, and an imperfective verb form taken as referring to an event in the past.

The previous chapter presented as many as 7 perfective constructions in Guinean Pular. During the rest of this chapter I will be concerned to provide evidence for the meaning or use of the four basic forms of perfective-1, perfective-2, perfective-3 and the statively-marked perfective. Since the perfective-1 form appears to be most restricted in its use, I will discuss it after the perfective-2 form and the perfective-3 form. I will also consider the use of the perfective-2 form in the denotation of event sequences separately from the other uses of perfective-2.

For reference I repeat here the perfective suffix table from chapter 3:

	Pular perfective suffixes			
	PERF/1	PERF/2	PERF/3	PERF/NEG
active	0 or **-u**	**-i**	**-ii**	**-aali**
middle	**-i**	**-ii**	**-ike**	**-aaki**
passive (PASS)	**-a**	**-aa**	**-aama**	**-aaka**

4.1 Non-Sequential Uses of Perfective-2

A simple approach to the meaning and use of these perfective forms would be to concentrate on their major uses. The perfective-2 form is used in subordinate clauses, the perfective-1 and perfective-3 forms being apparently barred from that context, hence the traditional name of 'relative' in Fulfulde studies for the perfective-2. However perfective-2 is also used in relating a series of events in narrative, and its use in subordinate clauses in Fulfulde also resembles its use in 'focus' clauses (3.3.5).

Some researchers have suggested that perfective-2 can be understood as being restricted to narrative while perfective-3 is used in dialogue. Gnalibouly and Ivanovna, for instance, claim that: "Labatut lie la forme **-ii** [perfective-3]...avec le plan du dialogue, et la forme **-i** [perfective-2]...avec le plan du récit" (1982:39). Labatut's own formulation of this, however, is more subtle. He makes use of certain ideas of Benveniste, such as the notion of *subjectivity*.[1] Labatut's study is restricted to an investigation of the different uses of perfective-2 and perfective-3. He attempts to circumscribe these differences in a single sentence:

> "...il s'agit de faits très complexes que ne peuvent être étudiés qu'en tenant compte non seulement des valuers aspectuelles que sont plus importantes, en peul [Fulfulde], que les valeurs temporelles, mais aussi des contraintes syntaxiques qui s'exercent sur le verbe à l'intérieur de la phrase simple (emphase, interrogation) ou de la phrase complexe (relative, complétative, circonstancielle), et enfin... des situations d'énonciation et de l'opposition récit/discours telle que l'a définie Benvéniste et que se présente, en peul, comme une opposition entre d'une part une énonciation de grande transparence [perfective-2] dans laquelle le récepteur n'intervient pas (pas de deuxième personne)[2] et est censé assumer entièrement le discours qui lui est tenu dans une attitude de totale adhésion, et d'autre part, une énonciation plus opaque [perfective-3] dans laquelle l'énoncé est fortement marquée de la

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[1]A discussion of Benveniste's notion of subjectivity can be found in Lyons (1982).

[2]As mentioned in 3.2.2, Pular data contradicts Labatut's claim that: "l'aspect de l'énonciation narrative [perfective-2] exclut..., à coup sur, la deuxième personne" (Labatut 1981:68).

subjectivité de l'émetteur et de la présence de celui ou ceux qui l'on adresse (existence de deuxième personne) et dont on tien compte" (Labatut 1981:70).

I will argue that a discourse-oriented analysis does not adequately account for the use of the perfective forms in Pular. We will see, however, that it is possible that Labutut's notion of *subjectivity* may be reflected in the notion of focus that will be developed in this and following chapters.

In this section I will discuss the use of perfective-2 in focussed environments (as defined in section 3.3.5) and in subordinate clauses. I will investigate the use of perfective-2 in the denotation of event sequences in section 4.4.

4.1.1 Focussing

Focussing is achieved in Guinean Pular, as was stated in section 3.3.5, by means of a 'focus' particle **ko**, and the preposing of the focussed noun phrase, locative, temporal or adverb. For instance:

(1) **ko Yaayaa yahi**
FOC John go-PERF/2
John went

(2) **ko nebban mi soodi**
FOC oil 1S buy-PERF/2
I bought *oil*

(3) **ko doy o yaari**

FOC slowly 3S go-MAN-PERF/2

he went *slowly*

In such contexts, only the perfective-2 form can be used; (4)-(6) are ungrammatical:

(4) ***ko Yaayaa yahii**

FOC John go-PERF/3

(5) ***ko Yaayaa yahu**

FOC John go-PERF/1

(6) ***ko Yaayaa no yahi**

FOC John STAT go-PERF/2

Although this barring of forms other than perfective-2 can be defined syntactically in this case, I will argue that this restriction can equally well be seen as arising from the semantic or pragmatic value of the perfective-2 form, compared to the other perfective forms. I will argue that other perfective forms are positively marked for focus in some sense to be specified, while the perfective-2 form is focus neutral or focus negative.

Focus particles other than **ko** are possible. For instance **duu** is a more restricted focus particle, used only for expressing contrastive correction of an opinion projected as being held by a third party (represented here in English by *after all*):

(7) **kiɗɗun ɗun duu moyyi**

old-CLS_{gen} CLS_{gen} assertive/contrastive-particle good-PERF/2

the old *is* good after all

The presence of this particle also appears to make the stative perfective, which would normally be used for adjectival verbs, as in (8), as well as the other perfective forms, inappropriate:

(8) **kiɗɗun ɗun no moyyi**

old-CLS_{gen} CLS_{gen} STAT good-PERF/2

the old is good

(9) ***kiɗɗun ɗun duu no moyyi**

old-CLS_{gen} CLS_{gen} assertive/contrastive-particle STAT good-PERF/2

The sensitivity of the perfective forms to the presence of either of these focus particles supports the argument that the verb forms themselves are sensitive to focussing and that this could be a more economical explanation than one stated in syntactical terms without use of the notion of focus. The only syntactic restriction then required would be a stipulation that in Pular a clause does not allow more than one element to be morphologically or syntactically marked for focus. This, in turn, however suggests that in our definition of focus we need to take account of focus marking on verbs as well as on other lexical elements.

4.1.2 Subordination

The use of the perfectives in subordination reflects the same pattern of restrictions between the perfective forms as in focussing:

(10) **mboddi ndi mi wari ndin...**

snake CLS_i 1S kill-PERF/2 CLS_i

the snake that I killed...

Again in this context only the perfective-2 verb form can be used. (11), (12) and (13) are ungrammatical:

(11) ***mboddi ndi mi warii ndin...**

snake CLS_1 1S kill-PERF/3 CLS_1

(12) ***mboddi ndi mi waru ndin...**

snake CLS_1 1S kill-PERF/1 CLS_1

(13) ***mboddi ndi miɗo wari ndin...**

snake CLS_1 1S/STAT kill-PERF/2 CLS_1

Information in the subordinate clauses in (10) can be considered to be presupposed or background information (in the sense of Sperber and Wilson 1986:202ff). This pattern of restrictions, therefore, lends weight to the hypothesis that the perfective-2 form is in some sense marked as focus neutral or focus negative, whereas the other perfective forms are positively marked for focus. The data can most economically be explained by a recognition that such background information cannot be focus marked in Pular. Such an observation gives us a principled way of predicting that the other perfective forms are barred from such subordinate contexts.[3]

4.2 Use of Perfective-3

Before embarking on an investigation of the meaning or meanings of the perfective-3 form, it may be helpful and instructive to compare the uses of all the basic perfective forms with examples of an event for which all four forms can be heard. We can take **hulugol** *fear* as such an example. The perfective-1 form is frequently found with this verb:

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[3]The same principles would apply to the imperfective forms: only imperfective-4 occurs in the focussing and subordinate contexts where perfective-2 is permitted.

(14) **o hulu!**

3S fear-PERF/1

he is/was frightened![4]

However the other verb forms are also readily heard:

(15) **o huli**

3S fear-PERF/2

(16) **o hulii**

3S fear-PERF/3

(17) **himo huli**

3S/STAT fear-PERF/2

We can investigate the meaning of these verb forms by considering the utterance contexts in which the different verb forms might be found. One way to do this is to consider the questions to which they might form a reply. Investigation of Pular data suggests that (16) would be used in answer to a question *did he or did he not become frightened?*, that is to say where there is an expectation that the subject might have become frightened. (14) on the other hand would be used to respond to the expression of a contrary opinion, that is to say where the speaker believes that the hearer does not think that the subject had become frightened, that is to say where the evoking of an alternative semantics of an incompatible event type is appropriate. (15) can be used for the confirmation of an expressed event (for instance in confirmation of (14) when expressed by another speaker), or to express the event in a sequence of events. (17) would be used to denote that the

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[4]As should be apparent, a perfective form by itself does not specify past time, hence the ambiguity of the gloss in this example. I have omitted the glosses in (15)-(17), partly for this reason.

subject's state of fear is still in existence, whether in the present, past or future (with appropriate auxiliary verbs or context).

As a consequence of these example with **hulugol**, I will advance the proposal that perfective-3 denotes in some sense the 'completion' of an action. The appropriateness of this proposal should emerge from later analysis. In order to remind the reader that we are investigating this notion, I will use single quotes around the word 'completion' and its derivatives throughout this section.

An simple example of a perfective-3 use is:

(18) **Yaayaa hewtii**
John arrive-PERF/3
John has arrived

During this section I will examine how the notion of 'completion' can be seen to apply to different classes of verbs. I will use two main ways of investigating this. The first method will investigate conditions for felicitous use of the perfective-3 form when compared to similar constructions with *finish* (Pular **gaynugol**). In second place I will compare felicitous use of the perfective-3 form with felicitous use of perfective-1.

Another way of investigating the meaning associated with perfective-3 is possibly to consider restricted contexts in which it is one of the permitted forms. Examples of such contexts are in a clause after **ɓay** *since,after*, or in a clause after **si** *if*; in such contexts only perfective-1 and perfective-3 are possible:

(19) **ɓay o hewtii**

since 3S arrive-PERF/3

since/after/when he (has) arrived

(20) **ɓay o hewtu**

since 3S arrive-PERF/1

given that he has arrived...

(21) ***ɓay o hewti**

since 3S arrive-PERF/2

(22) **si o hewtii**

if 3S arrive-PERF/3

if he arrives

(23) **si o hewtu**

if 3S arrive-PERF/1

if he does arrive

(24) ***si o hewti**

if 3S arrive-PERF/2

We will re-consider such restricted contexts of use after we have compared the use of perfective-2 to constructions with *finish*.[5] I will consider in turn non-durative events, durative events and 'semelfactive' (punctual) events.

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[5]It would seem grammatically possible, but relatively unusual, to use **si** or **ɓay** with the stative perfective; its avoidance may be due to the lack of appropriate pragmatic contexts, given the existence of the other forms. The use of **tawi** and **hari** with the stative perfective (see 4.2) would also need to be taken into account.

4.2.1 Non-Durative Events

I will continue to use **hewtugol**, *arrive*, as an example of a non-durative event. *Arrive* (with singular subject) can be defined as non-durative on the grounds that in an event of *arriving* there is a point before which the event has not happened at all and after which it has completely happened.[6] As mentioned above, I will compare simple use of perfective-3 with the use of *finish*, **gaynugol** in Pular. The use of **gaynugol** or *finish* with **hewtugol** or *arrive* sounds odd, both in Pular and in the equivalent English translation:

(25) **??Yaayaa gaynii hewtude**
John finish-PERF/3 arrive-INF
??John (has) finished arriving

We can make the reasonable assumption that *finish* can only apply to an event that is actually in process and expresses the fact that that event is complete, and that it is this restriction to an event that is in process that makes its use with a non-durative event odd. However, if perfective-3 also expresses a 'completion' in some way then why is (16) acceptable when (25) is not? I will argue that the meaning of the perfective-3 form should be analysed as completion with respect to an 'anticipatory expectation' rather than with respect to an event in process and that it is this which makes the perfective-3 felicitous with a non-durative event, and distinguishes its use from the use of **gaynugol** *finish*. This notion of

[6]A scenario could probably be constructed in which *arrive* is interpreted as having some duration even with a singular subject, for instance an event of a guest arriving at a house and spending some time unpacking before going to see his hosts. I will restrict myself to its more normal non-durative use.

'anticipatory expectation' will be investigated in more detail in the following sections.

4.2.2 Durative Events

Continuing with the assumption that perfective-3 is in some sense associated with 'completion', we might then ask what meaning is associated with it when used with verbs which are durative. Let us take the example of **ɲaamugol** *eat*. Typically, an event of 'eating' takes place over a period of time and during that interval there will be instants of time before which the event of 'eating' will have been happening and after which the same event of 'eating' will still be happening. How is the perfective-3 form, as in (26), interpreted in such a case? The use of **gaynugol** *finish*, as in (27), is also totally natural with a durative event.

(26) **o ɲaamii**
3S eat-PERF/3
he ate/has eaten

(27) **o gaynii ɲaamude**
3S finish-PERF/3 eat-INF
he has finished eating

I will attempt to answer this by considering what question (26) might typically answer. (26) would typically answer the question of whether someone had eaten, not whether they had finished eating. In this respect it can be used at a time fairly removed from the event. It could be used, for instance, in the following scenario: someone's child is sick, the father has been out all day, and, on returning to the house, wishes to ask whether the child has eaten: he could ask and receive (26)

as a reply, even if the eating had taken place say at mid-day, the father has returned in the evening and the child might well be hungry again.

The construction in (27) with **gaynugol** *finish* on the other hand is only appropriate when it is manifest that an event process of *eating* was underway so recently that it might still be continuing. It expresses that this facet or phase of the event has now finished. (26) on the other hand can be used when it was not manifest that an event was in process, rather, it appears, it was the anticipation that such an event might have happened, as in the scenario above, that was manifest.

It seems possible to argue, therefore, that the function of the Pular perfective-3 verb form for durative events is similar to its function for non-durative events. In the case of non-durative events 'completion' cannot be with respect to the event itself since such an event has no duration; in the case of durative events we have seen the same phenomenon; completion with respect to an event in process is expressed with **gaynugol**.

In order to investigate this hypothesis further, let us consider the second method mentioned above, comparison with the use of perfective-1. Consider a scenario in which a glass object, say a round toy, teeters on the edge of a table for a while and then falls. Someone watching this event would observe that there was a period during which an event of falling was possible or likely; it is such a state that I call an 'anticipatory expectation'. If the object now falls the perfective-3 form can be used:

(28) **ngal yanii!**

CLS_{gen} fall-PERF/3

it has fallen!

If, on the other hand, the object falls unexpectedly off the table, for instance in a situation where no-one was watching and therefore not aware that the object was in danger of falling, but merely become aware on hearing a crash on floor, then only the perfective-1 form would be felicitous:

(29) **yanu!**

fall-PERF/1

it's fallen

The difference between the two events appears only to consist of whether, with respect to an event, an anticipatory expectation was or was not present in what was manifest to the speaker. There may be no difference in the events with respect to the object itself. The difference appears to consist entirely in the speaker perception of the 'unfolding' of the event.[7]

In the case of durative events we can also ask at what point in the duration of the event it is appropriate to use the perfective-3 form. To investigate this we could consider a situation in which two people are observing from hiding some food in which poison has been put for someone to eat. If the expected person starts to eat the food, when this person has eaten sufficient of the food for it to be thought that the poison will be effective, (26) could be uttered by one of the

[7]to use an English word that can capture Holt's concept of *écoulement* in his definition of aspect (Holt 1943:6).

people in hiding.[8] If uttered in a situation where the point of the eating was to assuage hunger, however, (26) would only be appropriate after enough had been eaten for an event of hunger-assuaging to have taken place.

This same type of interpretation can be observed for utterances involving an event of *going*. Even though an event of *going* from one place to another involves duration, a perfective-3 form can nevertheless be used in denoting such an event as soon as an actual event of *going* is underway in an irrevocable fashion as perceived by the speaker. (30) could therefore be uttered by an observer as soon as John has, say, left the house where he was, even if his journey may take many more minutes, hours or even days:

(30) **Yaayaa yahii**
John go-PERF/3
John went/has gone

4.2.3 'Semelfactive' Events

In addition to considering durative and non-durative events, we can also consider a sub-class of non-durative verbs for which the term 'semelfactive' may be appropriate (see Comrie 1976:42-43). As defined by Comrie this class includes verbs such as *flash*, *cough*, *laugh*, *fail* or *forget*. It transpires that many of these events are events for which the perfective-3 suffix is *not* appropriate in Pular. As

[8]Confirmed by M. Saliou Diallo, lecturer in linguistics at the University of Conakry, who added a similar example with the verb **hoccugol** *pick up*. (The use of the verb form may actually be more subtle than in the example: it may only be necessary for the person to have shown evidence of eating sufficient of the food for it to be thought that he will continue to eat enough for the poison to be effective.)

a consequence they may also help us understand how a notion of 'completion' may relate to non-durative events. For instance, while we can envisage that an event of *arriving* may plausibly be construed as 'completing' in some way, this does not seem to be so appropriate for an event of *flashing*, *coughing* or *laughing*.

It is noticeable that in Pular **ronkugol** *fail*, **salagol** *refuse*, **sikkugol** *think,believe*, **tawugol** *find something to be true* and **yejjitugol** *forget*, are frequently found with perfective-1 rather than perfective-3 endings:

(31) **mi sali**
1S refuse-PERF/1
I refuse!

(32) **o ronku**
3S fail-PERF/1[9]
he failed!

I will again argue that the relevance of such events to our understanding of Pular language data is that they are not presented as anticipated.

For such 'semelfactive' verbs, if there is an anticipation that such an event might happen, for instance if there is an expectation that a certain person might refuse, the perfective-3 form could be used to express whether or not that had taken place:

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[9]**Ronkugol** has another (possibly primary) meaning of *tire* and when used in this sense would normally be found encoded with perfective-3 endings (if not being presented in a sequence of events for which perfective-2 would be appropriate).

(33) **o salike**

3S refuse-PERF/3

he refused

However where there is no such anticipatory expectation the perfective-1 form must be used:

(34) **o sali**

3S refuse-PERF/1

he refused!

We may see here a reflex of the notion of subjectivity mentioned by Labatut. I will claim that both perfective-1 and perfective-3 forms reflect speaker projections of what is manifest concerning the event, and as such both evoke a different alternative semantics which has to be satisfied for the expression to be felicitous. The thesis that I will adopt, therefore, concerning the Pular verbal system is that (except in the situations where perfective-2 can be used) where an anticipation can be associated with an event, perfective-3 may be used, where it cannot, only perfective-1 can be used.

4.2.4 Perfective-3 in Restricted Environments

Now that we have some idea of the meaning of the perfective-3 form in Pular, we are in a better position to consider restricted contexts in which it is one of the permitted forms. We mentioned two such contexts in 4.2 above: after **ɓay** *since* and after **si** *if*.

In both cases there are contexts in which the perfective-3 form is felicitous and there are contexts in which the perfective-1 form is felicitous, but there are

no contexts in which the perfective-2 form is felicitous.[10] A use of *if* clearly implies that the speaker has conceived of the possibility of an occurrence of that event-type. The use of perfective-1 and perfective-3 after **si** appears to differ, however, with respect to the 'alternative semantics' that the speaker wishes to evoke:

(35) **si mi soodii..**
if 1S buy-PERF/3
if/when I buy/have bought (it)...

(36) **si mi soodu..**
if 1S buy-PERF/1
if I buy (i.e. rather than borrow/rent etc)..

Chapter 7 will define the notion of an alternative semantics in connection with the interpretation of focus as it has been developed in the literature, especially in Rooth (1992 and 1995) and outlined in the Introduction. In connection with the claim at the end of the last section that for perfective-3 to be used an anticipatory expectation must be available, I will refine this by claiming that perfective-3 and perfective-1 evoke different alternative semantics. The differing interpretations of (35) and (36) are compatible with a claim that perfective-3 evokes an alternative semantics of the non-occurrence, or, better, 'not-yet-occurrence', of

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[10]Other constructions with **si** are possible: the perfective with anterior suffix (3.2.1.4) is used to express a counterfactual ("if I had...") and a periphrastic construction with **arugol** *come* is used to express unknown likelihood ("if I were to..."). The perfective-2 form or an imperfect form can be used when **si** means *whether*, as for instance after **andugol** *know* ("I don't know whether...").

the event in question, whereas perfective-1 evokes an alternative semantics which is the occurrence of some other (incompatible) event.

Bay may be translated as *since* or *after* or even *when*[11]. Whereas **si** will often be used where in English *when* would be used for the future, **ɓay** will often be used where in English *when* would be used for the past. Pular has many ways of expressing the development of events. The degree of suddenness or unexpectedness plays a role in the choice of construction. It is noticeable that **ɓay** is used with perfective-3 where the degree of unexpectedness is low; that is to say the new event is presented as a natural development of previously related events. The following are examples from a collection of folk stories:

(37) **ɓay ngesa mban ɓendii...**[12]
when field CLS ripen-PERF/3
when the field was ready to harvest...

(38) **ɓay ɓe hewtii ka suudu...**[13]
when 3P arrive-PERF/3 LOC/DEF house
when they arrived at the house...

(39) **ɓay landɔ on maayii...**[14]
when king CLS die-PERF/3
after the king had died...

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[11]It appears to be a shortened form of **ɓaawo** *back* (both as noun and adverb).

[12]Diallo1974:3.

[13]*Ibid* 1974:4.

[14]*Ibid* 1974:13.

As a consequence, it can again be claimed that perfective-3 is used where it is appropriate for an alternative semantics of the not-yet-occurrence of an event to be evoked, rather than that of a competing event. Moreover the event in question may clearly have been anticipated, as is the case in (37) and (38) above.

The use of **ɓay** with perfective-1, as in (40), similar to the use of **si** *if* with perfective-1, by contrast seems clearly to evoke an alternative semantics of an incompatible event, in this case the non-arrival of the person in question:

(40) **ɓay o hewtu**
since 3S arrive-PERF/1
given that he has arrived...

Consequently, although both forms may denote the same event, the alternative semantics that these verb forms evokes differs: the difference appears to be that the one, perfective-1, evokes the non-occurrence of the event (compatible with the occurrence of some other event), and the other, perfective-3, the 'not-yet-occurrence' of the same event. If we are to write logical forms for these verb forms, it is such distinctions that will need to be reflected.

Other examples of restricted contexts are after the auxiliary verbs **tawi** and **hari**, after which one of the 'full' verb forms has to be used, that is to say perfective-1, perfective-3, the stative perfective, imperfect-3 or the stative imperfective, but not perfective-2. I will not attempt to investigate this fact further in this thesis, though some of the data will show the use of **tawi** with these 'full' verb forms.

4.3 Use of Perfective-2 in the Denotation of Event Sequences

In 4.1 I stated that one of the major uses of the perfective-2 form in Fulfulde is in the depiction of event sequences. The use of perfective-2 in the text of the appendix gives ample evidence of this. As was stated in 4.1, for some researchers this appears to be the defining characteristic of perfective-2. One of the aims of this thesis is to predict the use of the perfective-2 form in the denotation of event sequences from a definition of its logical form.

It is appropriate to note in the first place that, in the restricted contexts noted in 4.2.4, the perfective-3 form can also be used in the depiction of event sequences. The following is an example following **tawi** (from a folk story concerning two larger-than-life figures, **Huuwoori** *Big-Doer* and **Ɲaamoori** *Big-Eater*)[15]:

(41) **kono no ndi yaltitirnoo**

but as CLS_i go-out-INT-MAN-PERF-ANT

but when he came back out again

ndi tami kinal

CLS_i grasp-PERF/2 nose

he clapped his hand over his mouth (in surprise)

tawi jaka Ɲaamoori rewiino e mabba jemma

find-PERF/2 SURP Big-Eater pass-PERF/3-ANT LOC CLS_j night

'Big-Eater' had gone through the field during the night

[15]Diallo 1974:3.

wa'ii mba ba'e tati... mbelyindike

harvest-PERF/3 CLS_j sheaves three gulp-PERF/3

harvested it into three sheaves, gulped them down

yahii ɓahike ka fello

go-PERF/3 lean-PERF/3 LOC/DEF hill

and had gone and leant against the hill

fesii heege haa ɗantorii

cry-PERF/3 hunger until sleep-INC-COM-PERF/3

and moaned with hunger until he fell asleep

The sequence of verbs following **tawi** and therefore under its scope - *pass, harvest, gulp, go, lean, cry, fall-asleep* - are all marked with a perfective-3 suffix (the first also having the anterior affix.) The last verb (sleep-INC-COM-PERF/3) also has the *concomitantive* suffix, **-or-**, which instructs the hearer to interpret the event as taking place concomitantly with the last denoted event (3.2.1.6). The other six events will be interpreted as taking place sequentially.

I will claim that the perfective-2 form does not in itself encode event sequentiality; rather the perfective-2 form implies some kind of dependency or semantic/pragmatic *embeddedness* to be defined, by virtue of not being focus-marked. Nevertheless it seems clear that, consequent on this *embeddedness*, event-sequentiality is a normal explicature of this verb form. In the case of events which are not taking place in sequence, additional encoding is normally supplied. In the examples below this additional marking is in the form of **kadi** *also* and **kaŋun**, the general class independent pronoun (see 3.2.2):

(42) **??Sa'iidu naati, Buubakar naati**

Sa'iidu enter-PERF/2 Buubakar enter-PERF/2

(43) **Sa'iidu naati, Buubakar kadi naati**

Sa'iidu enter-PERF/2 Buubakar also enter-PERF/2

(44) **?Sa'iidu naati, Buubakar lutti ka yaasi**

Sa'iidu enter-PERF/2 Buubakar stay-PERF/2 LOC/DEF outside

(45) **Sa'iidu naati, Buubakar kaɲun lutti ka yaasi**

Sa'iidu enter-PERF/2 Buubakar CLS_{gen} stay-PERF/2 LOC/DEF outside

(42) seems to leave the hearer uncertain about the interpretation. If strict sequentiality were intended (46) might be more appropriate:

(46) **Sa'iidu naati. Ontuma Buubakar naati**

Sa'iidu enter-PERF/2 then Buubakar enter-PERF/2

The use of the associative extension **-id-** would also disambiguate the relationship between the events:

(47) **Sa'iidu e Buubakar naatidi**

Sa'iidu ASS Buubakar enter-ASS-PERF/2

Sa'iidu and Buubakar entered together

It appears that, since other clearer ways of encoding the relationship between the events are available - as in (43), (46) and (47) - (42) is not informative enough to be pragmatically acceptable. The apparent difficulty of interpretation of (42), but the use of the same perfective-2 form in (43), (46) and (47) where the events are not interpreted as sequential, imply that event sequentiality is not a necessary part of the semantics of the perfective-2 form. Rather it seems to be pragmatically inferred under conditions of sufficient lack of ambiguity.[16]

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[16]Examples of the 'delinking' of events that are encoded with perfective-2 can be found in the appendix in lines 3 (**kadi**), 6 (**awa kadi**), 47 (**kanko**) and 62 (**kadi**).

I believe this concept of *embeddedness* or *dependency* can explain the unacceptability of (49) using the principles of interpretation of relevance theory and without recourse to the encoding of event sequentiality. I use the symbol # to denote infelicity:

(48) **o ari, o joodii**
3S come-PERF/2 3S sit-PERF/2
he came and sat down

(49) **#o joodii, o ari**
3S sit-PERF/2 3S come-PERF/2

I suggest that the marking of *come* and *sit* as PERF/2 entitles the hearer to assume that both events are *embedded* or *dependent* on something. I suggest that the presence of two verbs means that the hearer is entitled to understand *come* and *sit* as being embedded in an event complex (Barwise and Perry use the term *course of events*, Barwise and Perry 1983:56-57), and in the absence of encoding to the contrary that this event complex should be the same event complex for both verbs. Assuming that this is true, and given that this event complex can be encoded in the form of (48) without any extra effort on the part of the speaker, and that the ordering of *come* before *sit* is more easily interpretable, (49) is pragmatically unacceptable.

4.4 Use of Perfective-1

In this section I will attempt to complete a description of relevant language data on the use of the perfective-1 form. In 4.2.3 it was stated that semelfactive verbs such as **ronkugol** *fail*, **salagol** *refuse*, **sikkugol** *think,believe*, **tawugol** *find something to be true* and **yejjitugol** *forget* are frequently found in Pular with

perfective-1 rather than perfective-3 endings. In 4.2.4 I also presented contexts in which the perfective-1 form is used after **si** *if* and **ɓay** *since*. In that connection a hypothesis was developed on the nature of focus marking on the perfective verb forms in Pular, that the perfective-1 verb form evokes the alternative semantics of an alternative (incompatible) event, whereas the focus marking on the perfective-3 verb form evokes the alternative semantics of the 'not-yet-occurrence' of the same event.

The use of the perfective-1 verb form is similar in some respects to the use of the English auxiliary *do*:

(50) **o piyan!**
(o piy-0-an)
3S hit-PERF/1-1S/OBJ
he *hit* me/he *did* hit me

The perfective-1 form is also found in contrastive constructions (see also line 51 of appendix A):

(51) **dì majjaali, dì wujja**
CLS_i go-astray-PERF/NEG CLS_i steal-PERF/PASS/1
they didn't get lost, they were *stolen*

The use of other verb forms, as in (52) to (54), would be classified as inappropriate by a native speaker.

(52) **#dì majjaali, dì wujjaa**
CLS_i go-astray-PERF/NEG CLS_i steal-PERF/PASS/2

(53) **#dì majjaali, dì wujjaama**
CLS_i go-astray-PERF/NEG CLS_i steal-PERF/PASS/3

(54) **#dì majjaali, hidì wujjaa**

CLS_i go-astray-PERF/NEG CLS_i/STAT steal-PERF/PASS/2

The first clause in these examples clearly indicates that the context of the utterance, with which the alternative semantics that the second clause evokes needs to be compatible, is an event of *going astray*. The examples show that in order to assert an alternative event-type, namely an event of *being stolen*, only (51) is felicitous in this context. Anticipating the theory of focus interpretation to be described in chapter 7, we can therefore deduce that only the focus marking of the perfective-1 found in (51) is compatible with the alternative semantics of an incompatible event-type. This supports the hypothesis that the nature of the focus marking on the perfective-1 verb form is such as to assert the event-type of an event in the face of an alternative semantics that a different, incompatible event-type may have taken place.

The examples with **hulugol** used at the beginning of section 4.2 are revealing of the use of these perfective forms since it is an event-type for which an anticipatory expectation may be present but also may commonly not be present. I will claim that when the speaker estimates that for the hearer an anticipatory expectation is not present then only the perfective-1 verb form is felicitous; when the speaker estimates that the hearer has an anticipatory expectation of the event, the perfective-3 verb form is more appropriate.

Verbs which often occur in statively-marked clauses can also be heard with the perfective-1 endings, in particular verbs expressing bodily states, such as lexically passive verbs (section 3.2.1.7), for instance:

(55) **mi jaanga!**

1S be-cold-PERF/PASS/1

I am cold

I will not investigate this further here.

Another set of verbs in Pular commonly heard with the perfective-1 endings are verbs denoting intervals of time:

(56) **ɗan ɲallu saaɣude**

CLS spend-day-PERF/1 rain-INF

it's rained the whole day

I will not investigate these uses of perfective-1 further at this point, but will comment on them in chapter 9 after proposing a formal analysis of the Pular perfective forms.

4.5 Use of the Statively-Marked Perfective

The statively marked perfective is in a sense the easiest of the verbal forms to investigate. Consider the following:

(57) **Yaayaa no yahi ka saare**

John STAT go-PERF/2 LOC/DEF town

John has gone to/into town

McCoard notes that there are events which have what he calls a "state ensuing" (McCoard 1978:148). He uses the example of *go*, *freeze* and *close*, for instance *the shop has closed for two months*. Others call such a state the *result state*.[17] It

[17]and distinguish it from the *resultant state* which the English perfect can also denote, as in *I have driven a truck* or *I have visited Vietnam.*

seems that a statively-marked clause in Pular can denote such an ensuing state. However (57) can also be used while John is still on his way to town, that is to say it can be used as soon as he has left the vicinity of the place where he was, even though he may not have reached his destination in town, that is to say while the event is still in process.

We cannot however claim from this that the statively-marked perfective can always denote either an event in process or the result state of an event. When used, for instance, with an event of *building* the statively-marked perfective does not denote the process of building:

(58) **Yaayaa no darni suudu**
John STAT stand-CAU-PERF/2 house
John has built a house (i.e. has a house built)

Consequently, we find ourselves obliged to say, in a similar fashion to what was found to be the case for perfective-3 marked verbs (4.2.2), that there is a critical point in an event after which the event can irrevocably be considered to have taken place, even if it were not to continue after that point. It seems that when the statively-marked perfective is used of an event, that event is portrayed as having transgressed that point. In the case of an event of *going* it seems that this 'irrevocable' point is early on in the process of the event. We can say that *John has gone to town* even when he has only just left the room, and is nowhere near arriving in town. With an event of building, by contrast, such an 'irrevocable' point is only at the end of a process of building: *John has built a house* is only becomes true when the house is built.

The statively-marked perfective is also the normal form for verbs which are used adjectivally (3.2.1.2):

(58) **Yaayaa no moyyi**

John STAT good-PERF/2

John is good

Such verbs, however, can be found with all the other perfective endings, in a parallel fashion to 'event' verbs. For instance:

(59) **Yaayaa moyyii**

John good-PERF/3

John did (something) good

(60) **Yaayaa moyyu**

John good-PERF/1

John did (something) good (i.e. rather then something bad)

Thus although such verbs might traditionally be considered to be 'stative' verbs, and as such require a different treatment in some way from 'event' verbs (cf. Arad 1995,1996), Pular data shows that they also have a perfectly natural interpretation as event verbs. Arad 1995 and 1996 suggests an analysis of 'stative' verbs, such as *know*, in which they are assigned the basic property of *atelicity* in the lexicon:

> "I therefore suggest that the part of the lexical entry of the verb which is 'visible' to the syntax contains... information about telicity, whether the event described by the verb is telic or atelic" (Arad 1995:223).
>
> "in... cases such as *love*, *hate* and *know*... these verbs are stative and inherently atelic" (Arad 1996:221.)

Know, however, can be used telically in English, as in a phrase denoting a realisation: *I knew then that...* This is also possible in Pular, as in (62) below. The fact that the same perfective forms, as are used with *event* verbs such as *go* and *come*, are pressed into service with *know* and *be good*, suggests that a more basic analysis may be necessary in terms of event structure.

(61) **Yaayaa no andi**

John STAT know-PERF/2

John knows

(62) **Yaayaa andii**

John know-PERF/3

John knew (i.e. came to know)

5. EVENT ONTOLOGY

In this and the next two chapters I will attempt to develop a theoretical framework for interpreting the main Pular perfective verb forms. I will be concerned to show that a certain type of event structure is required to make sense of these Pular verb forms. To this end we will need a way of portraying the representation of event structure in conceptual structure, and a decision on how syntactic structure maps onto event structure. Proposals on event structure will be the topic of the next chapter. The following chapter, chapter 7, will discuss the question of focus interpretation and the representation of focus. In this chapter I wish to consider the nature of entities in conceptual structure and the representation of such entities.

In the first part of the chapter I will review the semantics of Richard Montague and the proposals that have been made by Carlson and Chierchia to overcome perceived short-comings in the Montagovian system. Before proceeding to make proposals for an ontology of the semantic domain, to be used in the analysis of the Pular perfective forms, in section 5.2 I will review proposals for the use of an event variable in logical form, as found in Reichenbach 1947 and Davidson 1967, and the Neo-Davidsonian use of this symbolism. In section 5.3 I propose an ontology for the semantic domain to be used as the basis of the representation of event structure in conceptual structure. Section 5.4 will summarise some of the perceptual and conceptual concerns of this chapter. Section 5.5 considers briefly the question of event plurality.

5.1 Semantic Structure

Richard Montague's initial work in the 1970's on formal methods for the interpretation of natural language assumed a semantic domain of unsorted individuals. Since that original work, there have been a number of proposals for sorting and structuring the semantic domain used in the model-theoretic interpretation of natural language. In investigating how to represent natural language expressions involving events it seems appropriate for us first of all to review the proposals of Montague, and then consider some of the suggested modifications of his proposals which may be relevant to this thesis. One of my concerns will be to see how conceptual factors should play a role in proposals on semantic structure.

5.1.1 Montagovian Semantics

The semantics for natural language developed by Richard Montague makes use of intensional logic. A noun phrase, such as *John*, rather than designating an individual directly, is said to "designate the set of all properties that are properties of the individual" (Partee 1975:237). One of the reasons Montague adopted this approach was to provide himself with a uniform treatment for both directly referring noun phrases, such as the name of an individual, and for quantified noun phrases. Having defined individuals in terms of property sets, Montague interprets a sentence, such as *John walks*, as true "if the property of walking is included in the property set of John" (Partee 1975:238). Partee points out that the properties of an individual "include much more than just being, say, round and firm and fully packed; they also include being at such-and-such a place

at such-and-such a time, having been born on such-and-such a day of such-and-such parents, etc" (Partee 1975:237).

It seems to me that Montague's concept of individuals in natural language, as 'named' property sets, is potentially profound. It is clear that Montague's proposals were developed in the first place to satisfy formal semantic requirements. However, since they were also made with the intention of representing the meaning of natural language, it is not unreasonable to consider the relation of his proposals to perception and conceptualisation. The following quote from Carlson 1980 is apt in this respect:

> "The notion that individuals are simple, straightforward sorts of things, is a notion that has been known to be simply wrong for a very long time. Heraclitus noted that a person cannot step in the same river twice, for the river (as well as the person) is not, in terms of its physical composition, the same from one instant to the next. Therefore when we make reference to the same object from one time to another, what makes something the same is more than simple identity of material composition. Sameness cannot be reduced, either, to things looking the same, or perceptual indistinguishability. The same person may appear one way at one instant, another at the next, simply by a change in the light or a quick change of clothes... Yet somehow we may count an infant and a retired fireman as 'the same' individual, even though the infant and the retired fireman have virtually nothing directly observable in common" (Carlson 1980:66).

I will review briefly two proposals on structuring the semantic domain used in Montagovian grammar, that of Carlson (1980), on the interpretation of generic noun phrases, and that of Chierchia (1984), on nominalisations, as a background to Davidsonian proposals on the representation of event structure.

5.1.2 Carlson 1980

Carlson's concern was with the interpretation of 'bare plurals', that is to say plural noun phrases without an article, such as *dogs bark*. Such phrases pose the problem of an appropriate form of quantification. For instance, the sentence *dogs bark* is generally considered true even if not all dogs bark, but would not be considered true if only one dog in the world under consideration barked (Carlson 1980:2). Consequently, as Carlson points out, neither universal nor existential quantification seems appropriate. Carlson's solution to this problem is to propose that entities in the semantic domain should be sorted into Kinds, Objects and Stages, with realisation relations between them.

The nature and some of the relevance of his proposal can be seen by considering the ungrammaticality or infelicity of the examples in (1a-c):

(1) a Joan chose a hat and bought it

b ?Joan saw a hat and bought it

c ??Joan wanted a hat and bought it

The different degrees of awkwardness in coordination in these examples can be clarified, in Carlson's terms, by realising that events of *choosing* or *buying* apply to Objects, an event of *seeing* to a Stage (a manifestation of an Object or a Kind), and an event of *wanting* (on one reading) to a Kind. I will comment further on

these examples in section 5.3, in formulating my own proposals on the use of the Stage/Object/Kind distinction, since the Stage-Object distinction in (1b) does not appear to be problematic to most English speakers

I will not present all of Carlson's formal proposals here. As stated above, one feature that I want to emphasise is the notion that entities in the semantic domain have a conceptual structure associated with them. That Carlson's proposal is both conceptual and related to perception can be seen from the way he exemplifies and justifies it. Below is one extended way that he exemplifies the difference between Kinds, Objects and Stages:

> "You are on a picnic and have begun to eat. Out of the bushes pops a ground squirrel, which you throw a scrap of food to. It eats and disappears into the bushes. A few moments later, from another direction, a ground squirrel pops out of the bushes. Since all ground squirrels look pretty much alike..., there is no way of telling whether or not this second appearance of a ground squirrel is another one, or the same one as before. In any event, you feed the second one (the first one?), and it scampers off into the bushes. This process is repeated several times, with only one ground squirrel appearing at a given time, and all appearances seeming quite alike. At this point, you might become curious as to whether or not you have been witnessing appearances of the same ground squirrel, or of several... [C]ontinued appearances, all looking like, and only one appearance of a ground squirrel being seen at a given time, would eventually lead one to think of these appearances as being appearances of the same animal. One might even name the animal *Dale*... Should this go on for a long

enough period of time, certainly all doubt would disappear about the relative continuity of these appearances, and one would think of this one particular animal, which lives in that area and visits you whenever you visit that area, as being an individual, Dale. Now WHAT was it that was named Dale? Clearly, it is not any particular appearance that bears that name; it is something instead that 'stands behind' these different appearances. Whatever is named Dale makes this succession of appearances into a succession of appearances of the same thing" (Carlson 1980:67-68).

Based on this sort of example he defines Stages, Objects and Kinds in the following fashion:

"Let us sum up a partial characterisation of the relevant properties of individualhood. For what we have been calling appearances of something above, let us now substitute the more technical term *stage*, following Quine (1960). A stage is conceived of as being, roughly, a spatially and temporally bounded manifestation of something... An individual, then, is (at least) that whatever-it-is that ties a series of stages together to make them stages of the same thing... It is not a difficult task to apply this sort of thinking to kinds of things as well. If we put ourselves back into the situation described above, we will recall that the various stages were not described as being totally distinct from one another, having nothing in common. At first we were not certain whether it was the same individual ground squirrel that came popping out of the bushes, but we were sure that the appearances had in common the fact that they were appearances of ground squirrels.

> So, in this sense, these appearances were indeed appearances of the same thing - ground squirrels. A kind of thing, then, is that whatever-it-is that ties a series of stages together to make them stages of the same thing [sic]. It is in this sense that a kind is to be regarded as also being an individual" (Carlson 1980:68).

It is clear that part of Carlson's justification for individualhood is based on perception, for instance in the recognition of Stages, and on cognition or conceptualisation, for instance in the inferring of Objects and Kinds. I will refer to this combined basis for the notion of individuation in the rest of this thesis as perceptual-conceptual. (Carlson defines Individuals as the union of the set of Objects and Kinds (Carlson 1980:142).)

Carlson proposes two realisation relations, one between Kinds and Objects and one between Individuals (Kinds or Objects) and Stages. I will consider the proposed relationship between Stages, Objects and Happenings in detail in 5.3. It should suffice here to point out that Carlson considers two interpretations of the simple past, as in *Bill ran*: the "characteristic" reading in which a habitual activity is understood; and the "happening" reading in which only one event is understood to have taken place. For the 'happening' reading of *Bill ran* Carlson proposes a logical form, ignoring tense, of:

(2) $\exists x [R(x,b) \& run'(x)]$

in which R is "a two-place, asymmetric, irreflexive, transitive relation [which] holds between stages and individuals" (Carlson 1980:76); x, in (2), is a Stage of the Individual or Object b. By contrast Carlson gives the 'characteristic' reading of *Bill ran* the intensional form:

(3) *run″*(b)

in which *run″* is "to be regarded as a set of individuals" (76).

In the case of a transitive verb, such as *chase*, involving a subject, a, and an object, b, Carlson proposes a logical form of:

(4) $\exists x \exists y$ [R(x,a) & R(y,b) & *chase*$^{+}$(x,y)]

in which *chase*$^{+}$(x,y) is defined as a "relation that holds between stages of individuals" (Carlson 1980:113). By contrast, for a verb such as *admire*, which Carlson claims "holds between individuals (and not stages)" (1980:114), he proposes the logical form:

(5) *admire*$^{+}$(a,b).

Carlson's reasons for claiming that transitive verbs, of which *admire* is an example, hold between individuals and not stages are: "the class... has no progressive form" and "the class... is unambiguous [between a universal and a particular reading] in the future and past" (Carlson 1980:113).

In the formulation in (4), however, the expression *chase*$^{+}$(x,y), seems to have to accomplish three things simultaneously. It expresses that *chase*$^{+}$ is a member of the property sets of both x and y; it expresses that x and y are involved as Stages in the same 'happening'; and it expresses that x is the 'subject' of that happening and y the 'object' of that happening. This seems a heavy semantic load for one predication to convey in logical form.

I will consider these proposals of Carlson further in making my own proposals on the representation of event structure in section 5.3.

5.1.3 Chierchia's Property Semantics

Chierchia's study in the early 80's was concerned with the representation of nominalisations in semantic theory. In a typed theory of semantic structure, such as Montague's, in which semantic composition is derived from syntactic structure, Chierchia points out that a predicate such as *jogs*, as in *John jogs*, would have to receive a different type than the corresponding gerundive *jogging*, as in *jogging is fun*:

> "The difficulty arises from the fact that Montague semantics is based on the notion of types, as it is characterised by the theory of types, and that such a theory imposes various limitations on the categorial structure of English syntax. ...[I]n type theory, properties (like say, *to be fun*) have to be ranked differently in the type hierarchy according to whether they are attributed to individuals (as in 'John is fun') or to properties (as in, say, 'to dance is fun'). Such ranking doesn't seem to have any overt correlate in the syntactic behaviour of predicate nominals like *fun* in natural languages" (Chierchia 1982:305).

Chierchia's untyped semantics is based on the notion of properties as primitive entities. Some of the force of his proposals can be seen in the following example (cf. Bach 1989:42-43,88):

(6) a this book was bought by Mary

b this book was sold by Mary

Chierchia points out that in a normal Montagovian approach this leads to an absurdity:

> "given what *buy* and *sell* mean, it is necessarily the case that something is sold iff it is bought. Should it follow from this that being bought and sold are the same property? We think not" (Chierchia and Turner 1988:263).

I will not spell out the details of Chierchia's formal proposals here. I will be concerned with drawing on some of his critique of Montagovian semantics, rather than adopting his formulation of the semantics. I will note, however, that Chierchia 1982 adopts Carlson's division of individuals into Kinds, Objects and Stages. Based on Carlson's evidence, he states:

> "Kinds are entities systematically related to the intensions of common nouns. For example, to the intension of the common noun *dog* there corresponds an entity, included in the domain of individuals, namely the kind of dogs, or 'dog-kind'" (Chierchia 1982:307).
>
> "Stages might be thought of as tokens or spatiotemporal slices of objects" (Chierchia 1982:308)

As a consequence, he adopts Carlson's distinction between two sorts of predicates:

> "This forces us to assume that in English we find VP's (predicates) of two basic sorts. Some VPs, like *be intelligent* or *love Plato*, tell us something about a 'permanent' feature of the subject; they say roughly that certain *objects* are in certain sets (or bear certain properties). These predicates, when applied to bare plurals... will select the 'universal' reading; i.e., will say something about the kind as a whole.

> On the other hand, there are VPs like *be drunk* or *be running to class*, which when predicated of a subject don't attribute a permanent property to it, but tell us something about one of its *stages*. This second type of VP will select the 'existential' reading of bare plurals, since it will be speaking of stages or instances of kinds... This same sort of bipartition can be made for transitive verbs... A verb like *love* will turn out to express a relation between objects; a verb like *hit* a relation between stages (Chierchia 1982:307-308).

I will make use of these concepts of Kinds, Objects and Stages in making proposals on the 'logical form of action sentences'. Before putting forward proposals on the representation of event structure in the semantic domain, however, I will review proposals on the concept of an event entity.

5.2 Event Entities

References to event entities in the academic literature usually consider Davidson as having proposed the use of an event variable in the 'logical form of action sentences' (1967, reported in Davidson 1980). Davidson's work, however, is an outcome of proposals by Reichenbach.

5.2.1 Reichenbach 1947

In *Elements of Symbolic Logic*, Reichenbach followed a tradition established by Russell. He states his approach to the use of logical form in the following way:

> "The requirements of teaching and the desire to connect logic with the actual use of language have determined the structure of the book. Throughout, emphasis is laid on the applicability of the logistic

symbolism to the meanings of conversational language" (Reichenbach 1947:vi).

One approach to the application of "logistic symbolism" to natural language utterances is to divide an utterance into entities and properties or functions. Reichenbach proposes that the entities of a natural language utterance can either be considered to be things (a process which he names *thing-splitting*) or events (a process which he calls *event-splitting*.) He claims that these two ways of assigning entities and properties are equivalent. Thus, for a given utterance, such as *George VI was crowned*

(7) $$f(x_1) \equiv g(v_1)$$

where x_i is a *thing-entity* (in the case in point *George VI*) and *f* the corresponding *thing-property* (in this case *being crowned*), v_1 an *event-entity* (in this case *coronation*) and *g* the corresponding *event-property* (roughly *of George VI*) (1947:268).

Reichenbach also considers events to be equivalent to situational facts:

> "Synonymously with the word *event* we shall use the word *fact*. The objective function [g above] will be called a situational *fact-function*." (Reichenbach 1947:269)

I will present one of Reichenbach's examples briefly below so that the relevance of Davidson's comments in 5.2.2 and the problem of variable polyadicity can be seen. Reichenbach's main example for this type of analysis is:

(8) Amundsen flew to the North Pole in May 1926

Reichenbach states:

> "If the thing function 'f' has several arguments, fact-functions can be constructed in different ways, according as we include all arguments or only a part of them in the fact function. Thus the sentence 'Amundsen flew to the North Pole in May 1926', symbolized in thing-splitting by

[9] $$f(x_1,y_1,t_1)$$

> can be transformed into event-splitting in various ways. One is to use the fact-function 'Amundsen's flight to the North Pole in May 1926', symbolised by '$[f(x_1,y_1,t_1]^*$'; we write

[10] $$(\exists v)[f(x_1,y_1,t_1)]^*(v)$$

> In words this reads: 'a flight by Amundsen to the North Pole in May 1926 took place'. Another form obtains when we use the fact-function '$[f(x_1,y_1]^*$', and write:

[11] $$(\exists v)[f(x_1,y_1]^*(v,t_1)$$

> This can be read as 'a flight by Amundsen to the North Pole took place in May 1926'. A third form is given by the use of the fact-function '$[f(x_1)]^*$'; we then have

[12] $$(\exists v)[f(x_1]^*(v,y_1,t_1)$$

> In words: 'one of Amundsen's flights took place at the North Pole in May 1926'" (Reichenbach 1947:270-271).

5.2.2 Davidson 1967

Davidson (1967, reported in Davidson 1980) is concerned with the entailments which exist between different logical forms. He states:

> "Reichenbach seems to hold that we have two ways of expressing the same idea... [that] have quite different logical forms, but they are logically equivalent; one speaks literally of events while the other does not. I believe this view spoils much of the merit in Reichenbach's proposal" (Davidson 1980:116).

Davidson reformulates Reichenbach's proposal as:

(13) $(\exists x)$(x consists in the fact that Amundsen flew to the North Pole and x took place in May 1926)

and comments on this reformulation:

> "I suggest that we treat [13] alone as giving the logical form of [8]. If we follow this strategy, Kenny's problem of the 'variable polyadicity' of action verbs is on the way to solution; there is, of course, no variable polyadicity. The problem is solved in the natural way, by introducing events as entities about which an indefinite number of things can be said" (1980:116-117).

One of Davidson's concerns was to show the logical contribution of adverbial expressions, which may be governed by prepositions, such as:

(14) Jones buttered the toast slowly, deliberately,
in the bathroom, with a knife, at midnight

or

(15) I flew my spaceship to the morning/evening star

for which he proposes the logical form:

(16) (∃x)(Flew(I,my spaceship,x) & To(the Morning/Evening Star,x))

He states:

> "in general, we conceal logical structure when we treat prepositions as integral parts of verbs; it is a merit of the present proposal that it suggests a way of treating prepositions as contributing structure" (Davidson 1980:119).

With respect to (16) he states:

> "...we could have taken *flew* as a four-place predicate. But that would have obscured another inference [sic], namely:
>
> [17] (∃x)(Flew(I,my spaceship,x))" (1980:119).

5.2.3 Arguments for Event Individualhood

In this section I will attempt to summarise the linguistic evidence presented by Davidson (1980) and others to justify events being considered entities.

5.2.3.1 Nominalisation

It has been frequently pointed out that nominals, such as *sinking* in *the sinking of the Titanic*, or *coronation* in *the coronation of George V*, are evidence of the way events can be treated as entities in ordinary language. Such nominalisation may involve true nouns, such as *death* in *his death took place at 3 o'clock this morning*, or gerunds such as *running* in *his running the race in record time impressed the judges* (so Parsons 1994:17-18; see also Neale 1990:145-151).

Such nominals can be used to paraphrase the corresponding sentence using a verb; for instance:

(18) something clanged in the house

can equally well be stated as:

(19) there was a clanging in the house

as is frequently done by Davidson in his analyses.

Evidence from such nominals is, however, not unanimous. It has been noted that gerunds may frequently not denote a singular event (Neale 1990:161), as can be the case with a verb in the simple present:

(20) his running impresses me

I will formulate a view on the plural interpretation of events in section 5.5.

5.2.3.2 Pronominalisation

Davidson's starting point for his analysis of events as entities was to consider the evidence from pronominalisation, such as:

(21) Jones did it slowly, deliberately, in the bathroom, at midnight, with a knife

He comments:

> "We are too familiar with the language of action to notice at first an anomaly: the 'it' of 'Jones did it slowly, deliberately,...' seems to refer to some entity, presumably an action, that is then characterised in a number of ways" (Davidson 1980:105).

This argument for conceptual entities, which he terms "pragmatic anaphora", is also used by Jackendoff (Jackendoff 1995).

An argument from pronominalisation, however, has to take account of lack of complete identity. In a sentence such as *Hilary and Tenzing climbed Mount Everest in 1953 and a Swiss party did it in 1956*, for instance, the *it* does not, it would seem, denote the identical event as took place in 1953. (Davidson considers this question of failure of identity in Davidson 1980:183-184; Higginbotham considers it in Higginbotham 1986:44-45 and Jackendoff in Jackendoff 1983:54-55).

If, on balance, it seems that consideration of syntactic structure does not provide conclusive evidence of event entities, it should be borne in mind that such entities, in the notions we are using here, would be a feature of conceptual structure, and in the Jackendoffian architecture there does not have to be a one-to-one or complete correspondence between conceptual structure and syntactic structure. As a consequence such entities may only be reflected imperfectly in syntactic structure.

5.2.3.3 Compositionality

The main thrust of Davidson's argument, however, is the compositional nature of adverbial expressions; he points out that (21) entails, for example, (22) to (26):

(22) Jones did it slowly

(23) Jones did it deliberately

(24) Jones did it in the bathroom

(25) Jones did it at midnight

(26) Jones did it with a knife

He comments:

> "Asked for the logical form of [21] we might volunteer something like, 'There is an action *x* such that Jones did *x* slowly and Jones did *x* deliberately and Jones did *x* in the bathroom,....' and so on. But then we need an appropriate singular term to substitute for '*x*'. [If] in fact we know [that] Jones buttered a piece of toast..., allowing a little slack, we can substitute for '*x*' and get 'Jones buttered a piece of toast slowly and Jones buttered a piece of toast deliberately and Jones buttered a piece of toast in the bathroom...' and so on.... The trouble is that we have nothing here we would ordinarily recognize as a singular term. Another sign that we have not caught the logical form of the sentence is that in this last version there is no implication that any *one* action was slow and deliberate and in the bathroom, though this is clearly part of what is meant by the original" (Davidson 1980:105).

Davidson's proposal of a logical form that would allow such entailments to be derived has already been presented in the introduction to this section at (14)-(16). Such an argument from compositionality is taken up by Parsons, Vlach, Higginbotham and others (see Parsons 1985,1989,1990, Vlach 1993, Higginbotham 1986,1995)

Davidson considers further decomposition of the logical form of an utterance, by separating out Subject and Object (or Agent and Theme, etc), but does not himself implement it (Davidson 1980:125-126).[1]

---

[1]In this connection, another argument for event entities from a different type of compositionality is possibly the case of 'donkey anaphora'. (Larson and Segal refer to such analyses as 'event-relative' (1995:407). See also Neale 1990:145-151):

5.2.4 Inadequacy of Truth in an Interval

Another basic argument for the proposal that event entities are most appropriate for the analysis of natural language utterances comes from perceived inadequacies in point-based or interval-based approaches. Moens' comments on this were already quoted in section 2. Moens refers to Tichy in support of his critique of an interval-based approach; Tichy's comments are incisive:

> "...the intervalist proposal requires a radical revision of our intuitive notion of proposition. As ordinarily understood, a proposition is the sort of thing that one can *assert*. Moreover, once a proposition is asserted, it is a matter of objective fact whether the assertion is correct... This simple account of assertion is neatly explicated in ordinary possible-world semantics, where a proposition is thought of as a class of world/instant pairs. Every act of assertion determines a unique world/instant pair.. The assertion is then correct just in case this distinguished pair is a member of the proposition.
>
> "Nothing so simple can be said on the intervalist approach, which takes a proposition to be a class of world/interval pairs. One cannot say that an assertion of such a proposition is correct just in case the couple consisting of the world which is actualised and of the interval which is current when the assertion is made is a member of the proposition.

E*very man who bought a donkey vaccinated it* can perhaps be represented most accurately by the logical form, where *e* and *f* are event entities:

(27) ∀x∀y∀e(man(x) & donkey(y) & buy(e) & Subject(e,x) & Object(e,y) ⇒ ∃f(vaccinate(f) & Subject(f,x) & Object(f,y)))

> For there is no such thing as the interval current when the assertion is made. Any assertion is made in the middle of no end of current intervals. It is unclear which of them is relevant in evaluating the assertion" (Tichy 1985:264).

Moens comments on Tichy's proposals:

> "Tichy (1980,1985) was probably one of the first to use linguistic arguments to argue in favour of taking events as basic in a theory of natural language temporal relation... [H]e argues that the inadequacy of the interval approach is most striking when one is dealing with interrupted behaviour... Tichy therefore proposes that statements like *write a symphony* should be analysed as involving reference to relations between individuals and events. Each event uniquely determines the time stretch it takes up, which is the running time of the event" (Moens 1987:33,34).

Tichy's own formulation of this (commenting on the sentence *John drew a circle no more than once yesterday*) is as follows:

> "...an adequate description of circle-drawing activities taking place in a world must take the form of a function associating each individual not with the (continuous or broken) *time-stretches* he spends drawing a circle but with those of his *behaviours* which amount, in that world, to drawing a circle. A behaviour is a kind of *episode*. What is an episode? An episode is best conceived as a series of momentary basic events happening over some stretch of time" (Tichy 1985:270-271).

More recently, Blackburn *et al* have taken up this question and proposed in a formal semantic framework a "rich ontology" in which events, intervals and points can be accommodated (Blackburn, Gardent and De Rijke 1996; Blackburn and De Rijke 1997):

> "Formal accounts of temporal constructions in natural language often disagree about the semantic ontology to be assumed - should it be point based, interval based or event based? We think that more adequate analyses of natural language will be obtained by *combining* ontologies, not choosing between them... Such combined ontologies enable us to build our analyses round the following intuition: temporal constructions are means of systematically exploiting links between information sources" (Blackburn, Gardent and De Rijke 1996:77-78).

They propose a semantics of information flow "combining interval structures with event structures... linked by a relation so that transitions in one correspond to transitions in the other" (Blackburn, Gardent and De Rijke 1996:77). Since they make use of Moensian concepts of event structure, but without coercion. I will refer to their approach further in chapter 6.

5.2.5 Neo-Davidsonian Formulations

More recent researchers (e.g. Parsons, Vlach, Higginbotham) have developed Davidson's idea of saying "an indefinite number of things" about an event entity, by proposing that a simple sentence such as *Mary saw John* could consist of as many as three predications:

(28) $\exists e$ [see(e) & Subject(e,Mary) & Object(e,John)]

or: $\exists e$ [see(e) & Agent(e,Mary) & Patient(e,John)]

In this connection, for the sentence *the boat floated under the bridge*, Higginbotham points out:

> "it was one of the triumphs of Davidson's theory of the modification of verbs that it explained a number of obvious implications, e.g. that if the boat floated under a bridge, then it floated" (Higginbotham 1995:14).

(28) entails by elimination:

(29) $\exists e$ [see(e) & Subject(e,Mary)]

(30) $\exists e$ [see(e) & Object(e,John)]

(31) $\exists e$ [Subject(e,Mary) & Object(e,John)]

and so on for the single predications.

For Davidson, in fact, such logical relationships are important:

> "...logical relations between sentences provide the only real test of when our language commits us to the existence of entities" (1980:203).

Based on considerations to be presented in 6.3, Higginbotham suggested that an event variable should in fact be regarded as a tuple $<e_1, e_2>$, in which both the process or activity ("motion in space") and the telos ("state of being") of an event are represented. I will delay discussion of these considerations till the next chapter, since a detailed discussion is best conducted under the rubric of event structure.

Parsons and Vlach propose representing aspectual encoding directly by supplementary predications, for instance Hold(e) and Cul(e) in the case of Parsons 1990, or Consq(e) in the case of Vlach 1993. Since their suggestions will be

overtaken by the detailed proposals of the next chapter, I will not consider their proposals further in this thesis.

5.3 Stages and Happenings

Before proposing a logical form capable of representing the subtle distinctions among the Pular perfective forms, I will elaborate on the presentation of Carlson's Kind/Object/State distinction in 5.1.2 above. To this end I will quote in full Carlson's distinction between 'characteristics' and 'happenings':

> "It is recognised that a sentence like [32] is at least two ways ambiguous:
>
> [32] Bill ran
>
> "On the one hand, it could specify that there was an occasion on which Bill engaged in a certain activity - let us call this a 'happening'. On the other hand, the sentence could indicate that Bill had some disposition or characteristic - that he was one who runs (habitually). We will call the latter a 'characteristic'..." (1980:70). "How we will we represent the... reading of *Bill ran* - the happening - is to regard *run'* (the happening) NOT as applying to Bill, the individual, but rather to one of his STAGES. The ultimate claim we would wish to make is that *run'* denotes a set of stages (not a set of individuals), and that (with respect to a given time) the sentence is true iff one of Bill's stages is in that set.
>
> "In formally representing what has been said here, we cannot simply substitute *run'* for *run''* [see 5.1.2 above]..., for that would make the

sentence always false (if not sortally incorrect), as *run'* is a set of stages, but Bill is an individual. In order to say what we want here, a relation R is introduced ('realises'). This two-place, asymmetric, irreflexive, transitive relation holds between stages and individuals. A formula like R(a,b) means that a is a stage of b. This will only make sense if a is a stage and b is an individual (it may be read 'a realises b'). On the happening reading of [32], the predicate of the sentence will predicate *run'* of some stage, and make the further claim that that stage is a stage of the individual that is the subject of the sentence. The predicate that denotes the set of all individuals who have a stage that runs is the following:

[33] $\lambda x \exists y [R(y,x) \& run'(y)]$

"Here, x is a variable over individuals, and y is a variable over stages" (Carlson 1980:76).

It is clear that, in Carlson's conception, there is a very close relationship between 'happenings' and Stages; Stages can only occur in 'happenings' and are in effect a realisation of an individual as one of the participants in that 'happening'. One of the things I want to do in this thesis is to combine Chierchia's and Carlson's proposals and suggest an alternative way of viewing Carlson's realisation relation. I will propose that, as an alternative, the 'happening' itself should be viewed as a realisation or instantiation of an event Kind.[2]

---

[2]A notion similar to Carlson's of kind realisation could be contained in Wilson's notion of "ad hoc" concept formation: "Let's assume, then, that the concepts *encoded* by 'flat', 'square', and '8.00' are the precise, mathematical ones, but that the concepts *communicated* are constructed ad hoc..." (Wilson 1996:part 7).

Even within Montagovian semantic structure, since an event, such as *run'*, is considered to be a property and individuals are defined as property sets, it is not unreasonable to view event Kinds as individuals.[3] Indeed there is no reason why, even within a Montagovian system, *run'* should not be considered to be a property set rather than a single property.

Based on these considerations, in the example above we could represent the event Kind *run* by the individual r, and the instantiation of it by a variable e, that is to say e is a Stage of the event Kind r. Using Carlson's instantiation relation R, we could rewrite *run'*(y) as R(e,r). In order to be more legible I will write this as *Inst*(e,r). Doing this, however, we will lose the subject relation of x in *run'*. I propose to replace this with its own realisation relation *Subject*, such that the formula *Subject*(e,x) 'realises' the individual x as the subject of an event Stage e:

(34) $\lambda x \, \exists e \, [\, \mathit{Inst}(r,e) \, \& \, \mathit{Subject}(e,x) \,]$

---

[3]Carlson also recognises that gerunds and infinitives, according to the syntactic tests he established, "pattern like kinds of things in a number of... ways"; he goes on to say: "One may think of treating infinitives as being entities among the realm of kinds of things to really be an unreasonable approach to their treatment, a point that I cannot contest at this time with any degree of persuasion. It deserves mention, however, that Thomason (1976) proposes treating propositions as being associated with entities (that is, things of type <e> or some sub-type). If his treatment is correct, it would be a short step indeed from there to infinitives, from infinitives to gerunds, from gerunds to abstract nominals, and from there to concrete NP's that denote property sets of kinds" (Carlson 1980:300-301).

In this formulation now there is no 'Stage' of the subject, rather the *Subject* realisation function relates a subject Individual x to an event Stage e. I will consider all further processing to be pragmatic.

This notion of pragmatic processing can be exemplified by reconsidering the examples at (1), repeated here as (35a-c):

(35) a Joan chose a hat and bought it

b ?Joan saw a hat and bought it

c ??Joan wanted a hat and bought it

Whilst (35a) is clearly considered acceptable and (35c) clearly considered unacceptable by English speakers, (35b) is also generally considered acceptable, even though an event of *seeing* in Carlson's terms would seem to require a Stage as a grammatical object and *buying* an Object. In the analysis above, all such events are considered to be Stages and the participants to be Objects or Kinds. The unacceptability (on one reading) of (35c), therefore, is still explained by the awkwardness of coordinating a Kind with an Object, however (35b) is now rendered acceptable, and the nature of the temporariness of the *hat* that was *seen* and that of the permanency of the *hat* that was *bought* subject to cognitive accommodation between an event Stage and an Object participant.

I will consider (34) to be a reasonable representation of the 'happening' of (33) in the semantic domain of conceptual structure. In (33) the subject function of x in the 'happening' is implicit; (34) makes it explicit.

We also now need to consider how this representation can be expanded so that it represents the 'anchoring' of this happening in time. Carlson himself recognises that a happening or 'manifestation' is anchored in space and time: "a

stage is conceived of as being... a spatially and temporally bounded manifestation of something" (Carlson 1980:68). (34) (repeated in general form as (35) where p is a variable ranging over event Kinds) does not contain any variable ranging over time or any element that could be said to relate to the aspectual state of the event:

(35) $\lambda p\ \lambda x\ \exists e\ [\ \mathit{Inst}(p,e)\ \&\ \mathit{Subject}(e,x)\ ]$

I propose that, to portray the way a happening is anchored in time, and to be able to portray aspectual differences, additional elements need to be present in this 'logical form' that relate the realisation of the event to a particular phase or point of event structure at a particular time. With respect to phases, I will consider *EPhase* to be a relation between an event Stage, e, a sub-event of this Stage, e_n, and t, where t is a variable over times, such that, using an inclusion relationship $\subseteq$, as in Pulman (1997:307), the following meaning postulate is true[4]:

(36) $\forall p\ \forall e\ (\mathit{Inst}(p,e) \rightarrow \exists e_n\ \exists t\ (\mathit{EPhase}(e,e_n,t)\ \&\ e_n \subseteq e$

$\&\ \forall t'\ (t' \not\subseteq e_n \rightarrow \neg \mathit{EPhase}(e,e_n,t'))$

$\&\ \forall t''\ (t'' \subseteq e_n \rightarrow\ \mathit{EPhase}(e,e_n,t''))))$

(35) now becomes:

(37) $\lambda p\ \lambda x\ \exists e\ \exists e_n\ \exists t\ [\ \mathit{Subject}(e,x)\ \&\ \mathit{Inst}(p,e)\ \&\ \mathit{Ephase}(e,e_n,t)\ ]$

---

[4]Since this thesis does not formally address issues of intensionality, the definition of the meaning postulates does not make any reference to necessity. This is an evident simplification, but the forms as stated make explicit the nature of the relationship in all cases.

In like fashion, in order to be able to represent aspectual marking which evokes some point in event structure, we need a relation between an event Stage, a sub-time of this event Stage, and a time, t. I will consider event times to be non-durative events and *EPoint* to be a relation between an event Stage, e, a sub-time of this event Stage, t_n, and a time, t, such that the following meaning postulate is true:

(38) $\forall p\ \forall e\ (\mathit{Inst}(p,e) \Rightarrow \exists t_n\ \exists t\ (\mathit{EPoint}(e,t_n,t)\ \&\ t_n \subseteq e$
$\&\ \forall t'\ (t' < t_n \Rightarrow \neg \mathit{EPoint}(e,t_n,t'))$
$\&\ \forall t''\ (t'' > t_n \Rightarrow \mathit{EPoint}(e,t_n,t'))))$

(35) now becomes:

(39) $\lambda p\ \lambda x\ \exists e\ \exists t_n\ \exists t\ [\ \mathit{Subject}(e,x)\ \&\ \mathit{Inst}(p,e)\ \&\ \mathit{Epoint}(e,t_n,t)\ ]$

Clearly, if an aspectually-marked expression denotes an event with respect to *both* a phase of an event *and* a point of an event then both realisation functions will be present in the logical form:

(40) $\lambda p\ \lambda x\ \exists e\ \exists e_n\ \exists t_n\ \exists t\ [\ \mathit{Subject}(e,x)\ \&\ \mathit{Inst}(p,e)\ \&\ \mathit{EPhase}(e,e_n,t)$
$\&\ \mathit{Epoint}(e,t_n,t)\ ]$

I will make use of such logical forms in the analysis of the Pular perfective forms.

5.4 Perceptual-Conceptual Considerations for Individualhood

We can ask a series of basic questions about events as entities. If events are entities, what sort of entities are they? In what sense are events entities; are they actually entities or only entity-like by virtue of the way they are handled in

language? Or is this 'entitiness' merely a convenient analysis which therefore gives the appearance of a corresponding ontology? What are 'entities' anyway?

Bach addresses these questions in the following way:

> "What exactly are we claiming when we put forward... theories about model structures for natural languages? The enterprise looks very close to metaphysics or ontology, describing what some philosophers like to call 'the ultimate furniture of the world.' Do things such as properties, kinds,... stages, and so on really exist? I would claim that those are philosophical or scientific questions, not linguistic ones. As a linguist, I feel perfectly justified in sidestepping such questions. Consequently, I like to say that what I am doing here is not metaphysics *per se* but *natural language metaphysics*... What we are doing is simply seeking linguistic evidence for the nature of the semantic structures that we seem to need to give a good account for the meanings of natural language expressions" (Bach 1989:98).

I will attempt to answer these questions thus: events happen (states occur); as such they can be referred to, in anticipation, as they happen, or in retrospect (or a combination of these). The happening of an event may be mutually manifest (retrospectively, actually or in anticipation) between speaker and hearer. As such 'they' can be purported or asserted to have properties. I suggest it is this ability of speakers and hearers of language to see events as having properties that can attach to them that makes them entity-like in language. In fact, it seems, one could consider this to be the definition of an 'entity': something to which properties can attach, something of which properties can be asserted.

The fact that an event may (and in general will) have more than one property, including a participant (agent, etc - though not every event has to be portrayed as having a participant), and the properties of an event-type, enabled Davidson to show the advantage of a logical form in which the bare event, stripped of all properties, is represented as a variable.

We probably normally think of entities as being somehow essentially bounded in space. However the ability to have or not have properties is another, if more conceptual, type of boundedness. Obviously events (but not necessarily states) are also in some way bounded in time, however it may be the ability to have properties asserted of them that plays a greater role in enabling events to be treated as entities.

As previously stated, my intention in this thesis is to represent the main Pular perfective forms in conceptual structure, in the sense of Jackendoff 1997. To this end I will consider that event structure is represented in conceptual structure, and will in fact only be concerned with proposing a detailed portrayal of the representation of event structure in conceptual structure.

In Jackendoff's conception, conceptual structure and syntactic structure are autonomous "parallel" modules, having their own "language" and good formation rules. The relationship between them is one of mutual constraint, implemented by means of correspondence rules (Jackendoff 1997:38ff). In this conception, therefore, correspondence rules can be understood as mapping rules from syntactic structure into conceptual structure and as (not necessarily bi-directional) mapping rules from conceptual structure into syntactic structure. This conception does not require that there should be a *complete* mapping from one structure into

the other. In the Jackendoffian conception it is possible that there could be elements of syntactic structure which have no correspondence in conceptual structure and there may be elements of conceptual structure which have no correspondence in syntactic structure. Any redundancy resulting from such a conception is not considered by Jackendoff to be an impediment to its theoretical acceptability.

5.5 Plurality

We should not leave an analysis of events without a consideration of the question of event plurality. How many events, for instance, are represented in (41)?

(41) five men lifted seven tables

It seems clear that the morphosyntax does not specify; however any interpretation of the utterance tells us that there was probably more than one event (see Schein 1993; also Kempson and Cormack 1981,1982). Let us consider a simpler example:

(41) a man came to the house this morning

At first hearing we may think (41) only refers to one event. A moment's reflection shows that even this example may refer to more than one event; (42) is not contradictory:

(42) a man came to the house this morning, in fact he came several times

The form of the verb in all these examples shows no difference whether one or several events are referred to:

(43) a man came to the house every day this week

In fact it seems a fairly universal feature of language that event encoding does not normally mark a singular/plural distinction. Plurality of events arises out of interpretation. To accommodate this we can borrow the concept of numberlessness from Neale 1990 and claim that although an event variable may often be interpreted as representing a single event Stage, this in not necessarily so and an event variable is in fact numberless. I will consider that Neale's notion of numberlessness applied to events is appropriate to handle the relationship between syntactic structure, conceptual structure and the central system.

It was proposed in this chapter that logical form can reference the event structure of an event. *EPhase*, for instance, was proposed as a relation between an event Stage and a phase or subevent of that event Stage; likewise *EPoint* as a relation between an event Stage and an instant or non-durative subevent of that event Stage. In chapter 6, therefore, before we apply the logical form of this chapter to the Pular perfective verb forms, we will undertake an investigation of event structure.

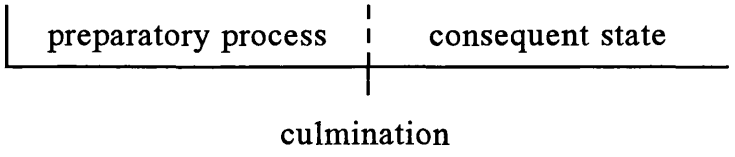
6. EVENT STRUCTURE

My purpose in this chapter is to build on the ontology of the previous chapter and propose an event structure that can be used to analyse the Pular perfective verb forms. Proposals on event structure have been put forward by Moens (1987), Moens and Steedman (1988), Pustejovsky (1991), Higginbotham (1995) and Pulman (1997a). It is appropriate to review and comment on their proposals in turn. I will discuss their proposals in 6.6 in the process of justifying and proposing an event structure that can be used in analysing the Pular perfective forms in section 6.7.

6.1 Moens 1987 and Moens and Steedman 1988

Moens and Steedman (1987,1988[1]) propose an event structure which consists of a *preparatory process*, a *culmination* and a *consequent state*:

(2)



Moens calls this structure a *complex entity* and refers to it by the term *nucleus* (1987:47). He uses examples from conjoined clauses, clause sequences and various types of time clauses to argue for this particular type of event structure.

[1]From now on I will refer only to Moens 1987. The article by Moens and Steedman 1988 is more accessible, but it is equivalent in most respects to Moens 1987 which gives more detail.

As pointed out in the previous chapter, Moens' approach is essentially event-oriented. He refers to Freed (1979), Johnson (1981), Steedman (1981) and Tichy (1980,1985) as having prefigured him in his approach to event structure.

In the rest of this section I will review Moens' arguments for this type of event structure. The first two sections, using examples of *when*-clauses and conjoined clauses, will present his basic argument for the tripartite structure diagrammed above. The subsequent sections, on *for*-adverbials, *in*-adverbials, the English progressive and the English perfect, use the notion of 'coercion' which will be presented in section 6.1.3.

6.1.1 When-*Clauses*

The following is an example of Moens' argument for (2) from *when*-clauses:

(3) a when they built the 49th street bridge...

b ...they used the best materials.

c ...a local architect drew up the plans.

d ...they solved most of their traffic problems.

Moens proposes that the fact that each of (3b-d) relates anaphorically to a different part of the event in (3a) constitutes an argument for event structure. (3c), for instance, relates to a *preparatory process* of the event of (3a), (3b) to the actual event, and (3d) to a *consequent state* of the event. Since all these clauses (3b-d) are related to the same event by the same *when* clause, he argues that an event structure must be cognitively associated with the event of (3a) for different parts of it to be anaphorically available to the clauses in (3b-d).

6.1.2 Conjoined Clauses

The following is an adaptation of an argument of Moens from a conjoined clause:

(4) John threw a party and invited all his friends

In other approaches to discourse structure, it is proposed that a reference time for simple past tense verbs advance from event to event (e.g. Partee 1984). Clearly such a solution is not adequate here. The *inviting* must at least coincide with the *throwing of the party*, if not actually precede it. Moens again proposes that the event in the second clause relates anaphorically to the *event structure* of the preceding event. This allows it to relate to a *consequent state*, for the normal case in which the reference time advances, but also allows it to relate to the *preparatory process*, as seems to be required in (4).

6.1.3 Event Categorisation and Coercion

Moens 1987 makes use of a Vendlerian event categorisation, in which *activity* is renamed as PROCESS, *achievement* as CULMINATION and *accomplishment* as CULMINATED PROCESS. He adds to it a 'semelfactive' category, POINT. (In presenting and discussing Moens' examples I will use his convention of writing the event categories with small capitals). Moens uses the following table to represent this categorisation:

	EVENTS		STATES
	atomic	extended	
+conseq	CULMINATION recognise, spot, win the race	CULMINATED PROCESS build a house eat a sandwich	understand, love, know, resemble
-conseq	POINT hiccough, tap, wink	PROCESS run,swim,walk, play the piano	

TABLE 15: MOENSIAN EVENT CATEGORISATION

'Coercion' is an important feature of Moens' proposals. The term is not used in Moens 1987 but is introduced in Moens and Steedman 1988 in the following fashion:

> "The phenomenon of change in the aspectual type of a proposition under the influence of modifiers like tenses, temporal adverbials, and aspectual auxiliaries is of central importance to the present account. We shall talk of such modifiers as functions which "coerce" their inputs to the appropriate type, by a loose analogy with type-coercion in programming languages" (Moens and Steedman 1988:17).

Moens specifies an "aspectual network" which details his proposals on "possible transitions from one aspectual category to another under the influence of sentential and extra-sentential context together with the associated changes in meaning and assumptions which the context must support" (1987:45). Diagram 2 is a simplified version of Moens' aspectual coercion network, which will be sufficient for our purposes:

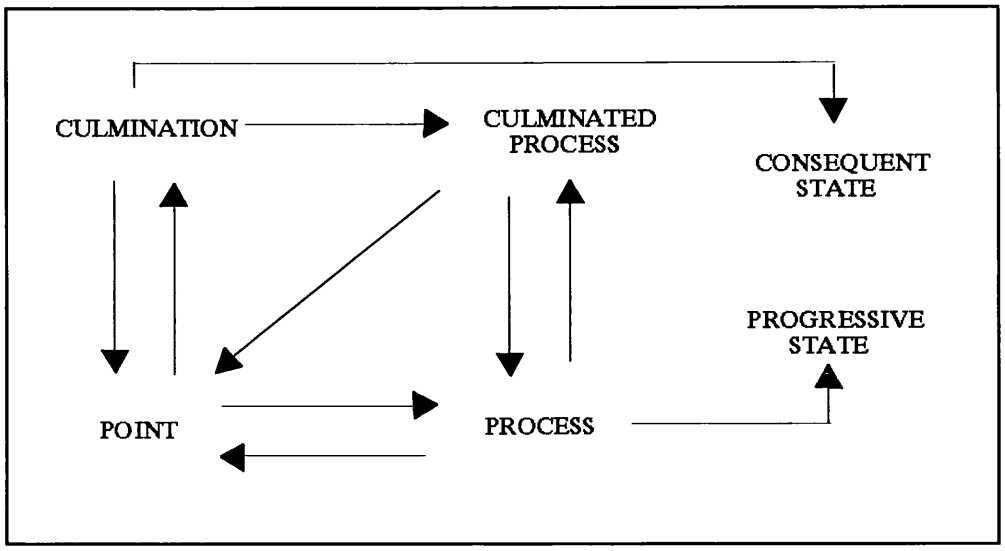


DIAGRAM 2: MOENS' ASPECTUAL COERCION NETWORK

The parts of this network I wish to consider in particular are the so-called "addition" 'coercions', for instance the addition of a PROCESS in transiting from CULMINATION to CULMINATED PROCESS and the addition of a CULMINATION to transit from PROCESS to CULMINATED PROCESS, and the "stripping" 'coercion', stripping a CULMINATION from a CULMINATED PROCESS to form a PROCESS. For instance, *run* is understood as a PROCESS. The addition of a CULMINATION, as in *run a mile*, causes ('coerces') the process event to be re-interpreted as a CULMINATED PROCESS.

As noted in the Introduction, Moens comments that these 'coercions' are not to be understood as losing information, but rather as adding an "extra layer of meaning". With respect to an "addition" 'coercion' he states that "an extra 'layer' of meaning is added to the 'basic' meaning of the category" (45). With regard to the "stripping" 'coercion', as noted in the Introduction, he states:

> "This should not be taken too literally: whatever layer of meaning is stripped off is not lost. In the example *he read a novel for a few*

minutes, the process of reading is still described as extending towards the point where he *finished the novel.* Saying that this culmination point is 'stripped off' just means that that particular part of the meaning complex is not talked about for the time being; the focus has shifted to other layers of meaning" (1987:45).

The transition from PROCESS to POINT is understood as a bundling 'coercion', and the transition from POINT to PROCESS as an iteration 'coercion', however it is with the "addition" and "stripping" 'coercions' that I will be most concerned. I will argue that these particular 'coercions' should more appropriately be seen as a mapping from syntactic structure to conceptual structure and not as type coercion.

6.1.4 For-*Adverbials*

Moens describes *for* time adverbials as having the function of coercing a PROCESS, as in (5a), to a CULMINATED PROCESS, as in (5b). However Moens has to exclude examples such as (5c) from this principle, claiming that "this adverbial is of a different kind... expressing purpose rather than duration" (Moens 1987:52):

(5) a John worked in the garden

b John worked in the garden for several hours

c John left the room for a few minutes

I will comment further on his decision with respect to (5c) in 6.1.8 below.

In the case of *for*-adverbials Moens claims that events that are not already a PROCESS have to be coerced to a PROCESS before being coerced to a CULMINATED PROCESS, as in (6a). Moens notes however that for a CULMINATION (*achievement*):

"the transition from culminated process to process is not one that can be made freely in English, but seems to require the presence of a progressive *-ing* form. As a result, turning the culmination in [6b] into a process by first adding a preparatory phase and then stripping off the culmination point is not allowed" (1987:51):

(6) a Sue played the sonata for a few minutes[2]

b ???John reached the top for a few hours

However a few pages later on Moens provides just such an example of a progressive form with *reach* (quoted here as example 10). As a consequence his argument at this point, in particular what he intends by the phrase "require[s] the presence of" in the quotation above, is not clear.

6.1.5 In-*Adverbials*

In a similar fashion Moens describes *in*-phrases as requiring a CULMINATED PROCESS as "input" and resulting in a CULMINATED PROCESS:

(7) John built a house in less than a year

Moens claims that for a CULMINATION to be used with an *in*-phrase it first of all has to be coerced to a CULMINATED PROCESS. He gives (8a) and (8b) as examples and comments:

"this transition is felicitous if one adds a preparatory process to the referent of the expression. The *in*-adverbial then indicates the length of this preparatory process" (Moens 1987:53):

---

[2]*Sue played the sonata for several hours*, however, would require the event to be 'bundled' to a POINT before being 'iterated' to a PROCESS.

(8) a the mountaineer reached the top in less than 3 hours

b the train arrived in 5 minutes

c John accidentally spilled his coffee in less than 5 minutes

d in less than 3 minutes, John fell down a man-hole

e in took John only 2 minutes to spill a coffee on his brand-new sweater

He goes on to state:

> "The fact that certain culminations *cannot* occur with *in*-adverbials supports this analysis. Consider... [8c]. A verb like *spill* expresses an involuntary act, which makes it hard to think of a context where a preparatory process can be associated with it. If the context is such that one *can* think of such a preparatory process, for example in a situation where John often spills coffee or falls in man-holes all the time, sentences like [8d and 8e] can be used felicitously..." He adds: "The accidents in [8d and 8e] are still involuntary, and as such have no preparatory process associated with them. They are described however as if they *do* constitute purposeful behaviour. The *in*-adverbial pertains to the time period John needed to achieve this "goal"" (Moens 1987:53).

Moens seems to depend in these sort of examples on a combination of event structure and context to explain felicity or infelicity. I will argue that an extended event structure can explain these phenomena more effectively. In particular I will be concerned with the status of what Moens calls a preparatory process. It is noticeable in the quotation above that there is considerable ambiguity in Moens' system as to the exact status of such a process.

6.1.6 The English Progressive

With regard to the English progressive (*-ing*) construction, Moens claims that the "input" has to be a PROCESS, and that there is 'coercion' from a PROCESS to a PROGRESSIVE STATE. Based on this he claims that a CULMINATED PROCESS (such as *write a novel*) has to be converted to a PROCESS first, by "stripping off... the culmination point" (1987:58):

(9) John was writing a novel

He comments on this regarding the 'imperfect paradox':

> "Because of the transition from culminated process to process before the combination with the progressive, a sentence like [9] does not imply that John ever finished writing the novel" (Moens 1987:59).

Use of the progressive *-ing* with CULMINATIONS (*achievements*), according to Moens, requires two coercions: CULMINATION to CULMINATED PROCESS (by "adding" a preparatory phase), and CULMINATED PROCESS to PROCESS (by "stripping off" the culmination):

(10) John is reaching the top

> "The transitions a culmination has to undergo before it can combine with a progressive are somewhat more complex. Starting off with an expression like *reach the top*, we have to find a path to the process node [in the aspectual coercion network at diagram 2]. The most straightforward one goes via culminated process, bringing into focus whatever preparatory process world knowledge allows one to associate with the culmination. Moving down, from culminated process to

process, the culmination point is "stripped off". The progressive then describes the preparatory process as ongoing" (Moens 1987:59).

As stated above, I will argue that the notion of 'coercion' should be restated more straightforwardly in terms of a mapping from syntactic structure to conceptual structure, using an event structure in conceptual structure that is capable of accommodating all possible interpretations.

When a POINT event is used in a progressive construction, such as *the light is flashing*, the POINT is first 'coerced to a PROCESS by an "iteration" 'coercion'. As stated in 6.1.3, I will not comment further on this type of 'coercion'.

6.1.7 The English Perfect

In a similar fashion, the English perfect in Moens' scheme is said to function as a coercion from a CULMINATION to a CONSEQUENT STATE:

> "...the (present) perfect describes the consequent state of the core event as (currently) holding" (Moens 1987:70).

Again this may, according to Moens, require more than one coercion:

> "To be able to use a culminated process expression... with a perfect auxiliary, it first has to be coerced into a culmination... The transition network allows this to happen if the entire event... is treated as a single unit by making it into a point, so that it can become a culmination in its own right." (Moens 1987:70).

I will comment in 6.1.8 below on Moens' failure to distinguish a 'result' state, the specific state-of-affairs brought about by an event, from a 'resultant' state, the purely logical state of an event having happened.

6.1.8 Comments

During this presentation of Moens' system I have attempted to highlight three problematic areas: the complexity of the coercion system; the ambiguity with which a preparatory phase is regarded; and the lack of distinction between a 'result' state and a 'resultant' state. In this section I will focus my comments on the last two of these.

The ambiguity with which a preparatory phase is regarded can be illustrated using the following example from Moens 1987. (We should note that, in Moens' scheme, CULMINATION in the event structure is not considered to have duration.) Using the example at (3) Moens states:

> "The basic expression in the *when*-clause is a culminated process. This means it has associated with it a complete nucleus, as [in 11]:

[11] | they build the bridge | they have finished building the bridge |

they finish building the bridge"

He goes on to state:

> "But the culminated process *they build the bridge* can also be taken as the description of a culmination of a nucleus... This results in a nucleus, as illustrated in [12], with a *totally different* preparatory process and also subtly different consequences:

[12] | they prepare to build | they have built the bridge |

they build the bridge"

(Moens 1987:77-78, italics added)

That is to say he posits two different, but apparently simultaneously valid, event structures. In the first one the preparatory process is *they build the bridge*. In the second one it is the "totally different" *they prepare to build the bridge*; the culmination is the non-punctual *they build the bridge*.

I will argue that this ambiguity is unnecessary, and that what Moens refers to as "totally different" should in fact be recognised as ontologically different, that is to say a distinction should be made between an anticipatory process and an actual process of an event. I will argue that this is in fact necessary to characterise the meaning of the Pular perfective forms.

The other ambiguity in Moens' analysis concerns the status of the "consequent state". We can note, in the first place, that a *for* time adverbial distinguishes a result state from a resultant state:

(13) he put it on the shelf for a few hours

I will argue that we cannot exclude such examples from the analysis of the use of *for*-adverbials, as Moens does (1987:52), for, if we do that, we should also exclude such events from an analysis of the English perfect. We can note that, as in (13), if a *for*-adverbial scopes a "consequent" state, then that state is a result state rather than a resultant state. A resultant state lasts indefinitely after an event; it is simply the logical state of that event having happened. A result state (I will also follow McCoard's convention in calling it an ensuing state) is on the other hand an actual (rather than logical) state-of-affairs that is specifically brought about by a process. It is normally limited in time and is characteristic of certain types of events, such as events of *building*, *putting*, or *hiring*.

Moens does not exclude such events from his analysis of the English perfect. However we can note that if an event has such an ensuing state, then the English perfect indexes or scopes such a state, rather then the purely logical resultant state, as in (14):

(14) he has put it on the shelf

If it is necessary to distinguish the result state from a resultant state, in order to conduct a correct analysis of the English perfect, then, having made such a distinction, an analysis of *for* time adverbials in which the adverbial scopes or indexes the result state follows of necessity.

Despite these strictures I will agree with Moens that a tripartite structure is necessary to describe events. However the tripartite structure proposed in this thesis will be one that does not require "stripping" or "adding" coercions.

6.2 Pustejovsky 1991

Pustejovsky bases his approach to event structure on a single principle of opposition. Discusses the examples at (15) he claims that:

> "A minimal decomposition of the word *closed* is that it introduces an *opposition* of terms: *closed* and *not-closed*. For the verbal forms in [15b and 15c], both terms in this opposition are predicated of different subevents denoted by the sentences. In [15a] this opposition is left implicit, since the sentence refers to a single state... This type of analysis draws on Aristotle's *species of opposition*..., and it will form the basis of one level of representation for a lexical item. Rather than

decomposing such a word into primitive terms, evaluate it relative to an opposition" (Pustejovsky 1991:54).

(15) a the door is **closed**

b the door **closed**

c John **closed** the door

Pustejovsky refers to Modrak (1987) and Graham (1987) for a discussion of the relation of Aristotle's theory to perception.

Pustejovsky uses the following representation for events:

> "...for event *e*, represented as $[e_1,e_2]$, the intended interpretation is that *e* is an event containing two subevents, e_1 and e_2, where the first temporally precedes the second, and there are no other events locally contained in event *e*." (1991:56, his brackets).

Using this representation he distinguishes three types of event:

> State (S), a single event, which is evaluated relative to no other event: [e]
>
> Process (P), a sequence of events identifying the same semantic expression: $[e_1 \ldots e_n]$
>
> Transition (T), an event identifying a semantic expression, which is evaluated relative to its opposition: $[e_1, \sim e_1]$

Pustejovsky does not distinguish *achievement* and *accomplishment* verbs in terms of event structure:

> "The aspectual distinctions made by the above trichotomy do not distinguish between achievement and accomplishments in any structural way... In fact we will argue that there is no further

distinction necessary in terms of event structure for classifying these two aspectual types. Rather, achievements and accomplishments can be distinguished solely in terms of an agentive/non-agentive distinction. We will characterise the difference as follows. When a verb makes reference both to a predicate opposition and the activity bringing about this change, then the resulting aspectual type is an accomplishment... When the verb makes no explicit reference to the activity being performed, the resulting aspectual type is an achievement..." (Pustejovsky 1991:59).

I will not comment on Pustejovsky's proposals here but will consider them further when I present Pulman's proposals for event structure in 6.5 below. Pulman's proposals constitute a commentary on Pustejovsky's proposals and will also provide us with a contrasting approach.

6.3 Higginbotham 1995

Higginbotham proposes a two-part event structure:

"The contrast between the phrases *in an hour* and *for an hour* is known to be diagnostic for whether the predicate to which they attach is a predicate of pure activity, or rather of events that are conceived as having natural endpoints, *teli* in the sense of Aristotle. In general, the expression *for an hour* goes with activity predicates, the so-called atelics, whereas *in an hour* goes with predicates that establish endpoints, the telic predicates. In other work I have argued that the explanation of this distinction is as follows: the durational prepositional phrase PP *for an hour* simply measures the temporal extent of an

activity or state. It is a simple predicate of events, and combines semantically with a main predicate after the fashion of manner adverbs. So, for example, to say [16] is to say that there was a floating of the boat, *e*, whose temporal measure was an hour:

[16] the boat floated for an hour

The durational PP *in an hour* is more complex. It measures, not the temporal extent of an activity, but rather the lapse of time between *two* events. Consider a typical telic predication, as in [17]:

[17] Mary climbed the hill in an hour

In the expression *climb the hill* we have a process, namely going up the hill, and a telos, namely the attainment of the state of being on top of it. The predicate *climb the hill* thus ranges not over one event, but over two, process and telos. The PP *in an hour* then measures the temporal distance between the onset of the process and the telos. Intuitively, then, [17] is true if just one hour elapsed between the time Mary started climbing up the hill and the time she reached the top" (Higginbotham 1995:15-16).

Higginbotham uses this proposal to disambiguate the sentence:

(18) the boat floated under the bridge

In one reading of this sentence (let us call it the 'transition' reading), the boat is moving from a position away from the bridge to being under the bridge, and *floating* while doing so; in the other reading (let us call it the 'state' reading), the

boat is simply under the bridge and in a state of *floating*.[3] Higginbotham proposes that an event variable *e*, which might be incorporated into a Davidsonian form such as

(19) float(the boat,e) & under(the bridge,e)

be replaced by one or two event variables. Higginbotham proposes that (20) represents the 'transition' reading, in which the boat floats from a distance to being under the bridge. It is not clear which of e_1 or e_2 he intends should be present in the 'state' reading (or whether just *e* as in (21)):

(20) float(the boat,e_1) & under(the bridge,e_1,e_2)

(21) float(the boat,e) & under(the bridge,e)

In the case of the example in (22) only the 'transition' reading is available:

(22) the boat floated under the bridge in an hour

Higginbotham proposes a logical form for this of:

(23) float(the boat,e_1) & under(the bridge,e_1,e_2) & in an hour(e_1,e_2)

In discussing these examples, Higginbotham also considers (24):

(24) the boat floated in an hour

and states:

> "but now something has gone wrong, for although (24) is meaningful it has the wrong meaning. It does not mean that the boat got

---

[3]There is a third reading in which the boat floats under the bridge from a position away from the bridge on one side to a position away from the bridge on the other side. Higginbotham does not consider this reading.

somewhere in an hour by floating there, but that it took an hour for the boat to get to floating" (1995:15).

That is to say, if we use two event arguments, as was proposed for the 'transition' reading of (19), we would have to write:

(25) float(the boat,e_2) & in an hour(e_1,e_2)

in which e_2, the telos, is used in the action predicate since, as Higginbotham expresses it, e_1 is not an event of *floating*, but of *getting to floating*, and it is only at e_2, the telos, that the attribute of *floating* starts.

Consequently, in Higginbotham's proposals we see the same ambiguity that we saw in Moens, as to exactly what part of the event structure e_1 and e_2 represent. In some sentences, as in (25), e_1 is a 'preparatory' phase in which the activity attribute is not yet present (and could fail to come about). In other sentences, as (20), the activity attribute already characterises the 'preparatory' phase, and an activity with that attribute would have taken place even if the 'telos' is not reached.

6.4 Blackburn *et al* 1996

Whilst Blackburn *et al* (1996) do not make use of a different event structure, their ontological approach is of relevance to this thesis. They make use of a Moensian event structure, recasting it in the form of a mathematical model of information in which an event ontology and an interval ontology are linked. Instants are allowed as "minimal 'point-like' intervals" (81). The aspect of their work, that I wish to point out here, is their restatement of Moens' 'coercions' as relations. Relations (such as **Compl**, a relation between a culminating process and

its culmination, or **Cons**, a relation between a culmination and its consequent state) are said to "link" the event ontology with the interval ontology. For instance, having defined a general relation **GRiTo** ("gives-rise-to") as an "order-preserving morphism from the eventuality structure to the interval structure" (82), regarding the **Cons** relation, they state:

> "**Cons** is a binary relation (the *consequences relation*) linking culminations [as eventualities] with states [as intervals]. Intuitively, **Cons** links a culmination with the consequent state it gives rise to. This intuition motivates two further constraints on **Cons**: it should be a function, and it should be a subset of **GRiTo**. These restrictions seem to formalise the intentions underlying Moens and Steedman's treatment of the link between culminations and consequent states. Roughly speaking, although a culmination might give-rise-to several consequent states, one of these is the 'preferred' or 'default' consequent state. The role of **Cons** is to 'select' this preferred consequence from the **GRiTo** relation" (Blackburn *et al* 1996:86).

In a similar fashion they consider that the function of the English progressive "is to focus attention on the (culminating) process of some eventuality" (1996:87); they define a relation based on this. On the question of the imperfective paradox they state: "the question is essentially whether processes are downward persistent... *Bert's writing a thesis* is classified as culminating process [an event], and the culmination *Bert wrote a thesis* is its culmination [an interval]" (1996:89). The ontological difference between intervals and events, therefore, dispenses with the paradox.

6.5 Pulman 1997a

Pulman uses as a starting point for his discussion of event structure Moens and Steedman's view that an event structure consists of a triple:

<preparatory process,culmination point,consequent state>

(In presenting Pulman's approach I will employ his convention of using a different typeface for the event facets.)

He comments on and rejects Pustejovsky's proposal that achievements and accomplishments need not be distinguished in event structure:

> "An alternative taxonomy is offered by Pustejovsky (1991) in which there are just events, states, and 'transitions' (tuples of events or states) which include achievements and accomplishments. The latter differ, according to Pustejovsky, only in that accomplishments involve agency and achievements do not... While the interaction between aspectual categories and agency is undoubtedly very complex, and while Pustejovsky's observation... is close to being true, it must still be the case that there is more to the distinction between these categories than the presence or absence of agency" (Pulman 1997a:285).

Pulman proposes the following "taxonomy":

> "The basic kinds of eventuality are states (state), points (point), and processes (process).
>
> "States are understood in the usual way, as things that persist over time. Where they are explicitly asserted to hold over some period of time, they are divisible: that is, they are understood to hold

homogeneously over all relevant smaller periods within that time. States are cumulative in the sense that if a state holds over some period, and also over the immediately adjacent period, then the state holds over the combination of both periods. Typically it is not possible linguistically to refocus on any internal components of states: they do not have them...

"Points are atomic events: any internal temporal or other structure they may in reality have is ignored by categorising them in this way. While some of Vendler's achievements would here be classified as points, there is no implication of any salient consequent state with points (as there often is for achievements)...

"Processes are somewhat similar to states in that they typically are thought of as persisting over time, and they are cumulative. However, they are not homogenous in the same way as states, in two senses: firstly, processes are regarded as consuming input or proceeding via a series of implicit micro-events many of which could be singled out for an alternative linguistic characterisation if necessary. Secondly, especially where plurality, iteration, or other coercion factors are involved, there is a lower bound on the divisibility of processes."

"...two of [Vendler's] categories are regarded as complex rather then primitive. These are <point,state> or <process,state> pairs, corresponding to achievements ('culminations' for Moens and Steedman) and accomplishments ('culminated processes') respectively" (Pulman 1997a:286-287)

Pulman follows Moens and Steedman "in seeing the necessity for a separate category for points" (286). On the question of a tripartite structure he states:

> "It is implicit in this taxonomy that while it is conceptually possible to assign a tripartite structure to events, it is not necessary to do so for linguistic reasons. My original motivation for this was that while there are phenomena in which both separate components of the <point,state> and <process,state> combinations are modified separately, there are no clear examples where all three components of the more complex structure can be accessed independently and simultaneously" (Pulman 1997a:287).

However, in discussion of the example in (26), Pulman does consider whether a separate culmination point to a process could be necessary:

(26) Joe sneezed in less than 30 seconds

> "For [26] we have to be able to coerce a point into a <process,state> complex. There are two ways to achieve this: first, the point can be stretched into a process, and then have a consequent state added. This interpretation is not contextually plausible... The second interpretation available may provide some evidence that we do need a separate culmination point after all. In this interpretation it is not entailed that the process component lasts for... 30 seconds, but rather that the entire event happen within (and by conversational implicature, at the end of) the time period mentioned. To get this interpretation we need to have a preparatory process added for an entire sneezing event (a possible context might be one in which the people are testing varieties of snuff

for rapid effect). The coercion functions we have employed so far will not achieve this, as stated... This is where the possible role of explicit culmination points might help: if what we are calling <process,state> complexes are really (as for Moens and Steedman, Kamp and Reyle and others) <process,culmination_point,state> complexes, then it is quite plausible to think of adding both a preparatory process and a consequent state to a point..." (Pulman 1997a:296).

He goes on to add:

"However, I am not convinced that this is the correct analysis of these sentences. I think that it is at least arguable that this interpretation reflects an ambiguity of 'in' adverbials noticed by Dowty (1979:334-335). In this interpretation, the event described is being located during (or by implicature) at the end of the described period of time, and there must, as Dowty observes, also be a way of identifying the start of the period.... if it is not explicitly supplied it must be 'accommodated' in the context." (Pulman 1997a:297).

Pulman therefore distinguishes five event types consisting of: <state>, <point>, <process>, <point,state> and <process,state>, in which the <point> event type is additional to the four Vendlerian event types, the final three reflecting a renaming of the Vendlerian types *activity*, *achievement* and *accomplishment*.

Pulman proposes a model for this set of event types:

"the basic components are (as well as a set of ordinary individuals) a set of eventualities (events and states), and over them a temporal

> precedence relation, <, which is irreflexive, asymmetric and transitive; and an 'overlap' relation 'O', which is symmetric, reflexive and non-transitive... There is also a relation on eventualities of inclusion (⊆)... and relations of temporal equivalence (≡), and of abutment or spatio-temporal adjacency (⊃⊂). The latter can be glossed as saying that 'ev1 ⊃⊂ ev2' means that ev2 begins as ev1 ends" (Pulman 1997a:307).

Using this model, Pulman proposes that an event e may consist of a tuple e ≡ <f, g>, such that between f and g there is a relation of precedence, f < g, and of abutment, f ⊃⊂ g (308). He proposes that an *achievement* (<point,state> complex) can be considered to consist of the sub-events $<f_{pt},g_{st}>$, and an *accomplishment* (<process,state> complex) to consist of the sub-events $<f_{pr},g_{st}>$. The other event types, <state>, <point> and <process>, have the simpler structures e_{st}, e_{pt} and e_{pr} respectively.

However Pulman's analyses of *sneezing* and *winning* can be brought into question. In the examples above Pulman assigns to both *sneezing* and *winning* a <point,state> event structure but argues that the point in the <point,state> complex of *sneezing* cannot by stretched into a process by virtue of it being "not contextually plausible" (296); with an event of *winning* there is apparently no such restriction. In a similar fashion, in summing up his analyses at the end of the paper, he suggests that different interpretations of verbs such as *sneeze*, *build* and *hire:*

> "...can be accounted for in terms of our knowledge about typical temporal duration of different kinds of events. So we know that the most plausible interpretation of:

[27] Joe sneezed for five minutes

is an iterative one, because we know that sneezes typically last only a second or so" (Pulman 1997a:314-315).

I will question whether the inappropriateness of stretching the <point,state> complex of a *sneezing* event into a <process,state> complex should be assigned to context or to event structure. The point subevent of both *winning* and *sneezing* is of cognitively small duration. I will make an alternative claim, namely that, in normal circumstances, an event of *sneezing* lacks an anticipatory process and that it is this which disallows the stretching of its point facet into a process. I will argue, on the other hand, that an event of *winning* has, in many contexts, an anticipatory process, and that it is this which is scoped when a progressive construction is used with an event of *winning*.

6.6 Discussion

6.6.1 Oppositions

I will start my discussion of Pustejovsky and Pulman's proposals by quoting the Aristotelian oppositions that Pustejovsky proposes as a basis for his analysis of event structure. Pustejovsky recalls that:

"Aristotle identifies four species of term opposition:

(a) correlation: e.g., "double" vs "half"

(b) contrariety: e.g., "good" vs "bad"

(c) privation: e.g., "blind" vs "sighted"

(d) contradiction: e.g., "sit" vs "not-sit" (Pustejovsky 1991:54fn5).

It would appear that, with respect to events, Pustejovsky is applying the Aristotelian opposition of *contradiction*, for instance "sit vs not-sit". Pustejovsky's use of contrast to characterise event structure and its relationship to perception is potentially important. However, one can argue, based on the observation that it is a characteristic of events that they occur over time, that an event could have more than two oppositions. That is to say, rather than a single opposition of e vs ~e, we can have, making use of a relation of precedence, two such oppositions: ~e < e and e < ~e; an opposition which is the 'contradiction' of an event preceding the event, and another opposition which is the 'contradiction' of the event following an event. In such a fashion, we have a simple but principled way of moving from a two-part event structure to a tripartite structure.

As Jackendoff points out in his essay on Parts and Boundaries (1991), contrast is a potentially important component of the mental mechanism involved in the perception of entities and entity structure. However we can also consider whether the single opposition that Pustejovsky identifies, e versus a preceding ~e, can be taken as a single contrast. Pustejovsky uses such an opposition to characterise both *achievement* and *accomplishment* verbs. For an *achievement* verb such as *recognise* (<point,state> in Pulman's terms), the 'contradiction' of an event, ~e, since the 'transition' is a point, is presumably to be taken as the absence of the result state or the resultant state (~state vs state in Pulman's notation). For *accomplishment* verbs however, such as *build a house*, (in Pulman's terms <process,state>) the 'contradiction' could be taken, since Pustejovsky characterises the ~e part of an *accomplishment* verb as being accompanied by

agency (1991:58ff), as being an opposition between a non-culminated process and a result or resultant state.

In this light, both Pulman's and Moens' systems of event structure can be seen as distinguishing more than one opposition; for instance from a <process,state> achievement, one could derive as many as three oppositions: ~state vs state, ~process vs process, and the process vs state contrast can itself be viewed as a non-culmination vs culmination opposition. (Viewed from this angle Pulman's system could also be seen as combining and possibly confounding oppositional information and durational information, since the difference between a point and a process in his system is one of duration.)

Clearly it is pre-eminently language data that should decide the question for us of what event structure is present in conceptual structure. However, if we adopt the hypothesis that conceptual structure has to have a structural orientation, in order to be compatible with syntactic structure, and also have a conceptual orientation (in the sense of 5.4), in order to be used in subsequent cognitive processing, we can note that a system of oppositions has such a dual compatibility. Pustejovsky's principle of opposition, however, has to be enriched to include other varieties of opposition.

6.6.2 Agency

In line with Pulman's comments quoted above, it seems difficult to motivate Pustejovsky's proposal that *accomplishments* are essentially accompanied by agency and *achievements* essentially characterised by a lack of agency. For instance, in the examples of *accomplishments* in (28) below, it is difficult to see how agency can be involved, since they are both natural processes:

(28) a the fruit ripened

b the lava cooled down

Yet these should be classified as *accomplishments* if Vendler's test of compatibility with *in*-adverbials is used. They are clearly both <process,state> in Pulman's terminology

Pustejovsky (61) uses the adverb *deliberately* as a diagnostic of agency. However that is anomalous with these sentences:

(29) a *the lava cooled down deliberately

b *the fruit ripened deliberately

On the other hand, the following *accomplishments* can involve agency:

(30) a he recognised her

b he spotted the right answer

It is possible to find contexts in which *deliberately* could be used with these phrases, for instance a context in which, in the opinion of the speaker, the agent could or should have refrained, but chose to achieve some personal goal by doing so:

(31) a he recognised her deliberately

b he spotted the right answer deliberately

In such a context, (32) can also be construed with *deliberately*, an example which Pustejovsky claims is infelicitous (1991:61):

(32) Mary won the race deliberately

No doubt in most other contexts (32) would be infelicitous. However the possibility of finding a context in which agency can be associated with *winning*

shows the difficulty of tying conceptual structure to the lexicon, as Jackendoff's enrichment hypothesis points out.

However we can partially agree with Pustejovsky's proposal of associating agency with *accomplishment* verbs by adopting the hypothesis that for agency to be present there needs to be some sort of preparatory or anticipatory phase, preceding the event-as-such, with which agency can be associated. If such an anticipatory or preparatory phase is impossible, then agency cannot be assigned, as can be seen in infelicity with events of 'failure':

(33) *he feared deliberately

We will build on this observation in the next section.

6.6.3 Bipartite and Tripartite Event Structures

In 6.5 above I suggested that the different interpretations of *winning* and *sneezing*, when used in a progressive construction, should not be considered to arise from contextual plausibility, as Pulman suggests, but rather to result from differences in event structure. I suggested that the different interpretations should result from the presence or absence of a phase preceding the event. I wish now to consider what type of phase this might be.

(34) Joe is winning

To derive a correct interpretation of (34) Pulman proposes that the <point,state> achievement is 'coerced' into a <process,state> complex: "This requires two coercions: to focus on the point component of the <point,state> complex and to stretch that point into a process" (Pulman 1997a:290). However,

as Pulman is aware, there are inferential differences between *winning* as a point and when 'coerced' into a process:

> "The 'imperfect paradox' is the name given to the observation that there are inferential differences between <process> phrases and <point,state> or <process,state> phrases when in the progressive:
>
> [35] a 'Joe is swimming' implies 'Joe has swum'
>
> b 'Joe is winning' does not imply 'Joe has won'
>
> "As with many others, I assume that the paradox is resolved by the fact that *as a result of the coercions*, it is not asserted by the [35]b sentence that the resulting state is attained" (Pulman 1997a:290, italics added).

As Pulman recognises, a 'process' resulting from coercion is interpreted differently from a process which does not result from coercion. Pulman details his coercion proposals for <point,state> complexes (see 6.5 above for Pulman's notation) using an interpretation function **I** and a set of individuals, $\vec{x}$, (as shorthand for '$x_1 \ldots x_n$', where n is the arity of the predicate involved.) He defines coercion from a point to a process as:

> "When $<e_{pt},\vec{x}>$ is in **I**[P],
>
> there is a process $f_{pr} \subseteq e_{pt}$ such that $<f_{pr},\vec{x}>$ is in **I**[stretch(P)].
>
> The process f is $\subseteq$ e rather then $\equiv$, since, for example, in a progressive a 'stretched' point may not be completed" (Pulman 1997a:309).

In Jackendoff's conception "conceptual structure is the domain of mental representation over which inference can be defined" (Jackendoff 1990:17; see also Jackendoff 1997:32-33). For the inferences associated with a coerced point, that Pulman mentions above, to be derived correctly, it seems that the

interpretative process must be able to 'perceive' the presence and position of e in f; if the interpretative process cannot 'perceive' the position of e in f, it cannot derive the inference that an event of *winning* f does not imply a *win* event e. Moreover, since different inferences are associated with it, this seems to require that the event f be ontologically different from the event e. Such an inferential difference also cannot simply be due to different inferences associated with a process as compared to a point event, since the inference from an uncoerced process such as *swimming*, as in (35a), is different from a 'coerced' process such as *winning*. Consequently we come to the conclusion that the original <point,state> complex must be discernable behind the 'coerced' <process, state> complex to licence the correct inferences. However it cannot be sufficient to define this relationship simply as $e_{pt} \supseteq f_{pr}$, since this does not make accessible to the inferential process the knowledge of where e_{pt} is located in f_{pr}.

Consequently, if the structural relationship between e_{pt} and f_{pr} has to be known for the correct inferences to be derived, then, at least for such 'coerced' processes, the inferential process has to have access to an event structure in which both e_{pt} and f_{pr} are present. In order to avoid confusion with Moens' and Pulman's proposals I will call such a 'coerced' process an anticipatory_process. I will claim that, for correct inferences to be obtained from (35b), an event structure (36) is required:

(36) <anticipatory_process,point,state>

We can now consider whether the event structure of an uncoerced <process,state> complex would be the same as this. Consider the uncoerced <process,state> event in (37):

(37) Joe is building a house

From the salient reading of (37) we can infer that an event of building took place, even if it did not culminate in the building of a complete house. Using this salient reading:

(38) a 'Joe is building a house' implies 'Joe built'
(i.e. 'Joe did some building')

b 'Joe is winning' does not imply 'Joe won'

That is to say, the inference associated with the process in an uncoerced <process,state> complex is different from that of the process of a <process,state> complex resulting from 'coercion'. The inference associated with the process in an uncoerced <process,state> complex is in fact the same as that of a simple <process>:

(38) c 'Joe is building' implies 'Joe built'

We can now follow the same argument that we used to demonstrate the need for a tripartite structure for a 'coerced' <process,state> complex to demonstrate that a tripartite structure is also required to licence the inferences derivable from an uncoerced <process,state>. Using the salient readings

(39) a 'Joe is building a house' implies 'Joe built'

b 'Joe is building a house' does not imply 'Joe built a house'

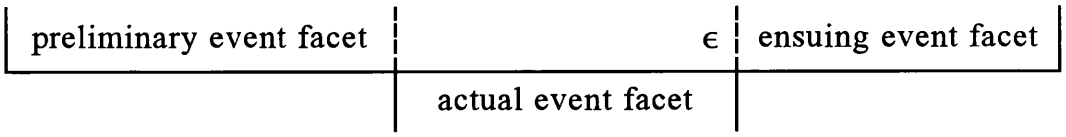
we can claim that the event structure of an uncoerced <process,state> complex needs to be:

(40) <process,point,state>

6.7 A Model of Tripartite Structure

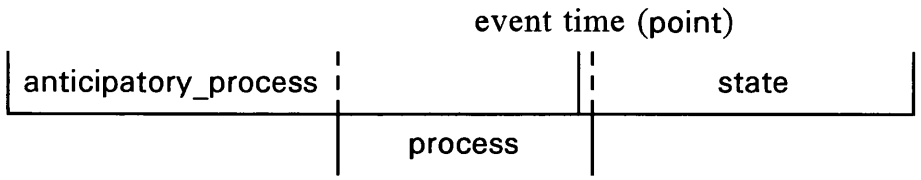
In Evans 1996 I proposed a tripartite event structure, diagrammed in (41), which consisted of a preparatory event facet, an actual event facet, an ensuing event facet, and an event time, ϵ ,which was to be understood "as the time at which the event is considered to have irrevocably happened" (Evans 1996:107).[4]

(41)



The 'actual event facet' in the structure above can be said to correspond to Pulman's process, the 'ensuing event facet' to Pulman's state, with the restriction that it is a result state and not a resultant state. The 'event time', ϵ, which I will define further below, is roughly the instant corresponding to Pulman's point. The 'preliminary event facet' corresponds to Pulman's 'stretched' process. In line with the discussion in 6.6.3, I will call such a 'stretched' process an anticipatory_process. With these modifications we now have the diagram:

(42)



Although I have likened this event structure to the event structure proposed by Pulman, for purposes of comparison, it is nevertheless important to realise that it is empirically quite distinct. Neither Moens nor Pulman claim that a 'stretched'

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[4]It was subsequent to the publication of Evans 1996 that I obtained a copy of the work of Moens and Steedman (1988), which explains the lack of reference to Moens and Steedman in that working paper.

process is ontologically different from an unstretched process. I have argued above that this leads to inadequacies in the inferential processes they propose. The anticipatory process that is proposed here is a sub-event distinct from a process sub-event, that is to say 'ontologically' different.[5] In like fashion, as mentioned previously in this chapter, Moens and Pulman do not distinguish a result state from a resultant state; it appears that, for them, a consequent state could be either (with some restriction and ambiguity in Moens' case as noted in 6.1.4 and 6.1.8.) In the event structure in (42) the (ensuing) state is strictly the result state, as defined in 6.1.8.

In a similar fashion to Pulman 1997a, we can define the model as consisting of <Eventualities, Sub-Eventualities, Instants, Individuals>. Eventualities are ephemeral entities (that is to say Stages) consisting of an ordered set of Sub-Eventualities. A Sub-Eventuality is an indivisible ephemeral entity and is one of e_0, e_1, or e_2. Relations of precedence and of abutment exist between e_0, e_1 and e_2 such that $e_0 < e_1$, $e_1 < e_2$, and $e_0 \supset\subset e_1$, $e_1 \supset\subset e_2$. Instants are non-durative events with which a moment of time is associated. Instants are defined for the onset and cessation of each of e_0, e_1 and e_2, such that ω_0 is the Instant at which e_0 starts to exist and τ_0 the Instant at which e_0 ceases to exist: similarly for ω_1, τ_1, ω_2 and τ_2. I define an operator, -, such that $\omega_1 - \tau_1$ is the elapsed time between ω_1 and τ_1. I also define an Instant, ϵ, as the Instant at which an event, e, is considered by the speaker to have irrevocably occurred. An Eventuality therefore consists of a tuple in which one or more of e_0, e_1 or e_2 are present as well as ϵ, for instance:

---

[5]The concept of an anticipatory facet could be compared with Nicolle's concept of "realis potential" in his analysis of English *going to* (Nicolle 1997).

$e \equiv < e_0, e_1, e_2, \epsilon >$. Individuals, following Pulman, are entities that are neither Eventualities, Sub-Eventualities nor Instants.

We can demonstrate the functioning of this model by using events of *coming* and *going*. As mentioned in section 2.4, Dowty noted that there is sometimes an ambiguity between an *activity* classification of a verb and an *accomplishment* classification, and that this is particularly noticeable with verbs which are compatible with both *in*-time adverbials and *for*-time adverbials (Dowty 1979:61-62):

(43) a he came in an hour

b he came for an hour

(44) a he went in an hour

b he went for an hour

In my introduction to the Vendlerian categories in section 2.4, I pointed out that there is also an ambiguity in sentences such as (43a) and (44a) between a reading in which the *hour* denotes a period before the *coming* and a reading in which it denotes the time of the process of *coming* itself. The first reading is noted by Higginbotham in connection with the sentence *the boat floated in an hour*: "[this] does not mean that the boat got somewhere in an hour by floating there, but that it took an hour for the boat to get to floating" (Higginbotham 1995:15). Closer examination of (43a) suggests that the *hour* can cover both of these periods. (43a) could be uttered in a scenario in which A agrees with B over the telephone that B will come to see him in his office. *He came in an hour* can refer to the time between the telephone call and the time of B's arriving at A's

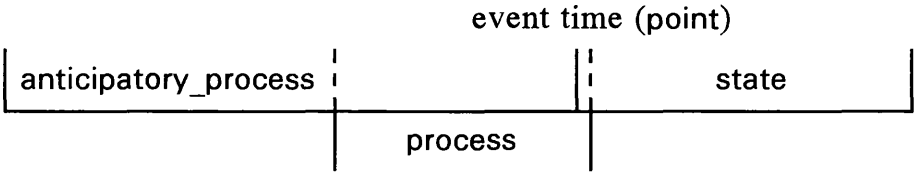
office, even if B sat for an half-an-hour in his office with the intention of coming and then was underway for half-an-hour.

Using the tripartite event structure of (42) we can formalise an event of *coming* as:

(45) a <anticipatory_process,process,state>

or, with the inclusion of the 'event time':

(45) b $<e_0, e_1, e_2, \epsilon>$ in which $\epsilon = \tau_1$ and $\omega_1 \neq \tau_1$



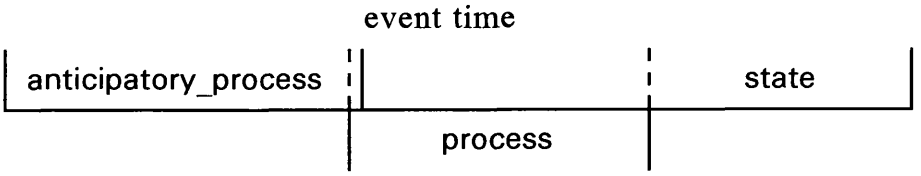
that is to say the point which marks the irrevocable occurrence of the event, is at the end of the process. We can see that the Instants associated with e_0 and e_2 correspond to the beginning and end of the *hour* durations. In (43a) the *hour* corresponds to $\omega_0 - \epsilon$, that is to say it can span both any anticipatory process of *coming*, e_0, and an actual process of *coming*. In (43b) the *hour* corresponds to $\epsilon - \tau_2$; that is to say, it can span the ensuing state of an event of *coming*.

An event of *going* would presumably also be a culminated process in Moens and Steedman's terms and have the identical structure, <process,state>, as an event of *coming* in Pulman's model. Using the event structure of (42), (44) would also have the structure

(46) a <anticipatory_process,process,state>

however with the inclusion of the 'event time' it can have a structure of:

(46) b $<e_0, e_1, e_2, \epsilon>$ in which $\epsilon = \omega_1$ and $\omega_1 \neq \tau_1$



That is to say, in this case the point that marks the irrevocable occurrence of the event, ϵ, occurs at the beginning of the process: $\epsilon = \omega_1$. We can see that the *hour* in (44a) still corresponds to $\omega_0 - \epsilon$, however it now only spans the anticipatory process, e_0, of the event of *going*. The *hour* in (44b) still corresponds to $\tau_2 - \epsilon$, but now spans the actual process as well as the ensuing state of an event of *going*.

Such an event structure also allows (47) and (48) to be readily interpreted:

(47) he came in an hour for an hour

(48) he went in an hour for an hour

The above examples with events of *coming* and *going* show the use of the maximal event structure, $<e_0, e_1, e_2, \epsilon>$, that I have proposed in this chapter. It is to be noted that e_2 is strictly the result state of an event and not the resultant state. Other events, as Moens and Steedman's work and Pulman's work have pointed out, do not necessarily need such a maximal event structure. We can take as an example again an event of *fearing*. Its lack of felicity with *deliberately* (49a) and with *in an hour* (49b) appear to show that an event of *fearing* lacks an anticipatory process, and this in congruent with the fact that its point cannot be, in Pulman's and Moens' terms, 'stretched' into a process:

(49) a *he feared deliberately

b *he feared in an hour

c *he was fearing

In Pulman's model it would appear that such an event should be modeled as <state>. We will consider however, pending further evidence, that its event structure still contains an event time, for which e_1 is also necessary:

(50) $<e_1, e_2, \epsilon>$

I should clarify at this point that, in the event structure I have proposed, both a process event and what Pulman calls a point event are considered to be e_1; the difference between them is, rather, one of duration, that is to say in the case of a process $\omega_1 \neq \tau_1$, but in the case of a point event $\omega_1 = \tau_1$. In the following chapters I will also omit the event time, ϵ, from the statement of the event structure, and write (50) as:

(51) $<e_1, e_2>$ in which $\omega_1 = \epsilon = \tau_1$

Other events, such as an event of *flashing*, appear to lack both an anticipatory process and an ensuing state, as well as not allowing a point to be "stretched" into a process, as is evidenced by the iterative interpretation of its progressive construction, *it was flashing*. Its event structure would therefore be:

(52) $<e_1>$ in which $\omega_1 = \epsilon = \tau_1$

The data I have presented in this section illustrate the use of the event structure of (42). In chapter 8 I will present data from English to demonstrate further this event structure, and in chapter 9 consider its application to the Pular perfective system.

6.7.1 Logical Form for a Tripartite Event Structure

In chapter 2 I adopted the Chierchia and McConnell-Ginet view of logical form as "[an] abstract characterisation... of the mental representations that we associate with sentences" (Chierchia and McConnell-Ginet 1990:144-145). In a Jackendoffian framework these mental representations are present in conceptual structure, a cognitive module that operates in parallel with syntactic structure and phonetic structure in the processing of utterances. It was argued in chapter 2 that, for language use to be successful, these mental representations have to be able to correspond with the real world, but that they are in themselves I-Semantic not E-Semantic.

It is the claim of this thesis that a certain type of event structure is used in the mental representations of conceptual structure. Jackendoff proposes that conceptual structure has a "language" of its own, as quoted in chapter 2: "[t]he overall idea is that the mind/brain encodes information in some finite number of distinct representational formats or "languages of the mind". Each of these "languages" is a formal system with its own proprietary set of primitives and principles of combination...". In this sense I believe we can claim, based on evidence on the interpretation of the Pular verb forms, that a particular type of event structure is used by the "language" of conceptual structure, that is to say forms part of the "proprietary set of primitives" of that conceptual "language".

In order for the logical form to reflect the event structure that has been developed in this chapter, the meaning postulates presented in section 5.3 can be restated as:

(53) $\forall p\ \forall e\ (\mathit{Inst}(p,e) \Rightarrow \exists e_1\ \exists t\ (\mathit{EPhase}(e,e_1,t)\ \&\ e_1 \subseteq e$

$\&\ \forall t'\ (t' \not\subseteq e_1 \Rightarrow \neg \mathit{EPhase}(e,e_1,t'))$

$\&\ \forall t''\ (t'' \subseteq e_1 \Rightarrow\ \mathit{EPhase}(e,e_1,t'')))))$

(54) $\forall e\ \forall e_1\ \forall t\ (\mathit{EPhase}(e,e_1,t) \Rightarrow \exists \epsilon(\mathit{EPoint}(e,\epsilon,t)\ \&\ \epsilon \subseteq e_1$

$\&\ \forall t'\ (t' < \epsilon \Rightarrow \neg \mathit{EPoint}(e,\epsilon,t'))$

$\&\ \forall t''\ (t'' > \epsilon \Rightarrow\ \mathit{EPoint}(e,\epsilon,t'))))$

(55) $\forall e\ \forall e_0\ \forall t\ (\mathit{EPhase}(e,e_0,t)$

$\Rightarrow e_0 \subseteq e\ \&\ \exists e_1\ (\mathit{EPhase}(e,e_1,t)\ \&\ e_0 < e_1\ \&\ e_0 \supset\subset e_1)$

$\&\ \forall t'\ (t' \not\subseteq e_0 \Rightarrow \neg \mathit{EPhase}(e,e_0,t'))$

$\&\ \forall t''\ (t'' \subseteq e_0 \Rightarrow\ \mathit{EPhase}(e,e_0,t''))$

(56) $\forall e\ \forall e_2\ \forall t\ (\mathit{EPhase}(e,e_2,t)$

$\Rightarrow e_2 \subseteq e\ \&\ \exists e_1\ (\mathit{EPhase}(e,e_1,t)\ \&\ e_1 < e_2\ \&\ e_1 \supset\subset e_2)$

$\&\ \forall t'\ (t' \not\subseteq e_2 \Rightarrow \neg \mathit{EPhase}(e,e_2,t'))$

$\&\ \forall t''\ (t'' \subseteq e_2 \Rightarrow\ \mathit{EPhase}(e,e_2,t''))$

Chapter 9 will make use of logical forms associated with these meaning postulates to express the portrayal of the Pular perfective forms in conceptual structure.

7. FOCUS INTERPRETATION

In order that the notions of alternative semantics could be referred to in the informal account of the meaning of the Pular perfective forms given in chapter 4, the basic concepts of alternative semantics, as developed by Rooth (1992,1995), were presented in the Introduction, together with some remarks by Breheny (1996) on how these concepts might be understood within the framework of Relevance Theory. In this chapter I wish to provide a more complete account, so that a more formal use of these concepts can be made in the analysis of the Pular perfective verb system in chapter 9. In order to provide a coherent account, I will take leave to repeat the information already given in the Introduction. Other than the fact that my use of these concepts constitutes a tacit endorsement of the basic notions of alternative semantics, and the fact that the application to Pular in chapter 9 will provide further trial of their validity, I will have little reason to argue for or against the theories presented here.

7.1 Basic Concepts

The basic notion of alternative semantics, as stated in the Introduction, is that (when applied to intonational focus):

> "According to the alternative semantics for focus, the semantic reflex of intonational focus is a second semantic value, which in the case of a sentence is a set of propositions" (Rooth 1992:75).

Rooth illustrates this in the following way:

> "The basic idea of alternative semantics can be illustrated with the question-answer paradigm. The question [does Ede want tea or coffee]

determines the basic answers "Ede wants tea" and "Ede wants coffee". Similarly, focus in the answer [Ede wants $[\text{coffee}]_F$] indicates that propositions obtained by making substitutions in the position of the focussed phrase - propositions of the form "Ede wants *y*" - are alternatives to the actual answer... Semantically, focus determines an additional focus semantic value, written $[\alpha]^f$, where α is a syntactic phrase.

[1] $[\text{ Ede wants } [\text{coffee}]_F \text{ }]^f$ = the set of propositions of the form "Ede wants y"

[2] $[\text{ } [\text{Ede}]_F \text{ wants coffee }]^f$ = the set of propositions of the form "x wants coffee""

(Rooth 1995:276, his brackets).

As a consequence, Rooth distinguishes the focus semantic value $[\alpha]^f$ from the ordinary semantic value $[\alpha]^o$:

[3] "$[\text{ John introduced } [\text{Bill}]_F \text{ to Sue }]^f$ = the set of propositions of the form "John introduced x to Sue"

[4] $[\text{ John introduced } [\text{Bill}]_F \text{ to Sue }]^o$ = the proposition of the form "John introduced Bill to Sue"" (Rooth 1995:276).

7.2 Focus Semantic Value and Context

Breheny (1996) considers Rooth's proposals in terms of what he calls the "interface condition", stated by Rooth as:

(5) "the focus semantic value for the sentence $[_S[\text{Mary}]_F$ likes Sue] is the set of propositions of the form 'x likes Sue', while the focus semantic

value for $[_S$Mary likes $[\text{Sue}]_F]$ is the set of propositions of the form 'Mary likes y'." (Rooth 1992:76).

This can be stated more formally as:

(6) $[\![[_S[\text{Mary}]_F \text{ likes Sue}]]\!]^f = \{\textbf{like}(x,\textbf{s}) \mid x \in E\}$

where E is the domain of individuals.

(7) $[\![[_S\text{Mary likes } [\text{Sue}]_F]]\!]^f = \{\textbf{like}(\textbf{m},y) \mid y \in E\}$

This focus semantic value is said to interact with focus-sensitive semantic and pragmatic processes in determining the truth value or felicity of an utterance. Rooth proposes that, for focus-marked utterances, the context C of an utterance must be a subset of the focus semantic value of the utterance:

> "Instead of fixing the value of C, one should simply use the focus semantic value to constrain C, leaving room for a pragmatic process of constructing a domain of quantification to add further information. Specifically, we want to require that C be a subset of the focus semantic value..." (1992:79).

To this end Rooth defines a focus interpretation operator, ~, such that:

> "Where ϕ is a syntactic phrase and C is a syntactically covert semantic variable, $\phi \sim C$ introduces the presupposition that C is a subset of $[\![\phi]\!]^f$ containing $[\![\phi]\!]^o$ and at least one other element" (1995:279).

7.3 Presupposition

In order properly to interpret the Pular perfective system it is appropriate to understand how the notion of presupposition is handled in the alternative semantics account of Rooth. Rooth points out that:

"[alternative semantics] does not equate the semantics of focus with existential presupposition" (Rooth 1995:291)

With regard to the example

(8) $John_F$ is going to dinner with the speaker

Rooth points out:

(9) "In the example [above], focus does not introduce a presupposition that someone is going to dinner with the speaker. Assuming that the focus is interpreted at the clause level, a set of alternatives of the form "*x* is going to dinner with the speaker is introduced. This is weaker than an existential presupposition because such alternatives can be *relevant* without any of them necessarily being true" (Rooth 1995:291, italics added).

Rooth's conclusion is that, rather than giving focus a semantics of existential presupposition, "we [should] settle on the weaker semantics of evoking alternatives" (293).

Pulman (1997b) also considers this question and answers it within his framework:

"In giving a conditional equivalence to interpret the 'assert' operator, we required that some relevant salient proposition was available in the context. Is it plausible to suppose that there is always some such proposition available in the context? In fact, given our assumption that conditions can be adduced if they cannot be deductively proven, it is not necessary to assume that the contextual proposition is already available. If an appropriate candidate can be reconstructed the context

can be augmented by 'accommodating' or adducing' the relevant proposition" (Pulman 1997b:106).

I believe Relevance Theory can shed light at this point on our understanding of 'presupposition'. We can in the first place equate the context C of Rooth's account with the accessible context, drawn from the cognitive environment, that is invoked in the interpretation of utterances in a relevance-theoretic account. This accessible context interacts inferentially with an utterance in the derivation of propositional form, explicature and implicatures (see 2.3.2). On a relevance-theoretic account, if adequate relevance cannot be derived from inferential interaction with the initial context, then the initial context can be enlarged from the cognitive environment, the "set of facts that is manifest to an individual" (Sperber and Wilson 1986:39; see 1986:142ff). It seems possible to claim that if, in the attempt to extend the context to satisfy C, a contradiction with the focus semantic value of the utterance occurs, then the focus form of that utterance will be considered infelicitous. Unfocussed elements from which the focus semantic value is derived will not be used to update the cognitive environment in the same way that focussed elements are. I will use this proposal on the notion of presupposition and the different functions of focussed and unfocussed information in an utterance in the analysis of the Pular perfective forms.

Since I will be making use of relevance-theoretic notions in the interpretation of utterances, it is also appropriate to consider the compatibility of Rooth's theory of alternative semantics with Relevance Theory.

7.4 Alternative Semantics and Relevance Theory

Breheny (1996) compares the approach of alternative semantics with the cognitive approach of relevance theory:

> "In cognitive terms, the representation [**like**(x,s) in (6)] corresponds to what we might call a background assumption schema, and the variable [x] corresponds to a variable over (conceptual) representations." (Breheny 1996:29.)

Breheny argues that, in the framework of relevance theory, what he calls the interface condition of Rooth, quoted here at (5), follows from the definition of optimal relevance; focus is procedural or "pro-active", that is to say "it forces certain assumptions to be used in the computation of speaker's intentions" (1996:21-22).

> "Focal stress leads to the evocation of alternatives... by instructing the hearer to construct a representation of such alternatives at... the interface, the level at which a representation of the utterance is constructed" (1996:29).

Breheny departs from relevance theory in not:

> "adopt[ing] the strongest form of [relevance] theory, which says that focus is not part of the grammar... I leave things open by making the slightly weaker assumption that an F-feature is freely added to a lexical item and that this focus element is interpreted at PF and LF... at LF, it is interpreted simply as an instruction to manipulate what we will call the set of anticipatory hypotheses" (Breheny 1996:43-44).

I will make use of these definitions of alternative semantics, as well as Breheny's restatement of them, in chapter 9.

7.5 Types of Focus

Since the type of focus that we will be investigating in the Pular perfective system is not an intonational focus, we may need to take account of the fact that Rooth's study was developed in the context of the study of intonational focus. Rooth points out that different focus phenomena may in fact have different effects. In a conclusion to his 1995 article, he claims, for instance, that intonational focus in English has a "weak semantics of evoking alternatives", whereas a cleft construction has a "strengthened semantics of existential presupposition and exhaustive listing", and that "the semantics of focus movement in Hungarian is... perhaps even stronger" (1995:296). With respect to focus-sensitive negation, on the other hand, he suggests, following Jackendoff (1972), that the alternatives that focus evokes in the context C are merely "relevant in the discourse" (1995:295) and "without any commitment to any alternative being true" (1995:294). Rooth does not develop these differences in his articles, neither does he attempt to define further his use of "evoking" or "relevant", beyond that which is contained in his statement at (9).

Consequently, while I propose using Rooth's theory of alternative semantics as a framework for investigating the functioning of the focus system of the Pular perfective forms, taking account of Breheny's restatement of it in relevance-theoretic terms, and using these accounts as a basic way of understanding the notion of 'presupposition', as defined in 7.3, we will need to be sensitive to the fact that Rooth's theory was developed in the context of intonational focus. The range of alternatives that are evoked may need to be re-examined as well as the question of how these are accommodated to the context.

8. EVENT STRUCTURE APPLIED TO THE VENDLERIAN CATEGORIES

In this chapter I will attempt to summarise how the tripartite event structure proposed in chapter 6 can be applied to various aspectual phenomena of English. I will be concerned in particular to show how this tripartite event structure can shed light on ambiguities not normally recognised in the Vendlerian categorisation, and how it can point out event types not included in the Vendlerian analysis. Chapter 6 argued the theoretical grounds for this tripartite event structure. This chapter is an application of these proposals to English language data, In the following chapter I will apply these concepts to the Pular language.

In the first part of this chapter I take each of the Vendlerian tests in turn that distinguish between *activity*, *accomplishment* and *achievement*, in order to show how this tripartite structure can shed light on aspectual phenomena that are being evoked in these tests. In the second part of the chapter I will summarise the event configurations that have emerged in applying this event structure to the Vendlerian categories.

Since I will follow Dowty's ordering and numbering of these tests, I repeat here part of the table of Dowty 1979, presented in chapter 2, which summarises the Vendlerian tests for the categories of *activity*, *accomplishment* and *achievement*:

TABLE 16:SUMMARY OF VENDLERIAN TESTS (PARTIAL) (from Dowty 1979)				
	Criterion	*Activities*	*Accomplishments*	*Achievements*
3	ϕ *for an hour, spend an hour* ϕ*ing*	OK	OK	bad
4	ϕ *in an hour, take an hour to* ϕ	bad	OK	OK
5	ϕ *for an hour* entails ϕ *at all times in the hour*	yes	no	d.n.a.
6	*x is* ϕ*ing* entails *x has* ϕ*ed*	yes	no	d.n.a.
7	complement of *stop*	OK	OK	bad
8	complement of *finish*	bad	OK	bad
9	ambiguity with *almost*	no	yes	no
10	*x* ϕ*ed in an hour* entails *x was* ϕ*ing during that hour*	d.n.a.	yes	no
11	occurs with *studiously, attentively, carefully*, etc.	OK	OK	bad
OK = the sentence is grammatical, semantically normal bad = the sentence is ungrammatical, semantically anomalous d.n.a = the test does not apply to verbs of this class				

8.1 Event Structure and the Vendlerian Tests

8.1.1 Felicity with *For*-Adverbials. Vendlerian test 3

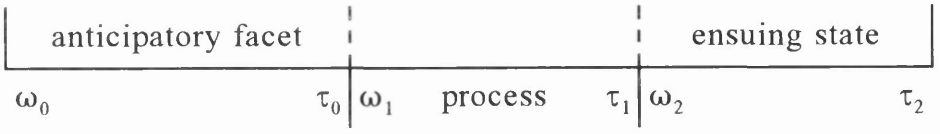
	Criterion	*Activities*	*Accomplishments*	*Achievements*
3	ϕ *for an hour, spend an hour* ϕ*ing*	OK	OK	bad

The model of a tripartite structure, $<e_0, e_1, e_2>$ or <anticipatory_process[1], process,state>, that I proposed in the last chapter has six Instants associated with the edges of the intervals, ω_0, τ_0, ω_1, τ_1, ω_2 and τ_2, two of which obviously coincide with two others in the ideal model that I proposed: $\tau_0 = \omega_1$ and $\tau_1 = \omega_2$.

[1]In this and the next two chapters I will also use the term anticipatory facet, as an alternative to anticipatory process. I will also normally refer to an ensuing state.

We can construct six time periods out of the four non-coincident Instants: ω_0 - τ_0, ω_0 - τ_1, ω_0 - τ_2, ω_1 - τ_1, ω_1 - τ_2 and ω_2 - τ_2. I propose that it is these periods that are available for scoping by *for* and *in* time adverbials.

(1)

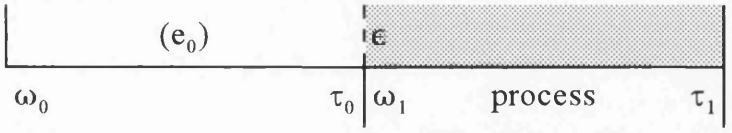


In the case of an *activity*, such as an event of *swimming*, it is the period of the process, ω_1 - τ_1, that appears to be scoped by a *for* adverbial:

(2) Joe swam for five minutes

If we make the assumption for the moment that an *activity* does not have an ensuing state associated with it, then there would be no e_2 over which the time adverbial can exercise scope; its event structure would be $<e_1>$ or $<e_0, e_1>$. I will also propose that a *for* time adverbial has to scope a time period that follows the event time, ϵ, defined in 6.7. Since, in the model I have proposed, this event time must fall within the process, e_1, a time period commencing in e_0 is, consequently, not available for the time-adverbial. Only ω_1 - τ_1 is available over which the *for* time adverbial can exercise scope (and means that ϵ is identified with ω_1 in the event structure of an *activity*.)

(3)



In the case of *accomplishments*, however, we need to distinguish those *accomplishments* which do and those which do not have an ensuing state, e_2 since it appears that, for those *accomplishments* that have an ensuing state, such a state is available for scoping by a *for* time adverbial:

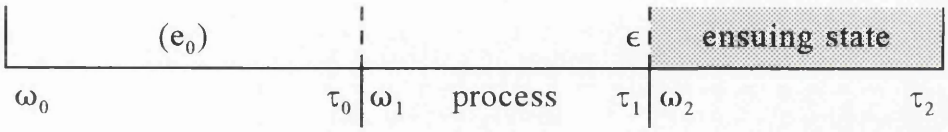
(4) a the ice melted for three days

b the light darkened for an hour

c Joe negotiated the contract for a year

(4a), used, say, in the context of a river during winter, is ambiguous between an *activity* reading in which the process of *melting* continues over *three days*, and an *accomplishment* reading, as in (5) below, in which, following a thaw, the ice is not (fully) frozen for *three days* (the river is navigable, for example). The shaded part in (5) is intended to indicate the period over which the time adverbial has scope. Similarly, (4b) is ambiguous between a reading in which the light gets progressively darker over an *hour* and a reading in which the light, having darkened, continues that way for an *hour*, that is to say for the ensuing state. A similar ambiguity pertains in (4c). If the event structure associated with such events can contain both e_1 and e_2 then this ambiguity is correctly predicted, and the utterances of (4) can be interpreted in conceptual structure either with the *activity* event structure of (3) or with the *accomplishment* event structure of (5):

(5)



Where the event structure associated with an *accomplishment* event does not include an ensuing state, as appears to be the case for an event of *reading a novel*, then τ_2 is not available for scoping. Since we expect the 'event time', ϵ, of an *accomplishment* to be at the end of its process ($\epsilon = \tau_1$), then, for an *accomplishment* that has no ensuing state, if the time period scoped by a *for* time adverbial has to follow ϵ, the unavailability of τ_2 and the fact that $\epsilon = \tau_1$ result in a time period of zero duration for the *for* time adverbial to scope. We can argue

that, if, following Relevance Theory, the hearer can adduce a context in which the *for* time adverbial can be properly interpreted, he 're-interprets' such an utterance with the event structure of an *activity*, as in (3). Evidence for such a process of interpretation comes from the fact that *he read a novel for five minutes* does not have as an implicature *the reader finished the novel*, that is to say the event is not interpreted as an *accomplishment*. This notion of interpretation, involving mapping from syntactic structure onto conceptual structure, however, is different from Moens' and Pulman's notion of 'coercion', in that there is no sense of adaptation from an 'input' event structure to an 'output' event structure.

Evidence we have presented so far shows that *activities*, *accomplishments* and *achievements* can be distinguished in event structure in the following fashion:

Activity is a durative event, defined by $\epsilon = \omega_1$, $\omega_1 \neq \tau_1$

Accomplishment is a durative event, defined by $\epsilon = \tau_1$, $\omega_1 \neq \tau_1$

Achievement is a non-durative event, defined by $\omega_1 = \epsilon = \tau_1$

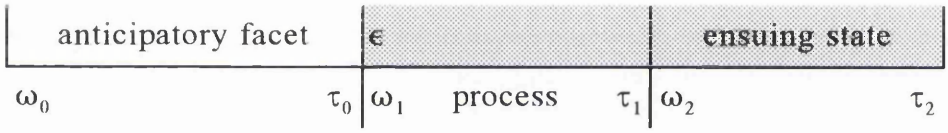
However these three basic types can be further subdivided by the presence or absence of an anticipatory facet, e_0, and the presence or absence of an ensuing state, e_2. As a consequence we have in fact four sub-types for each of these basic event types: $<e_1>$, $<e_0,e_1>$, $<e_1,e_2>$ and $<e_0,e_1,e_2>$.

If both e_1 and e_2 are present in event structure it would appear that a time period of ω_1 - τ_2 could also be scoped by a *for* time adverbial. Although I made the assumption in 8.1.1 above that, for an *activity*, an ensuing state is normally absent in event structure, in section 6.7 we saw that this is a possibility with an event of *going*:

(6) Joe went for an hour

The *hour* period can cover both the process of *going* and an associated ensuing state. It appears, however, that this reading is not available for (4a-c). The explanation of this lies in the presence of the event time. If (4a-c) are construed as *accomplishments*, then the ice is *melted*, the light *darkened* or the contract *negotiated* only at the end of a process: consequently $\epsilon = \tau_1$. Following the proposal that the period of a *for* time adverbial must follow the event time, only $\omega_1 - \tau_2$ is available for scoping when (4a-c) are construed as *accomplishments*. In the case of (6) however, we can claim that an irrevocable event of *going*, as argued in 6.7, takes place at the beginning of the process, that is to say $\epsilon = \omega_1$, and that it is this fact which allows the *for*-adverbial to apply to the combined period of e_1 and e_2 (similar to example (46) in section 6.7):

(7)



We can consider *going* as a sub-type of *activity* in which an ensuing state can be present.

The importance of recognising the sub-types for each of the basic types can also be seen in the case of an event of *losing*. In the Vendlerian test with *for* time adverbials, it is claimed that *for* time adverbials are incompatible with *achievements*. In Dowty's presentation of Vendler's analysis (Dowty 1979) *lose* is listed as an *achievement* event, in which case (8) should be unacceptable:

(8) I lost the book for several days

(8), however, does not seem odd. The explanation for this can lie in the fact that *lose* is a sub-type of an *achievement* event in which e_2, an ensuing state, is present and consequently available for scoping by a *for* time adverbial.

8.1.2 Felicity with *In*-Adverbials. Vendlerian test 4.

	Criterion	*Activities*	*Accomplishments*	*Achievements*
4	ϕ *in an hour, take an hour to* ϕ	bad	OK	OK

This test is designed to distinguish *activities* from *accomplishments* and *achievements*. *Activities* are said to be infelicitous in the constructions ϕ *in an hour* and *take an hour to* ϕ. We will look first at the scoping behaviour of time adverbials for *accomplishments* and *achievements* before we consider to what extent this infelicity holds for *activities*.

The tripartite event structure developed in the previous chapter distinguishes *accomplishments* and *achievements* by the duration of the process, e_1. Both *accomplishments* and *achievements* may occur with all three sub-eventualities, e_0, e_1 and e_2. Depending on whether an anticipatory facet and ensuing state is present, the following event structures, therefore, can hold for *accomplishments* and *achievements*:

(9) *accomplishment* $<e_0, e_1, e_2>$ $\epsilon = \tau_1, \omega_1 \neq \tau_1$
or $<e_0, e_1>$
or $<e_1, e_2>$
or $<e_1>$

(10)	*achievement*	$<e_0, e_1, e_2>$	$\omega_1 = \epsilon = \tau_1$
	or	$<e_0, e_1>$	
	or	$<e_1, e_2>$	
	or	$<e_1>$	

If we take the example of an *achievement*

(11) ???Joe recognised Bill for an hour

we can note in the first place that this is infelicitous or, at least, very difficult to interpret (that is to say it appears to require an event structure that is difficult to reconcile with an event of *recognising*.) If we take felicity of an *achievement* with *for* adverbials as diagnostic of the presence of an ensuing state in event structure we can claim that the event structure of such an *achievement* (in normal circumstances) lacks an ensuing state. Its event structure must be $<e_0, e_1>$ or just $<e_1>$.

(12) Joe recognised Bill in an hour

Parallel to our deduction that a *for*-adverbial must scope a time period that occurs after the event time, it seems a reasonable conjecture that an *in*-adverbial will scope a period that occurs before the event time. If, in the case of *achievements*, the duration of the process is zero in conceptual structure, then only one time period is available for scoping: $\omega_0 - \epsilon$ (since for an *achievement*, by definition, $\omega_1 = \epsilon = \tau_1$).

Closer examination of the sentence in (12), however, suggests that it can support two readings. It can support a reading in which Joe seeks to recognise Bill, and achieves that in an hour from starting to seek, and a reading in which, from some independent, contextually available start time, such as entering a

conference hall, a recognition of Bill takes place.[2] This suggests that both event structures of:

(13) $<e_0, e_1>$ $\omega_1 = \epsilon = \tau_1$

or $<e_1>$

may be available for such an *achievement*, that is to say, an event structure in which an anticipatory facet is present, and an event structure in which the anticipatory facet is absent. An event of *recognising* may licence both event structures. An event of *recognising* can result from a deliberate attempt to recognise someone, or it may, in Ryle's terms, be a "purely lucky achievement" (Ryle 1949:151).

We may consider, however, whether all *achievements* will licence event structures in which an anticipatory facet may or may not be present. *For*-adverbials with some other *achievement* events sound odd (the pronouns in examples b and c should be understood as coreferential):

(14) a ?he lost it in an hour

b ?he broke his leg in five minutes

c ?he spilled his coffee in five minutes

These types of event can be classified in general, following Ryle 1949, as events of 'failure'. For such events it seems unlikely that an anticipatory facet would be available, their structure should only be $<e_1>$ or $<e_1,e_2>$. I will claim that it is this lack of an anticipatory process which explains the oddness of the examples

[2]As we have already noted in section 6.4, this was recognised by Dowty (1979:334-335) and is referred to by Pulman (1997:297).

in (14a-c). They can normally only be interpreted felicitously by seeking out a contextually appropriate start time.

An event of *finding*, however, exhibits the opposite possibility.

(15) he found it in an hour

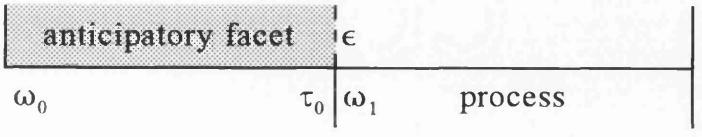
is most easily understood as one in which the seeking time, that is to say the anticipatory process of an event of finding, lasted one hour, and no other contextually appropriate start time needs to be found.

We can now turn to *activities* for which this Vendlerian test is supposed to be infelicitous:

(16) he swam in an hour

It seems quite possible to assign an interpretation to this sentence, one in which the *hour* is timed from the beginning of an intention to *swim*, that is to say from the beginning of an anticipatory facet to an event of *swimming*. If an event of *swimming* is assigned an event structure of $<e_0, e_1>$ (as proposed in 8.1.1) and, since it is an *activity*, the event time, ϵ, is considered to be at the beginning of the process of *swimming* ($\epsilon = \omega_1$), then this event structure correctly predicts that $\omega_0 - \tau_0$ is the only period available over which the *in*-time adverbial can have scope.

(17)



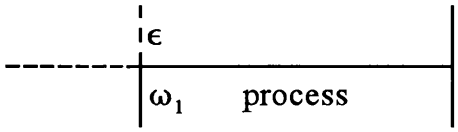
8.1.3 Entailments with *For*-Adverbials and Progressives. Vendlerian tests 5 and 6.

	Criterion	*Activities*	*Accomplishments*	*Achievements*
5	ϕ *for an hour* entails ϕ *at all times in the hour*	yes	no	d.n.a.
6	*x is* ϕ*ing* entails *x has* ϕ*ed*	yes	no	d.n.a.
d.n.a = the test does not apply to verbs of this class				

Since these two tests are said to produce the identical pattern of results for *activities*, *accomplishments*, and *achievements* I will treat them together. They are both said to be felicitous for *activities*, infelicitous for *accomplishments*, and not to apply to *achievements*.

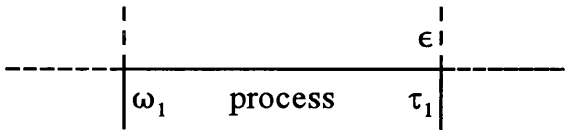
I will attempt to see if the event structures we have been proposing for *activities* and *accomplishments* can explain these entailments. The essential difference we have noted between *activities* and *accomplishments* is that for an *activity* $\epsilon = \omega_1$ $(\omega_1 \neq \tau_1)$

(18)



and for an *accomplishment* $\epsilon = \tau_1$ $(\omega_1 \neq \tau_1)$:

(19)



In the event structure defined in 6.7, an event in considered to have irrevocably happened at the event time, ϵ. It can be seen that the difference in the position of the event times can explain the difference in the inferences associated with these tests. If the event time of an *activity* is at the beginning of the process sub-eventuality of that event, then at any time during that process the event has

happened. The obverse of this applies to *accomplishments*. If the event time of an *accomplishment* is at the end of the process sub-event of that event, then at any time during that process (before the end of the process) the event will not have happened.

The compositionality of the event structure I am proposing here does, however, allow a further inference in the case of *accomplishments*. An *accomplishment* has in its event structure both a process and a telic point, ϵ. The inference of these Vendlerian tests is concerned with the total event as marked by the telic point, ϵ. However the compositionality of the event structure that is proposed here also allows an inference associated with a process, that was noted in 6.6.3:

(20) Joe is building a house implies Joe built (i.e. Joe did some building)

As regards the test for the progressive construction (test 6), I will assume that a progressive can have scope over an anticipatory facet. The event structures of (18) and (19) show an anticipatory process, e_0, may be present in the case of *activities* and *accomplishments*. Such an assumption, therefore, will correctly predict that *Joe is swimming* can be understood as referring to an anticipatory facet, for instance an intention on the part of Joe to swim. In such a case the event structure will also correctly predict that the inferences associated with these Vendlerian tests *do not* hold.

It was noted in 6.5 that some researchers have felt the need to have an additional category for an event like *flash*, such as Moens' and Pulman's point event. It was noted there that this type of event gives uncertain results when

subjected to certain Vendlerian tests. A progressive construction for such an event is interpreted as an iterated activity:

(21) the light was flashing

Such events can be assigned the event structure $<e_1>$ $(\omega_1 = \epsilon = \tau_1)$, that is to say the process sub-eventuality is of zero duration and the event has no anticipatory facet and no ensuing state in conceptual structure. In the non-coercing account that we are using it is not possible to "stretch" or in any other way change this event structure; different interpretations arise from different mapping choices onto conceptual structure. However in this case, if the event structure consists only of a non-durative e_1, there are no mapping choices onto conceptual structure. Consequently, we can claim the only way that duration can be made relevant for such an event structure is by the inference that the event is repeated.

8.1.4 *Stop* and *Finish*. Vendlerian tests 7 and 8.

	Criterion	*Activities*	*Accomplishments*	*Achievements*
7	complement of *stop*	OK	OK	bad
8	complement of *finish*	bad	OK	bad

These tests compare the felicity of the Vendlerian event types as complements of *stop* and *finish*. An *activity* is said to be infelicitous as the complement of *finish* (22), both tests are said to be felicitous with *accomplishments* (23), and both tests infelicitous with *achievements* (24):

(22) a he stopped running

b ?he finished running

(23) a he stopped building

b he finished building

(24) a ?he stopped recognising

b ?he finished recognising

It seems reasonable to assume that an event has to have duration to either *stop* or *finish*. According to the event structures derived above, only *activities* and *accomplishments* have duration. As regards the different inferences associated with an *activity* and an *accomplishment*, the use of *finish* can be said to require that the process sub-eventuality of an event of *building* was completed. It seems possible to claim that this requires not only the event time, ϵ, to be reached, but for that to be coincident with τ_1, the end of the process sub-eventuality; this requirement, by definition, is only compatible with an *accomplishment* event. By contrast, the use of *stop* in (24a) can be said to require simply that a process had been underway, and as a consequence is compatible with both an *activity* and an *accomplishment*.

8.1.5 Ambiguity with *Almost*. Vendlerian test 9.

	Criterion	*Activities*	*Accomplishments*	*Achievements*
9	ambiguity with *almost*	no	yes	no

This test distinguishes *accomplishments* from *activities* and *achievements*, in that only *accomplishments* are said to be ambiguous with *almost*:

(25) a Joe almost ran

b Joe almost built the house

c Joe almost recognised him

The distribution of the ambiguity of *almost* with these examples can be explained by the fact that only an *accomplishment* can have two sub-events, e_0 and e_1 before the event time, ϵ. These two sub-events correspond to the two readings of *almost*, e_0, the anticipatory facet to the reading in which Joe almost *started* building the house, and e_1, the process, to the reading in which Joe almost *finished* building the house.

8.1.6 Entailment with *In*-Adverbials. Vendlerian test 10.

	Criterion	*Activities*	*Accomplishments*	*Achievements*
10	*x ϕed in an hour* entails *x was ϕing during that hour*	d.n.a.	yes	no
d.n.a. = the test does not apply to verbs of this class				

Vendlerian test 10 is said to be semantically normal for *accomplishments* (26b), anomalous for *achievements* (26c) and not applicable to *activities* (26a).

According to this test, the following entailments should hold:

(26) a Joe ate a sandwich in an hour

entails Joe was eating a sandwich during that hour

b Joe found Bill in an hour

does not entail Joe was finding Bill during that hour

We have already seen that *in*-adverbials can be interpreted with *activities* (8.1.2). However since this test is said to distinguish *accomplishments* from *achievements* we will limit our discussion to those type of events.

It was pointed out in section 8.1.2, that *in* time adverbials can scope an anticipatory process of an event, and can also scope the time from a contextually

adduced start time. An *accomplishment* such as (26a) is therefore ambiguous along these lines. The intention of the test, clearly, is that the *in*-time adverbial in (26a) should apply to the process sub-event. Applied to the anticipatory facet, an interpretation the excessive time of sandwich-eating in (26a) tends to prompt, the entailment does not hold.

An event of *finding* categorises as an *achievement* when tested against ambiguity with *almost* (test 9 above.) However, (26b) does not seem to be entirely anomalous. As was stated in the previous paragraph, this Vendlerian test assumes that the *hour* period applies only to a process sub-eventuality. If the hour period in the entailment can scope an anticipatory facet, as may be the case in (26b), then the entailment claimed by the Vendlerian tests does not hold.

The event structure proposed in chapter 7 consequently makes clear the sources of ambiguity and the necessary scope of the time adverbial for the entailment to hold.

8.1.7 Felicity with *Intent* Adverbials. Vendlerian test 11.

	Criterion	*Activities*	*Accomplishments*	*Achievements*
11	occurs with *studiously*, *attentively*, *carefully*, etc.	OK	OK	bad

This test distinguishes *achievements* from *activities* and *accomplishments*. *Activities* and *accomplishments* are said to be felicitous with manner adverbials, such as *studiously*, *attentively*, *carefully*, *deliberately*, etc., whereas *achievements* are said to be infelicitous with these adverbs:

(27) a Joe ran carefully

b Joe built the house carefully

c ???Joe recognised Bill carefully

Pustejovsky has used this difference, as was described in 6.2, to suggest that the difference between *achievement* verbs and *accomplishment* verbs is purely one of agency. (Pulman's discussion of and rejection of Pustejovsky's proposals were presented in 6.4 and my comments on it in 6.5.2.)

We can again use a verb such as *find*, which, as was stated in the last section, classifies as an *achievement* on the basis of its lack of ambiguity with *almost*, and contrast it with a verb, with which agent 'intention' is very unlikely, to point out a problem with these distinctions:

(28) a Joe found the book deliberately

b ???Joe sneezed deliberately

(28a) sounds possible, (28b) unlikely (though, for an appropriately endowed person, I suppose still possible.) As stated in 6.5.2, I propose that, in the first place, for an adverb of 'intention' to be used with an event, the event structure of that event has to contain a anticipatory facet. Whether 'intention' can be associated with that anticipatory process however, will depend on the lexical item and on wider context.

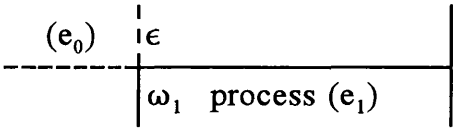
8.2 Event Structure and Event Categorisation

The approach taken in this thesis agrees with Jackendoff's approach that the Vendlerian classes should be viewed "not as a basic division of the aspectual

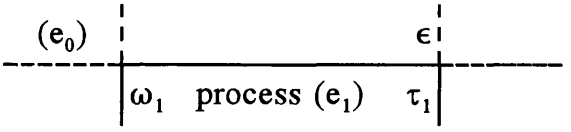
system, but rather as various realisations of a set of more fundamental parameters..." (Jackendoff 1991:40).

It was suggested in the course of this chapter that the event types and their corresponding structures that have been discussed in the course of the previous section are:

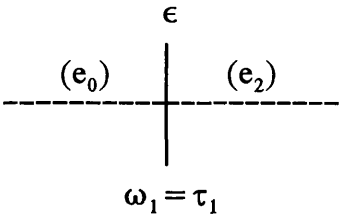
(29) *Activity* is a durative event, defined by $\epsilon = \omega_1$, $\omega_1 \neq \tau_1$ (in which e_2 is normally absent):



(30) *Accomplishment* is a durative event, defined by $\epsilon = \tau_1$, $\omega_1 \neq \tau_1$:



(31) *Achievement* is a non-durative event, defined by $\omega_1 = \epsilon = \tau_1$:



These three basic types must be further subdivided by the presence or absence of an anticipatory facet, e_0, and the presence or absence of an ensuing state, e_2. There are, as a consequence, four sub-types for each of these basic types: $<e_1>$, $<e_0,e_1>$, $<e_1,e_2>$ and $<e_0,e_1,e_2>$ (in which $<e_1>$, in the case of an *achievement*, is the "point" event of Moens and Pulman.)

If we relax the assumption that e_1 has to be present, we have only two other possible event structures (since we can discard $<e_0, e_2>$ as nonsensical and violating the abutment requirement of section 6.7.) We could consider the possibility that $<e_2>$ represents the event structure of states.[3] I will not consider this further here. We could also consider $<e_0>$ to be the event structure of an event that doesn't come to fruition.

The fact that an event can be referred to before it takes place points to the cognitive reality of an anticipatory process.[4] A commentator may exclaim, with sufficient conviction, that a fielder is *catching the ball* before he or she touches it. Properly, an event of *catching a ball* can only be said to take place if the ball is caught; if the ball is dropped then, it might seem, an event of *catching* never started to take place. However, this is not what we perceive cognitively. We are able to perceive the potential of an event happening and refer to it as such.[5]

We can also support this understanding of our cognitive treatment of events using a relevance-theoretic approach. As outlined in chapter 2, in Relevance Theory the speaker expects the utterance to be processed by the hearer for propositional form and for explicatures (section 2.3.2; Sperber and Wilson

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[3]If we assume that an event time, ϵ, must be in e_1, then an event of $<e_2>$ has no event time; that is to say it is not associated with a particular instant of time and is in principle unbounded in event structure.

[4]Experimental evidence used in constructing Leslie's theory of mind I (Agents and Action) lends support to this claim (Leslie 1994).

[5]Indeed, from an evolutionary point of view (e.g. Mithen 1996), one could argue for the necessity of such a cognitive ability: if a wild animal crouching with tensed hind legs cannot be construed as the anticipation of an event of *pouncing* then writers' of theses would be a lot scarcer.

1986:243ff). In the derivation of explicatures the utterance is embedded under appropriate speech acts (see Sperber and Wilson 1986:225-226,243ff). Consequently, with regard to the relation between an anticipatory process and the actual process, the speaker can expect the hearer to embed the utterance under an appropriate speech act such as: *the speaker thinks that x is going to...*

8.2.1 Summary

This chapter has shown how the event structure derived in chapter 6 can be applied to the Vendlerian event categories such that the inferences associated with these event categories can be predicted and defined. In applying the tripartite event structure to the Vendlerian event categories, it became apparent that to account for the different inferences a number of sub-types of the basic categories need to be recognised. The application of this richer event structure showed up ambiguities and inferences not traditionally recognised with the Vendlerian event categories. It remains to apply this event structure to the Pular perfective system.

9. PULAR VERB INTERPRETATION

In this chapter I will attempt to explain the semantic and pragmatic interpretation of the basic Pular perfective verb forms that were examined in chapter 4 in terms of the theories of event ontology and event structure developed in chapters 5 and 6 and in terms of the theory of focus interpretation presented in chapter 7. In this chapter I will follow broadly the order of presentation of chapter 4 since I will be concerned to explain how the data presented in that chapter on the Pular perfective forms can be explained in terms of the logical forms to be developed in this chapter. I will consider first the Pular perfective-3 form, contrasting it with the perfective-1 form, followed by the statively-marked perfective, the perfective-1 form, and finally the perfective-2 form.

As part of the methodology of this chapter I will consider required environments, permitted environments and barred environments. That is to say I will attempt to show, as a way of verifying the logical forms that are presented in this chapter, how the event structures proposed in chapter 8 for different types of events require, permit or prohibit use of a particular perfective form.

For reference I repeat here table 6, the table of perfective endings presented in section 3.2.1.1 of chapter 3:

TABLE 6:PULAR PERFECTIVE SUFFIXES

	PERF/1	PERF/2	PERF/3	PERF/NEG
active	0 or **-u**	**-i**	**-ii**	**-aali**
middle	**-i**	**-ii**	**-ike**	**-aaki**
passive (PASS)	**-a**	**-aa**	**-aama**	**-aaka**

9.1 The Perfective-3 Form

In section 4.2 I claimed that data on the use of perfective-3 marked verbs in Pular suggest that perfective-3 expresses 'completion' in some way, but not necessarily the completion of an event that is in process. It was pointed out in 4.2.1, for instance, that this verb form can be used to assert the 'happening' of a non-durative event, which by definition is not underway before it happens. Rather, I claimed that the perfective-3 form appears to assert the happening of an event with respect to some anticipatory expectation.

In addition, in section 4.2.2, it was pointed out that the perfective-3 form can be used in denoting durative events, and when used for such events appears to express that the event has passed some irrevocable point (as seen by the speaker), whether this be at the beginning of the process of such an event, as is the case with an event of *going*, or at the end, as may be the case with an event of *eating*.

Using the event structure proposed in chapter 6, with its concepts of an anticipatory event facet e_0 and an event time ϵ, and the logical forms and meaning postulates developed in chapters 5 and 6 for representing event happenings, I propose for the moment that we can represent perfective-3 by the following logical form:

(1) $\lambda p\ \lambda s\ \exists e\ \exists e_0\ \exists \epsilon\ \exists t\ \exists t'$ (*Subject*(e,s) & *Inst*(p,e) & *EPhase*(e,e_0,t') & *EPoint*(e,ϵ,t))

in which p is a variable that ranges over event Kinds, s is an Individual, t is an evaluation time, and t' a pragmatically determined time prior to t.

It was also pointed out in chapter 4 that perfective-3 appears to interact with focus. I showed there that perfective-1, perfective-3 and the statively-marked perfective are barred from subordinate clauses (4.1.2) and from clauses in which some other element is explicitly focussed before the verb (4.1.1). I suggested that this can best be explained by proposing that these verb forms are focus-marked in some sense. I will adopt Breheny's proposal, quoted in chapter 7, "that an F-feature [can be] freely added to a lexical item... and interpreted... as an instruction to manipulate... [a] set of anticipatory hypotheses" (Breheny 1996:43-44). I propose that such an "F-feature" (represented here by $_{FOC}$), rather than being added to a lexical item, be added in the following fashion to the logical form for perfective-3:

(2) $\lambda p\ \lambda s\ \exists e\ \exists e_0\ \exists \epsilon\ \exists t\ \exists t'$ (*Subject*(e,s) & *Inst*(p,e) & *EPhase*(e,e_0,t') & *EPoint*(e,ϵ,t)$_{FOC}$)

We can investigate this form using Rooth's theory of focus. Rooth's theory of focus requires, for an ordinary semantic value $[\phi]^o$, that the context C should be a subset of the focus semantic value $[\phi]^f$ (Rooth 1995:279). If we take (2) as the ordinary semantic value of the perfective-3 form we can construct a focus semantic value of it by substituting x for the event time ϵ:

(3) [$\lambda p\ \lambda s\ \exists e\ \exists e_0\ \exists t\ \exists t'$ (*Subject*(e,s) & *Inst*(p,e) & *EPhase*(e,e_0,t') & *EPoint*(e,x,t))]^f

This then requires that the context C be compatible with:

(4) [$\lambda p\ \lambda s\ \exists e\ \exists e_0\ \exists t'$(*Subject*(e,s) & *Inst*(p,e) & *EPhase*(e,e_0,t')]

That is to say, according to this theory of focus (if Pular focus is similar to intonational focus), the logical form for perfective-3 requires of an event denoted by a perfective-3 marked verb that it was in an anticipatory facet at a pragmatically interpretable time prior to the event time. I will adopt Pulman's statement, quoted in 7.3, that: "it is not necessary to assume that the contextual proposition is already available. If an appropriate candidate can be reconstructed the context can be augmented by 'accommodating' or 'adducing' the relevant proposition" (Pulman 1997b:106). Pulman's statement is however stronger than Rooth's claim for intonational focus that "alternatives can be relevant without any of them necessarily being true" (Rooth 1995:291).

This approach is compatible with the notion of presupposition proposed in section 7.3. As explained in 7.3, according to Relevance Theory the initial context used in interpreting an utterance can be enlarged if insufficient relevance is obtained. It was proposed there that a focussed utterance will be considered infelicitous if the set of assumptions associated with the background or unfocussed information of an utterance is incompatible with the set of assumptions that is manifest to an individual; that is to say, an utterance will be considered infelicitous if the initial set of assumptions cannot be expanded in a way that is compatible with the unfocussed information.

We can argue, as a consequence of this, that an entailment of the logical form of (2) is that an utterance marked with perfective-3 will be infelicitous if the requirement, that the expressed event be in an anticipatory facet at a pragmatically interpreted time prior to the event time, is incompatible with the set of assumptions that is manifest to an individual. Further, since the event structure

of an event is part of what is manifest to an individual, incompatibility with the event structure of an expressed event will also be a cause of infelicity.

Evidence for this comes from considering events of 'failure'. Ryle characterises events of 'failure' in the following fashion:

> "Many of the performance-verbs with which we describe people... signify the occurrence not just of actions but of suitable or correct actions. They signify achievements... They are verbs of success... We also use corresponding verbs of failure, like 'miss', 'misspell', 'drop', 'lose', 'foozle' and 'miscalculate'. It is an important fact that if a person can spell or calculate, it must also be possible for him to misspell and miscalculate; but the sense of 'can' in 'can spell' and 'can calculate' is quite different from its sense in 'can misspell' and 'can miscalculate'. The one is a competence, the other is not another competence but a liability" (Ryle 1949:130-131).

Such events of failure are often characterised, like the example of a toy falling from a table that was used in chapter 4, by a lack of anticipation. Consequently, it seems, such events should constitute a test for the logical form presented in (2), since this logical form requires that it should at least be possible to felicitously 'adduce' an anticipatory facet. We will consider two such examples.

Example 1: A has broken a bone in his hand. B sees A with a splint and bandages on his hand. Not knowing what has happened B asks. The appropriate answer in this context is (5); (6) for a native speaker is infelicitous:

(5) **helu**

break-PERF/1

(it) broke

(6) **#helii**

break-PERF/3

Example 2: A misses out a line while he is reading. The appropriate comment on this by B is (7); (8) would be considered infelicitous in this context by a native speaker:

(7) **a diwu**

2S skip-PERF/1

you skipped (a line)

(8) **#a diwii**

2S skip-PERF/3

In neither of these contexts is the use of the perfective-3 form felicitous for the native speaker. This is compatible with the claim that the use of perfective-3 form requires an anticipatory facet to be adduced as appropriate to the event.

Consequently we see that the event structure of an event which is lacking an anticipatory facet prohibits the use of the perfective-3 suffix. This can be seen as evidence that the logical form representing the meaning of the perfective-3 suffix, as in (2), refers to the anticipatory facet.

With regards to the position of the event time, ϵ, we have seen in 4.2.2, with respect to an event of *eating*, how much this can depend on the way the event is viewed by the speaker. The same observation was made by Dowty (quoted in 2.4) that contexts can be found in which events, normally understood

as *activities*, are interpreted as *accomplishments*. Two events I have quoted that exhibit this indeterminacy are the events of *eating* and *building*. Such events are not normally undertaken without a goal, that is to say as an *accomplishment* ($\epsilon = \tau_1$) (which in the case of *eating* does not normally result in an ensuing state, e_2.) However, in certain contexts they can be interpreted as *activities* ($\epsilon = \omega_1$). This underlines the suggestion of 6.7 that the event time, ϵ, is conceptually 'additional' to the tripartite event structure of e_0, e_1 and e_2. The irrevocable point of an event of *eating*, or *eating poison* or *eating a meal*, it seems, has to be assessed by a speaker or hearer independently of the duration of e_1 or the presence or absence of e_0 and e_2 (see also Mittwoch 1982), and may not be signalled in syntactic structure. This in turn underlines the need of a conceptual structure separate from syntactic structure. The frequency of object drop in Pular only accentuates this phenomenon.

With respect to the question raised by Labatut (quoted in chapter 4) as to whether perfective-2 is "tied" to narrative and perfective-3 "tied" to dialogue, it should be noted that the logical form of (2) does not restrict the use of perfective-3 in this way. As we saw in chapter 4, section 4.2.4, perfective-3 can be used in the denotation of event sequences in certain grammatical environments, such as after **ɓay** *since* and **si** *if*. The logical form of (2) does not inhibit the use of perfective-3 in the denotation of event sequences. The Jackendoffian notion of conceptual structure allows restrictions to exist in syntactic structure which are not matched in conceptual structure. The restriction on the perfective forms that can be used after **ɓay** or **si** does not have to have a counterpart in conceptual structure. Where the choice is not determined in syntactic structure, however, we can expect conceptual factors to come into play.

Consequently in grammatical environments where perfective-2 is also permitted, the difference between the logical form of perfective-2 and the logical form of perfective-3 will play a role, and the differences in the explicatures and implicatures in using one or other perfective form determine the speaker choice of the form to use.

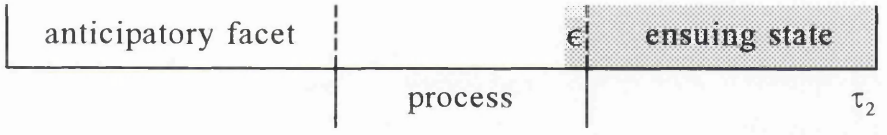
9.2 The Statively-Marked Perfective

In a similar fashion we can propose, for the moment, that the statively-marked perfective receive a logical form of:

(9) $\lambda p\ \lambda s\ \exists e\ \exists e_1\ \exists e_2\ \exists \epsilon\ \exists t$ (*Subject*(e,s) & *Inst*(p,e) & ((*EPhase*(e,e_1,t) $\vee$ *EPhase*(e,e_2,t)) & *EPoint*(e,ϵ,t))$_{FOC}$)

If truth-evaluated, the portion of an event during which this form would be true is represented by the shaded area in the following event diagram:

(10)



If we compare (9) with (2), the difference between the forms shows a difference in the way the event structure associated with the event is indexed. In addition we can note that (2) is true indefinitely after ϵ, whereas (9) ceases to be true after τ_2, the end of the result state.

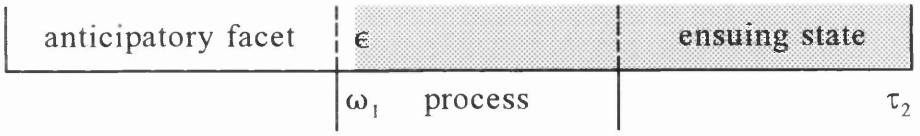
We can contrast the use of the statively-marked perfective with an event of *going* and an event of *building*. In the case of an event of *going*, I have suggested (in 6.7 and 8.1.1) that its structure is $<e_0, e_1, e_2>$ with $\epsilon = \omega_1$. The statively-marked perfective construction

(11) **himo yahi**

3S/STAT go-PERF/2

can be represented by the event diagram:

(12)



That is to say the statively-marked perfective form becomes true immediately after the beginning of a process of *going* and only ceases to be true at the end of the ensuing state.

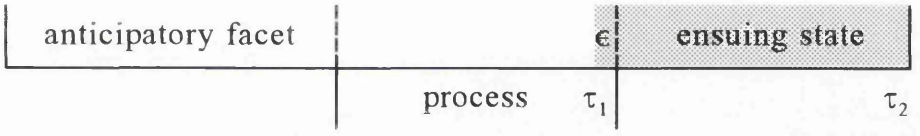
An event of *building (something)*, however, has a structure of $<e_0, e_1, e_2>$ with $\epsilon = \tau_1$. The statively-marked perfective construction

(13) **himo darni**

3S/STAT build-PERF/2

can be represented by the event diagram:

(14)



That is to say, the statively-marked perfective form only becomes true at the end of the process of *building* and continues to be true as long as whatever it is that was built lasts.

Evidence for this logical form is provided by events for which this form could never have a truth value. An event which has no ensuing state and which has zero duration constitutes such an event, that is to say an event with an event structure of $<e_0, e_1>$ or $<e_1>$ for which $\omega_1 = \epsilon = \tau_1$. In chapter 8 we called such events 'semelfactive' events or, in Pulman's and Moens' terminology, 'point'

events, and gave examples of *flash* and *cough*. Pular data suggests that a statively-marked perfective form of such verbs cannot readily be interpreted:

(15) **#himo ɗojji**

3S/STAT cough-PERF/2

(16) **#hingal mayi**

CLS/STAT start-PERF/2

(15), if it can be interpreted at all, gives the impression to native speakers of someone frozen in mid-cough and, in a similar fashion, (16) of something frozen in mid-flash.

It is important to realise that the Pular statively-marked perfective indexes the *result state* of an event and not, as may be the case for the English perfect, the *resultant state*. The *resultant state* of an event, as pointed out in chapter 6 and chapter 8, starts as soon as the event has happened and continues thereafter, that is to say, in terms of the logical form developed in this thesis, it is *EPoint*(e,ϵ,t), which (since we have understood *EPoint* as a step function) is true at any point after the event time ϵ. The statively-marked perfective, however, according to the logical form of (9), ceases to be true at τ_2, the end-time of the ensuing state. We can illustrate this with **arugol** *come*, **hewtugol** *arrive* and **gaŋagol** *win*. The statively-marked perfective can be used in Pular with **arugol** *come*, as in (17), but cannot be used with **hewtugol** *arrive* or **gaŋagol** *win*, even though the perfect can be used for these verbs in English:

(17) **himo ari**

3S/STAT come-PERF/2

he has come

(18) **#himo hewti**

3S/STAT cough-PERF/2

(19) **#himo gaɲii**

3S/STAT start-PERF/2

Instead of (18) and (19) in Pular the perfective-3 form would be used:

(20) **o hewtii**

3S cough-PERF/3

he (has) arrived

(21) **o gaɲike**

3S start-PERF/3

he (has) won

That is to say, the events of *arrive* and *win* do not have an ensuing state in event structure. (This is compatible with English language data. In chapter 8 I suggested that a *for* time adverbial is diagnostic of an ensuing state. *For an hour* is also difficult to interpret with such verbs in English:

(22) a ???he arrived for an hour

b ???he won for an hour)

We may note, however, that the focus associated with the statively-marked perfective does not seem to be as strong as that of the perfective-1 or the perfective-3 forms, although, if the proposals of this study are correct, focus marking would need to be present in logical form to bar the use of the statively-marked perfective in subordinate and focussed environments.[1] The

[1]Although the statively-marked perfective is barred from subordinate environments with subordinating class markers and from the focussed construction defined in

statively-marked perfective is typically used in contexts where the relevant question is *what did x do* or *what has x done* rather than *did x do such and such* or *has x done such and such yet.* This would, in fact, be compatible with the event Kind being included under the scope of the focus marking:

(24) $\lambda p\ \lambda s\ \exists e\ \exists e_1\ \exists e_2\ \exists \epsilon\ \exists t$ (*Subject*(e,s) & (*Inst*(p,e) & (*EPhase*(e,e_1,t) $\vee$ *EPhase*(e,e_2,t)) & *EPoint*(e,ϵ,t))$_{FOC}$)

If this is true, it seems possible to argue that the wider scope of the focus marking of (24) makes it a less focussed and therefore weaker assertion that the more narrowly scoped perfective-1 and perfective-3.

9.3 Perfective-1

In chapter 4 I suggested that the perfective-1 form, in contrast to the perfective-3 form, evokes an alternative semantics of an incompatible event. To represent the perfective-1 form in Pular I propose that it should be assigned the logical form of:

(25) $\lambda p\ \lambda s\ \exists e$ (*Subject*(e,s) & *Inst*(p,e)$_{FOC}$)

3.3.5.1, there is one construction, albeit with the anterior suffix, where a statively-marked perfective is found in a subordinate clause:

(23) **o yeeyi ngesa himo marnoo**
3S sell-PERF/2 field-CLS 3S/STAT have-PERF/2/ANT
he sold a field he owned

I will not attempt to justify this construction further here, except to question the extent to which the information in the subordinate clause in this particular construction is presupposed.

In order to derive the focus semantic value of the perfective-1 form we will need to apply this logical form to a specific event Kind, let us call it p':

(26) $\lambda p\ \lambda s\ \exists e\ (Subject(e,s)\ \&\ Inst(p,e)_{FOC})\ (p')$

By lambda conversion we have:

(27) $\lambda s\ \exists e\ (Subject(e,s)\ \&\ Inst(p',e)_{FOC})$

According to the semantics of focus developed by Rooth, considering (27) as the ordinary semantic value, then, if this verb form has the same ability to evoke an alternative semantics as intonational focus, the focus semantic value of (27) is given by:

(28) $[\ \lambda s\ \exists e\ (Subject(e,s)\ \&\ Inst(x,e))\ ]^f$

where x ranges over event Kinds.

To examine this let us consider the example of **moyyugol, to** *be good/kind* or *do good* or *do (an act of) kindness*, given in section 4.5:

(29) **Yaayaa moyyu**

John good-PERF/1

As stated above, in 4.4 it was proposed that this perfective-1 form should evoke the alternative semantics of an incompatible event, that is to say, in this case, the set of events incompatible with *doing (something) good* or *being good*. If that is true, an alternative semantics of the set of all possible events proposed for (28) is too large: we require rather the set of events that are incompatible with p'. Since, following Montague, we have defined Individuals as property sets, we can express this restriction by saying that x ranges over event Kinds and in addition

$x \cap p' = 0$, that is to say the set of properties represented by x and the set of properties represented by p' do not overlap.[2]

The Kind/Stage distinction is important here, since in any actual event of *kindness* or *goodness* other accidental properties may be present, which could also conceivably be present in the alternative semantic value. However it is the essential defining properties of p' that are important, that is to say p' as an event Kind, not as an event Stage.

We can examine the functioning of this logical form by considering some of the environments mentioned in 4.4 where perfective-1 is particularly used. I will consider first a context with **tun** *only* not mentioned in 4.4, before considering the use of perfective-1 with adjectivals (3.2.5) and with verbs denoting intervals of time.

Perfective-1 is sometimes heard with **tun** as in:

(29) **mi nanu tun hito maa ngon, mi huli, mi suudîi**
1S hear-PERF/1 only voice-CLS_i 2S/POSS CLS_i 1S fear-PERF/2 1S hide-PERF/2
as soon as I heard your voice I became afraid and hid

The three verbs occurring in this sentence denote the events of an event sequence. However, we can note that, if (24) is the logical form associated with perfective-1, there is nothing in that logical form that stops perfective-1 being used in depicting an event in an event sequence. We can claim, rather, that its felicity, following Relevance Theory, depends on its relevance. That is to say, when compared with the explicatures and implicatures that would be conveyed by

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[2]alternatively, in a Fodorean account of semantics, the set of concepts incompatible with p' as identified by meaning postulates.

the other perfective forms, its felicity depends on whether it is the most appropriate of the perfective forms to use. The intention of the utterance in this usage with **tun** *only* seems clearly to be to convey an idea of suddenness and unexpectedness. I believe we can claim here that the use of perfective-1 in the depiction of events where an anticipatory facet is absent (because of the inappropriateness of perfective-3 in such a cognitive context) creates also in this case, in association with the use of **tun**, an implicature of suddenness and unexpectedness.

As regards the use of perfective-1 with verbs denoting intervals of time, such as **ɲallugol** *spend the day* and **waalugol** *spend the night*, I believe we can argue in a similar fashion that the perfective-1 form is used because of its greater appropriateness when compared with the perfective-3 form. We can argue that the notion of completion, that would be derived as an explicature of the perfective-3 form, is not relevant or is less relevant in the case of an interval of time:

(30) **mi waalu ka yaasi**
1S spend-night-PERF/1 LOC/DEF outside
I spent the night outside

Similar reasons, I believe, lie behind the use of perfective-1 with verbs which are normally statively-marked (3.2.1.7):

(31) **mi jaanga!**
1S be-cold-PERF/PASS/1
I'm cold!

I have suggested (in 9.2 above) that a statively-marked perfective (such as, in this case, **miɗo jaangaa**) is a weaker assertion than a perfective-1 and the perfective-3

marked utterance, consequently, we can argue that, for a stronger assertion, the speaker chooses between the perfective-1 form (31) and the perfective-3 form (32):

(32) **mi jaangaama!**
1S be-cold-PERF/PASS/3
I have got cold

Perfective-3 is also heard with verbs that frequently occur as adjectivals (3.2.5).

The pragmatic and semantic reasons for choosing between the perfective-1 form and the perfective-3 form seem, in these sorts of cases, to be finely balanced (a similar example to **jaangegol** *be/get cold* can be constructed with **weelegol** *be/get hungry*). The choice seems to depend on whether the speaker wishes to present *being/getting cold* or *being/getting hungry*, to use these particular examples, as some kind of inevitable or expected consequence which has now taken place, or as something more unexpected: that is to say the choice the speaker makes can be explained by a combination of the felicity and relevance of the alternative semantic value evoked by these perfective forms.

9.4 Perfective-2

In the presentation of data on the use of the perfective forms in Pular in chapter 4, the perfective-2 form was described as being used in subordinate environments (4.1.2) and in focussed environments (4.1.1), other verb forms being barred from such environments. It was also pointed out that the perfective-2 verb form commonly occurs in verb sequences (4.3), but that other verb forms can also occur in that environment - an example was given with perfective-3

marked forms. In addition, it was pointed out in 4.3 that even when perfective-2 occurs in a verb sequence, additional procedural encoding that is present in the clause may result in the events being interpreted as non-sequential.

I proposed there that these uses and interpretations of the perfective-2 verb form are consistent with an hypothesis that the perfective-2 form is unmarked for focus. In 4.3 it was shown how that relevance-theoretic notions can account for the sequential or non-sequential interpretation of the perfective-2 forms in verb sequences, which I will not repeat here.

The perfective-2 form seems to come closest to Comrie's definition of perfective:

> "perfectivity indicates the view of the situation as a single whole, without distinction of the various separate phases that make up the situation" (1976:16).

I propose a logical form for the Pular perfective-2 form of

(33) $\lambda p\ \lambda s\ \exists e\ \exists t\ (\mathit{Subject}(e,s)\ \&\ \mathit{Inst}(p,e,t))$

in which no focus marking is present. I have included the time for which the expression is evaluated as part of the logical form. This predication, *Inst*(p,e,t), therefore, in terms of the theory of logical form developed in chapter 5, constitutes a conceptual relationship between an event Kind and an event Stage at a particular time to be evaluated by the hearer.

In terms of the claims presented in chapter 4, this logical form allows verbs marked with the perfective-2 suffix to be present in subordinate clauses and in environments where some element is explicitly focussed before the verb. In

chapter 4 I claimed that presupposed information is present in subordinate clauses and that focus marking is incompatible with presupposed information. As regards the use of perfective-2 in focussed clauses, I proposed that the syntax of Pular does not allow two elements to be morphosyntactically marked as focussed in the same clause.

It would seem from the logical form of (33) that nothing should stop an utterance with perfective-2 being used of any event at any time, since it simply refers to an event as happening at a particular time. However a relevance-theoretic account of utterance interpretation requires an utterance to be relevant. The derivation of implicatures depends, in part, on what other utterance forms could have been used. It was suggested in 4.2.3 that perfective-1 and perfective-3, being focussed marked, may reflect something of Benveniste's notion of subjectivity. Labatut suggests that perfective-3 "est fortement marquée de la subjectivité de l'émetteur et de la présence de celui ou ceux qui l'on adresse... et dont on tien compte" (1981:70). By contrast he claims of perfective-2 that it is "une énonciation de grande transparence dans laquelle le récepteur n'intervient pas... et est censé assumer entièrement le discours qui lui est tenu dans une attitude de totale adhésion" (1981:70). I believe these proposals can receive a relevance-theoretic treatment. We can claim that the use of a focus-marked form (Lababut's remarks on perfective-3 could be considered also to apply to perfective-1), results in an utterance which is "marquée... de la présence de celui ou ceux qui l'on adresse" (70), since the hearer is required to put effort into validating the alternative semantics that is evoked. The use of a perfective-2 form, which is unmarked for focus, does not require effort on the part of the hearer to validate an alternative semantics, and creates, by contrast, an

implicature that "le récepteur... est censé assumer... le discours qui lui est tenu" (70).

9.5 Adverbials

Since Davidson's original proposal on the logical form of events was based on the compositional contribution of adverbs, it is potentially of interest to see how the Pular language handles manner and time adverbials. A number of the arguments from English language data which were used in chapter 8 for the event structure proposed in this thesis were based also on the behaviour of time adverbials.

There are a limited number of lexical adverbs in Pular. Apart from **doy** *slowly* and **kisan** *quickly*, they are, I believe, only **tinna** *quickly/fast*, **heɲa** *fast* and **moyy'a** *well*:

(34) **o ari tinna**
3S come-PERF/2 quickly
he came quickly

(35) **o wadi moyy'a**
3S do-PERF/2 well
he did well

Most adverbial functions are performed by statively-marked verbs (3.2.1.2):[3]

[3]Both the statively-marked perfective and the statively-marked imperfective can be used in this fashion. The following is an example from a folk story (Diallo 1974:22):

(37) **o ari e hoore himo hawji**

3S come-PERF/2 LOC top 3S/STAT hurry-PERF/2

he came hurriedly

The same function may also be achieved by separating out a 'cognitive' event from a 'physical' event:

(38) **o hittini, o ari**

3S urgent-CAU-PERF/2 3S come-PERF/2

he hurried up and came

It is possible that the normal requirement on the repetition of a pronoun (see 3.3.4.1) may be dropped when the second verb performs an adverbial function, as is found in line 61 in the appendix:

(39) **o yamiri ɓe tentini**

3s command-PERF/2 3P/OBJ emphasis-(CAU)-PERF/2

he ordered them emphatically

One question for a Davidsonian analysis in the case of these constructions is whether they should be analysed as two event variables or, in the vein of the original Davidsonian analysis of adverbs, as only one event variable. A detailed investigation of this topic, however, would take us too far from the limited purpose of this thesis.

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(36) **nge yaltiti ka eda mban waalii,**

CLS come-out-INC-PERF/2 LOC/DEF antelope-CLS_i CLS_i lie-PERF/2

the cow come to where the antelope was lying

no barmi, no ngirba

STAT wound-PERF/2 STAT pant-IMPF/2

wounded and panting

The small number of relators in Pular, and their general restriction to locative meanings, results in time adverbials also not being handled in the same way as European languages. The specification of a time element is generally assigned to a separate verb (as in line 4 of the appendix):[4]

(40) **o ari, o lutti *cinq minutes***
3s come-PERF/2 3S remain-PERF/2 five minutes
he came for five minute

(41) **wadii *cinq minutes* o ari**
do-PERF/3 five minutes 3S come-PERF/2
he came in five minutes

(42) **heɓii *cinq minutes* himo ɲaamude**
have-PERF/3 five minutes 3S/STAT eat-INF
he ate for five minutes

9.6 Summary

If the findings and proposals of this chapter are correct, the meanings of the perfective forms of Pular can be expressed quite precisely. The logical forms derived in this chapter state in a defined fashion the combined semantic and pragmatic contribution of the perfective forms. In the Conclusions of chapter 10 I will comment on the significance of these findings for Fulfulde studies and for studies of aspectual phenomena and event structure. To summarise the findings of this chapter I repeat below, with original example numberings, the logical forms of the four main perfective forms that have been proposed in this chapter:

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[4]Pular does not have indigenous ways of specifying small amounts of time. In Guinea loan expressions from French are used for this purpose.

Perfective-1:

(25) $\lambda p\ \lambda s\ \exists e\ (\mathit{Subject}(e,s)\ \&\ \mathit{Inst}(p,e)_{FOC})$

Perfective-2:

(33) $\lambda p\ \lambda s\ \exists e\ \exists t\ (\mathit{Subject}(e,s)\ \&\ \mathit{Inst}(p,e,t))$

Perfective-3:

(2) $\lambda p\ \lambda s\ \exists e\ \exists e_0\ \exists \epsilon\ \exists t\ \exists t'\ (\mathit{Subject}(e,s)\ \&\ \mathit{Inst}(p,e)\ \&\ \mathit{EPhase}(e,e_0,t')\ \&$

$\mathit{EPoint}(e,\epsilon,t)_{FOC})$

Statively-marked perfective:

(9) $\lambda p\ \lambda s\ \exists e\ \exists e_1\ \exists e_2\ \exists \epsilon\ \exists t\ (\mathit{Subject}(e,s)\ \&\ \mathit{Inst}(p,e)\ \&\ ((\mathit{EPhase}(e,e_1,t)\ \vee$

$\mathit{EPhase}(e,e_2,t))\ \&\ \mathit{EPoint}(e,\epsilon,t))_{FOC})$

or

(24) $\lambda p\ \lambda s\ \exists e\ \exists e_1\ \exists e_2\ \exists \epsilon\ \exists t\ (\mathit{Subject}(e,s)\ \&\ (\mathit{Inst}(p,e)\ \&\ (\mathit{EPhase}(e,e_1,t)\ \vee$

$\mathit{EPhase}(e,e_2,t))\ \&\ \mathit{EPoint}(e,\epsilon,t))_{FOC})$

10. CONCLUSIONS

In order to draw conclusions for this study on Pular verb aspect I wish to consider its impact in four main areas: its relevance to Fulfulde studies, its implications for theories of verb aspect, the consequences of the theories proposed here for the notion of event structure, and its contribution to considerations of the syntax-semantics interface and the notion of conceptual structure.

My main concern will be to highlight the importance of the concept of event structure that was developed in this thesis. I will argue that the main relevance of this thesis to Fulfulde studies lies in its proposals of an analytical framework for the study of verb aspect. In this respect, I will argue in turn, however, that the study of verb aspect depends on a well-founded notion of event structure. The foundational importance of the concept of event structure that was developed in this thesis for aspectual studies, and its role within conceptual structure will constitute the main tenor of these conclusions.

10.1 Fulfulde Studies

Studies of the Fulfulde language in the past have concentrated on investigating its nominal system, revelling in the richness of its class morphology, and the apparent bizarreness of its consonant alternation system. Studies of verbal phenomena have tended to take second place.

Inadequate theoretical foundations for the analysis of verb aspect have also handicapped the investigation of Fulfulde aspect. Studies by Arnott (1970), Labatut (1981), Gnalibouly and Ivanovna (1982), Sylla (1982) and McIntosh (1984) were conducted in the absence of a theoretical apparatus for verb aspect.

One recent exception to this, in a study of a related language, is an investigation by Robert (1991) of verb aspect in Wolof, a West Atlantic language in Senegal, in which the *approche énonciative* of Culioli is used.

One of the problems associated with the study of such aspectual systems for African languages is how to tease apart purely aspectual phenomena from other syntactic or pragmatic phenomena which may be present. This problem was recognised a number of years ago by Hyman and Watters:

> "In a number of related and unrelated African languages, a curious interplay is observed between tense-aspect and focus. While the exact realization of this interplay varies from language to language, in each case some parameter of focus determines which of two corresponding sets of tense-aspect markers is used in a given instance. The well reported occurrence of "main" vs. "relative" (clause) tenses is a case in point and has been documented from one extreme of the African continent to the other, e.g. [Fulfulde] in the West and Nguni Bantu in the South(east)" (Hyman and Watters 1984:233-234).

Hyman and Watters remark, in fact, concerning Fulfulde:

> "...the [Fulfulde] situation requires further detailed study [since there is] the possibility that a language may have a three-way focus distinction in its tense/aspect marking" (1984:258-259).

The same problem is recognised in the study of Wolof by Robert mentioned above. She claims that the six perfectives of Wolof should be considered to form an *aspecto-modal* system (Robert 1991:22-23,329).

The need to tease apart the "modal" from the aspectual features of these perfective systems, increases the demands on the theoretical apparatus, since now such an apparatus has to encompass focussing phenomena as well as aspectual phenomena. Moreover, if the theoretical apparatus is to express the semantics of these verb forms in a unified fashion, the notation used has to be able to express both aspectual and focussing phenomena. It is against such a background that this study has been conducted.

The development of an aspectual model that is capable of expressing the distinctions involved in the perfective system of an African language such as Fulfulde represents a considerable advance on previous studies. If the findings of this study are correct, by making use of the logical form developed in chapter 5 to express both aspectual distinctions and focus, the combined semantic and pragmatic meaning of the perfective forms in Pular can be expressed quite precisely.

10.2 Verb Aspect

Remarks by Comrie (1976), who claimed that perfectivity involves "the view of the situation as a single whole" (16) "without necessarily distinguishing any of the internal structure of the situation" (4), have been revised recently in the light of the recognition that event structure plays a role in aspectivity: Pulman, for instance, remarks: "determination of aspectual status of a sentence or phrase means working out... what semantically relevant internal structure the event or state might have" (1997:279). Such an orientation has characterised the approach of this study. The acknowledgement that event structure plays an important role in aspectivity allows us to involve notions of event structure in the

theoretical investigation of aspect. This requires, in turn, an adequate theory of event structure.

It was pointed out in the Introduction that a simple contrast of perfective and imperfective is not sufficient to encompass the meanings of the perfective verb forms in Pular. It is apparent from a brief consideration of the Pular perfective verb forms that they have more than one way of "view[ing] the situation". Comrie also makes the point concerning aspectual studies that:

> "one problem with... aspect... is that aspectual oppositions are often subjective rather than objective, i.e. do not necessarily lead to differences in truth-value, unless the speaker's view of the situation described is also included in the semantic representation" (Comrie 1976:133).

Use of conceptual structure, as defined by Jackendoff, has enabled us to take into account the "speaker's view of the situation" since conceptual structure is, on this definition, concerned with a "projected" rather than a "real" world (see section 2.3 and Jackendoff 1997).

If the study of verb aspect is to be based on event structure then clearly there is need for a well-founded analysis of event structure. This thesis has attempted to further such an analysis. Such a program was already outlined by Jackendoff:

> "The upshot of this analysis is in general agreement with such writers as Verkuyl (1989) and Pustejovsky (1991), who regard the Vendler classes not as a basic division of the aspectual system, but rather as

various realisations of a set of more fundamental parameters..." (Jackendoff 1991:40).

This study has not paid much attention to the question of imperfectivity, except in considering how event structure constrains the interpretation of the English progressive in chapter 8. We could quite simply propose that the Pular imperfective (3.2.1.1) or progressive (3.2.1.4) situates the 'unfolding' of the event in the process facet of event structure, and derive corresponding logical forms for this. However, to justify the logical form derived, and distinguish the simple imperfective from the progressive and the statively-marked imperfective, would take us beyond the self-imposed confines of this study.

10.3 Event Structure

It was mentioned in the introduction (2.1) that there is as yet no agreed definition of event structure. Some authors, such as Pulman (1997), Pustejovsky (1991) and Higginbotham (1995), consider a two-part event structure to be adequate; others, such as Moens and Steedman (1987,1988), argue for a three-part event structure.

The most developed event structures are those of Pulman, Moens and Steedman, who make use of the notion of 'coercion' to elaborate the event structure and apply it to different event situations. However, as noted previously, the notion of 'coercion' used by these authors should not be thought of as losing information. As quoted previously, Moens states with respect to what he calls a "stripping" coercion:

> "...whatever layer of meaning is stripped off is not lost... Saying that [a] culmination point is 'stripped off' just means that that particular part of the meaning complex is not talked about for the time being; the focus has shifted to other layers of meaning (Moens 1987:45).

In fact, we have seen in chapter 6 that both Moens and Pulman require the 'history' of a coercion to be 'visible' to the inferencing mechanism. This is seen in a quotation from Moens, cited in 6.1.6, in connection with the imperfect paradox:

> "Because of the transition [coercion] from culminated process to process before the combination with the progressive, a sentence like [*John was writing a novel*] does not imply that John ever finished writing the novel" (Moens 1987:59).

It can also be seen in Pulman's comment that:

> "As with many others, I assume that the [imperfect] paradox is resolved by the fact that as a *result of the coercions*, it is not asserted by [*Joe is winning*] that the resulting state is attained" (Pulman 1997:290, italics added).

The actual event structure that both Moens and Pulman require for correct inferences to be obtained is, in fact, a superposition of the 'coerced' event structure on the 'uncoerced' event structure - a more complex event structure by another name. In fact the event structure that I have proposed in this thesis could be considered to be this more extensive structure. I have argued that, if such a 'maximal' event structure is used from the outset, the interpretation of English or Pular verb forms, at least for the so-called "addition", "stretching" or "stripping"

coercions in Moens' and Pulman's terminology, can more appropriately be seen as a mapping from syntactic structure onto conceptual structure.

Pulman states his main motivation for not using the tripartite structure of Moens as: "while there are phenomena in which both separate components of the <point,state> and <process,state> combinations are modified separately, there are no clear examples where all three components of the more complex structure can be accessed independently and simultaneously" (1997a:287). If I am correct in my analysis of the meaning and corresponding logical form of the Pular perfective forms, then taken together they constitute an example where all three facets of the extended event structure, that has been developed here, are "accessed". They can, in fact, be considered to be "accessed simultaneously" by virtue of the fact that the perfective forms are choices among which the speaker has to simultaneously exercise a choice. Moreover, it would negate the basic approach of type coercion, which takes as a starting point the strong typing of lexical items, if the basic meaning of a verb form were to require 'coercion'.

The event structure that I have proposed distinguishes an anticipatory facet from the process of an event, and I have claimed that this is necessary to characterise the semantics of the Pular verb forms. As noted in chapter 6 there is ambiguity in Moens 1987 in the way he views what he calls a preparatory process. In some cases it is the process leading up to a culmination, as in "they build the bridge" (78), in other cases it is a period prior to that, that is somehow associated with the event, as in "they prepare to build [the bridge]" (78). The same ambiguity was noted in Pulman. I argued in chapter 6 that since the

inferences derivable from a 'stretched' process, as in *winning*, are not the same as those derivable from an 'unstretched' process, such as *swimming* or *building*, they should be considered to be ontologically different. Moreover I claim that the possibility of an anticipatory facet being present in an event of *winning* is what distinguishes it crucially from an event of *sneezing*, and it is this which allows the one to be 'stretched' and prohibits the other from being 'stretched', a prohibition that Pulman otherwise has to put down to being "not contextually plausible" (1997:296).

If 'coercion' is proposed, then, as in any generative mechanism, there needs to be a way of constraining the 'coercion' so that it does not generate incorrect results. The need to constrain the "stretching" 'coercion' of an event of *sneezing* is a case in point. I have argued that the difference in the interpretation of these two verbs stems from the presence or absence of an anticipatory facet in event structure. If the existence of an anticipatory facet is accepted then 'coercion' becomes, in fact, unnecessary, and the interpretation seen, as stated above, more appropriately as a mapping from syntactic structure onto conceptual structure.

I also pointed out in chapters 8 and 9 the importance of distinguishing the result or ensuing state in event structure. We saw in chapter 8 that the presence or absence of an ensuing state distinguishes different interpretations of the *for* time adverbial, and that, in fact, a *for* time adverbial is diagnostic of the presence of an ensuing state in event structure. As a consequence we elaborated the three Vendlerian categories of *activity*, *accomplishment* and *achievement* into four subtypes each, depending in each case on whether an anticipatory facet and

ensuing state is present or not. It was claimed that an anticipatory facet is invoked in the meaning of the Pular perfective-3 form.

In this connection we can note that an ensuing state is perhaps the most objective of these 'facets' and, as a consequence, perhaps the most likely to be grammaticised. I also gave evidence for how the presence or absence of an anticipatory facet distinguishes certain interpretations of English verbal constructions, for instance in the Vendlerian tests with *in* time adverbials (test 4, section 8.1.2) and the interpretation with *almost* (test 9, section 8.1.5).

A further element in the event structure I have proposed is what I have called the event time. I claimed that the culmination interpretation of an event is reflected in the position of such an event time in the process facet of an event, that is to say whether the event time is at its onset or cessation. In this connection it can be noted that the event structure I have derived allows different types of telicity to be distinguished (compare Depraetere 1995). For instance we can distinguish the telicity of an ensuing state from the telicity of τ_2, the cessation of a process; we can distinguish the telicity of ϵ, the event time; we can also distinguish the subtly different telicity of ϵ coinciding with τ_2, which I have invoked in the interpretation of *finish* (8.1.4). It was claimed that the event time is invoked in the meaning of two of the Pular perfective forms.

It was noted, however, that Pular data seems to require more flexibility in the position of the event time than in English data. The frequency with which object drop is found in Pular results in the need for a flexible interpretation of events, since culmination may not be expressed morphosyntactically but have to

be inferred. This in turn highlights the difficulty of tying event structure to lexical items or to syntactic structure.

10.4 Conceptual Structure

We can make the observation that while a sentence such as:

(2) flying planes can be dangerous

can be disambiguated by means of structural assignments, the ambiguity contained in a sentence such as

(3) the boat floated under the bridge

according to Higginbotham 1995, can only be exposed by recourse to event structure.

An immediate question that this raises is whether the event structure needed to disambiguate this sentence should be considered to be part of the syntax, though not morphologically expressed. One of the most important contributions of Noam Chomsky to the study of language has been his insistence on a realistic approach to the psychological reflexes of language, that is to say his insistence that the proper study of linguistics is I-language. Hence the question here of where event structure should be located in the "architecture of the language faculty" is not trivial. In this study I have assumed a Jackendoffian stance in which event structure is represented in conceptual structure. This does not mean, however, that the event structure is irrelevant to syntactic structure since using such Jackendoffian notions still requires correspondence rules between syntactic structure and conceptual structure.

Recent developments in information modelling (represented, for instance, in the volume by Seligman and Westerståhl 1996) may be pertinent here. Information modelling studies the way in which information systems handle, for instance: consistency, subjective information, incomplete information and inferencing. Event structure can be seen to be a microcosm of such a system, as is evidenced by Blackburn *et al* (1996). Characteristics of an information system are seen in Blackburn *et al*'s proposal for a "combined ontology" of events, intervals and instants, described by them as a "layered language". Appeal to the notion of 'coercion' or 'enrichment' evidences that the syntactically encoded information is incomplete in some way, and interaction with the particular part of information structure represented by event structure embodies a type of inferencing system.

As regards other characteristics of an information system, two types of instants have emerged in the model developed in this thesis: edges of intervals (see Blackburn *et al* 1997:9) and ϵ, a cognitively significant instant in its own right.

The investigations of this thesis may also raise the question of whether the cognitive processing of events should be considered a domain specific skill in the sense of Hirschfeld and Gelman (1994) and Sperber (1994). Comparison of the tripartite event structure of this thesis with Leslie's Theory of Mind in section 8.2 (footnote 4) has already, in fact, raised this question. It should be possible to argue that the frequency with which we deal with events in everyday life makes event processing a prime candidate for a domain specific skill, moreover one with which language would interact. As a domain specific skill one would expect it to

have its own "language" or structure and rules of well-formedness, in the sense of Jackendoff 1997. Apart from presenting some of Jackendoff's arguments in 2.2, I have not argued the case in general for the existence of conceptual structure, rather I have concentrated on the evidence that language provides for a tripartite event structure and for that event structure having a conceptual representation distinct from syntactic structure. A domain specific skill for the processing of events could be one of many such skills within conceptual structure.

Jackendoff derives his arguments for conceptual structure from what he sees as the rule-governed nature of enrichment. To this effect he argues that aspectual 'coercion', mass-count 'coercion', reference transfer, argument structure alternation, adjective noun modification, sloppy identity and quantification, amongst others (see Jackendoff 1997:47-82), give evidence of rule-governed semantic enrichment. The argument I have presented here is somewhat different. The semantic value of the Pular verb forms does not appear to need enrichment; the aspectual semantic values of the Pular verb forms are quite specific. However, if the analyses of this thesis are correct, the semantic values of the Pular verb forms show the use of an well-defined event structure, which is independent of the morphosyntax but governs the use of the morphosyntax by a system of mutual constraint.

We return to the question posed at the beginning of this section: should we attempt to incorporate event structure into syntactic structure, or should its representation be considered as part of a separate structured system operating in parallel with syntactic structure, subject to reciprocal constraints? The multiple aspectual interpretations of syntactic constructions that are evident from the

English language data presented in chapter 8 constitute a potential argument for a separation of conceptual structure from syntactic structure. In a similar fashion, the role of an anticipatory facet in Pular in determining felicitous choice of perfective suffix, and the comparable role of the event time, both of which have to be supplied cognitively, making use of contextual information, constitute an argument for the location of a representation of maximal event structure in conceptual structure rather than in syntactic structure.

APPENDIX

The following is a passage from a recent translation of the gospel of Mark (5:24b - 43) which shows a good distribution of use of the perfective forms. Of the 64 basic perfective forms in this passage, 51 use the perfective-2 form, including one statively-marked perfective (line 25), 11 use the perfective-3 form and 2 the perfective-1 form (lines 7 and 51). I have excluded from this count participles (3.2.4) and perfectives marked with the anterior suffix (3.2.1.5).

1 Yingu ɗuuɗungu jokki mo,
crowd-CLS$_i$ many-PERF-CLS$_i$ follow-PERF/2 3S
a large crowd followed him

2 ɓittiri mo cenɗe fow.
squeeze-MAN-PERF/2 3S side-CLS/PL all
and pressed in on him from all sides

3 Tawi kadi debbo no ɗon
find-PERF/2 also woman-CLS STAT there
now a woman was there

4 heɓii duuɓi sappoo e ɗiɗi himo soncaade ɣiiyan.
have-PERF/3 year-CLS/PL ten ASS two 3S/STAT issue-INF blood-CLS
who had had an issue of blood for ten years

5 Tawi o tampii fota e juuɗe ɲawndooɓe ɗuuɗuɓe,
find-PERF/2 3s suffer-PERF/3 much LOC hand-CLS/PL heal-IMPF-CLS$_j$ many-PERF-CLS$_j$
she had suffered much at the hands of many doctors

6 awa kadi o ittii ko o jogii fow, o ndikkaali,
now also 3S take-PERF/3 SUB 3S have-PERF/2 all 3S get-well-PERF/NEG
she had used all she possessed and not got better

7 kono ɲaw ngun ɓurtu.
but illness-CLS_k CLS_k more-INC-PERF/1
the illness had only got worse

8 Ɓay o nanii fii Iisaa no wowlee,
since 3S hear-PERF/3 about Jesus STAT speak-IMPF/2/PASS
since she heard people talking about Jesus

9 o ari e yingu ngun, o wontiri ɓaawo,
3S come-PERF/2 LOC crowd-CLS_l CLS_l 3S be-INC-LOC-PERF/2 behind
she came to the crowd, stood behind,

10 o meemi dolokke Iisaa on.
3S touch-PERF/2 $cloak_i$ Jesus CLS_i
and touched Jesus' cloak.

11 Ko fii hari kanko debbo on himo wi'a:
ASR because AUX-PERF/2 3S/IND woman-CLS_j CLS_j 3S/STAT say-IMPF/2
For she had been saying:

12 «Si mi waawii tun meemude conci makko ɗin mi ndikkay!»
if 1S can-PERF/3 only touch-INF clothes-CLS_k/PL 3S/POSS CLS_k 1S get well-IMPF/3
"If I can just touch his clothes I will get better"

13 E on saa'i tigi ko o soncotonoo kon tayi,
TEMP CLS_l $time_l$ exactly SUB_i 3S issue-IMPF-ANT SUB_i break-off-PERF/2
At that very moment her issue of blood stopped

14 o andi ka ɓandu makko

3S know-PERF/2 LOC/DEF body-CLS 3S/POSS

she knew in her body

15 wonde o ndikkii ɲaw makko ngun.

COMP 3S get-well-PERF/3 illness-CLS_j 3S/POSS CLS_j

that she had recovered from her illness.

16 Tun Iisaa andi e mun kisan

only Jesus know-PERF/2 LOC CLS_{gen} quickly

Jesus immediately knew

17 wonde ko tiiɗi yaltii e makko.

COMP SUB heavy-PERF/2 leave-PERF/3 LOC 3S

that power had gone out of him

18 O yeyyítii e hakkunde mbatu ngun, o wi'i:

3S turn-round-INC-PERF/2 LOC between crowd-CLS_k CLS_k 3S say-PERF/2

he turned round in the crowd and said:

19 «Ko hombo meemi conci an ɗin?»

FOC WH-3S touch-PERF/2 clothes-CLS_l/PL 1S/POSS CLS_l

"who touched my clothes?"

20 Taalibaaɓe makko ɓen wi'i mo:

disciple-3P 3S/POSS 3P say-PERF/2 3S

his disciples said to him:

21 «Ndaarii yingu ko ɓittu-maa,

see-IMPV crowd-CLS SUB squeeze-PERF/2-2S/OBJ

"look at how the crowd that is crowding in on you!

22 si hiɗa wi'a: ko hombo meemi lan!»
if 2s/stat say-IMPF/2 FOC WH-3S touch-PERF/2 1S/OBJ
how can you say "who touched me?"

23 Onsay o layyí gite takko makko
then 3S glance-PERF/2 eye-CLS/PL near 3S
then he looked around

24 fii yo o yi'u waɗuɗo ɗun on.
in-order DESD 3S see-IMPV do-PERF-CLS_i CLS_{gen} CLS_i
to see who had done it

25 Nde tawnoo debbo on no andi
CLS_{time} find-PERF-ANT woman-CLS_j CLS_j STAT know-PERF/2
since the woman knew

26 ko feyyí e makko kon,
SUB_k pass-PERF/2 LOC 3S SUB_k
what had happened to her

28 o huli, o diwni, o ari,
3S fear-PERF/2 3S shake-PERF/2 3S come-PERF/2
she became afraid and, shaking

29 o yani e ley koyɗe Iisaa,
3S fall-PERF/2 LOC beneath feet-CLS/PL Jesus
came and fell at Jesus' feet

30 o wowlani mo goonga on fow.
3S speak-BEN-PERF/2 3S $truth_l$ CLS_l all
and told him the whole truth

31 Kono Iisaa wi'i mo:
but Jesus say-PERF/2 3S
but Jesus said to her

32 «Jiwo an, gomɗinal maa ngal hisinii ma.
girl-CLS 1S/POSS faith-CLS_i 2S/POSS CLS_i escape-CAU-PERF/3 2S
"my daughter, your faith has delivered you

33 Yahu e hoore ɓuttu,
go-IMPV LOC on-top peace-CLS
go in peace

34 sellaa ɲaw ngu wonduɗaa ngun!»
heal-IMPF/2-2S/SUBJ disease-CLS_j CLS_j be-ASS-PERF/2-2S/SUBJ CLS_j
and be healed of the disease you had"

36 Wa fewndo ko Iisaa yewtata on debbo,
as present SUB Jesus talk-IMPF/4 CLS_i woman-CLS_i
while Jesus was talking to the woman

37 woɓɓe e jeyaaɓe ka hooreejo juulirde nden
some-3P PART own-PERF/PASS-3P LOC/DEF head-CLS synagogue-CLS_k CLS_k
some of the people from the place where the synagogue leader lived

38 iwi ton, ari, wi'i mo:
leave-PERF/2 there come-PERF/2 say-PERF/2 3S
came from there and said to him

40 «Ko honɗun sonjantaa oo karamokoojo?
FOC WH-CLS_{gen} bother-BEN-IMPF/4-2S/SUBJ CLS_l teacher-CLS_l
"why are you bothering the teacher?

41 Ko fii jiwo maa on maayii!»
ASR because girl-CLS$_i$ 2S/POSS CLS$_i$ die-PERF/3
your daughter is dead"

42 Kono ɓay Iisaa nanii ɗun, o wi'i hooreejo juulirde nden:
but since Jesus hear-PERF/3 CLS$_{gen}$ 3S say-PERF/2 head-CLS synagogue-CLS$_j$ CLS$_j$
but when Jesus heared this, he said to the synagogue leader

43 «Wata a aanu! Gomɗin tun!»
DESD/NEG 2S worry-IMPV believe-IMPV only
"don't worry! just believe!"

44 Kono laatii Iisaa jaɓaali hay gooto ɗowta mo,
but happen-PERF/2 Jesus accept-PERF/NEG even one-CLS accompany-IMPF/2 3S
Jesus did not allow anyone to accompany him

45 si hinaa Petrus e Yaaquuba e Yuuhanna neene-gooto Yaaquuba on.
if ASR/NEG Peter ASS James ASS John mother-one-CLS$_i$ James CLS$_i$
except Peter, James and John the brother of James

46 Ɓay ɓe hewtii ka hooreejo juulirde nden,
since 3P arrive-PERF/3 LOC/DEF head-CLS synagogue-CLS$_k$ CLS$_k$
when they arrived at the house of the synagogue leader

47 kanko Iisaa o yi'ii maapunde nden
3S/IND Jesus 3S see-PERF/3 concern-CLS$_l$ CLS$_l$
and Jesus saw the emotion

48 e ko yimɓe ɓen wullata kon, ewnoo ko tiiɗi,
ASS SUB$_l$ people-3P 3P cry-IMPF/4 SUB$_l$ cry-out-IMPF/2 SUB substantial-PERF/2
and people crying and wailing

49 o naati, o wi'i ɓe:
3S enter-PERF/2 3S say-PERF/2 3P
he entered and said to them

50 «Ko hondun woni nduu murtaldu e dii gondi.
FOC WH-CLS$_{gen}$ be-PERF/2 CLS$_i$ tumult-CLS$_i$ ASS CLS$_j$/PL tear-CLS$_j$/PL
"what is all this crying and wailing?

51 Ko fii jiwo on maayaali, o daani».
ASR because girl-CLS$_k$ CLS$_k$ die-PERF/NEG 3S sleep-PERF/1
the girl is not dead, she is sleeping!"

52 Be jali mo.
3S laugh-PERF/2 3S
they laughed at him

53 Onsay o yaltini ɓe fow,
then 3S go-out-CAU-PERF/2 3P all
then he sent them all out

54 o yetti ben jiwo on e yumma jiwo on,
3S take-PERF/2 father girl-CLS$_l$ CLS$_l$ ASS mother girl-CLS$_l$ CLS$_l$
and took the girl's father and mother

55 wondude e dowtunooɓe mo ɓen,
be-ASS-INF ASS accompany-PERF-ANT-3P 3S 3P
together with those who had accompanied him

56 ɓe naati ka jiwo on woni don.
3P enter-PERF/2 LOC/DEF girl-CLS$_l$ CLS$_l$ be-PERF/2 there
and went in to where the girl was

57 O jogii jungo jiwo on, o wi'i mo: «Talitaa kumi!»
3S hold-PERF/2 hand girl-CLS_i CLS_i 3S say-PERF/2 3S talitaa kumi
he took the girl by the hand and said to her "Talitaa kumi!"

58 Don e ɗon jiwo on immii, o woni e jindugol,
there ASS there girl-CLS_i CLS_i get-up-PERF/2 3S be-PERF/2 ASS move-around-V/N
there and then the girl got up and started walking around

59 ko fii hari ko mo o duuɓi sappoo e ɗiɗi.
ASR because AUX-PERF/2 COP 3S 3S year-CLS/PL ten ASS two
for she was twelve years old

60 Be ŋaldi fota, tawi ɓe alaa e sago hoore maɓɓe.
3P surprise-PERF/2 much find-PERF/2 3P be-NEG LOC control self 3P/POSS
they were beside themselves with amazement

61 Iisaa yamiri ɓe, tentini, wata hay gooto andu ɗun
Jesus command-PERF/2 3P emphasise-PERF/2 DESD/NEG even one know-IMPV CLS_{gen}
Jesus ordered them emphatically not to tell anyone

62 O wi'i ɓe kadi yo ɓe okkor jiwo on ko o ɲaama.
3S say-PERF/2 3P also DESD 3P give-COM-IMPV girl-CLS_j CLS_j SUB 3S eat-IMPF/2
he also told them to give the girl something to eat

BIBLIOGRAPHY

Abraham,W. (ed) (1991) *Discourse Particles.* Amsterdam/Philadelphia:John Benjamin.

Arad,M. (1995) On the Projection of Ditransitive Verbs. *UCL Working Papers in Linguistics* 7:215-233.

Arad,M. (1996) A Minimalist View of the Syntax-Lexical Semantics Interface. *UCL Working Papers in Linguistics* 8:215-242.

Arnott,D.W. (1970) *The Nominal and Verbal Systems of Fula.* Oxford:Clarendon Press.

Bach,E. (1986) The Algebra of Events. *Linguistics and Philosophy* 9:5-16.

Bach,E. (1989) *Informal Lectures on Formal Semantics.* Albany:State University of New York.

Bartsch,R. (1981) Semantics and the Syntax of Nominalisations. In Groenendijk, Janssen and Stokhof (1981:1-28)

Barwise,J and Perry,J. (1983) *Situations and Attitudes.* Cambridge,Massachusetts: MIT Press.

Bendor-Samuel,J. (ed). 1989. *The Niger-Congo Languages.* Lanham:University Press of America.

Blackburn,P., Gardent,C. and De Rijke,M. (1996) On Rich Ontologies for Tense and Aspect. In Seligman and Westerståhl (eds).

Blackburn,P. and De Rijke,M. (1997) Zooming In, Zooming Out. *Journal of Logic, Language and Information* 6:5-31.

Blakemore,D. (1987) *Semantic Constraints on Relevance.* Oxford:Blackwell.

Breedveld,J.O. (1995) *Form and Meaning in Fulfulde.* Leiden:Research School CNWS.

Breheny,R. (1996) Pro-Active Focus. *UCL Working Papers in Linguistics* 8:21-60.

Brody,M. (1990) Some Remarks on the Focus Field in Hungarian. *UCL Working Papers in Linguistics* 2:201-225.

Carlson,G.N. (1980) *Reference to Kinds in English.* New York:Garland Publishing.

Carlson,G.N. (1987) Same and Different: Some Consequences for Syntax and Semantics. *Linguistics and Philosophy* 10:531-565.

Carston,R. (1993) Conjunction, Explanation and Relevance. *Lingua* 90:27-48.

Chierchia,G. (1982) Nominalisations and Montague Grammar: a Semantics without Types for Natural Languages. *Linguistics and Philosophy* 5:301-354.

Chierchia,G. and Turner,R. (1988) Semantics and Properties Theory. *Linguistics and Philosophy* 11:261-302.

Chierchia,G., Partee,B. and Turner,R. (eds) (1989) *Properties, Types and Meaning.* Dordrecht:Kluwer.

Chierchia,G. and McConnell-Ginet,S. (1990) *Meaning and Grammar:An Introduction to Semantics.* Cambridge,Massachusetts:MIT Press.

Comrie,B. (1976) *Aspect: An Introduction to the Study of Verbal Aspect and Related Problems.* Cambridge:Cambridge University Press.

Davidson,D. (1967) The Logical Form of Action Sentences. Reprinted in Davidson 1980:105-148.

Davidson,D. (1980) *Essays on Actions and Events.* Oxford:Clarendon Press.

Depraetere,I. (1995) On the Necessity of Distinguishing between (Un)boundedness and (A)telicity. *Linguistics and Philosophy* 18:1-19.

Diallo,A. (1974) *Taalen, tinden.* Conakry: Ministère de l'Enseignement Supérieur.

Dowty,D.R. (1977) Towards a Semantic Analysis of Verb Aspect and the English Imperfective. *Linguistics and Philosophy* 1:45-77.

Dowty,D.R. (1979) *Word Meaning and Montague Grammar.* Dordrecht:Reidel.

Enç,M. (1987) Anchoring Conditions for Tense. *Linguistic Inquiry* 18:633-657

Evans,B. (1996) Event Variables and Davidson's Program in Semantics. *UCL Working Papers in Linguistics* 8:101-110.

Evans,B. (1998) *A Teaching Grammar of Pular.* Grand Rapids:Christian Reformed World Missions.

Fagerburg-Diallo,S. (1983) Discourse Strategies in Pulaar: The Use of Focus. *Studies in African Linguistics* 14:141-157.

Fillmore,C. (1971) *Lectures on Deixis.* (Lectures delivered to the 1971 Santa Cruz Linguistics Institute; distributed by the Indiana University Linguistics Club, Bloomington.)

Fodor,J.A. (1983) *The Modularity of Mind.* Cambridge,Massachusetts:MIT Press.

Freed,A. (1979) *The Semantics of English Aspectual Complementation.* Dordrecht:Reidel.

Gnalibouly,B. and Ivanovna,A. (1982) Les Questions Controversées de la Conjugaison Verbale en Peul. *Bulletin des Etudes Africaines* II 4.27-54.

Graham,R. (1987) *Aristotle's Two Systems.* Cambridge,MA:Harvard University Press.

Green,M. (1993) Focus and Copular Constructions in Hausa. *SOAS Working Papers in Linguistics and Phonetics* 3:205-218.

Greenberg,J.H. (1963) Some Universals of Grammar with Particular Reference to the Order of Meaningful Elements. In Greenberg, Ferguson and Moravcsik (1978:73-113).

Greenberg,J.H., Ferguson,C.A. and Moravcsik,E.A. (1978) *Universals of Human Language. Vol 4:Syntax.* Palo Alto:Stanford University Press.

Grimshaw,J. (1990) *Argument Structure.* Cambridge:MIT Press.

Groenendijk,J.A.G., Janssen,T.M.V. and Stokhof,M.B.J. (eds) (1981) *Formal Methods in the Study of Language.* Amsterdam:Mathematisch Centrum.

Groenendijk,J, Stokhof,M. and Veltman,F. (1996) This Might be it. In Seligman and Westerståhl (eds).

Higginbotham,J. (1986) Linguistic Theory and Davidson's Program in Semantics. In Le Pore (ed).

Higginbotham,J. (1995) *Sense and Syntax.* Oxford:Clarendon Press.

Higginbotham,J. and Ramchand, G. (1997) *The Stage-Level/Individual Level Distinction and the Mapping Hypothesis.* Oxford:Clarendon Press.

Hinrichs,E. (1986) Temporal Anaphora in Discourses of English. *Linguistics and Philosophy* 9:63-82.

Hirschfeld,A and Gelman,S. (1994) Towards a Topography of the Mind: An Introduction to Domain Specificity. In Hirschfeld and Gelman (eds) 1994:3-35.

Hirschfeld,A and Gelman,S. (1994) *Mapping the Mind: Domain Specificity in Communication and Culture.* Cambridge:Cambridge University Press.

Holt,J. (1943) *Etudes d'aspect.* Jutlanda 15.2.

Horvath,J. (1986) *FOCUS in the Theory of Grammar and the Syntax of Hungarian.* Dordrecht:Forus.

Hyman,L.M. and Watters,J.R. (1984) Auxiliary focus. *Studies in African Linguistics* 15:233-273.

Jackendoff,R. (1972) *Semantic Interpretation in Generative Grammar.* Cambridge,Massachusetts:MIT Press.

Jackendoff,R. (1983) *Semantics and Cognition.* Cambridge,Massachusetts:MIT Press.

Jackendoff,R. (1990) *Semantic Structures.* Cambridge:MIT Press.

Jackendoff,R. (1991) Parts and Boundaries. In Levin and Pinker (eds) 1991:9-45.

Jackendoff,R. (1997) *The Architecture of the Language Faculty.* Cambridge, Massachusetts:MIT Press.

Jarvella,R.J. and Klein;W. (1982) *Speech, Place and Action.* New York:Wiley.

Johnson,M,R. (1981) A Unified Temporal Theory of Tense and Aspect. In Tedeschi and Zaenen (eds) 1981:145-175.

Jubien,M. (1989) On Properties and Property Theory. In Chierchia, Partee and Turner (eds) 1989:159-175.

Kamp,H. and Reyle,U. (1993) *From Discourse to Logic.* Dordrecht:Kluwer Academic Publishers.

Kempson,R.M. and Cormack,A. (1981) Ambiguity and Quantification. *Linguistics and Philosophy* 4:259-310.

Kempson,R.M. and Cormack,A. (1982) Quantification and Pragmatics. *Linguistics and Philosophy* 4:607-618.

Kempson,R.M. (1988) *Mental Representations: The Interface between Language and Reality.* Cambridge:Cambridge University Press.

Kenny,A. (1963) *Action, Emotion and Will.* New York:Humanities Press.

Kiss,K. (1987) *Configurationality in Hungarian.* Dordrecht:Reidel.

Klein,W. (1994) *Time in Language.* London and New York:Routledge.

von Klingenheben, A. (1925) Die Permutationen des Biafada und des Ful. *Zeitschrift für Eingenborene Sprachen* 15:180-213 and 15:266-72.

Kratzer,A. (1991) The Representation of Focus. In von Stechow and Wunderlich (eds) (1991:804-825).

Labatut,R. (1981) Remarques sur l'accompli Peul. *Bulletin des Etudes Africaines de l'INALCO* 1:63-70.

Lappin,S. (ed) (1995) *The Handbook of Contemporary Semantic Theory.* Oxford: Blackwell.

Larson,R and Segal,G. (1995) *Knowledge of Meaning.* Cambridge,Massachusetts: MIT Press.

Laserjohn,P. (1995) *Plurality, Conjunction and Events.* Dordrecht:Kluwer Academic Publishers.

LePore,E. (ed) (1986) *Truth and Interpretation:Perspectives on the Philosophy of Donald Davidson.* Oxford:Blackwell.

Leslie,A. (1994) TOMM, ToBY and Agency: Core Architecture and Domain Specificity. In Hirschfeld and Gelman (eds) (1994:119-148).

Levin,B. and Pinker,S. (1991) *Lexical and Conceptual Semantics.* Oxford:Basil Blackwell.

Lyons,J. (1982) Deixis and Subjectivity: Loquor, Ergo Sum?. In Jarvella and Klein (eds) 1982:101-124.

McCoard,J.D. (1978) *The English Perfect in Tense Choice and Pragmatic Inferences.* Amsterdam:North Holland Publishing.

McIntosh,M. (1984) *Fulfulde Syntax and Verbal Morphology.* London:Routledge and Kegan Paul.

Mithen,S. (1996) *The Prehistory of the Mind.* London:Thames and Hudson.

Mittwoch,A. (1982) On the Difference between Eating and Eating Something: Activities versus Accomplishments. *Linguistic Inquiry* 13:113-121

Modrak,D. (1987) *Aristotle: The Power of Perception.* Cambridge:Cambridge University Press.

Moens,M. (1987) *Tense, Aspect and Temporal Reference.*Edinburgh:Centre for Cognitive Science,University of Edinburgh.

Moens,M. and Steedman,M. (1988) Temporal Ontology and Temporal Reference. *Computational Linguistics* 14(2):15-28

Neale,S. (1990) *Descriptions.* Cambridge:MIT Press.

Nicolle,S. (1997) A Relevance Theoretic Account of *Be Going To*. *Journal of Linguistics* 33:355-377.

Paradis,C. (1992) *Lexical Phonology and Morphology:The Nominal Classes in Fula.* New York & London:Garland Publishing.

Parsons,T. (1990) *Events in the Semantics of English: A Study in Subatomic Semantics.* Cambridge,Massachusetts:MIT Press.

Partee,B. (1975) Montague Grammar and Transformational Grammar. *Linguistic Inquiry* 6:203-300.

Partee,B. (1984) Nominal and Temporal Anaphora. *Linguistics and Philosophy* 7:243-286.

Pulman,S.G. (1997a) *Aspectual Shift as Type Coercion.* Ms:University of Cambridge Computer Laboratory and SRI. International Cambridge Computer Science Research Centre.

Pulman,S.G. (1997b) Higher Order Unification and the Interpretation of Focus. *Linguistics and Philosophy* 20:73-115.

Pustejovsky,J. (1991) The Syntax of Event Structure. In Levin and Pinker (eds) 1991:47-81.

Pustejovsky,J. (1993) Type Coercion and Lexical Selection. In Pustejovsky (ed) 1993:73-94.

Pustejovsky,J. (ed) (1993) *Semantics and the Lexicon.* Dordrecht:Kluwer.

Pustejovsky,J. (1995) *The Generative Lexicon.* Cambridge:MIT Press.

Pustejovsky,J. and Boguraev,B. (eds) (1996) *Lexical Semantics: the Problem of Polysemy.* Oxford:Clarendon Press.

Pustejovsky,J. and Bouillon,P. (1996) Aspectual Coercion and Logical Polysemy. In Pustejovsky and Boguraev (eds) 1996:133-162.

Quine,W.V.O. (1960) *Word and Object.* Cambridge:MIT Press.

Reichenbach,H. (1947) *Elements of Symbolic Logic.* New York:The Free Press.

Reyle,U. (1986) *Zeit und Aspekt bei der Verarbeitung Naturlicher Sprachen.* Ph.D. dissertation:University of Stuttgart.

Robert,S. (1991) *Approche Enonciative du Système Verbal: Le Cas du Wolof.* Paris:Editions du Centre National de la Recherche Scientifique.

Rooth,M. (1992) A Theory of Focus Interpretation. *Natural Language Semantics* 1:75-116.

Rooth,M. (1995) Focus. In S.Lappin (ed) 1995:271-297.

Rouchota,V. (1996) Discourse Connectives: What do they Link?. *UCL Working Papers in Linguistics* 8:199-212.

Ryle,G. (1949) *The Concept of Mind.* London:Barnes and Noble.

Sapir,J.D. 1971. West Atlantic: An Inventory of the Languages, their Noun Class Systems and Consonant Alternation. *Current Trends in Linguistics 7: Languages in Sub-Saharan Africa.*

Schein,B. (1993) *Plurals and Events.* Cambridge:MIT Press.

Seligman, K. and Westerståhl, D. (eds) (1996) *Logic, Language and Computation.* Stanford: CLSI Publications.

Smith,N. (1990) Observations on the Pragmatics of Tense. *UCL Working Papers in Linguistics* 2:82-94.

Sperber,D. (1994) The Modularity of Thought and the Epidemiology of Representations. In Hirschfeld and Gelman (eds) 1994:39-67.

Sperber,D. and Wilson,D. (1986) *Relevance: Communication and Cognition.* Oxford:Blackwell.

Sperber,D. and Wilson,D. (1995) *Relevance: Communication and Cognition.* Oxford:Blackwell.

von Stechow,A. (1991) Current Issues in the Theory of Focus. In A. von Stechow and D.Wunderlich (1991:804-825).

von Stechow,A. (1991) Focusing and Background Operators. In W.Abraham (1995: 37-84).

von Stechow,A. and Wunderlich,D. (eds) (1991) *Semantik/Semantics:An International Handbook of Contemporary Research.* Berlin:de Gruyter.

Steedman,M.J. (1981) The Nature of Temporal Reference Explains the Variety of Tenses, Aspects and Time Adverbials. Paper presented at the Sloan Workshop, Ohio State University.

Sylla,Y. (1982) *Grammaire Moderne du Pulaar.* Dakar:Nouvelles Editions Africaines.

Szabolcsi,A. (1981) The Semantics of Topic-Focus Articulation. In Groenendijk, Janssen and Stokhof (1981:513-540).

Tedeschi,P. and Zaenen,A. (eds) (1981) *Tense and Aspect.* New York:Academic Press.

Tenny,C.L. (1994) *Aspectual Roles and the Syntax-Semantics Interface.* Dordrecht:Kluwer Academic Publishers.

Thomason, R. (1972) A Semantic Theory of Sortal Incorrectness. *Journal of Philosophical Logic* 1:209-258.

Thomason, R. (1976) On the Semantic Interpretation of the Thomason 1976 Fragment. University of Pittsburgh ms.

Tichy,P. (1980a) The Logic of Temporal Discourse. *Linguistics and Philosophy* 3:343-369.

Tichy,P. (1980b) The Semantics of Episodic Verbs. *Theoretical Linguistics* 7:263-369.

Tichy,P. (1985) Do We Need Interval Semantics. *Linguistics and Philosophy* 8:263-282.

Vendler,Z. (1957) Verbs and Times. *The Philosophical Review* 66:142-160.

Vendler,Z. (1967) *Linguistics in Philosophy.* Ithaca NY:Cornell University Press.

Verkuyl,H.J. (1989) Aspectual Classes and Aspectual Composition. *Linguistics and Philosophy* 12:39-94.

Verkuyl,H.J. (1997) *Events as Dividuals: Aspectual Composition and Event Semantics.* Utrecht Institute of Linguistics Working Papers.

Vlach,F. (1993) Temporal Adverbials, Tenses and the Perfect? *Linguistics and Philosophy* 16:231-283.

Webber,B.L. (1988) Tense as Discourse Anaphor. *Computational Linguistics* 14(2):61-73

Williamson,K. (1989) Niger-Congo Overview. In Bendor-Samuel 1989:3-45.

Wilson,D. and Sperber,D. (1993a) Linguistic Form and Relevance. *Lingua* 90:1-25.

Wilson,D. and Sperber,D. (1993b) Pragmatics and Time. *UCL Working Papers in Linguistics* 5:277-298.

Wilson,D. (1996) Course notes on Issues in Pragmatics 1996-97. University College London ms.

Wilson,W.A.A. (1989) West Atlantic. In Bendor-Samuel 1989:81-104.