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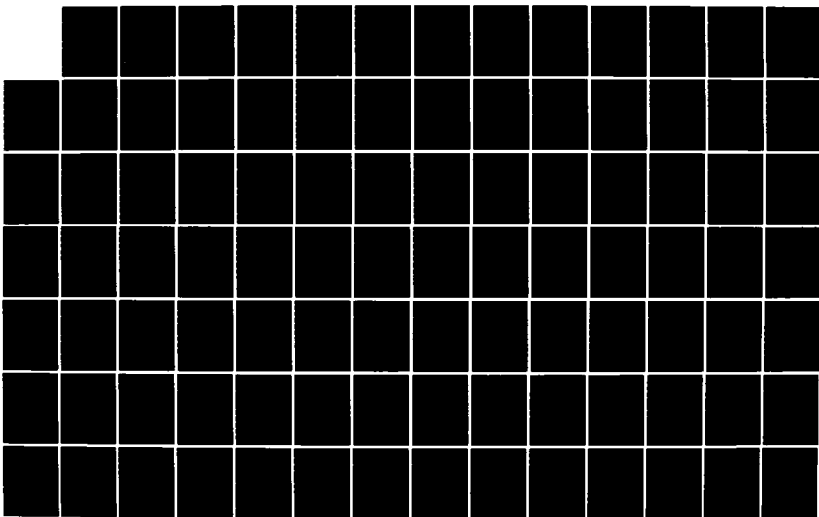
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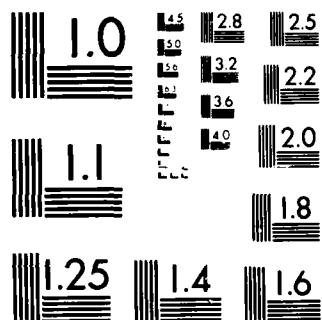
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Choosing Tense in English

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
1. REPORT NUMBER ISI/RR-84-143	2. GOVERNMENT AGENCY OR RECIPIENT'S CATALOG NUMBER AT 149 2774		
4. TITLE (and Subtitle) Choosing Tense in English		5. TYPE OF REPORT & PERIOD COVERED Research Report	
		6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s) Christian Matthiessen		8. CONTRACT OR GRANT NUMBER(s) F49620-79-C-0181	
9. PERFORMING ORGANIZATION NAME AND ADDRESS USC/Information Sciences Institute 4676 Admiralty Way Marina del Rey, CA 90292-6695		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
11. CONTROLLING OFFICE NAME AND ADDRESS Air Force Office of Scientific Research Building 410, Bolling Air Force Base Washington, DC 20332		12. REPORT DATE November 1984	
		13. NUMBER OF PAGES 148	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) 		15. SECURITY CLASS. (of this report) Unclassified	
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report) This document is approved for public release; distribution is unlimited.			
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) 			
18. SUPPLEMENTARY NOTES <i>included</i>			
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) artificial intelligence, choice expert, chooser, chooser framework, discourse production, functional linguistics, functional grammar, grammar, inquiry semantics, logical function, primary tense, secondary tense, serial tense, system network, systemic grammar, tense grammar, tense semantics, text generation, text production, verbal group . <i>←</i>			
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report explores the semantic strategies for choosing tense in English in a purposeful way, as a subprocess of the process of generating text. First, a systemic grammar of English tense (based on work by M.A.K. Halliday) is introduced. The basic assumptions are that the tense opposition is a trinary one and that repeated selections can be made from it. Next, a framework for stating the semantic conditions for appropriate tense choices (the chooser framework) is developed. The interpretation of the tense proposed in the report is then compared to some of the major alternative interpretations. The remainder of the report is devoted to the semantics of tense choice in English stated in terms of the chooser framework.			

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This research was supported by the Air Force Office of Scientific Research Contract No. F49620-79-C-0181. The views and conclusions contained in this paper are those of the author and should not be interpreted as necessarily representing the official policies or endorsements, either expressed or implied, of the Air Force Office of Scientific Research of the U.S. Government.

ACKNOWLEDGMENTS

Choosing Tense in English was made possible by many people. I am deeply grateful to Prof. M.A.K. Halliday. The grammar of tense used in this report is due to him—he has patiently spent time explaining it to me, providing me with many insights. The grammatical framework used to explore tense here is also his creation: without it my task would have been impossible. I am also deeply indebted to Prof. S.A. Thompson, Prof. P.M. Schachter, and Prof. E.L. Keenan. They have given me very helpful and copious comments on this version as well as an earlier version which served as my M.A. thesis. I am particularly grateful to Prof. Thompson, who has patiently helped this work from its untidy beginnings. My indebtedness to Dr. W.C. Mann is also immense. The work on a characterization of how to choose tense in a purposeful way started in discussions with him and he has continued his support all along. The problem addressed was formulated with his help. He has also created part of the framework used in stating the solution suggested. Without him, there would not have been a solution either. I would also like to thank Christine Matthiessen for many valuable comments, which have prevented a great many unclarities and errors.

In an area such as tense, one is acutely aware of the vastness of past and present scholarship and the great difficulties in absorbing and integrating all the relevant work. Many people from different traditions and centuries have been tremendously helpful in my work, both through their written work and in discussions and seminars. I am very grateful to all of them. The importance of many of them is reflected in the references, but there are many more, of course. In particular, I have profited from the work of Dr. S. Platzack and Prof. B. Comrie.

I have, of course, provided errors and misconceptions on my own. I am also solely responsible for not heeding good advice when it was given.

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1. INTRODUCTION

1.1. The basic question and the basic answer

The basic question I will address here is, "how is an appropriate tense combination chosen for a clause in English?" This is a question about the *purposeful control of tense selection* in the generation of a clause. Although the scope of it is defined by grammar (since tense is a grammatical domain), the question is a functional semantic question. It is functional in that grammar is seen as a resource and controlling it purposefully means stating how it functions in the context of a communicative task. Tense is seen in terms of what it does for us, in terms of what its contribution is in communication. It is also a semantic question: by saying something about the conditions under which a particular tense is chosen, we say something about its meaning. The question presupposes that the grammatical options from which tense combinations are chosen have been specified. I will do this using Systemic Grammar, but the emphasis is on the meaningful control of the choosing from the grammatical options. For each grammatical tense option (encoded as a system in Systemic Grammar), I will develop a chooser that states how the selection among the options specified is controlled. A chooser is a procedure that consists of steps that ascertain conceptual distinctions and make grammatical choices according to the conceptual distinctions.

The basic answer to the question has two parts: (1) A tense selection is a specification of precedence between (ordering of) two times, and (2) choosing the tense requires identifying the relation between the times. (For example, the condition under which the simple past tense is chosen—its choice condition—is that of a precedence relation between now and another time.) This answer presupposes that tense in the grammar is seen as a repetition of the distinction past vs. present vs. future, so that so called complex tenses are built up from combinations of these three features (see [Halliday 76a]).

1.2. Choosing tense as part of generating text

Choosing tense is one of the processes used in generating text. More specifically, tense choosers belong to the set of choosers whose task it is to control the grammar so that it generates in conformity with the speaker's goals for the text he or she is creating. Let me put this in the context of a linguistic model of text generation, a text generator.

1.2.1. Overall organization

Following an expository design by William Mann, we can see a text generator as consisting of four processes: Acquisition, Planning, Sentence generation, and Improvement. Each one of these processes can call on different resources in the text generator such as knowledge base, rhetorical strategies, and grammar. Assume that a communicative need for text has arisen outside the text generator. The text will be produced in response to this need, but before this process can start the need for text must be specified more explicitly and in more detail, becoming the goals the text is intended to achieve. The goals are stated as reader states, the resultant effects the text is intended to accomplish. The process of producing the text is thus a process of goal pursuit. It starts with Acquisition:

Acquisition	Based on the goals for the text, the Acquisition module searches for relevant information that might be included in the text or influence its organization. In particular, information about time is acquired.
--------------------	--

Planning Based on the relevant information from Acquisition and the goal that this module responded to, the Planning module creates a plan for the text to be produced. The plan specifies the organization of the text down to at least units that can be realized (expressed) by independent clauses, controlling the speech act and propositional content of each clause, the order of units expressed by clauses, the positions of paragraph breaks, the identity of the theme of each clause, the use of any kind of emphasis or attention-getting devices and specifying any explicit conjunctive relations between clauses. The time relations to be expressed are planned, e.g., what the current frame of reference is, what is main line and what is flashback, and so on. The result is essentially a chain of times defined by temporal relations such as precedence.

Sentence generation

Based on the plans for clauses created by Planning, this module produces a clause for each planned clause. Tense expressions are chosen in conformity with the planned temporal relations.

Improvement The Improvement module tries to improve the resulting text in various ways. It examines the text, identifying unfortunate effects for which it proposes remedial changes to the plan. It installs the changes in a variant of the prevailing plan, and returns to the Sentence generation module to have the plan executed. When there are multiple variants of a plan, Improvement evaluates the alternatives to find the best and then tries to improve it in turn.

The generation process stops when Improvement cannot find ways of changing the text plan to improve the value assigned to the text by the evaluator in the Improvement module.

These modules of processes must be supported by extensive resources. Figure 1-1 shows the modules. The resource support for the processes is the central concern for much of the ongoing research today.¹ Grammar emerges as one of the particular well-recognized needs for a resource (cf. [Mann 81]). In particular, the Sentence generation module must have a grammar of a natural language.²

1.2.2. Grammar and semantics

We can localize the grammatical knowledge in a text generation system in the Sentence generation module. The task of the grammar is to be a resource for the rest of the system. The grammar has to be able to express the relevant information identified by Acquisition and present it according to the plans produced by

¹ Acquisition and Planning are supported by a knowledge base, cast in terms of some form of knowledge representation language. The representation of time is notoriously difficult. Various time (or temporal) logics (usually somewhat misleadingly called tense logics) have been developed to deal with some of the problems of representation. Questions of how to represent time and time relations are outside the scope of my account. For a recent model that addresses both reasoning about time and the need to support linguistic expression, see [Allen 84].

² Experience with text generation in computational linguistics has shown that unless this is a flexible, elaborate, linguistically justified grammar, the resulting text tends to be awkward and hard to comprehend. Some of the best results to date have been obtained using grammars from the system-to-functional families of grammars (cf. Winograd's term feature and function grammars in [Winograd 82]), e.g. system grammars of Davies which use [Davies 79] and Functional Unification Grammar (see [Kay 79]) in McKeown's system (see [McKeown 82]).

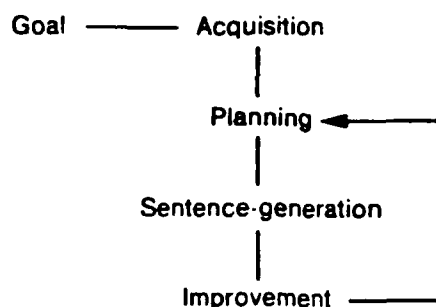


Figure 1-1: Processes in text generation

Planning.³ It is the grammar of the system that specifies the grammatical options (choices, alternatives). The collection of these options determine what the system can do grammatically; in other words, it determines the grammatical potential of the text generation system.

If we consider our task to be the formulation of the grammar of a language as a resource (for a text generator), a natural consequence is that we organize the grammar around the notion of choice: the grammar can be organized as a collection of choices among grammatical alternatives such as indicative vs. imperative, declarative vs. interrogative, benefactive vs. non-benefactive, transitive vs. intransitive, etc. Such a collection will represent the grammatical potential (ability) of the text generation system.

It is of course not sufficient to specify the grammar (although this is often where recent linguistics has stopped); the choices in the collection of choices have to be controlled in a purposeful way. In other words, we must have a mechanism that knows how to make the grammatical choices in a principled way so that each choice that is made is a contribution towards the goals specified for the text to be generated. For instance, the mechanism must choose to make a clause imperative on the basis of the speech act that has been specified in a local plan by Planning.

Each choice point in the grammar (system, see Section 2.1.2) is assigned a choice mechanism, a so-called **chooser** (or choice expert). The chooser knows how to select among the alternatives of the choice point. It obtains the relevant information by presenting inquiries to the parts of the text generation system where conceptual information resides, for instance the knowledge base and text plans. We will call these other parts the **environment** of the grammar and its choosers. The environment reacts to the chooser inquiries by providing the choosers with responses, the basis for further chooser activity. The organization of the interaction is summarized diagrammatically in Figure 1-2. Section 1.3 discusses the constraining assumptions I will make about the two lower strata in the figure.

In my account of tense, I will focus on the grammar and its choosers. A particular grammar and set of choosers is under development by Halliday, Mann, and myself. This particular chooser-grammar component for text generation is called **Nigel**. The material to be presented is drawn from the design of Nigel.

³ At the same time, of course, the grammar raises demands on other components of the text generator. For instance it determines what must obligatorily be included for expression in English: what kind of factors Planning has to keep track of, and so on.

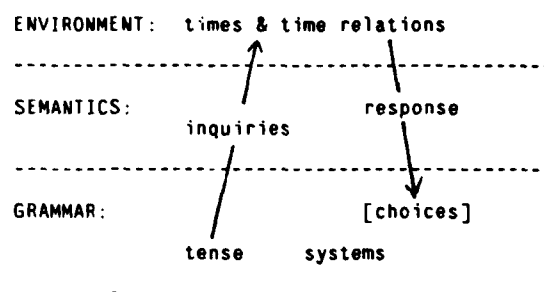


Figure 1-2: Purposeful choice of tense

1.3. Basic assumptions: grammar and inquiry semantics

Following Halliday (see [Halliday 76a]), I will make two central assumptions about the grammar of English tense. One has to do with the tense opposition and the other with possibility of repeating selections from the tense opposition. I will also make two closely related assumptions about the semantic inquiries, one about the opposition and one about the repeatability:

1. **The tense opposition:** Grammatically, we are making an assumption about tripartition. Tense in English is a three-term opposition (the traditional assumption): past (e.g., *built*) vs. present (*build*) vs. future (*will build*). Semantically, the assumption is that this three-term tense opposition is interpretable in terms a precedence relation between two time variables.
2. **Seriality:** In the grammar, complex tense combinations can be constructed from repeated selections from the three term opposition. The corresponding semantic assumption is that complex tenses correspond to a series of the time relation mentioned in [1]. Serial tense is chosen to represent serial time.

These assumptions are well justified on a number of different levels. There are grammatical and semantic arguments in favor of them, as well as considerations having to do with how the tense resources function in discourse. In order to give a unified and coherent presentation of the overall organization of my account of tense, I will postpone a detailed justification of the account until Chapter 6, which begins the examination of alternative interpretations.

1.3.1. The tense opposition

The assumption that the grammatical tense opposition is a tripartition means that *will* (as in *The ideas developed and explored in various forms in Chapters 2-5 will be reformulated... in Chapter 6*) is not treated as a modality marker, but as a future tense marker. The assumption contrasts with interpretations of the English tense system as binary.

Semantically, here is one relation of precedence (anteriority), symbolized by "C", plus its negation, "C̄". The two times that may be temporally related by precedence, call them T_x and T_y , can be related as follows: $T_x \subset T_y$ (future in the grammar), $T_y \subset T_x$ (past in the grammar), or neither, i.e., a lack of a precedence relation between the two times (present in in the grammar). Thus, there are three possible

temporal relations, each corresponding to one of the three terms in the grammatical tense opposition.⁴ We may note here already that T_x and T_y can be either moments or intervals; the distinction plays no part in English tense.

1.3.2. Seriality

According to the second assumption, what is often called aspect (the progressive and sometimes the perfect) or phase (the perfect) is more usefully interpreted as terms from the three-term opposition deriving from secondary selections from it. For example, a complex tense may be past-in-future-in-present (to use Halliday's labelling scheme to be explained below), *is going to have built*, where we have three independent selections from the basic opposition, "past", "future" and "present".

The assumption about seriality means that the task of choosing a tense combination is seen as both grammatically and semantically compositional; the recurring distinction of which combinations are composed is past vs. present vs. future in grammar and the temporal relations of [1] above in semantics.

For every clause (except for modalized and nonfinite ones), we need to identify event time and speaking time. There are two "worlds": the world of the speech event and the world of the event/situation reported in a clause. Tense relates these worlds temporally, i.e., by relating the times that fix the worlds, speaking time and event time. These are directly related only if there is no more than one tense. If a clause selects more than one tense, they are related indirectly through intervening times. We can think of this as a chain (with minimally one link) of temporal relations between the two endpoints speaking time and event time. We will see that the starting point in the construction of this chain is the speaking time.

For each particular clause, time values are assigned to the time variables. Text-planning determines these assignments. In other words, given a particular state of affairs reported at a particular time, we cannot predict the tense that will be used to talk about the state of affairs without considering how the report fits with the purpose and focus of the text: questions like "Are we talking about the current situation or about a past chain of events?" are relevant to the assignment of values to the time variables.

From the assumption of [2] that complex tenses arise from the pairwise comparison of times of [1], it follows that each new tense is only oriented with respect to the current values of T_x and T_y ; each new tense selection entails assigning new values to these tense variables. In other words, the time of reference (reference time) is shifted for each new tense selection: for each new reference time there is a new comparison time.⁵ For example, a future in the past may be future even with respect to "now".

These assumptions form the basis of the account of how to choose tenses in English. They are summarized in the table in Figure 1-3.

⁴To deal with the so-called progressive as a tense, we can use an additional relation of inclusion. I will return to this problem briefly in Section 15.4

⁵Reference time simply means 'time with respect to which another time is ordered'; another time is identified through reference to this time. A clearer (but more cumbersome) term would perhaps be *time of reference frame*. This time is always the T_x of a T_x and T_y pair. Comparison time is the T_y time of such a pair.

	Grammar	Semantics
Opposition	past/present/future	TyCTx, TxCTy, neither
Seriality	repeated selections tense opposition	new values for Tx, Ty pair

Figure 1-3: Basic assumptions for grammar and semantics

1.4. Organization and conventions

The report is organized into five parts:

1. General overview of the account,
2. Review of some important accounts of tense and tense in English in particular,
3. Primary tense: a detailed discussion,
4. Primary tense: a short discussion of the principles of inquiry representation, and
5. Secondary tense: a detailed discussion.

1.4.1. Overview

Chapter 2 presents a version of Halliday's grammar of English tense and the systemic notation necessary for the rest of the discussion.

Chapter 3 introduces the notion of a chooser and shows how the assumptions about what tense inquiries have to ask about are represented in the inquiry framework. Chapters 4 and 5 discuss the notions of time and time relations in choosers and beyond them and grammatical resources other than tense for temporal reference.

1.4.2. Review of alternative tense accounts

Chapters 6 through 9 examine a range of accounts of tense proposed in the literature and offers arguments against proposals that run counter to the one developed here. Chapters 10 through 13 present the details of my account of how to choose tense.

1.4.3. Primary tense

Chapter 10 deals with the chooser of primary tense (the term is explained in Chapter 2). Then, in Chapter 11, various uses of primary tense are shown to be consistent with this chooser account. Chapters 12.1 and 12.2 summarize arguments against alternative interpretations of primary tense.

1.4.4. Principles of inquiry representation

Chapter 13 examines the question of what level of generality tense inquiries (and hence inquiries in general) should represent. The status of tense uses and inferred tense meanings is discussed.

1.4.5. Secondary tense

Chapter 14 deals with secondary tense. Chapter 15 explores the competition among primary and secondary tense combinations that are candidates for expressing similar time relations. Chapter 16 briefly discusses higher-order tenses (tertiary, quaternary and quinary).

1.4.6. Conventions used

Throughout the discussion I will use both constructed examples and examples that have occurred naturally. Unless a source is specified in the introduction of an example or given in parentheses after the example, it has been constructed as an illustration. To indicate that an example is by me, I tend to include *Henry* (rather than John, who could be anybody's brain child). Special symbolic conventions include:

- Grammatical features are underlined, as with past.
- Grammatical functions are printed in small capitals, as with PROCESS.
- Whenever necessary, semantic categories are capitalized, as with PAST.
- Concepts are also capitalized, as with GAZEBO-BUILDING.

Additional systemic and chooser conventions will be explained as they arise.

1.5. Sources

The present account of how to choose tense builds on Halliday's grammatical analysis of tense. What is presented here is an attempt to cast this insight in terms of choosers for each tense system. References are either to a published account in the collection [Halliday 76b] or (when no source is given) to lectures, manuscript material, and personal communication.

The discussion here concerns primarily the systemic tense resources of English. [Matthiessen 83a] contains an example of how these resources are used in text production. Part of the material presented in this report can be found in [Matthiessen 83b].

There are a number of reports that deal with the task of text generation of aspects thereof. e.g., [Mann 83a], [Mann 83b], [Mann 83c], [Mann 82], [Matthiessen 81], and [Matthiessen 83c].

2. HALLIDAY'S GRAMMAR OF TENSE

As an elaboration of the assumption of Section 1.3 and for future reference, I will present Halliday's grammar of tense—a specification of what the tense potential of English is and what tense markers function as realizations. But first I will introduce the notion of *system* as understood in systemic linguistics since it plays a central role in this account of how to choose tense in English.

2.1. Framework: Systemic grammar

Systemic grammar is a framework that originated in Britain with work by Michael Halliday in the 1950s. It comes from quite a different tradition in linguistics than the American tradition, which Chomsky's work reacted against. There are a number of important points that should be made for an understanding of what the framework is like and why it has been designed in that particular way. Unfortunately, such a general introduction would take us too far away from our present concern. I will concentrate on one aspect of systemic grammar: the paradigmatic organization of grammar which comes from a functional view of grammar as a resource for achievement of higher-level purposes.

2.1.1. Paradigmatic organization

Seeing language in a functional perspective means among other things seeing language as a resource in communication. In particular, grammar is a resource for meaning; grammar enables us to mean. We can derive the notion of choice from the notion of resource: a choice in grammar is a minimal alternation in what can be done grammatically—what resources are open to a language user? Choices are not independent and isolated from one another, but have an organization of their own. This is the *paradigmatic organization* that linguists such as Saussure, Hjelmslev, and Firth emphasized and explored.

The first observation to make about the systemic framework is that it pays attention to the paradigmatic organization of grammar as well as the structures (syntagmatic organization) that realize the various paradigmatic possibilities. This will turn out to be important for the present discussion of English tense. The point is not that other frameworks completely ignore the paradigmatic dimension. Rather, they do not make much use of it; it is usually left implicit in the treatments of structure.⁶ This may not become apparent in "normal" grammatical work, nor in semantic work concerned with the interpretation of structure. (By "normal", I mean either the traditional task of parsing—assigning structures to given examples—or the acceptance of grammatical sentences and the rejection of ungrammatical ones.) However, the lack of explicit attention given to the paradigmatic axis becomes very clear when language is seen as a resource (and not as a system of rules for accepting or rejecting sentences on the basis of grammaticality; cf. [Halliday 77]) and the issue is one of intentional control of this resource.⁷ When we see language as a resource, we are interested in the possibilities the resource gives a speaker in communication and the primary representation of these possibilities is the paradigmatic organization.

⁶For example, [Sampson 80] (p. 228) notes in his discussion of systemic grammar that choice is a central notion but that "in a Chomskyan grammar the choice-points are diffused throughout the description, and no special attention is drawn to them" and that "a Chomskyan grammar does nothing to make <interdependencies> between choices explicit—that is not its aim". In contrast, that is one of the aims of Systemic Grammar.

⁷It is possible to identify a family of systemic grammars (cf. [Winograd 82]) where attention is paid to paradigmatic organization — e.g., Daughter Dependency Grammar / Unistrukture Grammar (see, e.g., [Hudson 76] and [Schachter 80]) and, from what I have seen (Kay, pc), Kay's Functional Grammar (Unification Grammar, now called Functional Unification Grammar; see [Kay 79]). It should be possible in principle to adapt the present account of tense to any of these.

2.1.2. The system: an option in the grammar

Every term in a (paradigmatic) distinction (contrast, opposition, alternation, choice point) is given a feature label. If the basic tense distinction in English is a three-term (or three value) distinction, the features past vs. present vs. future can be used to name the terms (values). The distinction itself is represented as an OR-relation among its terms. This is part of the system of systemic grammar, i.e., a specification of the features from which one feature must be chosen. The system consists of this specification of the options plus a statement specifying when the opposition holds (i.e., when the system becomes available; the **entry condition** of the system). For example, since there is no primary tense distinction for imperative clauses in English, the primary tense systems (PrimaryTense) has to have indicative⁸ as its entry condition, thus excluding imperative clauses. Diagrammatically, we can represent this as follows (see Figure 2-1). (Below, this grammar fragment will be slightly revised. Since all indicative clauses do not have a primary tense selection, the entry condition will be made more delicate: only a subclass of indicative clauses select for primary tense.)

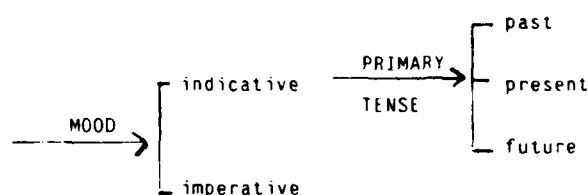


Figure 2-1: The primary tense system in English

This is part of the grammar (in addition there have to be statements about how these features are realized).⁹ Together, the two systems Mood and PrimaryTense constitute a fragment of a **system network**: one system has a feature option (indicative in Mood in this example) which is the entry condition (or part of it) of another system (PrimaryTense here).

2.1.3. Representing the basic grammatical assumptions in the systemic framework

The first assumption about the grammar of tense says that the basic tense contrast is a **tripartition**. We have already seen how this is represented systemically in the previous section: the three member contrast is represented by a three-term system.

The **seriality** assumption is represented by system interdependencies and a loop in the grammar. These mechanisms will be illustrated now.

⁸System names will be written as one symbol, feature names will be underlined

⁹The realization of systemic choices is the least documented part of the systemic framework. However, since my emphasis is on the control of the choices and not on the structural realization, I will not discuss that aspect here. The grammar of tense (including realizations) is part of the Nigel grammar that has been implemented and tested. See for example [Mann & Matthiessen, 83] and [Matthiessen, 83d]. For a discussion of the sequence of auxiliaries, see [Schachter, 81] and the following discussion of the serial realization of tense selections.

2.2. The tense potential: the system network of tense

The following aspects of Halliday's grammatical treatment of tense (see, e.g., [Halliday 76a], [Halliday 82], and [Muir 72] for a shorter presentation) will be adopted. The full tense grammar (see [Halliday 76a]) is represented in Figure 2-2. The systems have been numbered to facilitate reference to them.¹⁰

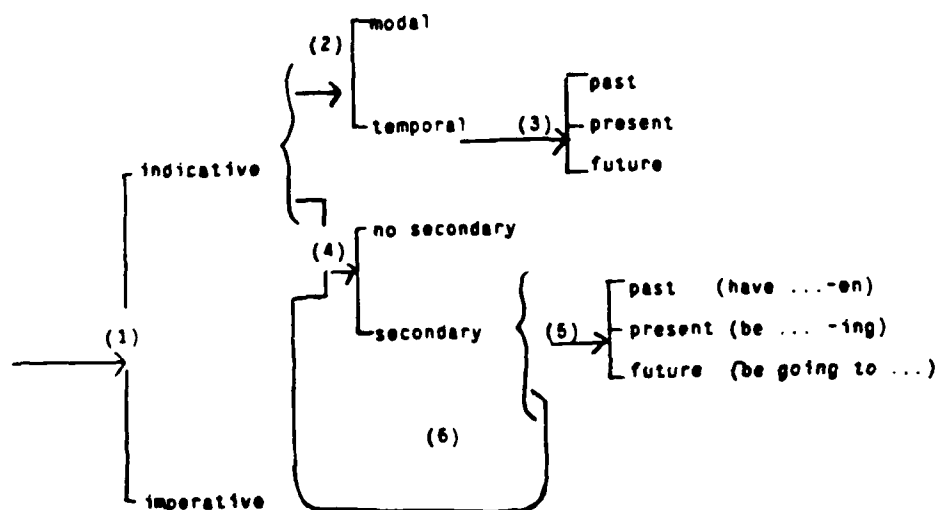


Figure 2-2: The tense system network

Here are examples of each option defined by the grammar:

SYSTEM	FEATURE	EXAMPLE
(1) Mood	imperative indicative	Build a gazebo! Sir Chris built a gazebo. Sir Chris did build a gazebo. Did Sir Chris build a gazebo? What did Sir Chris build?
(2) Deicticity	modal	Sir Chris may have built a gazebo. Sir Chris may build a gazebo.

¹⁰The square brackets represent OR: the curly brackets mean that all the systems enclosed by them have to be entered. If secondary is chosen, the system: past OR present OR future can be entered and, as the loop back indicates, so can the system secondary OR no secondary. The loop allows us to go through the system more than once: the first time we get secondary tense, the second time tertiary tense and so on: see Section 2.2.2 for the labels

	temporal	Sir Chris may be building a gazebo. Sir Chris built a gazebo. Sir Chris builds gazebos. Sir Chris will build gazebos. Sir Chris had built a gazebo.
(3) Primary	past	Sir Chris built a gazebo. Sir Chris had built a gazebo. Sir Chris was going to build a gazebo.
	present	Sir Chris was building a gazebo. Sir Chris builds gazebos. Sir Chris has built a gazebo. Sir Chris is building a gazebo. Sir Chris is going to build a gazebo.
	future	Sir Chris will build a gazebo. Sir Chris will have built a gazebo. Sir Chris will be building a gazebo. Sir Chris will be going to build ...
(4) Secondary	no secondary	Sir Chris built/builds/will build gazebos.
	secondary	Sir Chris had/has/will have built gazebos. Sir Chris was/is/will be building gazebos. Sir Chris was/is/will be going to build gazebos.
(5) Secondary Type	past	Sir Chris has/had/will have built gazebos.
	present	Sir Chris was/is/will be building gazebos.
	future	Sir Chris was/is/will be going to build gazebos.

2.2.1. Systems in the network

Mood, system (1), is the system in the grammar where imperative clauses are distinguished from indicative clauses. It is included in the grammar of tense although it is not a tense system because it defines the context in which a clause can select for a primary tense: only indicative clauses may have a primary tense specification. In the same way, I will assume that there is no secondary tense in imperative clauses. This is not entirely correct; cf. [Halliday 76a], p. 125.¹¹

Deicticity: However, as system (2) shows, an indicative clause only has a primary tense (as specified in system (3) to the right of system (2)) if it is temporal, but not if it is modal. The latter feature means that a

¹¹Only finite clauses make the distinction between indicative and imperative and it can probably be assumed without any argument for independent clauses. For purposes of tense dependent finite clauses are like indicative independent clauses. Dependent nonfinite do not of course select for modality nor for primary tense, but they do select for secondary tense except for infinitival clauses when they are used to report imperative clauses. To keep the discussion manageable I will not go into these issues here.

modal auxiliary is present instead of the primary tense distinction.¹²

Primary tense (system (3), already shown in Figure 2-1 above), the first tense selection we come to in the grammar as we develop tense, is the one that is expressed by the past form of the finite verb for the past, by the base form for the present, and by *will* plus infinitive for the future.

Secondary tense, system (4), encodes the choice between having a secondary tense and not having one. If we decide to have one,¹³ i.e., if we choose secondary, we specify the secondary tense type in system (5).

Both *Primary tense* and *Secondary tense type*, system (6), are based on the same principle: the basic tense distinction of which they are instances is past vs. present vs. future. This principle is the tripartition assumption of Section 1.3 above. There is no strong reason why they should not be unified into one system to represent the commonality. However, it is useful to keep them distinct, partly because the three options are realized in different ways, depending on whether the tense is primary or secondary. The realizations of the options are stated in Figure 2-4.¹⁴

2.2.2. Secondary tense: seriality

Systems (4) and (5) can be reached more than once; the loop back, (6) in the figure, allows us to re-enter system (4) once we have decided to have a secondary tense. Since we use the same system, *SecondaryTense* in the diagram, to represent all the instances of reaching this system, i.e., to represent a series of tenses, we will call all of the tenses that can be generated by this system *nonprimary* or *secondary* tenses. We will also need to have a "counter" on the system to keep track of whether (in any given instance) it is reached for the first time, the second time, the third time and so on. The first time we come to systems (4) and (5) they represent second order tense, the second time third order or tertiary tense, the third time fourth order or quaternary tense, and the fourth time fifth order or quinary tense.¹⁵ I will use the term *secondary* for second order tense (when system (4) is reached for the first time) as well as for the class of tenses generatable by system (4). I will speak of either secondary tenses (individually, secondary, tertiary, quaternary and quinary) or of the specific tense secondary tense. Hopefully, the sense intended will always be clear from the context. The distinction we have drawn between the general notion of secondary tense and the various instances of it is really a distinction between type and token. The names of the system type of tokens of it are summarized in Figure 2-3.

¹²For a discussion see, for example, [Halliday 70] and [Halliday 82]: the alternation between, e.g. *may* and *might* is not treated as a tense alternation, see [Halliday 70].

¹³For instance, *Henry ate the duckling* represents a choice of primary past and a choice of no secondary (i.e., a choice not to have a secondary tense). *Henry had eaten the duckling (when the farmer arrived)* represents a choice of primary past, expressed by the past form of "have", a choice of secondary (i.e., a choice to have a secondary tense), and a choice of secondary past, expressed by the presence of a form of "have", which is determined by the tense selection in primary tense: here we get *had*.

¹⁴Primary future has an alternation between *shall* (first person) and *will* (second and third persons) in some varieties of English. For the sake of simplicity, I will ignore this and only use *will* when I refer to the marker of the primary future. Extensive discussions can be found in [Jespersen 31] and [Wekker 76]. Secondary future includes the markers *be about to* and *be to* (though the latter never occurs in a nonfinite form) in addition to *be going to*. Although these two may occur in examples, I will concentrate on *be going to*. *Would* as a realization of future-in-past (cf. below for the label) should also be mentioned: it will occur in some examples.

¹⁵These terms suggest that the same type of thing is going on in tense as with Jespersen's notion of rank. This is correct up to a point, but there are differences. (See [Halliday 79a] for an elaboration of linear recursion in language.)

TYPE	TOKEN
secondary	secondary tertiary quaternary quinary

Figure 2-3: The secondary system type and tokens of it

The loop back in the diagram represents the seriality assumption of Section 1.3. The system *SecondaryTense* (the name is written as one symbol for convenience) is the system where we choose between having and not having a secondary tense. The next system, *SecondaryTenseType*, is the place where we choose among past, present and future secondary tense, once we have decided to have a secondary tense.

	Primary tense	Secondary tenses
Past	did / -ed	{have} ... -en
Present	do / Ø	{be} ... -ing
Future	will / 'll	{be going to} ...

Figure 2-4: Tenses and their realizations

Secondary tense selections are sometimes called aspect (the so-called progressive), phase (or aspect; the so-called perfect), or are simply treated as periphrastic expressions for future time (*be going to*). To keep the discussion manageable in length, I will not justify the treatment of the so-called progressive (aspect) as the present option of *SecondaryTenseType* in any great detail; there will be some discussion in Chapter 14. In general, I will concentrate on the options past and future as secondary tenses. I will indicate why it is justifiable to treat *have* as a tense auxiliary rather than as an aspectual marker (see Chapter 14).

2.2.3. Table of primary and secondary tense combinations

The most common tense combinations are simple primary tenses (with no secondary tense) and combinations of primary and one secondary tense (but no further secondary tenses) and it may be useful to tabulate these tense combinations and their expressions. The table in Figure 2-5 shows what tense expressions are generated by systems (1), (2), and (3) (choosing no secondary when the loop brings us back to (2) so that the process of tense selection terminates).

2.3. Actual tense selections from the potential

If there are no restrictions on the "looping mechanism", we will get infinitely complex tenses. However, there are restrictions. For example, the same secondary tense cannot be chosen twice in a row. The following example is odd:

Henry is going to be going to cook dinner.

		SECONDARY TENSE			
		secondary			no secondary
		past	present	future	
PRIMARY TENSE	past	had built	was building	was going to build	did build/ built
	present	has built	is building	is going to build	does build builds
	future	will have	will be building	will be going to build	will build

Figure 2-5: Tense expressions for primary and secondary choices

It has both a second order future (from going through system (3) the first time) and a third order future (from going through system (3) a second time).

2.3.1. Stop rules

The restrictions on the possible combinations of secondary tenses are called "stop rules" by Halliday and can be stated as follows.

1. The same tense feature cannot be selected twice consecutively other than as primary and second order (secondary) tense. (Restriction on going in the same direction)
2. As higher than first order tense choice (i.e., as a secondary, tertiary, or quaternary tense), future can be selected only once. (Restriction on zig-zagging)
3. A secondary present selection ends a series of tense selections.

The first stop rule prevents combinations that would be realized as, e.g., *Henry had had cancelled his appointment*.¹⁶ The second stop rule prevents, e.g., *Henry will be going to have been going to cancel the appointment with his dentist*.

I will return to these stop rules to consider whether they are grammatical, semantic (i.e., chooser) or other restrictions (see Section 16.5). We will see that they are not part of the grammar and that they are not inviolable. However, let us first look at what happens if we assume that the stop rules apply categorically.

¹⁶ Examples with more than one selection of past are arguably worse than the corresponding examples with future. For instance, *Henry had had cancelled* is arguably worse than *Henry will be going to be going to cancel*. If we want to recognize this, the first stop rule should be relaxed for future.

2.3.2. Version of tense grammar without loop

The result is that the generation of tenses stops after the third pass back through the loop in the grammar in Figure 2-2. To make this explicit, we can redraw the grammar without the loop (and thus without secondary tense as a system type which can be instantiated as system tokens), adding a system for each of the loops back. This fully spelled-out version of the grammar of 2-2 is set out in Figure 2-6 where the systems have been named for ease of reference in the following discussion. The choosers to be discussed will be identified by these names, i.e., chooser of PrimaryTense, SecondaryTense, SecondaryTenseType and so on: Individually, secondary tenses are called *secondary*, *tertiary*, *quaternary*, and *quinary*.

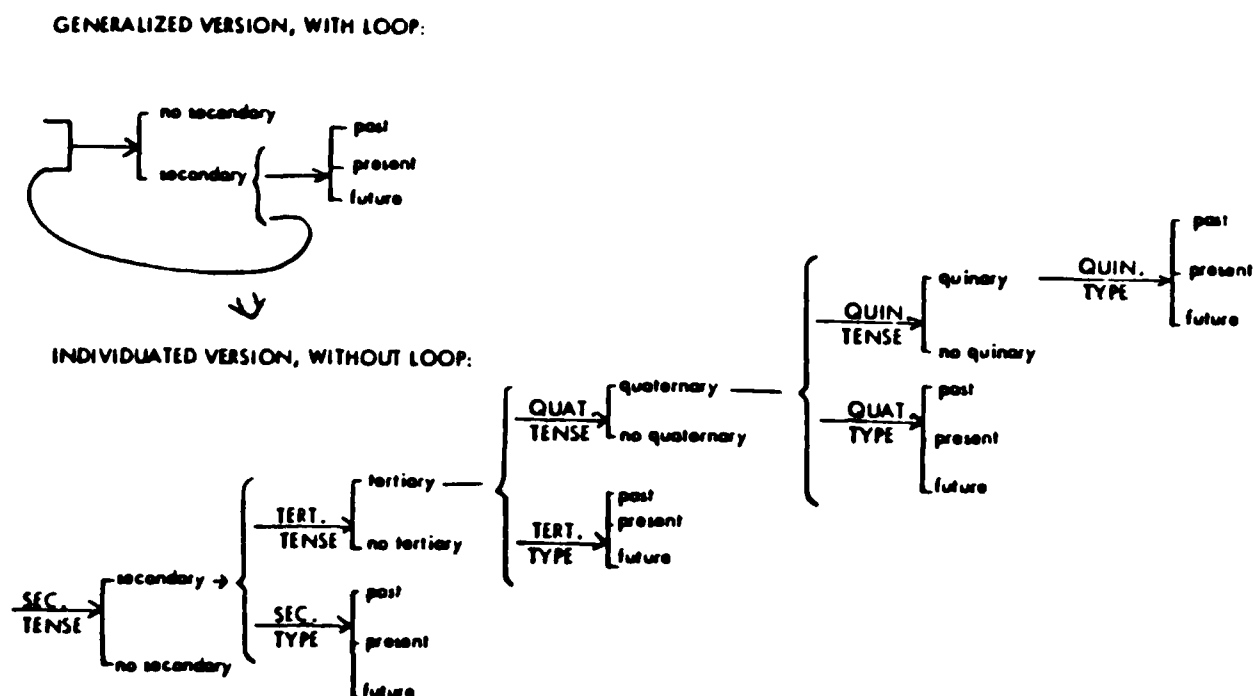


Figure 2-6: Tense grammar without loop

The grammar in Figure 2-6 reflects the stop rules in so far as it does not go beyond quinary tense. However, it still permits the generation of some doubtful tense combinations. (This is not a grammatical matter, as will be argued in Section 16.5.) To see what these combinations are and to see examples of all combinations that can be generated, we can look at Figure 2-7.

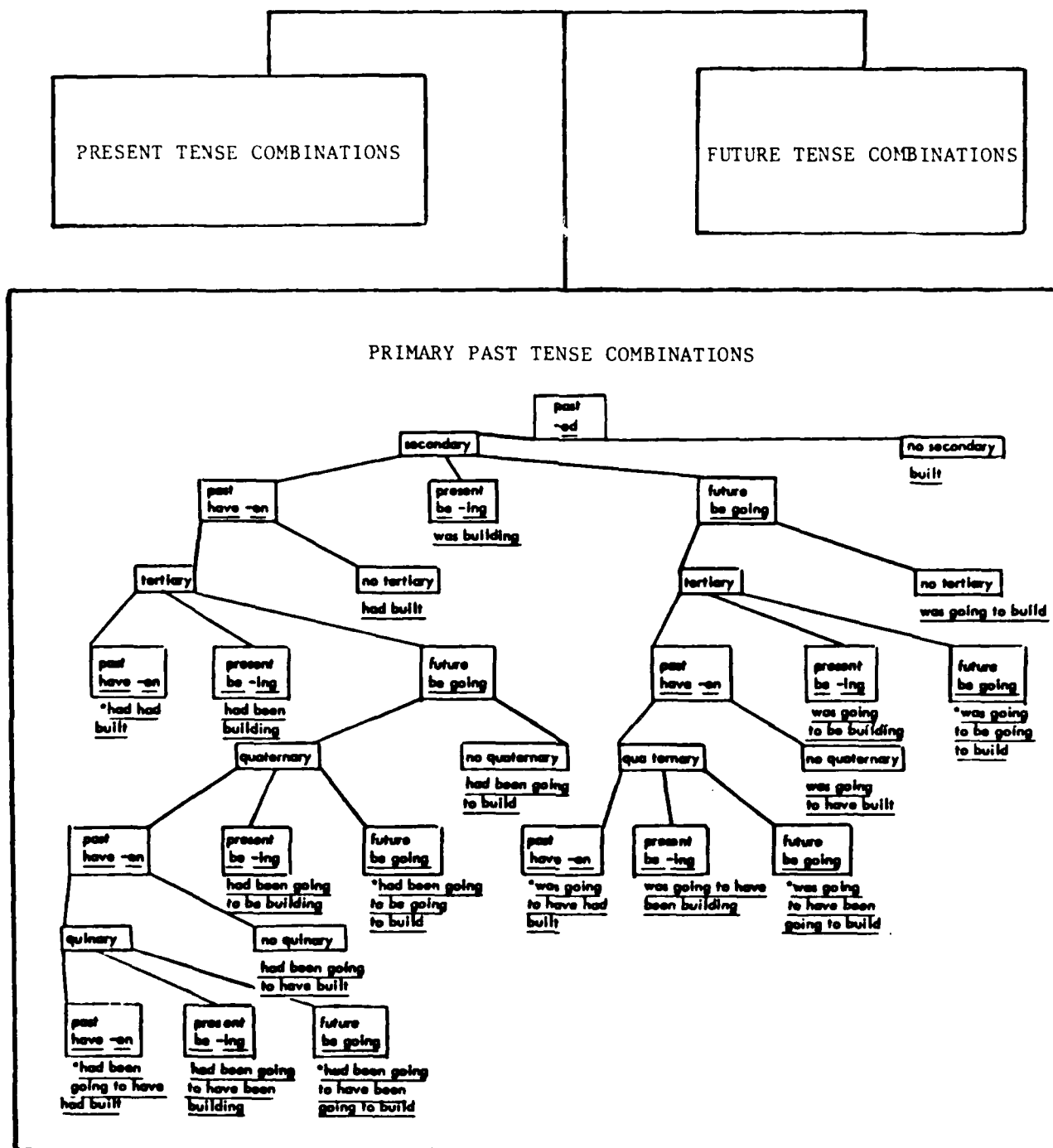


Figure 2-7: Tense combinations with examples

In this figure, grammatical features appear in boxes together with the markers they are realized by. The top layer is primary tense, then follow secondary tense, tertiary tense and so on. A complete tense selection is

arrived at by following a path through the tree from top to bottom: each complete selection has a verbal group associated with it.

When a tense combination is selected, the lowest order tense (i.e., primary tense) is the starting point, the next order of tense follows, i.e., secondary tense, and so on. In the figure this means going from top to bottom. However, tense combinations will be labelled in the inverse order of the selection order; they will be labelled backwards (bottom to top in the diagram) (see [Halliday 76a]) as illustrated by the example in Figure 2-8.

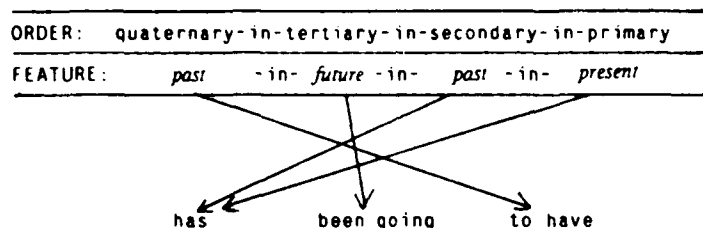


Figure 2-8: Complex tense name

The name for any tense combination can thus be constructed by starting at a terminal feature in the diagram of Figure 2-7 and using *-in-* for each branch connecting two tense feature nodes. We can see *in* as shorthand for 'in relation to a reference time that is'. So, for example, *past-in-future-in-past-in-present* means '*past* in relation to a reference time that is *future* in the relation to a reference time that is *past* in relation to a reference time that is *present*'. For additional examples of tense names, see the list in Figure 2-9 and [Halliday 76a].

PRIMARY

cancels
present

... + SECONDARY

has cancelled
past-in-present

... + TERTIARY

has been going to cancel
future-in-past-in-present

... + QUATERNARY

has been going to have cancelled
past-in-future-in-past-in-present

... + QUINARY

has been going to have been cancelling
present-in-past-in-future-past-in-present

Figure 2-9: Tense complex examples

2.4. Serial dependency nature of tense expression

We are concerned with the semantics of choosing tense here, rather than the mechanics (tactics) of expressing tense selections structurally, important aspects of which are discussed at length in a daughter dependency framework by [Schachter 81]. However, it is of interest to note here that the serial nature of tense is reflected in the structural expression of tense selections in two ways: (1) the linear left-to-right progression in sequence, and (2) the dependency chains in the determination of appropriate verb forms.

Consider a present-in-past-in-future tense selection. If the lexical verb is *build*, the final wording is *will have been building*. Sequentially, we have primary future *will* followed by secondary past *have* followed by tertiary present *be* followed by the lexical verb that represents the event whose temporal location is specified by the tense selection *build*. The structural sequence *will have been building* thus reflects the temporal chain from 'now' to the time of the building event; see below for the notion of the temporal chain.

In addition, there is a dependency progression. Primary *will* predetermines the next verb to be a bare infinitive, secondary *have* predetermines the next verb to be an en-participle, and tertiary *be* predetermines the next verb form to be an ing-participle. The "nextness" is of course what the seriality of tense defines: what is next in terms of dependent verb form is what is serially next in tense selection. The two structural reflections of serial tense are diagrammed in Figure 2-10.

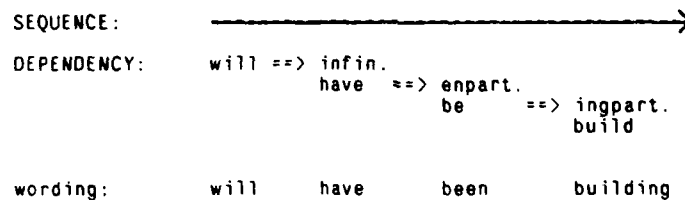


Figure 2-10: Structural expression of serial tense

3. THE DESIGN OF THE TENSE CHOOSERS

Now that we have a specification of what the grammatical tense potential is in English, we can turn to the basic question introduced in Section 1.1: How is an appropriate tense combination chosen for a clause in English? As was pointed out in that section, this is a question about the control of tense selection. I will start by introducing the chooser and inquiry framework and then proceed to a discussion of how the grammar identified above (represented in Figure 2-2) is assigned choosers.

3.1. Framework: choosers and inquiries

This section introduces the parts of the chooser and inquiry framework needed in this report; there is more detail needed for other areas of grammar.¹⁷ I will return to a question at the framework level in Chapter 13 to consider what kind of information should be included in chooser inquiries. But first we need some more familiarity with choosers and the issues that arise in a chooser and inquiry account of tense.

3.1.1. The chooser: the control of a system

For each system in the grammar there is a chooser. A chooser is an explicit procedure consisting of steps which can be performed one at a time; the function of a chooser is to exercise the semantic control that leads to a purposeful grammatical choice. For example, the semantic control of the PrimaryTense system takes the form of a chooser. In PrimaryTense, as in all systems, the chooser starts working only when the system has been entered, which cannot happen until its (grammatical) entry conditions has been satisfied. A chooser does not itself have an entry condition; there is currently no network of choosers in parallel with the network of systems. The grammar and its choosers work together as one component, a component that is a part of a more comprehensive system that is intended to generate text.¹⁸ As has already been mentioned, parts of this system that precede the grammar and its choosers are called the *environment* of the grammar and chooser component. The interaction between choosers and environment and choosers and grammar was summarized diagrammatically above in Figure 1-2.

3.1.2. Stratal interaction as dialogue

It is the task of each chooser to select grammatical features in conformity with conceptual distinctions that exist in the *environment*. It is useful to think of the interaction between the choosers and the environment as a dialogue, with the choosers presenting inquiries and the environment responding.

¹⁷For discussions of the chooser framework, see [Matthiessen 81], [Mann 82], [Mann & Matthiessen 83]

¹⁸The purposeful control of the grammar is thus a result of a collection of choosers, one for each system. There is no generalized chooser that applies to all systems. Rather, the process of choosing has been decomposed and distributed across the systems of the grammar. In fact, this is one of the attractive properties of the systemic framework: the identification of grammatical systems supports the decomposition of the choosing process into the manageable procedures encoded in the choosers.

The chooser of a grammatical system chooses according to the responses it is given. For example, informally in a tense system where the options are past vs. present vs. future, we can arrive at past in the following way in generating the tense for *Sir Christopher Wren built this gazebo*. We can assume that there is a variable called ONUS to which a conceptual locus in the plan for the sentence has been assigned. This conceptual locus is called GAZEBO-BUILDING.¹⁹

First the value of what will be called the speaking time, T_s for short: (Inquiries and actions come from the chooser of the system: responses to the chooser come from the environment.)

CHOOSER	ENVIRONMENT
[i] INQUIRY: What concept represents the current time, the time at which the language of GAZEBO-BUILDING (ONUS) is generated. T_s ?	[ii] RESPONSE: NOW represents T_s .
[iii] ACTION: Assign the value NOW to the variable T_s .	

Next, the time which is to be related to T_s has to be found. The chooser presents a new inquiry:

CHOOSER	ENVIRONMENT
[i] INQUIRY: What time is to be related to NOW (T_s)?	[ii] RESPONSE: The time to be related to NOW (T_s) is BUILDING-TIME.
[iii] ACTION: Assign the value BUILDING-TIME to the variable T_2 .	

Now that the time variables T_s and T_2 have been given definite values, inquiries about the relation that obtains between them can be presented to the environment:

CHOOSER	ENVIRONMENT
[i] INQUIRY: Does BUILDING-TIME (T_2) precede NOW (T_s)?	[ii] RESPONSE: Yes, BUILDING-TIME (T_2) precedes NOW (T_s).
[iii] ACTION: Choose the feature <u>past</u> .	

The general pattern is that the chooser presents an INQUIRY to the environment. The latter returns a RESPONSE, after which the chooser performs an ACTION.

¹⁹ The labels used to identify concepts are purely arbitrary and have no connection with the lexicon of the system: they do not influence the choice of the lexical item(s) used to express the concept they name in any way.

3.1.3. Inquiries

Inquiries (and their coupled responses) have to do with the flow of information from the environment to the grammar. This means that the choosers never present inquiries about the grammar; any need to communicate about other parts of the grammar should, we believe, be encoded in the grammar itself.

There are two types of chooser inquiries. One is of the wh-type: it asks for the value of a variable. The other is of the yes/no-type: it tests for a distinction in the environment and "branches" on the answer. These two types are called **identifying inquiries** (their names are tagged with -ID) and **branching inquiries** (their names are tagged with -Q).

Inquiries have one or more parameters such as the time variables T_s and T_2 in the example above. These parameters carry associations (mappings, or pointers) to conceptual constructs in the environment. Inquiries of the identifying type establish the values for the parameters. Apart from the time variables, we will use ONUS and PROCESS. We have met ONUS; it carries the association for the conceptual locus of any grammatical unit. PROCESS is the function that ultimately is typically realized by the main verb of the clause.

3.1.4. Branching inquiries and chooser structure

The branching inquiries give a chooser the overall structure of a **decision tree**. Each such inquiry defines two or more responses. Each response corresponds to a branch in the decision tree. (In the present example, only the yes-branch, the case when T_2 precedes the moment of speaking, is pursued.)

A branch leads either to a new branching inquiry or to a chooser action such as **Choose**. Each terminal branch in the tree leads to a "Choose" with a specification of a grammatical feature.

3.1.5. Chooser actions

Actions are either assignments of pieces of information identified by questions to grammatical functions/variables or choices of grammatical features. In other words, choosers can specify mappings between the grammar and its environment or change the current state of the grammar by making a choice.

3.1.6. Choice conditions

The purpose of the chooser fragment above is to illustrate how information about the meaning of a tense can be encoded in a chooser. If the meaning of past is that one time precedes another, then the environment will be asked a question about precedence. In fact, the answers to a number of questions that lead to a choice can be seen as **choice conditions** that are matched against the environment: if the value of T_2 precedes the value of T_s in the environment, then choose past. Choosers cover the whole functional spectrum of the grammar.²⁰ A choice of a feature (such as "Choose past") is sometimes reached in more than one way in the decision tree of a chooser. In other words, more than one branch may have the choice as its outcome. This happens when there is more than one reason for choosing a feature. Each collection of choice conditions leading to the choice of a particular feature represents the meaning of that feature.

²⁰ This means that choice condition is a broader notion than truth condition. Fawcett suggests the term *procedural felicity condition*: [Fawcett 83]. He too suggests that truth conditions constitute a subtype.

3.1.7. Choosers, systems, and the system network

Each system in the grammar is assigned a chooser; that is how its choice semantics is represented in our system. In the grammar, the systems are inter-related through their entry conditions and thus form a system network, the tense fragment of which has been discussed. In the choice semantics, there is currently no similar network of inter-related choosers. Instead, choosers just form unstructured collections. Or, rather, chooser collections do not have an *choice semantic* organization over and above the *grammatical* system network organization at present. The fact that the primary tense chooser is activated after the Deicticity chooser is determined by the system network; there is no need to state this ordering separately for the choosers.

3.2. The collection of tense choosers

How should choosers be assigned to the tense systems of the grammar in Figure 2-2 and how should it be traversed when a tense combination is chosen?

3.2.1. The limits of the task for tense

Before tense reasoning proper is started, the limits of the chain of times to be expressed by tense, speaking time (T_s) and event time (T_e) must be established. The identification of these two times could be done on demand, when each is first required in, say, the semantic reasoning about tense selections. However, since the identities of these times are often relevant to areas other than tense, I will assume that they are identified at an early stage in the development of a clause. Thus, when the development of tense starts, these times have already been identified. The inquiries used to identify the two times are presented below in Section 3.3. Having settled the issue of the identification of the limits of the time chain, I will now proceed system by system in the grammar of Figure 2-2 (i.e. the grammar with the loop). We will start with Deicticity, then deal with PrimaryTense, SecondaryTense, and SecondaryTenseType. Finally, we will discuss the implications of the loop in the grammar for the choosers.

3.2.2. Deicticity

First, we come to the chooser of the Deicticity system, which has the options temporal vs. modal. In terms of grammatical realization, we can get either a modal auxiliary (when modal is chosen) or a primary tense (since temporal is the entry condition to the primary tense system). Semantically, this is a choice between relating the speech event modally (including obligation and possibility) and relating it temporally without a marked modal component to the event being expressed. (In either case, secondary tense is still a resource for expressing temporal relations.) The following two examples differ in deicticity. (They also differ in secondary tense: the first example does not have a secondary tense; the second does, since the absence of a primary tense pushes the task of expressing temporal precedence to secondary tense.)

Henry abdicated yesterday.

Henry may have abdicated yesterday.

So the chooser selects temporal when the time of the speech event (T_s) and the time of the event being expressed (T_e) are temporally related without being modally distanced. This informal characterization of the choice condition for temporal needs to be stated in more detail and made more explicit. In addition, it must be stated in such a way that we do not exclude modal adjuncts (like *perhaps*, *possibly*, and *certainly*) with a selection of temporal. However, the Deicticity chooser is outside the scope of my discussion of tense and I will not deal with it further here.

3.2.3. Primary tense

The choice of temporal means "yes, we will have a primary tense" and the next issue is what type of primary tense this should be. This is the task of the PrimaryTense system, whose entry condition is temporal.

3.2.3.1. Reference time

The first task of the chooser is to identify the primary reference time T_1 with the time of speaking T_s . In other words, the chooser identifies the first reference time with the beginning of the time chain. This operation is easy, since it only means copying the value of one variable onto another one. The name of the operator is CopyHub and it takes two parameters, the variable whose value is copied and the variable whose value is identified through the operation:

(CopyHub T_s T_1)

3.2.3.2. Comparison time

Once the value of the reference time T_1 has been identified in this fashion, the primary tense chooser can seek the value of the comparison time T_2 that the reference is to be related to. The inquiry used is TimeInRelationID²¹ and we write

(Associate T_2 (TimeInRelationID T_1))

This inquiry operator is presented in more detail in Section 3.4.

3.2.3.3. Temporal relation

Once the values of the two times whose relationship is to be expressed by primary tense have been identified, the chooser moves to the task of finding out what temporal relation holds between T_1 and T_2 . The main burden of this task is carried by one branching inquiry, PrecedeQ, which is used to establish whether a precedence relation holds between T_1 and T_2 . For instance, if the response to²²

(PrecedeQ T_2 T_1)

is *precede*, the chooser selects the feature past. We have already seen this process illustrated informally and I will return to the branching inquiries used to establish what temporal relation holds between two times in Section 3.5. With the choice of a tense feature, the job of the primary tense chooser is done.

3.2.4. Secondary tense

Next, the choosing process takes us to SecondaryTense; we have to decide whether to have an additional tense or not. Roughly, the choice depends on whether we have completed the chain that connects the speaking time and the event time or not. If the chain has not been completed, at least one additional tense

²¹If a time is related to two other times, the inquiry is intended to identify the time ordered in a relation not previously expressed. Cf the discussion of secondary tense and seriality below. It appears that a particular time never occurs more than once in the temporal chain from the time of speaking to the event time. Any given time will thus be related to two other times at the most.

²²I will use the abbreviation " $T_2 \subset T_1$?" in chooser diagrams

is needed. The inquiry used for the task of secondary tense, *SameAsQ*, simply check for identity and we can write:²³

(*SameAsQ* T_2 T_e)

So, if the response is that these two times are different, the choice is secondary. In primary tense, the time T_2 is the comparison time being related to the reference time T_1 . In secondary tense, T_2 has a new role; it is now treated as the reference time to be related to a further comparison time. This is like walking up a flight of stairs. First, a particular step is the new step we are stepping onto. Then, when we have reached this step, it is the step we take off from to reach a new step. The diagram in Figure 3-1 illustrates the metaphor. Anticipating the discussion of semantic seriality somewhat, I have included not only the primary and secondary steps, but also a tertiary step. Naturally, additional steps could be diagrammed (cf. Figure 3-6).

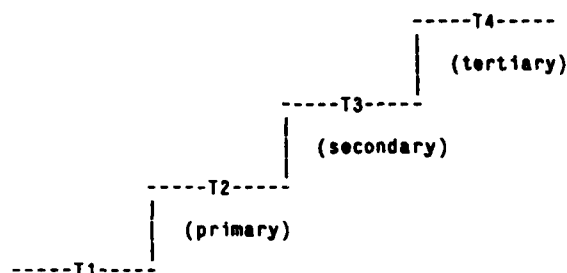


Figure 3-1: The temporal steps: primary, secondary, and tertiary

3.2.5. Secondary tense type

The chooser for *SecondaryTenseType* is like the one for *PrimaryTense*: the inquiry *PrecedeQ* is used to determine what temporal relation obtains between the reference time (T_x) and the comparison time (T_y) of secondary tense. The reference time is, as I have said, the old comparison time of primary tense, i.e., T_2 . A new, secondary, comparison time, T_3 , has to be identified for secondary tense type. This is done as before:

(*Associate* T_3 (*TimeInRelationID* T_2))

I have now discussed informally the content of the choosers of all the tense systems of the grammar and we can turn to the loop in the grammar, i.e., to the seriality in the grammar.

3.2.6. The loop in the grammar; Two kinds of choosers

The essential similarity between the chooser of primary tense type and that of secondary tense type is of course to be expected, given the seriality assumption. Essentially, the only details that change are the current subscripts of the time variables used. For the same reason of seriality, tertiary tense is like secondary tense. What we have, then, are only two kinds of choosers, one to do the reasoning that leads to a selection of the appropriate type of tense (past vs. present vs. future) and one to do the reasoning that establishes whether to have a higher order tense or not (secondary vs. no secondary). The choosers to be discussed in the report are listed in the table in Figure 3-2.

²³ I will use the abbreviation " $T_2 = T_e$?" in chooser diagrams.

EXISTENCE OF HIGHER ORDER TENSE	TYPE OF TENSE
secondary tense	primary tense
tertiary tense	secondary tense type
quaternary tense	tertiary tense type
	quaternary tense type

Figure 3-2: Two kinds of tense choosers

The primary tense chooser is like the secondary tense type chooser. For PrimaryTense, there is no prior system that corresponds to SecondaryTense.²⁴

The two kinds of chooser and their sequencing are represented diagrammatically in Figure 3-3.

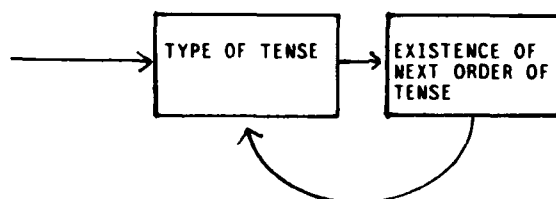


Figure 3-3: Tense choosers and their interaction

We can summarize the process of choosing tense in terms of the two kinds of choosers just identified. The chooser that selects the kind of tense to be used (past, present, or future) presents inquiries to the environment stated in terms of a relation between two times; an informal example was given above in Section 3.1.2. The design of this chooser is based upon assumption [1] of Section 1.3. The next chooser determines whether the chain between the speaking time and the event has been completed to choose between having a higher order tense and not having one. The design of this chooser is based on assumption [2] of Section 1.3. If there is to be a tense of the next higher order, we loop back to the previous chooser to determine the tense (past, present, or future).

I am assuming that we only need one kind of chooser to select among the features past, present, and future, regardless of the order of tense and that we only need one kind of chooser to determine whether to have a tense of the next higher order than the previous tense explored. This assumption is largely correct and we can now explore the generalizations and the general organization of the two tense choosers. However, as we will see below, it is useful to keep the chooser of PrimaryTense separate from that of SecondaryTenseType, since—although the basic principles are the same—they differ in some details.

²⁴ At first sight, Deicticity may seem similar to SecondaryTense, since temporal implies the existence of a primary tense, just as secondary implies the existence of a secondary tense. However, the issue of SecondaryTense is whether there is a temporal relation to express or not, which is not the issue of Deicticity. Rather, in this system, the issue is whether there is a modal component to express (modal) or not (temporal). The feature temporal is thus in alternation with a feature (modal) which represents another non-temporal type of meaning. In contrast, non-secondary simply represents the absence of a temporal relation without conveying the presence of another meaning. We can sum this up in terms of Trubetzkoy's taxonomy of oppositions in phonology: Deicticity is an equipollent opposition, whereas SecondaryTense is a privative opposition.

In principle, the looping process goes on until a chain of temporal relations has been constructed between the time of speaking, T_s , and the time of the event, T_e .²⁵ So the first step that needs to be taken is to establish these two times that any tense combination serves to relate in one or more steps (or links, to preserve the chain metaphor). I will now present this step and some others we have met in the survey of tense choosers in some more detail.

3.3. The identification of event time and speaking time

Initially, then, we have to identify the times of the two worlds to be related temporally: the world of the speech event and the world of the event (typically represented by the main verb in the clause); see assumptions in Section 1.3. T_s and T_e are identified, assigned values in their turn, by the following chooser inquiries.²⁶

(i) event time:

What concept represents the time of occurrence
or the restricted portion of the time of
occurrence of PROCESS
which this mention
of PROCESS has in view?

This inquiry is abbreviated as (T_e ID PROCESS). Note that T_e need not in fact represent the entire period of the execution of the process (the entire period during which the event takes place); it can be a restricted portion thereof. I will return to this issue.

(ii) speaking time:

What concept represents the current time,
the time at which the language of ONUS is
generated?
(Abbreviation: (T_s ID ONUS).)

The responses to these inquiries are assigned to T_e and T_s , respectively. The questions T_e ID and T_s ID identify values for the two variables T_e and T_s . These values are assigned to the variables by the operation "Associate" in the following way:

²⁵ T_s is the starting point for tense development in finite clauses; for some discussion of this see Section 11.3. However, nonfinite clauses may not be temporally related to T_s .

²⁶ Each chooser inquiry in Nigel comes in two versions, an informal question stated in English and a formal inquiry. Throughout the discussion I will only use the informal English questions: they are intended to be of help in the design and discussion of the choosers.

²⁷ PROCESS is a grammatical function: it has a concept in the environment associated with it. The inquiry is asked of the grammatical function so that the concept associated with it can be accessed and examined to determine what the response should be.

(i)

(Associate T_e (T_e ID PROCESS))

This means that the time variable T_e is associated with the response to the inquiry (T_e ID PROCESS).

(ii)

(Associate T_s (T_s ID ONUS))

3.4. Establishing a further time

Once the starting time of the tense chain (i.e., T_s) has been determined, the next task is to find the time this time is to be related to. The general inquiry for finding a new time to relate to an old reference time (such as T_s , the first reference time in tense development) is:

What time is to be directly related to T_s temporally through a specification of precedence or inclusion?

Clearly, this is a question about text development, and ultimately about text planning. Later in the discussion, we will see examples of how decisions about these matters can be understood in terms of text organization.

The inquiry will be called *TimeInRelationID*. Note that the inquiry is obligatory for primary tense. Since there always is a primary tense in a temporal clause, a time to be related to T_s has to be established. The situation is different for secondary tense. Before establishing such a time, we have to decide in the chooser of the *SecondaryTense* system whether to have one or not. In fact, it is helpful to interpret the time directly related to T_s in a special way. I will call it *relevance* (or *relevant*) time. This is the time of a situation or event that it immediately relevant to the speech situation. The link of relevance between the relevant time, T_r for short, and T_s can come about in a number of ways. The two can be linked by cause and effect, plan and execution of plan, intention and achieved intention, event and resulting state, experienced phenomenon and resulting experience, and so on. I will return to this, particularly in Sections 15.4 and 15.5.

Now let us turn to the relation between the two times that the chooser that selects among past, present, and future asks about.

3.5. Tense represented by a relation between two times

The basic assumption [1] in Section 1.3 says that tense is a relation between two times. This assumption is represented in the tense choosers in the following way. The chooser that selects among past, present, and future asks questions about the relation holding between two time variables, T_x and T_y , such that past is represented as $T_x \subset T_y$, future as $T_x \supset T_y$, and present as $T_x \not\subset T_y$ & $T_x \not\supset T_y$. (Note that " $\subset$ " means 'precedes' and " $\supset$ " means 'follows'.)²⁸ The choice condition for present specified above is 'neither precedes

²⁸ $T_x \circ T_y$ is an abbreviation for $T_x \not\subset T_y$ & $T_y \not\subset T_x$, i.e. "simultaneity" is here an abbreviation for "neither precedes nor follows".

nor follows'. As specified, it simply means the absence of a precedence relation between the two times. We can push this a bit and ask whether there is also a specification of a positive temporal relation.

For primary present, the answer is that 'neither precedes nor follows' is the appropriate specification of the temporal relation. For secondary present, it can be argued that the characterization is also appropriate: the secondary present is a RELATIVE PRESENT just as the secondary past is a RELATIVE PAST (see Section 14.3). This means that it is used to convey simultaneity, as in narratives. However, temporal inclusion has been suggested as a characterization of the so-called progressive, i.e., of the category we are interpreting as the secondary present. With our symbols, inclusion can be stated as ' T_y includes T_x '. Typically, T_y is the time of the event, T_e , so this means that the time of the event includes, or frames, another time, i.e., its reference time. For example, in

I found him in the first of the two small rooms
that had been set aside for him at the Villa.
He was writing a letter, standing up to it at
at one of those high desks known to the clerks of
Dickens and the illuminators of the Middle Ages.

(Wilder, *The Cabala*)

the time of writing includes (frames) the time of the finding event (*I found him ...*), which serves as its reference time.

Simultaneity, ' T_x neither precedes nor follows T_y ', allows for several possible temporal relations between these two times: They may overlap, one may include the other, or they may be perfectly coextensive. However, inclusion, ' T_y includes T_x ', is a more specific choice condition for secondary present, since it excludes all but one of these various further specifications of 'neither precedes nor follows'. (In the example above from Thornton Wilder, it seems that simultaneity serves just as well as inclusion as a reason for choosing present-in-past: The important point in the narrative is that the narrators finding "him" was simultaneous with this other man's writing activity.)

I will not pursue the characterization of the choice condition for secondary present further at this point, but will return to the issue briefly in Section 14.4.

The choice conditions for the the tense options are summarized in the table in Figure 3-4. INCL is the abbreviation for the inclusion relation.

Having dealt with the general design of the first chooser of Figure 3-3, we can now explore the second chooser.

3.6. Seriality: Choosing a tense combination

Let us see how the second tense chooser decides to loop back in Figure 3-3. In other words, let us turn to the seriality assumption about complex tense in Section 1.3 (called [2] there).

A tense chain is built one link or step at a time—the primary step, the secondary step, the tertiary step, the quaternary step, and the quinary step—in accordance with the tense grammar in Figure 2-6. This process involves establishing the time that is to be related to the speaking time—checking what the ordering relation

TENSE TERM	TEMPORAL RELATION	
<u>past</u>	$T_x \subset T_y$	
<u>present</u>	$T_x \circ T_y$	$T_y \text{ INCL } T_x$
<u>future</u>	$T_x \supset T_y$	
	PRIMARY	SECONDARY
	ORDER OF TENSE	

Figure 3-4: Tense values and their time relations

between these two times is, and choosing according to the answer. The time related to the speaking time is taken as a new starting point which is to be related to a new time. This process is repeated until the new time is T_e , i.e., until a chain has been completed between T_s and T_e .

Once the primary tense relation has been identified and encoded through a primary tense selection, each new tense selection is preceded by some chooser activity to determine whether a new value for T_y should be established or not. This works in the following way. Assume that we have just left the PrimaryTense system. We come to SecondaryTense in our tense grammar of Figure 2-2; this is the system in which we determine whether we should have secondary tense or not. If the value of T_2 is the same as that of T_e , there is no need to establish a value for a T_3 : primary tense has already completed the job of building a chain between T_s and T_e (for exceptions to this generalization, see Section 10.3 below). We verify this with the question:

Is T_2 the same as T_e ?

When the answer is affirmative, the tense development terminates and we can choose not to have a secondary tense. However, when the answer is in the negative, we proceed to identify the secondary tense type.

The speaking time, T_s , is the first time, T_1 . T_1 is related through primary tense to T_2 ; T_2 is related through secondary tense to T_3 , and so on. Since tense has been characterized as a relation between two times, T_x and T_y , we can now see that the pairs T_1 and T_2 , T_2 and T_3 , and so on are the names for the two time variables in primary tense, secondary tense, and so on. Figure 3-5 gives these specific names for each tense.

Each order of tense (primary, secondary, tertiary, and so on) has its own reference time, the time called T_x here. The first reference time is T_s . Each subsequent reference time is the time which was related to the reference time of the previous tense system, as reflected in Figure 3-5. Given a reference time T_x , we have to establish what time is to be related to it through a tense selection, i.e., we have to establish a value for T_y . This is taken care of by the inquiry "TimeInRelationID T_x ", introduced above.

A maximally complex tense in English contains four time relations, each one corresponding to a tense (primary, secondary, tertiary, quaternary, and quinary). We can see a maximally complex tense combination

T _x	T _y		
T _s = T ₁	T _r = T ₂	Primary tense	
T ₂	T ₃	Secondary	} Secondary tenses
T ₃	T ₄	Tertiary	
T ₄	T ₅	Quaternary	
T ₅	T ₆	Quinary	

Figure 3-5: Names for T_x and T_y in each tense system

(such as *will have been going to have been building*) as a series (or chain) of relations between two times at a time as in Figure 3-6. The chain begins with T_s and ends with T_e. In the figure, the times have been numbered one through six.

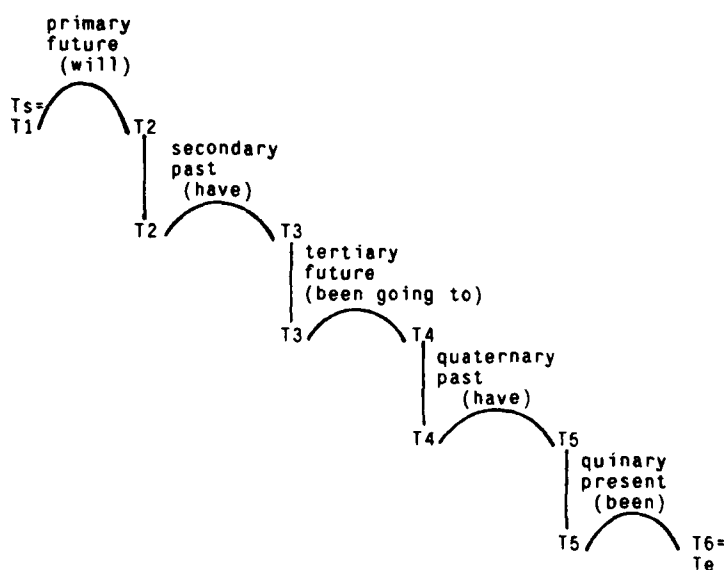


Figure 3-6: Maximal tense complex

The principle that each tense selection starts afresh and provides an orientation to a new reference time with respect to which another time is past, present, or future can be brought out diagrammatically for our maximal tense complex. The result is Figure 3-7.

Having seen the general design and organization of the tense choosers, we can turn to a more detailed examination of first order tense, second order tense, and so on. However, before we do that, I will make some observations about the notion of time assumed in the tense choosers.

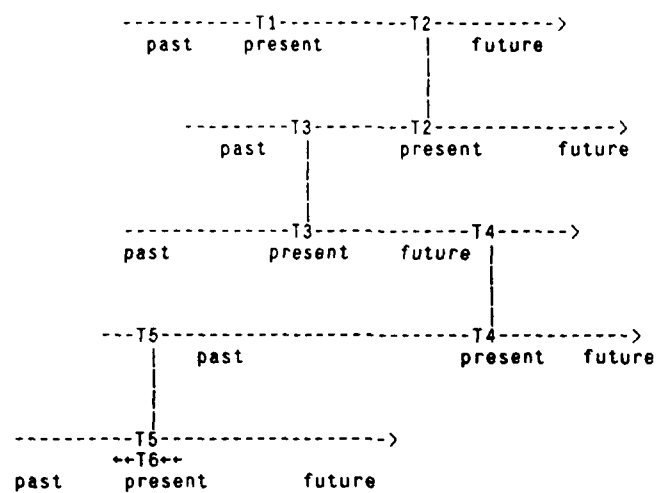


Figure 3-7: Successive re-orientation and time lines

4. TIMES AND TEMPORAL RELATIONS IN THE ENVIRONMENT

4.1. Times in Environment and in inquiries

The semantics of tense is encoded in the inquiries used in the tense choosers. The inquiries about time determine how time is handled semantically in the region of tense. The inquiries are of course presented to the Environment; this is what is diagrammed in Figure 1-2. The stratal organization allows for at least two notions of time: time in the Environment and time as characterized by the inquiries.

There is in fact further differentiation in the treatment of time in the Environment. First, there are the times and time relations that exist independent of any communicative goals and independent of the planning and production of text such goals lead to. These times and time relations exist in the knowledge base that the text generator can access. Second, there are the times and temporal relations as planned by the Planning process in response to particular communicative goals. Obviously, Planning cannot invent times and the relations they enter into. However, it can determine to which time a particular time should be related from among all the times it is related to.

When time inquiries are presented to the Environment, they address the temporal information created by Planning rather than the information that exists in knowledge prior to and independent of the process of Planning.

I will now discuss time and time relations at the three levels identified here: times in inquiries, times and time relations as planned by Planning, and times in the knowledge base.

4.2. The notion of time in the tense choosers

As an example of an inquiry that identifies a time, consider T_e ID, repeated here for convenience:

What concept represents the time of occurrence or the restricted portion of the time of occurrence of PROCESS which this mention of PROCESS has in view?

I will discuss two issues relevant to this inquiry: (1) the notion of time (is it an interval or a moment?), and (2) the notion of a restricted portion in view. The second issue has to do with the distinction between times in the knowledge base and times identified in Planning and I will return to it in Section 4.3.1.

With respect to the first issue about the character of times in the inquiries of the tense choosers, my claim is that times are indifferently moments or intervals. The claim can be justified weakly in the following way. Tense will have a more general characterization if it does not invoke the distinction between moment and interval (two notions) but only uses the concept of time (one notion). The relation that holds between the two times will determine how they have to be viewed. The precedence relation assumed in Section 1.3 does not distinguish between moments and intervals; it exists between two times regardless of their character. The time inclusion relation that will be used to characterize the present as a secondary tense (i.e., present-in-...) says that one time includes another and consequently it requires one time to be an interval. However, we choose according to whether the inclusion relation exists or not. The choice is not made on the basis of whether one time is an interval or a moment. So, until there are clear cases indicating that we need to

distinguish between different types of times, we should not do so. Since there is no evidence that the present account fails to choose appropriately because of a lack of distinctions between different types of time, I will continue to operate with an undifferentiated notion of time.

A stronger justification is, of course, difficult to formulate. In effect, it would have to amount to a successful refutation of all choice situations put forward as counterexamples. (That is, it would really have to be a proof of nonexistence.)

I will present only one potential counterexample here, namely the type of situation Jespersen refers to as *inclusive time* (e.g. *Henry's wife has lived in the Tower for a long time*). The assumption that times need not exhaust their processes and Schachter's observation referred to below enable us to deal with inclusive time without any problems. All that is needed is that the process has been *fully instantiated in the past*; this is the reason for choosing (secondary) past. Thus, there is no need to ask questions about intervals of time leading up to and including T_s .

It should be noted that the claim just discussed can be stated in a slightly different way: All the times referred to in tense choosers are intervals; moments are just one type of interval. The point is still the same. We do not need to make a distinction—we never branch in a chooser according to whether we are dealing with an interval without duration (a moment) or one with duration.

4.3. Times and time relations in Planning

Temporal planning determines both what portion of a time in the knowledge base is to be relied on in the text and also what the temporal relations to be expressed are, in particular what times are to be used as reference times.

4.3.1. The non-exhaustiveness of times

Recall the wording of the inquiry that identifies T_e : "the time of occurrence or the restricted portion ... in view". This inquiry allows the event time to be either the time of the (entire) process or only of the portion in view. In other words, T_e need not represent the entire time period of the event. What is important is that the process has been "fully instantiated" as [Schachter 81] puts it in his discussion of the perfect.²⁹ Schachter notes that "the perfective (perfect, CM) does not necessarily mark an action or state as having TERMINATED as of a given point in time". In other words, the whole of the time of the event is not necessarily "relative past" with respect to another time. In Schachter's example *John has worked hard all day*, John may still be working hard (although he need not, of course). Schachter's observation is that

All that is essential to the use of the perfective [perfect, CM] is that the designated action or state have been FULLY INSTANTIATED in the past relative to a given moment; the action or state need not in every case also have been terminated.

The process of working need not be past as a whole; only a fully instantiated representative part of it is past. Generally, times can be times of fully instantiated parts of processes and not necessarily times of entire processes.

²⁹For present purposes, we can interpret "fully instantiated" as meaning "what is needed to identify a process as a process of a particular kind", say as a process of working. If the process is a state, a habit or the like, a sampling is enough to establish whether it holds or not: cf. [Langacker 78] and [Langacker 82].

The implication of what I have said is that the same state of affairs (situation) can be *viewed from different perspectives* that pick out different (possibly overlapping) portions of it. (Fillmore has described a similar situation for case frames in the "Case for Case Reopened", [Fillmore 77]; the important general observation is that language allows us to adopt perspectives, when we represent the world of our experience.)

As an illustration of what I have in mind, consider the following example where "-----" represents the time line and "*****" the process of living in Kuala Lumpur, in the diagram in Figure 4-1.

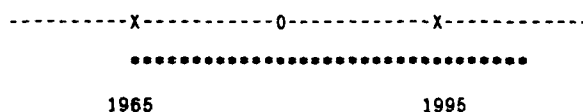


Figure 4-1: Living in Kuala Lumpur

All of the following descriptions make perfect sense, but they pick out different portions of the process of living. Consequently, T_e has to be identified with different parts of the process of living.

Henry already lived in Kuala Lumpur in 1965.

In 1970 Henry had lived in Kuala Lumpur for five years.

Henry lives in Kuala Lumpur.

Henry has lived in Kuala Lumpur since 1965.

Henry will live in Kuala Lumpur at least until his retirement in 1995.

Henry will have lived in Kuala Lumpur for 30 years when he retires.

...

Tied to the observation that times which the choosers identify do not necessarily exhaust their processes is the observation that tense itself does not have to do with time boundaries. Information about boundaries may be conveyed explicitly by adverbials or may be implicit in the process "profile". *Kill, hit, fall* and other non-durative events could not have served in the example above. With these processes, T_e is perhaps much more likely to be exhaustive.³⁰

From what has been said about perspective it follows that these choosers must be supported by discourse planning processes.

³⁰For typologies of processes relevant in the present context, see e.g. [Vendler 67], whose typology is revised and improved in the following two works [Nordenfelt 77] and [Platzack 79], and is used in discourse analysis in [Dryer 81].

4.3.2. The planning of temporal relations

If we want to represent an event in a clause, we must make a number of planning decisions with respect how to locate it temporally, both in relation to the time of speaking and in relation to other possible times invoked by the text. The topic of temporal planning is a large one and I will restrict myself to a few remarks about an example, the narrative genre.

In telling a story, we have a number of alternative rhetorical strategies at our disposal. We may organize our narrative according to temporal sequence, which means that textual sequence represents temporal sequence, as in the following episode. (Rhetorically, this is the unmarked strategy. The grammatical representation is also unmarked, no secondary is chosen.)

I took out my inflatable pillow, blew it up, put it under my head, and slept peacefully in the sunshine until I was awakened by the thud of the rail car's brakes and the banging of doors.

(Theroux, *The Great Railway Bazaar*)

Of course, textual sequence does not necessarily imply strict temporal sequence. There may be temporal overlap or even simultaneity where there is sequence in the text and this is often left to the addressee to infer.

We may reorganize episodes and events in a narrative by using the rhetorical strategies of flashback and flashforward. For example, we may start a narrative at some point in an adult's life and then flashback to his or her childhood rather than starting with childhood and then moving on to the adult period. What is interesting about flashback and flashforward for us is that they treat the context in which they occur as their temporal frame of reference, thus introducing demands for more complex time reference.

The tense choosers are responsive to these more complex demands; we will see this in detail below. They choose according to whether a flashback has been planned or a straight sequential narrative. For example, if a flashback is used, this typically leads to the decision to choose secondary and then to choose past. Similarly, a flashforward leads to the choice of a secondary future.

Both flashbacks and flashforwards are deviations from the simple strategy of letting textual sequence represent temporal sequence. So is the introduction of simultaneity, in a way. If two events are simultaneous, one of them may be presented as the temporal frame of reference for the other. Consider the following example.

When we came out a milky light had begun to fill the square. The shutters of several shops were being lowered; drowsy passers-by made the diagonals staggering; a woman was lowering her chickens in a basket from the fifth story for a long day's scratching.

(Wilder, *The Cabala*)

Although the event of coming out precedes the events of lowering the shutters and of lowering the chickens in the text, it does not precede them temporally and the events should be presented as simultaneous. Again, we have a demand for a temporal relation to which the tense choosers can respond. The plan to express simultaneity leads to a choice of secondary and then to a choice of (secondary) present. (The example above illustrates how the secondary present is chosen as a RELATIVE PRESENT. This notion is also discussed in Sections 3.5 and 14.4.

There are further examples of how tense selections are made in response to temporal planning in Chapter 15. The discussion of narrative planning and the temporal consequences for tense selection is summarized in the table in Figure 4-2.

TEMPORAL PLAN OF NARRATIVE	RESULTANT TENSE CHOICE ACCOMMODATING PLAN	
sequence	<u>no secondary</u>	
flashback	<u>past</u>	
simultaneity	<u>present</u>	<u>secondary</u>
flashforward	<u>future</u>	

Figure 4-2: Temporal planning of narratives

4.4. The times involved in events

While the temporal organization of events in the knowledge base does not determine temporal planning, nor tense selection, the character of each event partly determines the range of perspectives adopted in a representation of it.

For example, events that involve a change from one state to another state through time are different from events that are homogeneous through time (either they are static or they are dynamic without involving a change from one state to another). The former type consists of phases and allows reference to either the change itself or the resultant state. Thus, we have a choice between *The glass broke* and *The glass is broken*. In terms of temporal location, there are at least two times that are of interest—the time of change and the time of the resultant state.

There is another event distinction of interest to us because the number of times involved depends on which category a particular event belongs to. The distinction is roughly between spontaneously occurring events and plannable/predictable events. For instance, accidents are not plannable. In contrast, events relating to the activity of travelling are plannable, in particular departures and arrivals. For these and other plannable events, there is a distinction to be drawn between the plan and the execution of the plan and thus between the time of the plan and the time of the execution of the plan. As we will see below, the distinction is important in temporal reference.

Returning to the inquiry that identifies T_e , we may note that it asks for the *time of occurrence* of the event. It is clear enough that *time of occurrence of the event* refers to the event rather than a possible resulting state and the the execution (or occurrence) of the event rather than to the preceding plan. Thus if we locate the time of occurrence of the event temporally through tense, we are locating the event rather than a result and the execution (occurrence) rather than the plan. However, we may of course locate both event and result and both plan an execution or only result and only plan, implying event and execution respectively.

What may count as the occurrence of an event? The answer is crucial to an understanding of why some apparent counterexamples to the account of the semantics of tense adopted here are in fact just apparent, not real. We will meet these in the discussion of alternative interpretations of the tense opposition. Briefly, the answer is that the occurrence may be a single actual occurrence, habitually repeated occurrences, or a potential (but instantiable) occurrence. Consequently, T_e can be the time of a single actual occurrence (*Henry rode off into the sunset*), of habitually repeated occurrences (*Henry rode in the afternoons*), or of a potential (but instantiable) occurrence (*Wood floats on water*).

5. TENSE AND OTHER DOMAINS FOR TEMPORAL EXPRESSION

Before going into a more detailed discussion of tense, it will be useful to indicate how tense resembles and differs from other grammatical resources for temporal reference.

5.1. Tense and other verbal complexes

Apart from auxiliaries—temporal (with which we are concerned), modal, and others—there are classes of *catenatives* (see [Palmer 74] for some discussion) that have temporal implications. For example, desideratives like *want* and *desire* and intentionals like *intend* and *plan* have a component of futurity. The time of the event desired or intended is typically future in relation to the time of desiring/intending. An example such as:

Henry intends to invade France.

can be given a temporal interpretation like T_1 ("now") $\circ T_2$ (time of intending) $\subset T_3$ (time of invasion). This interpretation is the same as for *Henry is going to invade France* in terms of the temporal specification. However, the latter is essentially future-in-present; the former is primarily "intention-in-present". In other words, we presumably choose to say *intend* to express the presence of an intention, and it follows from the nature of intentions that whatever is intended follows the intention in time. Or, rather, that is the typical interpretation for the English *intend*. It is not difficult to conceive of a verb that would have the meaning expressed in

Henry invaded France intentionally.

(which seems to differ from *Henry intended to invade France* primarily with respect to the temporal reference).

As already suggested, a number of verbs seem similar to *intend* and *desire*. Like *desire*, *regret* expresses an attitude towards an event. However, the time of the event typically precedes the time of the attitude of regretting. For example, *Henry regrets invading France* can be interpreted temporally as T_1 ("now") $\circ T_2$ (time of regretting) $\supset T_3$ (time of invasion). *Enjoy* is different again: *Henry enjoys invading France* means T_1 ("now") $\circ T_2$ (time of enjoying) $\circ T_3$ (time of possible invasion). Other catenatives, like *phase* (*begin*, *continue*, etc.) and *conation* (*try*, *attempt*, etc.), have different temporal properties.

5.2. Tense and temporal adjuncts and conjuncts

Tense and catenatives like *intend* express temporal relations; the times that enter into these relations are left implicit. These times may be identified through another resource, *temporal adjuncts*. In addition, temporal adjuncts may express temporal relations to e.g. calendric times and *temporal conjuncts* may express temporal relations that obtain within the text being generated. The issue of how tense selections interact with these specifications is a large topic. Here it will be useful just to deal with two subtopics briefly, temporal relations expressed by tense and time identified by temporal adjuncts and the difference between tense and temporal conjuncts in what type of temporal relations they express.

5.2.1. Pairs of times fixed by tense and adjuncts

The chooser inquiries adopted here relate times in a pairwise fashion. This approach contrasts with both a single time line approach as described by Jespersen ([Jespersen 24] and [Jespersen 33]) and an approach with non-decomposed three-time configurations, originally outlined by Reichenbach ([Reichenbach 47]; see also [Hornstein 77] and [Hornstein 81]); see Chapter 7.

Adverbial evidence for the present approach would consist of examples where the adverbial temporal references are built up in the same way as has been suggested for tense combinations. Precisely this type of evidence can be found. I will use examples from Hornstein to make the point, one he cannot make because of the account based on three time point configurations. As a first example, consider:

(From) Yesterday, John had left a week ago.

Diagrammatically, this example can be represented as in 5-1.

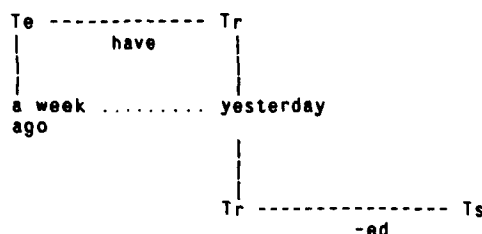


Figure 5-1: Time reference in harmony (1)

The reference of *yesterday* in the example is with respect to T_s , just as T_r is related to this time. In the next step, *a week ago* is related to yesterday, just as T_e is related to T_r . An additional example, now going in the direction of the future can be given.

(From) Tomorrow, Henry will be going to leave in a week.

The diagram for this (Figure 5-2) again reveals a harmony between the --- relations (established by tense) and the ... relations (established by adverbials).

However, consider now an example like Hornstein's (37c) (the * has been assigned by him):

*In a week, John will have left (from) tomorrow.

Here, *in a week* is associated with T_r and *tomorrow* with T_e . This example is odd because the tense and adverbial time reference chains are not in harmony, as the following diagram indicates (5-3).

From a tense point of view, we arrive at T_e through T_r and the next step (in unwinding the tense chain) takes us to T_s . In contrast, the adverbial references relate T_e directly to T_s . Consequently, the example is not

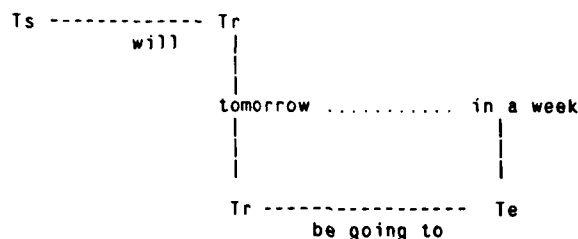


Figure 5-2: Time reference in harmony, -(2)

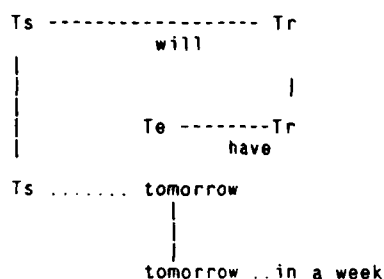


Figure 5-3: Disharmony

referentially wrong, but rather confusing because of the change of perspective. Another way of approaching the problem is to observe that a relationship of a time to T_s gives this time a deictic specification. Tense always defines T_r in this way. Consequently, what is odd about the example above is that T_e is defined deictically as well through *tomorrow*.

5.2.2. Tense and conjuncts: Two types of chains

Tense expresses temporal relations but leaves the times that enter into these relations implicit. There are conjuncts that have the same property, e.g. *later* and *earlier*. Some of the most important exponents are given in Figure 5-4.

	(SECONDARY) TENSE	CONJUNCT
past	have -en	earlier, before, previously.
present	be -ing	simultaneously, meanwhile.
future	be going to-	later, afterwards, subsequently.

Figure 5-4: Tense and temporal conjuncts

A tense selection starting with primary tense expresses a chain of times from T_s to T_e . Each new tense selection has a new reference time, but the first reference time is the deictically defined T_s . In contrast, temporal conjuncts express relations between pairs of times of events specified in the text.³¹ For example, consider the following excerpt from a story:

The affair seemed to grow more complicated, and the Colonel, with his expletives and his indignation, confused rather than informed me. I was glad that, catching sight of the clock at the Army and Navy Stores, he remembered an engagement to play cards at his club, and so left me to cut across St James's Park.

A day or two *later* Mrs. Strickland sent me round a note asking if I could see her that evening after dinner. I found her alone. Her black dress, simple to austerity ...

(Maugham, *The Moon and Sixpence*)

The tense selections are consistently the same: primary past and no secondary tense; the general time of the story is before the time of telling and there are no flashforwards or flashbacks to warrant a secondary tense selection. What tense does here is simply express this constant precedence relation with respect to the time of telling. The narrative moves forward in time with the events, but tense does not mark this as long as the temporal relation to 'now', i.e., T_s , remains constant. The various event times are typically implicitly ordered according to the progression of the narrative. In this excerpt, the time of the Colonel remembering precedes the time of his leaving the narrator.

There is one temporal conjunct, *later*, (accompanied by a durational specification, *a day or two*). What the conjunct does is relate two series of *events in the narrative* to one another, viz. the narrator's walk with the colonel and a subsequent day when he meets with Mrs. Strickland. The temporal conjunct does not specify of these events are related to now; it is not deictically anchored in time.

Note, incidentally, that although the temporal conjunct is optionally specified (in contrast to tense), the place where it occurs in the story is fairly predictable. Maugham (as the narrator) chooses to specify the precedence relation between two series of events that are distinct in his narrative. They are temporally distinct but, more importantly, they are distinct episodes in the story. The event of the narrator receiving the note from Mrs. Strickland and his going to see her are temporally distinct, but when Maugham writes *I found her alone*, we can infer that the time has shifted to 'that evening after dinner'. Again, of course, this is an inter-event relation and the tense selection has nothing to do with our inference.

Tense selection and temporal conjuncts may reinforce one another in a flashback or a flashforward. This typically happens with a secondary tense selection;³² for example, consider:

The party was led by one of the greatest mountain men of his era, Joseph Walker, who ten years *earlier* had explored the region west of Salt Lake forcing a passage through the mountains to the coast. Walker was now assaying the task of leading ...

(Stone, *Men to Match my Mountains*)

³¹The discussion is restricted to what Halliday & Hasan call external temporal conjunction: see [Halliday & Hasan 76]

³²Secondary tense can thus be said to make a cohesive contribution

Here the tense selection expresses two "steps" in time, one from T_s to an earlier time, a time that falls within the time of the current episode, and a second step to an even earlier time. The second step is a flashback. In addition, this second precedence relation is expressed conjunctively as *earlier*, which makes it possible also to specify 'how much' (*ten years*). The secondary tense selection and the conjunctive selection are thus in harmony, but only the tense selection is part of a chain that has a link to T_s . It is deictically anchored.³³ The temporal reference of the example is diagrammed in Figure 5-5.

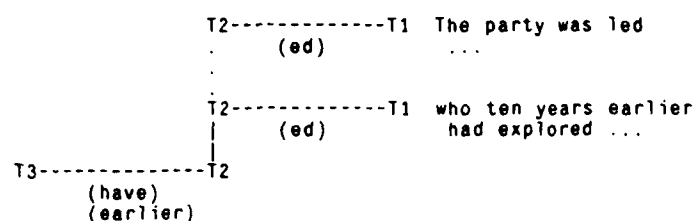


Figure 5-5: Temporal reference through tense and conjunction

When there is no primary tense selection and the typical anchoring in T_s is missing, a secondary tense selection may work very much like a conjunctive specification or the equivalent specification of a subordinator or preposition:

Having beaten the British, John Sutter moved on to his second coup.

(Stone, op cit.)

A reasonable paraphrase would start *After beating ...*; *after* and *have* both express anteriority relative the time of moving on to the second coup.

The similarities and differences between tense and temporal conjunction are summarized in the table in Figure 5-6.

	Temporal relation expressed by	
	TENSE	CONJUNCTION
DEICTIC TIME	primary tense	---
TEXT TIME	secondary tense	temporal conjuncts

Figure 5-6: Expressive range of tense and temporal conjunction

³³Note that in tense there is a disjunction between narrative sequence (as in the Maugham example above, where the choice is no secondary) and flashforward (where the choices are secondary, (secondary) future; cf. Section 4.3.2 above. In conjunction, both may be marked in the same way—*later* and others

6. PAST AND POSSIBLE VIEWS OF TENSE

6.1. Primary and secondary tense: Overview of interpretations

A large number of characterizations of the tense distinction have been suggested. It would lead too far to go into all of them.³⁴ I will merely list some and then try to generalize by discussing a small number of types of tense interpretation. There are two issues that arise in tense accounts:

1. The tense contrast: two or three terms; the nature of the associated semantic values.
2. Tense or aspect: which interpretation is adopted for the so-called progressive and the so-called perfect?

6.1.1. Tense vs. aspect

Following Halliday, I interpret *have -en*, *be -ing*, and *be going to* as exponents of secondary tense. However, there are competing interpretations that treat them as exponents of some kind of primary tense, as a kind of aspect, or simply as a non-tense category. The most important alternatives are set out in the table in Figure 6-1.

	TENSE		ASPECT
	SECONDARY	PRIMARY	
have -en	past-in (embedded past)	indefinite past inclusive past	perfect: completed
be -ing	present-in		progressive/ imperfective/ incomplete
be going	future-in	(peri- phrastic future)	---

Figure 6-1: Tense vs. aspect interpretation

The table does not include one popular interpretation of the so-called present perfect, the current relevance theory, simply because it is not immediately clear where it would fall in the table. It will be

³⁴ Moreover, the common interpretations in the literature do not seem to exhaust the list of interpretations that are plausible up to a point. For instance, interpretations of the grammatical opposition past vs. present typically treat it as the type of opposition exemplified by the pair *boy* vs. *girl*: PAST vs. NON-PAST, NON-PRESENT vs. PRESENT, and so on, just as MALE vs. NON-MALE. However, these interpretations differ from interpretations one might construct on the model of *man*: (*man* - *woman*) where one of the terms of the opposition may serve both as the generic term and as a more specific subtype. For tense, a possible interpretation would be present: (past: present): for instance, UNIVERSAL: (PAST: NON-PAST). I do not think this particular interpretation works. Arguments against this one and other interpretations on the same model can in general be taken from arguments against the simple two-term interpretations such as UNIVERSAL: PAST and PAST: NON-PAST to be discussed below.

discussed below, however. I should also point out that the indefinite past interpretation can be treated as a kind of secondary past interpretation (cf. McCoard's discussion of Reichenbach tense model in [McCoard 78], pp. 88-91) and inclusive past (as a period) has been called *phase*.

6.1.2. The primary tense contrast

Broadly speaking, there are three classes of interpretation of the primary tense contrast.

1. **Temporal interpretations:** Tense is interpreted as specifying either temporal relations (like anteriority/precedence) or segments on a time line. Typically, the interpretation tends towards localist metaphor.
2. **Modal interpretations:** Either tense as a whole is taken to be a modal category along with epistemic modality, deontic modality and other kinds, or, more restrictedly, our primary future is interpreted modally.
3. **Generalized interpretations:** Tense is interpreted in a generalized way; the dimension it expresses is taken to be more general than time and includes time and modality as subtypes.

The list which will be useful for future reference is given in Figure 6-2.

	TENSE TERM			LINGUIST
	past	present	future	
TEMPORAL	PAST	PRESENT	FUTURE	Traditional, Reichenbach-Hornstein, Bull, this model
	PAST	UNIVERSAL	FUTURE	Prior
	PAST	NON-PAST	---	
	NON-PRESENT	PRESENT	---	(Riviere)
GENERAL	REMOTE	ACTUAL	---	Joos, Riviere
MODAL	PAST	(UNIVERSAL)	FUTURE	Prior
	---	---	PREDICTION/ VOLITION	

Figure 6-2: Tense descriptions

Informal glosses like PAST can be interpreted in various ways and will be differentiated further below. The table in Figure 6-2 only includes interpretations that employ no more than one dimension (which is temporal, modal, or generalized). I will argue that the generalized class of interpretations implicitly relies on further dimensional specifications.

The serial interpretation adopted here just "recycles" the PAST/PRESENT/FUTURE contrast set out in the table. However, there have been temporal suggestions of a non-serial kind where additional dimensions such as definiteness have been posited. Diver's analysis is an example of a multi-dimensional approach ([Diver 63]).

6.2. Tense terms and attributes

In addition to the distinctions listed in Figure 6-2, I have brought together a number of **attributes** that are often associated with the major time divisions listed in Figure 6-3. These attributes are useful to keep in mind, because they tend to indicate for example meanings that are **inferred** from various tense combinations.

For instance, the pattern of cause and effect pairs off with both past and present and present and future time. Similarly, a present plan is executed sometime in the future. The causality/event structure class of attributes pertain to dynamic events rather states. States are homogeneous through time whereas dynamic events are not. Consequently, a state can be sampled anywhere in time and it is the same, whereas an event consists of various phases. The nature of the phases varies according to the type of event. For many events, it is useful to recognize a pre-event phase of planning and of the state before the event, the event itself (which may subdivide into phases like an onset, a nuclear phase and a coda), and the post-event state, i.e., the resulting state. The general point is that the non-homogeneity of events in time opens up a number of possibilities for how to refer to them temporally. This has already been illustrated in Section 4.3.

Subjectively, the major time divisions differ in that we typically recall the past, experience the present (as ongoing, here and now), and anticipate the future. In terms of verbalization, we get a related division into narrated, commented, and forecast. Each one of these modes has aspects of text genres associated with it. We get: PAST: narrative, PRESENT: commentary (of various kinds: sports commentary, demonstrations and expositions in general, etc.), and FUTURE: forecasting (again of various kinds, weather forecasts, political forecasts, economic forecasts, etc.). The most variable is probably PRESENT time, since the speaker can vary the extent of this time period depending on the circumstances and as a consequence the time of experiencing and commenting also varies.

From a modal point of view, the past is unchangeable ("closed"); the future is influenceable ("open"). This distinction has been used in tense accounts, as have some of the others—the list continues with a couple of further attributes. My general claim is that although these attributes may enrich our understanding of temporal distinctions, none forms the basis of the English tense system.

PAST	PRESENT	FUTURE
CAUSALITY/EVENT STRUCTURE		
Persists into Cause Condition	Effect (result) Consequence Persists into Cause Condition Plan	Effect Consequence Execution
COGNITION/REPORTING		
Recalled Reported Narrated	Experiencing Commented	Anticipation Predicted Forecast
WILL/ATTITUDE		
Unchangeable Reprimandable Can be regretted		Influenceable Demandable Can be desired
EPISTEMIC STATUS		
Closed Absent Remote	Absent/Present Actual	Open Absent

Figure 6-3: Attributes associated with time divisions

7. TEMPORAL INTERPRETATIONS

7.1. General remarks

7.1.1. Spatial/numerical metaphor for time

Interpretations of tense in terms of spatial metaphor are usually in one dimension: there is a time line. (I will assume that time is linear and not discuss cyclic time.) Time points and time intervals may also be postulated and then located with respect to the time line and/or with respect to one another.

Alternatively, instead of seeing the time line as a spatial line, we can use the numerical line as a way of talking about time. This gives us notions like ordering, identity³⁵ (=), etc.; moment would correspond to numbers. However, space as it used here is easier to visualize and is perhaps a richer metaphor.

Space also seems to be the metaphor used in object languages (cf. [Traugott 78]; Halliday (forthc.); [Welmers 73] on African languages; and [Lakoff & Johnson 80]). On the model of *be going to* we could construct a new way of expressing English tense so that *Henry has been going to leave for a long time* becomes *Henry is at coming from being going to leave*.

The spatial metaphor will serve us well as long as it is not pushed too far; for a general understanding of time. [Reichenbach 28] (p. 109) notes that "the treatment of the problem of time as parallel to that of space has been detrimental", since the special problems of time were not brought out by this parallelism but only the non-existence of some spatial problems. One central difference between time and space is of course that time is unidirectional, a property the spatialization of time tends to obscure.

7.1.2. Conceptual domain

Theoretically, the full language of one-dimensional space and consequently the mathematical language of geometry and vector analysis are available for us to describe tense in spatial terms. We get among others the concepts listed in Table 7-1. In addition to the temporal relations listed in the table, there are several possibilities in the domain of motion—one time moving in relation to another time, an observer moving in relation to a time, time moving in relation to an observer, and so on. Some of these are changes pertaining to time relations and are listed in the table.

Different writers have drawn upon different combinations of these spatial notions. Here I will discuss e.g. Jespersen, Reichenbach, Riviere, Bull, and McCawley. Some (e.g. Lyons and Halliday) have emphasized deixis as a temporal as well as a spatial category. Halliday's account of tense is the foundation for the present account, and has already been presented.

7.1.3. Times

Before embarking on the discussion of different spatial tense treatments, I will make two points about the vocabulary of accounts of time and tense. The first has to do with the time line and points on it.

³⁵Strictly speaking, spatial identity in terms of coordinate location is impossible. No two objects can have the same spatial coordinates. In contrast, two events can be simultaneous, i.e., have the same temporal location. Here temporal ordering is more like numerical ordering than like spatial ordering.

Time

- point
- line (interval)
- vector

Time relations

- precedence: before, after
coming from (passed), going to
- adjacency: at
present/absent
- proximity: near/far; near/not-near
approach, leave
- parallelism (simultaneity): along, while, during
- inclusion/"framing": in; around, while
- ...

Figure 7-1: Spatial concepts for temporal description

As Jespersen's time line indicates (see Figure 7-3), the geometry of the spatialization of time leads to a representation of "now" as a point. Whitrow observes ([Whitrow 80], p. 205) that

Since the mathematical instant of zero duration is the precise analogue of the geometrical point, it cannot be regarded as the theoretical correlate of the 'now' of our sensory awareness which ... is definitely not durationless.

The consequence for the linguistics of tense is that we should be careful in how we treat "now" (speaking time, or whatever is tied to it) in a characterization of the present tense. Section 1.3 in effect assumes that tense does not make a distinction between moments and intervals.³⁶ [Jespersen 33] (p. 237) makes the same point: "in the practice of all languages 'now' means a time with appreciable duration, the length of which varies greatly according to circumstances". [Bull 63] (p. 14) likens the extended present to an accordion "which can be expanded or contracted at will and which can readily be shifted from 'the present moment' to 'the present century'".

7.1.4. Positions: absolute vs. relative

The second point about the vocabulary of tense accounts has to do with two ways of ordering events. [Miller & Johnson-Laird 76] (p. 417) quote and refer to [McTaggart 27] who said that "positions in time as time appears to us *prima facie* are distinguished in two ways." Positions may be earlier than some other positions and later than others and a position may be either past, present, or future. We can see these as relative location of a position in time (relative time) and as absolute location of a position (absolute time). Absolute time, however, is absolute given a now. Primary tense has sometimes been distinguished from secondary tenses as absolute from relative. But the absolute location of times can be derived from the relative

³⁶ The extent of the time of speaking is in fact not critical: What is at issue in the tense inquiries is the ordering relation "now" enters into, not its extent.

location in the following way (cf. for example Miller & Johnson-Laird):

ABSOLUTE		RELATIVE
past	=	precedes now
present	=	neither precedes nor follows now
future	=	follows now

Both types of ordering have been used in tense accounts. The absolute one tends to be used for primary tenses and the relative one for secondary tenses. But either has been used for all tenses; Prior builds his tense logic on the absolute ordering, whereas the present account uses the relative ordering for all tenses (assumption [1]).

7.1.5. Segments vs. relations

In addition to the variation between absolute and relative position in the explication of PAST etc., there is another pair of alternative interpretations. We can treat e.g. PAST as defining either [1] a segment (period) of the time axis, or [2] simply an ordering relation between two times. On the first interpretation, an event is PAST if it falls within the PAST segment of the time axis, i.e., the segment to the left of "now". On the second interpretation, an event is PAST if the time of the event precedes the time of speaking, "now".

For simple temporal situations, the two interpretations have the same consequences. For instance, the so-called INCLUSIVE PAST has a straightforward time segment interpretation, shown diagrammatically in Figure 7-2.

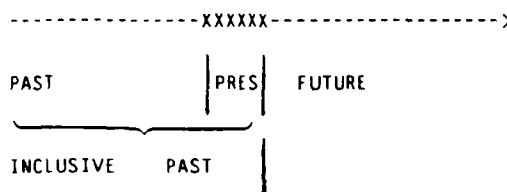


Figure 7-2: Segments and the time line

The INCLUSIVE PAST is in fact usually defined as a period: The segment of the time line that runs up to and includes "now". Clearly, we can define it in terms of a relation between two times as well: There is a time that stands in the relation 'not follow' with respect to "now" ($T_2 \not\supset T_s$, or, alternatively, $T_2 \not\subset T_s$).

The difference between the segment interpretation and the time ordering interpretation is more crucial when we want to make secondary differentiations; we will return to this issue in connection with Jespersen's temporal model. The conclusion to be drawn is that the time ordering interpretation is more useful for additional temporal differentiations.

7.2. Temporal segments

The general question for tense accounts based on the notion of temporal segments is: What segment of the time line is the event (to be expressed) located in?

7.2.1. Prior and McCawley: tense as an operator on propositions/sentences.

Prior constructed a tense logic out of tense operators that operate on propositions. The early part of [McCawley 71] looks similar: tense is analyzed as intransitive verbs with sentences as arguments; see also [Huddleston 69].

7.2.1.1. Operators: P and F

Prior's tense operators (or better: temporal operators) are P for past, read as "it used to be the case that ...", and F for future, "it will be the case that ...". If p (Henry meets Sue) is in the present, we can get the past and the future by applying P and F to p:

Pp Henry met Sue.

Fp Henry will meet Sue.

One way to view tense operators is as operators that pick out segments of the time line. P picks out a PAST segment and F a FUTURE segment. Iterated operators (cf. below) then pick out segments within these segments.

7.2.1.2. Iterativity

One nice feature is that complex tenses can be characterized; tense operators are re-applied (cf. Bull and assumption [2]). For instance, *Henry had met Sue* is PPp and *Henry will have met Sue* is FPp. The tense logic here strongly resembles Lewis' modal logics.

7.2.1.3. Drawbacks with the model

There are a number of drawbacks with the model:

- The choice to take the operators to be absolute rather than relative means that we cannot predict the interaction between tense and adverbials that an account along Reichenbach's lines brings out (as we will see). The relative type with a distinguished time now (or speaking time) seems preferable.
- Another drawback with Prior's tense logic as the basis for an account of English tense is that it leaves no room for the past-in-present.
- Present is interpreted as unrestricted (universal).
- The model has no place for secondary present.

The issues of the lack of interpretation for the secondary present and the past-in-present will come up

again. Here I will deal briefly with the interpretation of the present tense as UNIVERSAL.³⁷

7.2.1.4. Present interpreted as unrestricted

The interpretation of present as UNRESTRICTED/UNIVERSAL is common in time logics; it is simply analyzed as a lack of a temporal operator, i.e., as timeless. It really rests on the assumption that habitual, generic, and future uses are incompatible with PRESENT and well characterized as UNRESTRICTED. However, in the discussion of primary tense I will show that these uses are quite consistent with the choice condition PRESENT, i.e., $T_1 \circ T_2$.

The unrestricted use of the present tense often has to do with imperfective processes (either states or habitual events). A remark by Langacker ([Langacker 78], p. 862) gives us a clue as to why we do not have to assume that the meaning of the present tense is ever unrestricted: "Since an imperfective event is construed as an on-going affair, without regard to beginning or end, to verify its existence we need sample only one point in time." That, I think, is what the present tense does: it is chosen if a state or a habit *holds at PRESENT time*. If it is a state, the extension into the past and the future follows naturally. If the process is an event, the unmarked interpretation appears to be 'habitual occurrence of process'. The marked interpretation (in the simple present) is 'single occurrence of process' and requires a context like running commentary on a game, a demonstration or the like.³⁸ It follows that we can interpret the present tense as PRESENT state or habit of/single occurrence of event. Both states and habits extend, unless explicitly restricted.

7.2.1.5. Insights of tense logic

The principal interest for present purposes is the clear indication of iteration and the fact that the tense operators are not truth functional (and in this they are like the modal operators: when a tense or modal operator is applied to a proposition whose truth value is known, it does not serve as a function into a new truth value, as negation would, when applied to a proposition).

Prior's and McCawley's treatments raise a question for the type tense account that emerges from

³⁷ In their evaluation of a system based on two tense operators P and F, [Dowty et al. 81] observe: "This formal system does not offer a natural way of treating the present perfect in English, nor the various progressive tenses, and the careful student of English grammar will know that even the future perfect and the past perfect tenses of English interact with implicit or explicit reference to *specific points in time* besides the moment of utterance and the moment at which the "embedded" tense is true, often by means of time adverbials." Later, they point to the possibility of constructing a tense (i.e., temporal) logic only with "explicit quantification over times" and without the use of tense (i.e., temporal) operators. For example, instead of Pp, a representation like $(\exists T_y (T_y < T_x \ \& \ p \text{ true at } T_y))$. Cf. the equivalences noted above in connection with McTaggart: past = precedes now.

³⁸ For the present-in-present, the marking seems to be the other way around. Note that both interpretations are possible with both tense selections: see [Palmer 74], pp. 58-59. Thus we get

	single event	habitual event
present-in-present	unmarked interpretation	marked interpretation
simple present	marked interpretation	unmarked interpretation

For instance, the default interpretation of *Henry runs* is that Henry is a jogger or the like, the default interpretation of *Henry is running* is that we are referring to a single event—the habitual interpretation has to be forced by a specification of frequency like *always*: *Henry is always running*.

Reichenbach's foundation. As we will see, Reichenbach's account does not permit tense combinations of a complexity beyond past-in-past; his scheme rules out future-in-past-in-past. In contrast, Prior's and McCawley's accounts allow for additional complexity.

7.2.2. Jespersen on tense in English

Jespersen makes a distinction between time (notional, i.e. conceptual-semantic) and tense (grammatical). It follows that choosers would ask questions about the distinctions Jespersen draws in terms of time. Tense serves to encode time relations but serves other (non-temporal) functions as well. of non-temporal uses include the use of the future to express "a mere supposition or surmise with regard to the present time" (*he will already be asleep*, the use of the preterit (past) to indicate "unreality or impossibility".

7.2.2.1. Primary division of time line

The basis of the notional time model is the time line and a number of fixed time points. Jespersen starts out with one division (present), which yields two parts, past and future; see Figure 7-3.

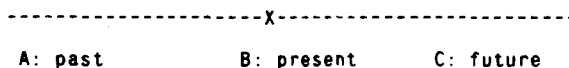


Figure 7-3: Jespersen's first division into segments

The following are one of Jespersen's examples of each of his time categories:

A: past

He left on Monday.

He was dining when I came.

I used to know him pretty well.

If I had had the money I should have paid you.

B: present

He lives at No. 27.

He is staying at the Savoy.

He will sit quietly for hours.

If I had the money I should pay you.

C: future³⁹

He leaves on Monday.

I am dining with him on Monday.

He will return one of these days.

He is going to get married.

If I had the money, I should pay you.

7.2.2.2. Secondary divisions

Jespersen adds subordinate divisions to the primary division. Subordinate times are "oriented with regard to some point in the past (Ab) and in the future (Cb) exactly as the main times (A) and (C) are oriented with regard to the present moment (B)". This comment and Jespersen's notation suggest that we have a simple repetition of the same before- and after-relations. That is, first before-present (= past) and after-present (= future); and then a repetition for new points of orientation within the past and the future respectively so that we get

before-(before-present) = before-past

after-(before-present) = after-past

with an application to a point of orientation in the past and the following with a point in the future:

before-(after-present) = before-future

after-(-after-present) = after-future

This is not quite how it works out in the diagram and the subsequent text ([Jespersen 33]). After-past is *between* past and present and before-future is *between* present and future. The diagram of the subordinate times is as follows.

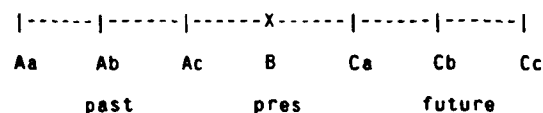


Figure 7-4: Jespersen's subordinate division

³⁹Note, that Jespersen does not posit *will* as a future tense marker in a system with past and present.

7.2.2.3. Terminological comparison with Halliday

Some of the differences between the Jespersen and Halliday models can be inferred from the differences in the range of temporal specifications that are recognized terminologically; the terminologies are compared in the table in Figure 7-5. As is evident from the table, Halliday's model is richer in the number of distinctions handled within the same model. Jespersen's scheme has no place for past/future-in-present and secondary present.

Jespersen (notional)	Halliday (grammatical)
past	past
present	present
(future)	future
before-past	past-in-past
---	present-in-past
after-past	future-in-past
---	past-in-present
---	present-in-present
---	future-in-present
before-future	past-in-future
---	present-in-future
after-future	future-in-future

Figure 7-5: Jespersen and Halliday: terminological comparison

7.2.2.4. Drawbacks with Jespersen's model

What Jespersen says about tense in English is naturally very clear and insightful. I see four shortcomings, two of which have to do with the differences evident in the table in Figure 7-5, viz.

1. The notional time forces the interpretation of "after-past" and "before-future" to be bounded by the present. This is a symptom of the more general observation that Jespersen has not freed his conception of time from an increasing number of fixed points on a line all related instead of a relation between just two points. The boundedness by "now" contrasts, of course, with the seriality assumption in Section 1.3.
2. As it stands, the notional time model does not accommodate more complex tense combinations (covered by the seriality assumption) like *I shall have been going to see my aunt with the teapot*.
3. The notional model does not provide selectivity between *has left* and *left* and between *will leave* and *is going to leave*.
4. The model does not accommodate secondary present.

The boundedness by "now" that appears in Jespersen's diagram is stated by [McCawley 71] (p. 113) in the following observation:

One interesting restriction on the future (called to my attention by Michael Stewart) is that a past embedded in a future may not refer to something that the speaker knows to have already happened.

I would argue that this is perhaps a normal inference for the past-in-future (future perfect), but it is not necessary. For instance:

Next Monday, Max will have received his Ph.D. exactly 30 years ago.

where Max's receiving his Ph.D. is past with respect to the moment of speaking (the present). Consequently, the proposed restriction—which is implied by Jespersen's diagram—is not a necessary one. Similarly:

Next Monday, Henry will have lived here for exactly 30 years.

The situation with future-in-past is the same as the one with past-in-future. As the following constructed examples indicate, there is no necessary boundedness by T_s .

I met Henry yesterday. His son was going to leave on Saturday. Henry didn't say anything, but that's the impression I got.

I met Henry yesterday. His son was going to leave on Saturday and Henry was heartbroken.

The first objection to Jespersen's analysis, the objection to the boundedness of after-past and before-future by now, can be met by "extracting" the different before- and after- relations from the one line diagram in such a way that each before- and after- only relates to one time point (Figure 7-6). This model allows for an interpretation of examples such as:

Next Monday, Henry will have lived here for exactly 30 years.

Yesterday they were going to leave in a week.

where the beforeness and afterness are not bounded by now. The first example was used as an objection to Jespersen's own diagram; it is handled by the revision proposed here.

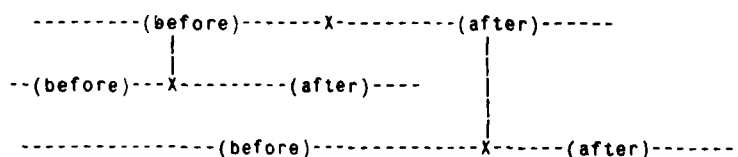


Figure 7-6: Fission of Jespersen's notional time model

If the pattern -----(before)----X----- (after)----- is repeated with new points, X, set up, we can deal with more complex tenses.

In his discussion of secondary tenses, Jespersen almost sees the "fission" indicated above, but the one-dimensionality of the time-line prevents him, as his discussion of Madvig's nine-tense system for Latin shows clearly. Madvig presents the system as what can be seen as a two-dimensional matrix, very similar to the Hallidayan tense analysis that is adopted here (see Figure 7-7) Madvig's analysis allows one to go through tense twice, as it were.

	praesens	praeteritum	futurum
	scribo	scripsi	scribam
in praet.	scribebam	scripseram	scriptus eram (fui)
in futuro	scribam	scripsero	scripturus ero

(in praet. = in praeterito)

Figure 7-7: Madvig's tense analysis

Jespersen criticizes Madvig's analysis, partly because it imposes distinctions in Latin that do not have formal correlates (e.g., *scribam*, which occurs twice in the matrix above), and partly because Madvig's analysis makes one-dimensional time two-dimensional ([Jespersen 24]). I have no comment on the first observation. However, I think it is perfectly possible not to interpret Madvig's two-dimensional *classification* of tense as leading to a view of time as two-dimensional: something is two-dimensional only when it has a location specifiable in relation to two coordinates. If tense is seen (as it is here) merely as a specification of the relation between two times along one dimension (relations of precedence, etc.), the fact that this specification can be repeated (yielding a complex tense) does not make it two-dimensional; it is repeated one-dimensionality.

7.2.2.5. Secondary present: Jespersen's expanded tenses

As already noted, Jespersen's time line model does not include the secondary present, but he offers an interpretation of it. His interpretation belongs to the inclusion/framing class of interpretations.

Jespersen could have incorporated his framing interpretation into his time line model if he had given periods and relations between them independent recognition; framing would simply be a relation between two periods.

7.3. Time relations: Reichenbach, Hornstein, Riviere, and Bull

The general difference between Jespersen's model and those discussed below can be gleaned from Clifford's discussion of Reichenbach ([Clifford 75], pp. 38-39):

Dealing again with time language, Reichenbach took the essential feature of tense forms to be not the segment or subsegment of the time line into which they place the event but merely the direction of the event from the moment to which it is related.

This serves to characterize not only Reichenbach, but also Hornstein, Bull, and Riviere. Hornstein (see [Hornstein 77]) uses Reichenbach's basic scheme: I will concentrate on Reichenbach here.

7.3.1. Reichenbach

As an introduction to Reichenbach's analysis of tense, his comment on Jespersen's analysis serves well:

In J.O.H. Jespersen's excellent analysis of grammar [The Philosophy of Grammar] I find the three point structure indicated for such tenses as the past perfect [Jespersen's notional before-past] and the future perfect [his notional before-future], but not applied to the interpretation of the other tenses. This explains the difficulties which even Jespersen has in distinguishing the present perfect from the simple past (p. 269). He sees correctly the close connection between the present tense and the present perfect, recognizable in such sentences as 'now I have eaten enough'. But he gives a rather vague definition of the present perfect and calls it 'a retrospective variety of the present'. ([Reichenbach 47])

[Reichenbach 47] makes the generalization he observes is not present in Jespersen's analysis and characterizes each tense as a configuration of these three time points. The times are *the point of speech* (S), "the time point of the act of speech", *the point of the event* (E), and *the point of reference* (R). The point of reference is established by the context, e.g., the past events in a story.

Any two of the three points can be ordered before or after one another or be "simultaneous". For instance, the simple present has all three points simultaneous, represented by S,R,E, and the simple past has R before S and E simultaneous with R, i.e.,

R, E --- S

(cf. R O E C S).

The three point structure enables Reichenbach to characterize the perfect, which as we have seen "cannot be fitted into the simple series" according to Jespersen. For Reichenbach, it is present in that S and R are simultaneous, but it has E before S,R.

Reichenbach's scheme allows for thirteen different combinations of S, E, and R, but "the number of recognized grammatical tenses in English is only six". This is so because constructions that are seen as tense combinations in the present study, e.g. *I shall be going to see him*, are viewed as "transcriptions" rather than "established forms" by him. It is not really clear why; it may be that he was simply following tradition in spite of the suggestiveness of his own scheme. He provides the following list of his S,R,E combinations; see Figure 7-8.

Reichenbach offers the following diagrammatic representations of the six English tenses he recognizes (see Figure 7-9).

Note that his interpretation of the "future perfect" only posits one relation for E (after R), the analysis also taken here, and does not confine it to be between S and R.

It should be noted that he allows for two interpretations of the simple future, only one of which appears in the diagram. He analyses *Now I shall go* as S,R---E, but *I shall go tomorrow* as S---R,E, with "no prevalent usage of the one or the other". His assumption is that the time adverbial only can specify R.

Structure	Reichenbach's name	Traditional name
E---R---S	Anterior past	Past perfect
E,R---S	Simple past	Simple past
R---E---S R---S,E R---S---E	Posterior past	---
E---S,R	Anterior present	Present perfect
S,R,E	Simple present	Present
S,R---E	Posterior present	Simple future
S---E---R S,E---R E---S---R	Anterior future	Future perfect
S---R,E	Simple future	Simple future
S---R---E	Posterior future	---

Figure 7-8: Possible S,R,E schemas.

Structure	Name	Example
E---R---S	Past perfect	I had seen John.
R,E---S	Simple past	I saw John.
E---S,R	Pres perf	I have seen John.
S,R,E	Present	I see John.
S,R---E	Simple future	I shall see John.
S---E---R	Future perf	I shall have seen John.

Figure 7-9: Reichenbach's English tenses.

If we consider only the S---R,E analysis of the future,⁴⁰ it is possible to make a generalization about the ordering of the pairs S and R, and of R and E which neither Reichenbach nor Hornstein makes. This is that primary tense orders R and S in a way such that

past	is	R --- S
present	is	R, S
future	is	S --- R

and secondary tense (only *have* for Reichenbach) specifies the relation between E and R. If there is a

⁴⁰The other analysis of the simple future Reichenbach proposes, S,R---E, is the mirror image of the present perfect. This, I will argue, is *is going to see*: see Section 14.5 below.

form of *have*, E precedes R, i.e. E---R, otherwise not.⁴¹ The result is the pairwise comparison property of tense assumed in the present account.

7.3.1.1. Major contributions of Reichenbach's model

The two features in Reichenbach's analysis that are major contributions with respect to, for example, Jespersen's analysis are the three time points, which make it possible to bring in the present perfect, and the relations "," and "---", giving each time point only one other to which it is directly related.

7.3.1.2. Terminological comparison with Halliday's model

As long as tertiary tense and higher order tenses are excluded, Reichenbach's model is fairly similar to Halliday's; see the table in Figure 7-10. There is one difference that is not immediately clear from the table. For Reichenbach, the posterior present and the simple future are two alternative interpretations of *will* + infinitive. In contrast, the simple future and the future-in-present have distinct realizations in Halliday's interpretation.

Reichenbach	Halliday
anterior past	past-in-past
simple past	simple past
posterior past	future-in-past
anterior present	past-in-present
simple present	simple present
posterior present	future-in-present[*]
anterior future	past-in-future
simple future	simple future [*]
posterior future	future-in-future

[*] Different realizations for Halliday; same realization for Reichenbach.

Figure 7-10: Reichenbach and Halliday

Halliday's secondary present has not been included in the table. However, Reichenbach does suggest an interpretation consistent with his model, even if it is not interpreted as a relation between two times. Essentially, it looks like a diagrammatization of a durational interpretation of the secondary present.

7.3.1.3. Drawbacks with Reichenbach's model

While Reichenbach's scheme is a better interpretation than Jespersen's positions on a single time line, there are some shortcomings:

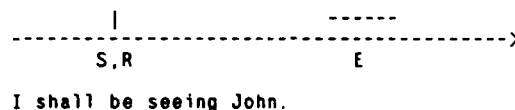
- As I have already pointed out, Reichenbach does not make use of the extension of tense that his own analysis suggests. Thus, there is no repeatability of the type assumed in the second part of my basic assumptions.
- Tenses are treated as undecomposed three point combinations, without an attempt at a

⁴¹ This generalization is similar to one that [Riviere 80] makes in his analysis; see below

generalization as to the exact contribution of past, present, or perfect, etc. This blocks a further possible refinement of the analysis, viz.

- Further "tenses" could be characterized if further time points were admitted. But this cannot be done as long as tense is not seen as a relation between two times, which may be repeated.

There is another type of problem which has to do with E, the point of the event. As has already been mentioned, Reichenbach analyzes the expanded tenses as indicating that "the event covers a certain stretch of time". This is diagrammed in the simple future, extended, as:



However, it is certainly not the case that the event can necessarily be seen as a point in the simple tenses. The event of owning in *I owned a car* (simple past) probably covers a longer stretch of time than the event of seeing in *I was seeing John*. In any case, the problem of how to deal with the event time is not really addressed.⁴² In the present account the problem is dealt with by talking about times instead of points of time (see Section 1.3), thus allowing for both moments and intervals. In general, Reichenbach's diagrams are best suited for non-durative single (not repeated) events (not states).

We have now met two theories of the secondary present: Jespersen's framing/inclusion theory and Reichenbach's duration theory. (They are of course just examples of scholars who have adopted variants of these theories.) Jespersen's type is adopted here.

7.3.2. Generalized location: Riviere

Riviere's analysis is not a strict temporal one, but rather a generalized interpretation. However, it is helpful to discuss the temporal aspect of his approach here after Reichenbach's model and before Bull's. I will then return to an evaluation of the generalized character of Riviere's model.

7.3.2.1. Riviere's model

The general "formula" that is relevant to Riviere's description of tense is

lexis IS-LOC-BY situation1 IS-LOC-BY situation2

Lexis is defined as "the linguistic equivalent of the propositional content of a logical proposition". A situation consists of a speaker and a time. *IS-LOC-BY* means "is located by" and has two values, IDENTIFICATION and DIFFERENTIATION. (Note the spatial metaphor in "is located by".) More specifically, for tense, Riviere presents a formula like the following (I have substituted Reichenbach's time symbols for Riviere's):

lexis IS-LOC-BY E IS-LOC-BY R IS-LOC-BY S

⁴² Statements like *Two times two is four* are not intended to be covered by the diagram given for the simple present above, but represent "a second temporal function of the present tense" I do not think this is the case and I will justify my disagreement in Section 11.4.2

7.3.2.2. Reichenbach and Riviere

[Riviere 80] (p. 113) says of Reichenbach that "though some of Reichenbach's insights have not been superseded, it must be noted that he only devotes eleven pages of his book to tenses so that a detailed approach which specifies the linguistic side of the system is not superfluous". Riviere's analysis is indeed very much along the lines of Reichenbach's approach, but he differs on some basic points of analysis (only one of which actually constitutes an improvement over Reichenbach).

We can identify two major differences between Reichenbach and Riviere:

1. Riviere maintains that particular options in the tense systems are identified with particular pairs of times.
2. Riviere identifies two relations, IDENTIFICATION and DIFFERENTIATION, instead of Reichenbach's more differentiating set.

With respect to the second difference, the present analysis is closer to Reichenbach's on this point (see Section 1.3.1). Riviere's contrast IDENTIFICATION vs. DIFFERENTIATION is not correct for either the relation between S and R or for the relation between R and E.

7.3.2.3. Correlation between pairs of time and tense options

The identification of particular options in the tense systems with the location of particular pairs of times—an identification which Reichenbach does not make, but which I make—turns out to be very useful (as was already indicated in connection with Reichenbach) and it will be used here in the choosers.

7.3.2.4. The relation between S and R

The relation between S and R is one of (primary) tense; when it is IDENTIFICATION the present is described and when it is DIFFERENTIATION the past is described (represented by = and ≠ respectively). The contrast is not right for the relation between R and S either, although at first it seems to enable Riviere to characterize the imaginary/hypothetical use of the past along with other uses (which is a problem of reconciling tense uses under one account). I will return to the suggested generalized nature of distinction between these two relations shortly, in Section 8. As a strictly temporal interpretation, Riviere's operator and its negation define PRESENT (=) and NON-PRESENT (≠).

7.3.2.5. The relation between R and E

The relation between E and R "defines the perfect/non-perfect contrast". The perfect, a form of *have*, is the DIFFERENTIATION value of IS-LOCATED-BY, and the "non-perfect form (zero marker) results from the operation of identification, time [E] is simultaneous with [R]". As Riviere himself notes, his definition of the perfect is close to the traditional one, but he is more structuralist than traditional grammarian and sets up an opposition between *have* and zero.

There is a problem, however, with Riviere's interpretation of the secondary past as DIFFERENTIATION (i.e., temporally NON-PRESENT). Rather than expressing mere DIFFERENTIATION, it expresses (relative) PASTness.

In addition, absence of *have* does not necessarily entail IDENTIFICATION. The contrast is not right for the relation between E and R, as the following examples from [Hornstein 77] show (cf. Section 11.2.1):

Yesterday, John left a week ago.

7.3.3. Summary

In summary, Reichenbach/Hornstein and Riviere can be characterized as using Reichenbach's three time analysis and relations that obtain between pairs of these times. The difference between Reichenbach (and consequently Hornstein) and Riviere lies in the type of relations posited. Riviere has identity where Reichenbach has identity, but instead of having ordering of times in addition as Reichenbach does, he just has non-identity, and, as a result, his system yields a two tense description where Reichenbach has three. The difference between Reichenbach and Hornstein is that the latter allows for the possibility of changing the basic time configuration through adverbial specification.

Riviere's identity vs. non-identity relation is not restrictive enough: Reichenbach's is preferable. It has the virtue, however, of indicating how variants of Reichenbach's analysis can be used to capture a number of different tense descriptions. Riviere himself captures the representation of tense as present vs. non-present. By using $\subset$ and its negation, $\not\subset$, we can capture another two-term analysis, viz. PAST ($R \subset S$) vs. NON-PAST ($R \not\subset S$). Neither of these (PRESENT vs. NON-PRESENT and PAST vs. NON-PAST) excludes the addition of a future tense, of course.

7.4. Bull's account of time and tense

Here I will do injustice to [Bull 63] and not summarize the foundation he tries to lay for his analysis of tense, but rather plunge right into his analysis.⁴³

7.4.1. Bull's general model

Bull operates with a time line and four axes of orientation (limiting the number to four is a hypothesis). The primary axis is the point present (PP) at which we speak, recall past events, experience events, and anticipate future events. We may recall or anticipate PPs at the current PP, which gives us a retrospective point, RP, and an anticipated point, AP. In addition there is a point oriented not in relation to the current PP, but in relation to RP, a retrospective anticipated axis (RAP).

The event encoded by the main verb, E, may be anterior to, simultaneous with, or posterior to any of these axes of orientation. The model is diagrammatically represented in Figure 7-11.

Here "-" represents anteriority, "0" simultaneity and "+" posteriority with respect to an axis of orientation. At any "0" in the chart, its axis of orientation is experienced; other axes are recalled (as is "RP") or anticipated (as are "AP" and "RAP"). The arrows in the chart indicate the relations of recall and anticipation.

This figure has the same mobile-like look as the diagram that represents the "fission" of Jespersen's time model: the important point is that the ordering relations of anteriority etc. are allowed to be applied to

⁴³ The foundation is cast in terms of structures in objective reality. His method is to move from objective reality to the linguistic system, rather than the other way around. In general, I suspect a dialectic approach is more helpful.

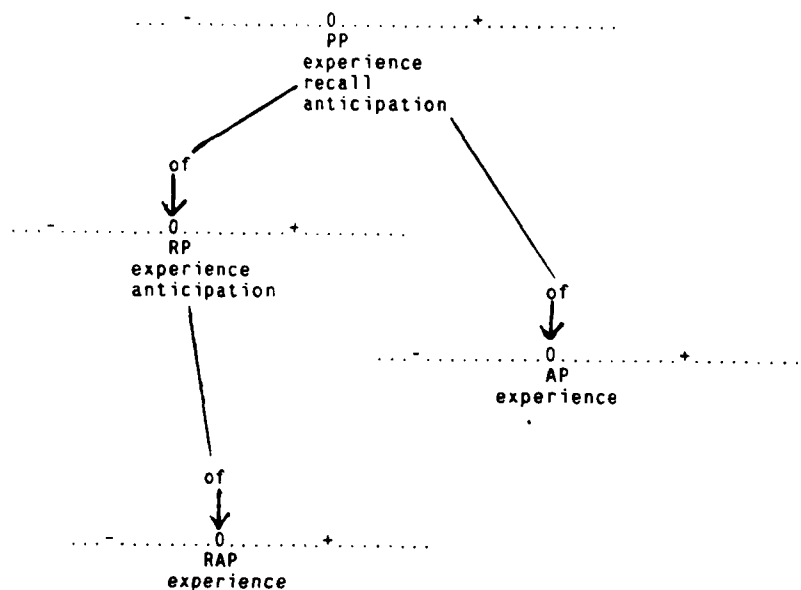


Figure 7-11: Bull's general tense model

axes of orientation that have not all been fixed with respect to one another but only with respect to "now" itself, PP, or RP. Bull makes this point clear in connection with RAP:

RAP, obviously, cannot be explained in terms of a direct relationship to PP, and it may be remarked in passing that the attempt to do so (a standard practice of most grammarians) has created a completely false notion of the structure of tense systems. RAP may be anterior to PP, actually identical with PP, or posterior to PP. ... Once the speaker has moved from PP to RP in recollection, PP ceases to be a relevant entity. ([Bull 63] (p. 24))

Bull's remarks correspond to my assumptions in Section 1.3. The model that Bull establishes as a base for characterizations of tense⁴⁴ definitely represents an advance on the type of model expounded by Jespersen. There are shortcomings, however. Some of them have to do with the general model presented so far.

- For English, there do not seem to be any good reasons for making the model rest on an ego's cognition—recall, experience, and anticipation. In fact, as will be shown in Section 14.5, certain tense combinations can be used to code e.g. the speaker's recall of somebody else's anticipation. All that is needed for tense is a model that allows for the setting up of multiple reference points. In general, there seems to be little to be gained in psychologizing the reference points.
- The model does not directly allow for the encoding of the insights represented in Reichenbach's three point model. For example, for the simple present we really only have PP and 0 available for the analysis.
- The limitation to four points of reference does not seem to be empirically justified. For example, if there is a retrospective anticipated point, why is there not an anticipated retrospective point? It is certainly possible to find tenses in English to warrant further points.

7.4.2. Bull's interpretation of English tense

These points of criticism apply to the general model. Bull offers an analysis of English in terms of the model; unfortunately, he did not elaborate and his analysis does not seem satisfactory. This is the diagrammatic representation of the analysis (see Figure 7-12):

The drawbacks with Bull's analysis of English tense include:

- No direct relation between *will sing* and *will have sung* is shown, although the second form can be shown to be past relative to the first.⁴⁵ That is, *sings* is related to *will sing* but then there is no place to put *will have sung* if it is to be related to *will sing*. The same problem applies to *would have sung* relative to *would sing*.
- The diagram does not include forms with *be going to*. Following Bull's argument about not restricting tense to bound morphemes, he can hardly exclude these forms (except on the grounds that they may not be part of the list of tenses of many traditional grammars).

The first problem can of course be remedied by moving *will sing* to AP from PP+. Although this remedy seems to have the curious effect of leaving a gap at PP+, this gap is in fact desirable if *is going to* is to be included in the analysis. It can be placed at PP+. The revised version of Bull's interpretation of English tense is given in Figure 7-13.

However, other complex tenses with *be going to* find no place in the diagram. Among them are *has been*

⁴⁴ Bull does not claim that it is valid for tense systems in all languages—that is left as an open question, but it is offered as the basis for a number of languages for example Spanish, Hawaiian, and English

⁴⁵ For example, in *Nine months from now, the American people will give birth a new Reagan mandate or will have rejected another president (Newsweek)* the second primary future specifies a future time in relation to which another time, the time of rejection, is past as marked by the selection of the secondary past

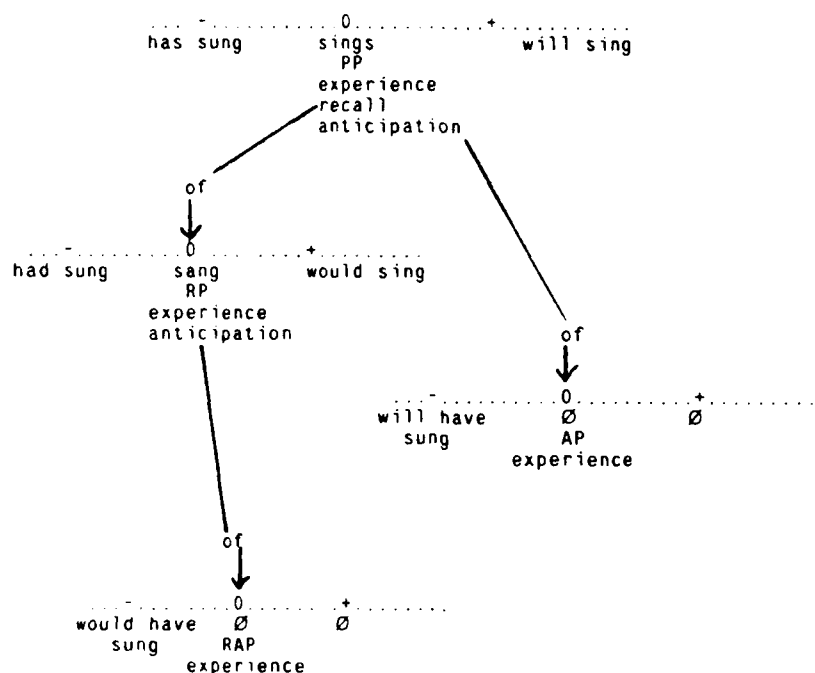


Figure 7-12: Bull's analysis of English

going to, and *had been going to sing*. The problem is more serious here, for it has to do with the construction of Bull's model itself. Bull only allows for new axes of orientation to be defined in relation to an old axis of orientation (RP and AP in relation to PP; RAP in relation to RP). This means that a complex tense like *has been going to* is prohibited by the model. This tense requires a model where PP-, RP- etc. can be turned into new axes of orientation so that *has been going to sing* can be related to *has sung* and so on; cf. the diagram in Figure 3-6 based on our account.

The important contribution for English in Bull's analysis lies in the notion of the possibility of re-establishing axes of orientation to which anteriority, simultaneity, and posteriority can be applied.⁴⁶ In this respect, his model really adds something to the type of framework Reichenbach worked out. The time model itself, however, has to be revised. This also applies to parts of the analysis of English tense, as has been indicated very briefly.

⁴⁶The idea was worked out independently by Halliday and Ellis in the early 1950s

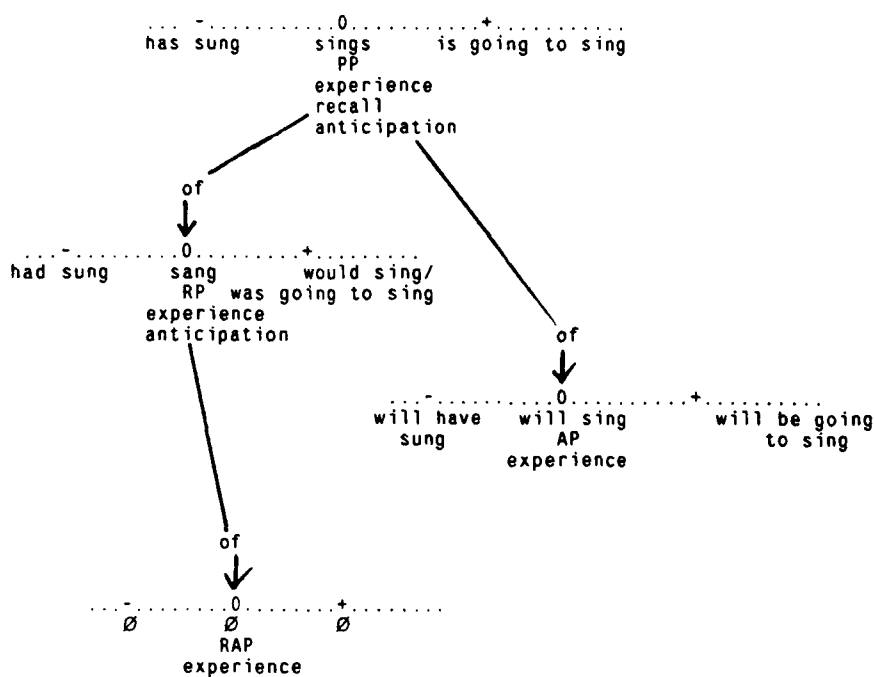


Figure 7-13: Revision of Bull's interpretation of English tense

7.5. Binary tense oppositions

Prior, McCawley, Reichenbach, Hornstein, and Bull all assume a three-term tense distinction—the assumption of traditional grammar, also incorporated into my account. Two possible temporal two-term tense interpretations are PRESENT vs. NON-PRESENT and PAST vs. NON-PAST.

7.5.1. PRESENT vs. NON-PRESENT

We have met one two-term interpretation, Riviere's. Temporally, it can be read as PRESENT vs. NON-PRESENT. Riviere makes use of a more generalized version of it, IDENTIFICATION vs. DIFFERENTIATION and I will look at this generalized opposition below; the problems with the generalized version partly apply to the specific temporal case as well. In particular, the temporal version of DIFFERENTIATION, NON-PRESENT, seems to have very little justification as a candidate choice condition for the primary past. It is simply not the case that the primary past is chosen if the temporal reference is undifferentiatedly NON-PRESENT: FUTURE reference (as in *We leave tomorrow at dusk*, the so-called futurate use of the present) is not a reason for choosing the primary past tense.

7.5.2. PAST vs. NON-PAST

If the present is interpreted as NON-PAST, it is assumed that it is indifferently PRESENT and FUTURE. Is this assumption about reference to future time warranted? There are at least two strong reasons for believing that it is not: [1] The NON-PAST interpretation is not a necessary consequence of the futurate use of the present tense; rather, the futurate use can be accommodated very nicely within the account given here; [2] There are severe problems with the NON-PAST interpretation: it is far too unrestrictive.

7.5.2.1. The non-necessity of NON-PAST

Section 11.1 will show that the future use of the simple present is quite consistent with the choice condition I have proposed for it. Indeed, it is quite misleading to interpret the future use as simply NON-PAST. As I will show below there is something PRESENT, viz. a plan, arrangement and the like. It is the execution that is (implicitly) FUTURE.⁴⁷

7.5.3. Lack of restrictiveness of NON-PAST

An important thing to note about the use of the present to refer to future time is that this use is highly restricted. This becomes particularly clear when the use of the English present is contrasted with for example the Swedish present tense. One of the major difficulties for a Swedish learner of English in the area of tense is to learn *not* to use the simple present to refer to the future, since the Swedish present tense can be used rather more freely to refer to the future than the English present (see [Zandvoort 72] p. 58 for the same observation). To interpret the primary present as NON-PAST is thus to miss a distinctive aspect of the English tense system.

The restriction also becomes clear if we adopt a diachronic perspective. In Old English, for example, the distinction was really PAST vs. NON-PAST (cf. e.g. [Jespersen 31] and [Strang 70]). The simple present was the normal way of expressing futurity. Since that time, the range of futurity uses of the simple present has decreased; in Middle English "analytic forms were steadily on the increase" ([Friden 48], p. 20). Thus, the simple present of Old English has given up ground to other tenses to express futurity; it has also been restricted through the emergence of the present-in-present.

If the present is described as NON-PAST, this characterization has to be followed by a list of restrictions immediately so that unrestricted reference to future time is not allowed. The result is that the strength of the initial generalization of the contrast is lost, just as with Joos's generalization, ACTUAL vs. REMOTE, as we will see below. NON-PAST is too unrestrictive, permitting for example:

Henry is a nice boy next year.

Henry understands Einstein's general theory of relativity in a week.

The outbreak of the war frightens Henry (= 'will frighten').

⁴⁷ In this, my account differs from Hornstein's: see [Hornstein 77]. He assumes that examples like *Henry leaves tomorrow* have the derived tense structure "S --- R,E", which can be glossed as " $T_s \subset T_r \supset T_e$ ". The result is the same as for the simple future and [Wachtel 82] points out that Hornstein fails to capture the meaning difference between the simple present and the simple future when there is a component of future time reference. In addition, Hornstein's rules for deriving tense structure fail to explain why past-in-present examples like *John has come tomorrow* are unacceptable: cf. Hornstein (op. cit. p. 559) and [Heinamaki 79]. However, if Hornstein took the derived tense structure to be " $T_s \supset T_r \subset T_e$ " in clauses with adverbial specification of T_e as future, it would immediately be clear why there is a clash between 'tomorrow' and the past-in-present but not between 'tomorrow' and the simple present: the past-in-present does specify that T_r precedes T_e and this precludes any specification of T_e as future. Given my account, such an explanation is open to us: it is not to Hornstein. The simple present does not specify the relation between T_e and T_r .

8. GENERALIZED INTERPRETATIONS: JOOS AND RIVIERE

Riviere says that T_r and T_s are either identical (=) or different ($\neq$) and claims that the identity/differentiation characterization can account for not only past vs. present but also for imaginary vs. real (see [Riviere 80]). He writes that:

it follows from the operation of differentiation that it refers to a time which is different from the time of speaking, which may be past but may also be imaginary as in the modal uses of the past (e.g. in *if*-clauses, after *I wish*, or in the past forms of the modal auxiliaries).

Riviere's distinction between identity and difference sounds very similar to Joos's distinction between ACTUAL and REMOTE in [Joos 64]. (Riviere does not comment on this; there is no reference to Joos's work.)⁴⁸ Joos characterizes his distinction in the following way: "The modern English remote tense [the simple past] has the categorical meaning that the referent (what is specified by the subject-verb partnership) is absent from that part of the real world where the verb is being spoken."

The general interpretation ACTUAL (IDENTICAL) vs. REMOTE (DIFFERENT) gives us a very neat picture. The general distinction is related by a subtype relation to the more specific distinctions PAST vs. PRESENT and IMAGINARY vs. REAL: the actuality (identity) is in terms of either a dimension of time or a dimension of reality; see Figure 8-1 for a tabular representation. I have added the use of the past tense (instead of the present) as some sort of marker of politeness in the diagram.

Relation: Dimension:	IDENTITY	DIFFERENCE
TIME	PRESENT	NON-PRESENT
REALITY	REAL	IMAGINARY
POLITENESS	PEER	NON-PEER

Figure 8-1: The identity interpretation of tense

Although the interpretation seems very attractive there are severe problems with it. One is that it is too general and not restrictive enough. Another is that the contexts in which the subtypes occur are rather different.

⁴⁸ [Jespersen 24] (p. 265) also sees a link between the strictly temporal use of the past and the unreality use, which is that something is "denied with regard to the present time". *He has money enough* contrasts with both *I wish he had money enough* and *At the time he had money enough*. Note, however, that the simple past does not really deny anything temporally with respect to present time (although this is probably the only reasonable inference for single perfective processes like *reach*, *die*, *crush*, and *close* since they cannot go on once they have reached completion in the past). When I say *Henry already had money enough*, I even suggest that Henry still has money enough—a state or imperfective process that is reported in the simple past may very well continue up through the present time: see [Langacker 82], p. 277.

8.1. Lack of restrictiveness

Riviere's characterization does not seem to be restrictive enough for the past, since T_r and T_s can be different by virtue of T_r following T_s and this would not normally lead to a choice of the past. In other words, mere difference between T_r and T_s is not enough. Joos's characterization suffers from the same problem as Riviere's; it is under-restrictive. In fact, Joos has to undermine his generalization (which at first blush might look attractive) and writes that "English treats future time as not remote from the present occasion, and remoteness in time in English is always categorically past time". Given this observation, there seems to be little value in maintaining that past vs. present is really REMOTE vs. ACTUAL: Although there is nothing contradictory in what Joos says, he has to stipulate that REMOTE (in time) means PAST and ACTUAL (in time) means NON-PAST (i.e., PRESENT or FUTURE), since the generalized opposition REMOTE vs. ACTUAL will not itself pick out the correct time segments.

There is even an additional problem with Joos's distinction: past vs. present is not REMOTE vs. ACTUAL along any arbitrary dimension. The distinction is limited to time, reality, and possibly something like politeness (where actual/identical means the degree of politeness used between two social equals, i.e., between peers, and remote/different means 'polite', i.e., some degree of social distance between non-peers). Thus it does not apply to dimensions of space, relevance, obligation, belief, and so on. The limitations must be incorporated into the definition and this leads to further modifications of "REMOTE" and "ACTUAL" and the apparent value of the distinction vanishes.⁴⁹

As an alternative to treating REMOTE and ACTUAL as Gesamtbedeutungs (i.e., as basic meanings), they can be used as features that are part of the meanings of the past tense and the present tense (see the discussion of tense and modality in [Lyons 77]).

8.2. IMAGINARY vs. REAL: a misinterpretation

To call the distinction IMAGINARY vs. REAL as Riviere does is misleading, I think; it is really COUNTERFACTUAL vs. NON-COUNTERFACTUAL.⁵⁰ The latter may or may not be real; the distinction makes no difference in tense selection. The real state of Henry being happy is reported in the same way. *Henry is very happy*, as the hypothetical state of Henry being very happy, *Henry is very happy (if he is at home)*. However, I will not go into that issue here; cf. Section 10.3.

8.3. Grammatical context and number of distinctions

It was noted that REMOTE (DIFFERENT) does not exclude unconstrained reference to future time and it has been shown that we do not want unconstrained reference to future time for the simple present. However, consider the grammatical contexts in Section 10.2.2, where I point out that in a limited number of

⁴⁹ Joos's exercise with REMOTE vs. ACTUAL and the restrictions that are needed seem to warrant Leech's description of the book: "A bizarre book, full of confusions and oversimplifications, yet also full of insights" ([Leech 71] p. 125).

⁵⁰ In fact, it is not the case that past vs. present is to be interpreted as COUNTERFACTUAL vs. NON-COUNTERFACTUAL. Rather, the interpretation is COUNTERFACTUAL (past) vs. NON-COUNTERFACTUAL (past vs. present vs. future); from the point of view of choice conditions, primary tense patterns as past : (past : present : future). I will return to this matter in connection with the chooser of primary tense. The conclusion is that Riviere's distinction is a double misinterpretation: both the semantic contrast and the tense terms contrasted are wrong.

contexts, we find that only past and present alternate. I suggest that we can interpret this alternation as PAST vs. NON-PAST if the clause is not intended to be hypothetical. The problem with Riviere's account is that it does not distinguish between the special contexts of Section 10.2.2 and the more general situation. In other words, his attempted generalization does not recognize the marked status of the special contexts.

9. MODAL INTERPRETATIONS

Modal interpretations may deal with just *will* (future *will* is treated as a modal auxiliary rather than as a temporal auxiliary) or with tense in general as a modal category.

9.1. Primary future or modality?

There are two types of modality that have been suggested for *will* + infinitive, epistemic modality and deontic modality (with reference to the history of *will* and *shall*). Claims that the traditional English future tense is really a modality often come up in structuralist two-tense systems.

9.1.1. Temporal or modal: indeterminacy

If "future *will*" is interpreted as a modal, this is a weighted decision—the case is certainly not crystal clear. For instance, even Palmer, who prefers to group *will* with the modals in all its uses, emphasizes the tense-like nature of "future *will*":

Although I have argued that strictly English has no future tense⁵¹, there are respect in which *will* and *shall* are 'tense like' in that they sometimes function more like the primary auxiliaries than the modals. ([Palmer 74], p. 104)

Palmer discusses the respects in which he thinks future *will* and *shall* are tense-like (op cit., pp. 106–8); I will touch on some of the properties he identifies.

9.1.2. Linguistic future vs. metaphysical future

Riviere justifies his position that the basic tense distinction *does not involve a notion of a future tense* in the following way ([Riviere 80]).

Reference to a future time is a different problem related to the use of modality and which should be dealt with separately.⁵² When an utterance refers to past or present time, the referential value may coincide with a truth value (or with a probability of 1, complete certainty). This can never be the case when an utterance refers to a future time.

In itself, this does not justify the exclusion of the future as a tense. The observation that an utterance referring to future time cannot have a truth value is a philosophical position; it reflects Riviere's or perhaps most current scholar's metaphysics. Even if we grant Riviere his metaphysical position, he needs to demonstrate that it is relevant for English. Something does not become a modal phenomenon in English simply because it is one in most current logics. Here it can simply be noted that the interpretation of tense as locating times does not mean that these locations are asserted to be true/false; other parts of the grammar of the clause are concerned with this.

For our purposes, what would need to be demonstrated is that we *choose* the so-called future tense for basically modal reasons rather than temporal reasons. This does not seem to be the case. On the contrary, the situation can aptly be described as the reverse. That is, we choose the future tense (I will confine myself to the

⁵¹ This argument is crucially based on morphology. I will deal with this type of argument below.

⁵² Note, however, that Riviere's own characterization of the past tense as the non-identity of two times does not exclude the realm of future time.

will + infinitive option here) for basically temporal reasons rather than modal ones.

9.1.3. *Will* not chosen to express uncertainty

Consider *Henry will marry Anne at last*. We do not choose *will marry* rather than *married* in *Henry will marry Anne at last* because we want to make an epistemic distinction. If there is an element of uncertainty in *will marry*, this is something that falls out auto(prag)matically from the fact that we are talking about the future plus the fact that we cannot calculate the result. The situation is different with e.g. *In three years Churchill will have been dead for 20 years* where there is no uncertainty at all. The reasons for choosing *will* are the same in both cases: to convey the futurity.⁵³

The simple present is used when a plan is present but its execution is future, e.g. in *Exams begin on Monday*. This suggests an element of certainty. We can modalize the certainty to be less than absolutely certain, if we are not sure about the time of the exams. If *will* + infinitive were treated as an expression of modality rather than of tense, we would perhaps expect that this construction could be used to mean less than absolute certainty in contrast with the simple present. However, this is not the case: We do not say *Exams will begin on Monday* to achieve this. We can say *Exams begin on Monday, I think*, which means 'I believe that it has already been determined that exams begin on Monday' (see [Wekker 76], p. 87 for the example and the paraphrase). In other words, the element of uncertainty exists—uncertainty about what the present plan is, but this cannot be conveyed by using *will* + infinitive. [Hornby 54], (p. 104) offers the following examples as instances of "a pure future":

Tomorrow will be Sunday.

My father will be seventy-five in May.

I shall be fifty next birthday.

On June the twenty-first the sun will rise at 3:42 and set at 8:18.

We can philosophize and imagine lots of reasons for not saying "true" or "false" as responses to these examples—the sun might collapse, for example. In ordinary communication, however, we would say "true" or "false". There is no trace of modality in these examples. Hornby observes that "the most obvious examples of a 'pure future' are those in which there is no personal element". A typical context where this is the case, I think, is a clause with a relational process (realized by e.g. *be*, *follow*, *last*, *become*, *symbolize*, *belong to*): the relation obtains independent of willingness or intention. Other "pure future" types of context include consequences of conditions where the consequence follows automatically if the condition obtains.

9.1.4. Assumed actual future

Even when the grounds for talking about the future in the same way as we talk about the past are open to criticism, it appears that we do. [McCawley 81a] (p. 343) makes the general observation that "speakers of natural languages frequently indulge in the rashness of making statements that purport to describe the actual future" (see also [Wekker 76], p. 12). For example, of

Bill will finish his novel.

⁵³ For a discussion of futurity as a temporal and modal category, see e.g. [Ullian 78], [Wekker 76] and [Fleischman 82].

McCawley says that "it only says that at some point in the ACTUAL future Bill will finish his novel and leaves it open whether there are other possible but nonactual futures in which Bill does not finish the novel."

We make a distinction between the actual future (typically referred to with a primary future tense) and future events and situations that are merely conceivable. Consider the following discussion of IRAS, the Infrared Astronomical Satellite, in an article in *Newsweek* written just after it was launched.

A first of its kind, the solar-powered spy in the sky will literally show the universe in a new light. ... IRAS will observe young cool stars now hidden behind veils of tiny dust particles that block ordinary light. It will also study old stars near the end of their lives. ## Such observations could help clarify the mysteries of stellar birth and death. Closer to home, it may spot the long-sought Planet X, which some astronomers suspect is lurking beyond Pluto.

The discussion makes a clear distinction between what will actually happen and what is only speculation. The first is the primary future, while the second is modal—*could help* and *may spot*. The first part of the text (before the ## mark) deals with what will actually happen. The second part is about possible future outcomes of the adventure. They are speculations, given what will actually happen. A similar example is the following:

If she is re-elected, she will have an immensely powerful mandate. ## She could, should she wish, purge every wet from her cabinet and overturn the Tory "broad-church" tradition. She could, should she wish, launch a major assault on the apparatus of corporate state...

(*The Economist*)

9.1.5. The interpretation of past vs. present

Arguments against a future tense in English are often backed up by an interpretation of the opposition past vs. present as PAST vs. NON-PAST. I dealt with this line of argument above and attempted to refute this interpretation. Consequently, I do not think that it is possible to find a new interpretation for past vs. present that supports the view that English does not have a future tense.

9.1.6. Temporal will contrasted with modal will

In fact, the one case where past vs. present are interpretable as PAST vs. NON-PRESENT highlights the difference between the tense auxiliary will, temporal will, and the modal auxiliary will quite nicely. When the context for the tense selection is a logicotemporal condition, the primary tense opposition that is available is only a two-term one, past vs. present, and the normal third term, future (realized by the tense auxiliary will) is typically excluded. In sharp contrast, the modal auxiliary will is a perfectly possible option in such a context. A contrasting pair of examples are the following two:

If Henry invades France (next year), we will have to increase taxes

If Henry will only invade France, we can take attention away from the economy = 'if Henry only agrees to ...'

The first example has a primary present in the conditional clause; a primary future would not be the normal

choice (*If Henry will invade France (next year), ...*). In the second example, modal *will* is perfectly fine. The full paradigm for temporal and modal choices in logico-temporal contexts and non-logico-temporal ones is given in the table in Figure 9-1.

		logicotemporal condition	not logicotemporal condition
Temp.	past	If Henry invaded F, we would ...	Henry invaded F every year
	pres	If Henry invades F, we will ...	Henry invades F every year
	fut	---	Henry will invade F every year
Modal		If Henry will only invade F 'agrees to'	Henry won't invade F 'doesn't agree to'

Figure 9-1: Temporal and modal *will* contrasted

For further discussion, see also e.g. [Palmer 74] (p. 106) and [Wekker 76].

9.2. Lyons on tense as a kind of modality

[Lyons 77] explores tense as a modality. The connection between futurity and modality (epistemic, deontic, desiderative etc.) has often been noted and is evident in a cross-linguistic perspective (see e.g. [Ulan 78]). Modal uses of the past have also been noted. However, Lyons points to the possibility of interpreting tense in general as a "specific kind of modality".

The modal interpretation he suggests builds on the opposition remote vs. non-remote and the distinction factive vs. non-factive. The cross-products are assigned to the tenses and to the category of contra-factivity as shown in Figure 9-2.

		FACTIVE	NON-FACTIVE
REMOTE	past		contra-factive
NON-REMOTE	present		future

Figure 9-2: Lyons: Tense as a modality

This analysis has the proximal aspect of some spatial interpretations of tense, but adds factivity as a

modality component. One advantage to the analysis. Lyons argues, is that it "would more directly reflect the difference in the epistemic status of the past and the future". This difference in epistemic status can be described by saying that the past is unchangeable, it is "closed", but the future is "open". Or, to put it in terms of truth values, statements about the past can be assigned a truth value, they are either true or false, whereas statements about the future cannot. If we are concerned with reasoning, the future branches in a way that the past typically does not. The past is in principle determinate, but when we consider the future we have to take into consideration the various alternatives, or branches, that we can imagine. In addition to closed vs. open, there are a number of other modal-like attributes that can be correlated with past time vs. future time (cf. Figure 6-3). Among them: reportable vs. predictable, unchangeable vs. influenceable, reprimandable vs. demandable, remote vs. actual, determinable vs. indeterminate, and regrettable vs. desirable.

Although Lyons' attempt to place tense within a larger context so that it is also related to non-temporal categories, I do not think the particular generalization he offers works:

- It does not seem to be the case that the objectively special epistemic status of FUTURE time is recognized as a choice condition for the primary future *will* in English; cf. the discussion above.
- A related problem is that Lyons' model does not allow us to capture the difference between FUTURE events and situations treated as FACTIVE (ACTUAL) by the speaker or treated as NON-FACTIVE (NON-ACTUAL but POSSIBLE, PROBABLE etc.).
- There seems to be little to justify the grouping of the present and the future tenses as NON-REMOTE as opposed to the past tense as REMOTE. That interpretation suggests that factivity is the only differentiating property.
- It is not at all clear that the feature REMOTE has the same interpretation in the FACTIVE column as in the NON-FACTIVE column. In the latter it actually produces the "cross-product" 'non-factive', which suggests that it changes the type of factivity. In the former, however, it seems to yield a temporal position, 'past', without interacting with the type of factivity.

9.3. Conclusion

All of the interpretations of tense discussed here could be used as the basis for a tense chooser design. They can be expressed in the chooser framework; the reasons for not adopting the interpretations that are alternatives to the one favoured here have to do with their content and not with framework issues. The relevant reasons have to do with restrictiveness of interpretations and the distinction between necessary attributes and typically concomitant attributes. Thus, interpretations that would lead to choosers with a single inquiry (such as $T_y \subset T_x$?) rather than two lead to a choice condition (such as "NON-PAST" or "NON-PRESENT") that is not restrictive enough and interpretations involving semantic categories of aspect or modality include potentially concomitant attributes rather than necessary ones.

The overview of accounts of tense just concluded is by no means exhaustive. Interesting work by Hirtle, Diver, Benveniste, H. Weinreich, and Woisetschlaeger has not been discussed. However, hopefully, my selection represents an interesting range of alternative interpretations. I will now turn to the details of the tense choosers, beginning with primary tense.

10. THE CHOOSER OF PRIMARY TENSE

We now come to the core of the account of how to choose primary tense, the primary tense chooser. I will introduce it step-by-step. The whole chooser will be summarized below in Figure 10-6.

10.1. The initial part of the chooser

The initial task of the chooser is simply to establish values for the time variables T_1 and T_2 ; see Figure 10-1. The value of the first time is taken from the time of speaking and then T_2 is identified in relation to this time.

```
(CopyHub  $T_s$   $T_1$ )
(Associate  $T_2$  (TimeInRelationID  $T_1$ ))
```

Figure 10-1: The initial part of the primary tense chooser

10.2. Temporal parts of primary tense

Normally, choosing primary tense means choosing one of the three primary tense features past, present, and future. In one special case, the choice is only between two of the features, past and present. We will start with the normal case.

10.2.1. Three primary tense features: PAST vs. PRESENT vs. FUTURE

Primary tense is about the relation between T_1 (i.e., T_s) and a time which is to be related to T_1 , viz. T_2 (i.e., T_r). As already mentioned, we will call this time, the relevant time, T_r for short. Thus primary tense is not about the relation between T_s and T_e directly as descriptions often suggest; the T_2 value may or may not be that of T_e . The choice conditions for the three tense terms are tabulated in Figure 10-2.

TENSE TERM	TEMPORAL RELATION
<u>past</u>	$T_x \subset T_y$
<u>present</u>	$T_x \circ T_y$
<u>future</u>	$T_x \supset T_y$

Figure 10-2: Tense terms and their choice conditions

The temporal relations that are assumed are all representable in terms of the branching inquiry PrecedeQ. The table corresponds to the chooser structure presented in Figure 10-3.

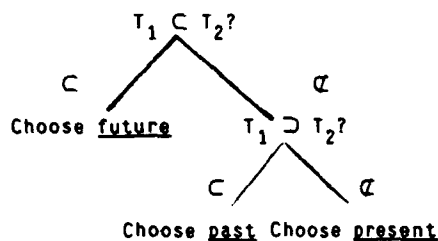


Figure 10-3: Chooser of PrimaryTense

The feature present means that the relevant time is now ($T_r \circ T_s$). For example:

Wood floats on water.

Blood is thicker than water.

Henry goes shopping every Saturday.

Henry has broken his leg.

It is going to rain.

are all relevant present, but are not necessarily event present. The simple present tense, as in *Wood floats on water*, is the result of choosing primary present and no secondary. The feature past means that the relevant time precedes the speaking time ($T_r \subset T_s$):

Yesterday Henry left town.

Yesterday Henry had left town.

Yesterday Henry was going to leave town.

In the examples, yesterday is the relevant time; the event of leaving may or may not take place then.

Finally, the feature future means that the relevant time follows the speaking time ($T_s \subset T_r$):

Tomorrow Henry will leave town.

Tomorrow Henry will have left town.

Tomorrow Henry will be going to leave town.

10.2.2. Two primary tense features: PAST vs. NON-PAST

In certain contexts, we only choose between the features past and present. Although I have argued that the primary tense distinction in English is a three-term one, there is a particular type of context which stands apart from other tense contexts and which I will treat in a separate part of the primary tense chooser, namely dependent conditional clauses, conditional relative clauses, dependent temporal clauses and a few others.⁵⁴ The reason is paradigmatically quite simple: these clause types do not have a three-term tense distinction but really do appear to have a contrast just between past and present.

It is not immediately obvious how to best characterize these contexts in a general way which explains why we typically only have past vs. present as options. Jespersen ([Jespersen 31], p. 24) notes for temporal clauses that "generally the main sentence shows unmistakably that the whole refers to the future". But this observation does not explain why we do not find the same phenomenon in all cases (e.g. in concessive and causal subordinate clauses) where the time reference is clear from the main clause.

Leech suggests ([Leech 71], pp. 59-60) that "it can be argued that [the use of the simple present in certain dependent clauses to refer to future time] is not just a requirement of the syntactic pattern, but has its basis in a contrast of meaning. In the dependent clauses mentioned [time etc.], the happening is not a prediction but a fact that is taken as given". Wekker elaborates on this explanation ([Wekker 76]). There may be something to it; I don't find it entirely convincing, but will not pursue the issue any further here.

In these contexts, we ask our normal question about precedence: if T_2 precedes T_1 , we choose past, otherwise present. Note that after the precedence inquiry we do not ask about precedence again, as we do in the general case. This means that the contrast is PAST vs. NON-PAST in these special contexts. We can identify the contexts as logico-temporal conditions and ask whether this characteristic obtains or not before we go on to the tense determination. The inquiry will be called *LogicoTemporalConditionQ* and will be asked of ONUS, i.e., the symbol that represents conceptually the whole clause being expressed. *LogicoTemporalConditionQ* reads as follows:

LogicoTemporalConditionQ:

Does the state of affairs, i.e. state or event, specified for expression by ONUS constitute a logical or temporal condition (restriction) on some process, i.e., does it set up logically or temporally the possible world in which or in relation to which this process is performed?

(logico-temporal, not logico-temporal)

When the response is *not logico-temporal*, we come to the part of the chooser specified above in Figure 10-3. However, when the response is positive, only one precedence inquiry is used: If T_1 precedes T_2 , choose past; otherwise, present. The chooser fragment just discussed is summarized diagrammatically in Figure 10-4.

⁵⁴The contexts are well-known: see for example [Leech 71] and, for a more exhaustive survey [Wekker 76]. Temporal clauses as apposition are different from adverbial clauses in that the future tense is used to refer to future time: ... *if Ronald Reagan would run again in 1984, when he will be 73 years old*. ([Newsweek]; cf [Jespersen 31], p. 262.

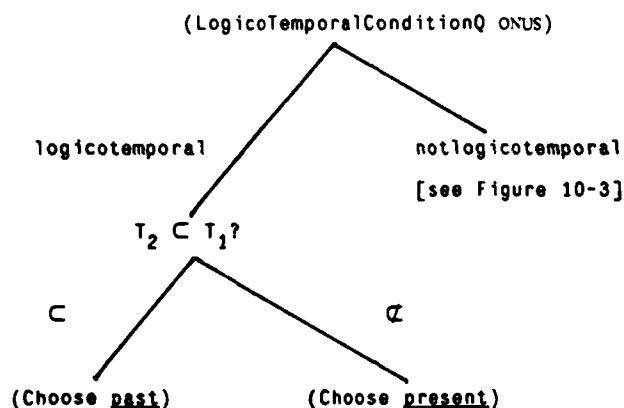


Figure 10-4: Second temporal part of Primary tense

10.3. Counterfactual part of primary tense

10.3.1. Counterfactuality

I have set up the primary tense chooser so that it asks about temporal precedence. This is what we would expect, given my assumptions about tense. However, before these inquiries are presented to the environment, the chooser has to check if primary tense is required to do another job. The feature past may be chosen to convey counterfactuality, examples of which include:⁵⁵

If Henry and Anne *had* been divorced, she *would* have survived him.

I wish Henry *spent* less time thinking about his heir.

After eight years of loyal if inglorious service as Vice President, Bush *would* have a strong claim on the top spot of the 1988 Republican ticket. He *would* be 64 ...

(Time)

The part of the tense chooser that controls selections in examples like these asks about counterfactuality. If the occurrence of the event/situation being reported is counterfactual, past is chosen. Otherwise, the normal temporal inquiries are used. The counterfactual fragment of the primary tense chooser is represented in Figure 10-5.

This part of the chooser deserves more attention than I am giving it here. However, the main point is that at the top of the chooser, before we get to the structure of temporal questions given in Figure 10-3, an inquiry about counterfactuality is asked of the environment.

⁵⁵ Another term that has been used is *unreality*. The category of counterfactuality/unreality is clearly not a temporal one and is consequently exceptional for tense. It is an instance of "subjunctive reasoning" where a formal subjunctive marking has disappeared. In German, for example, a subjunctive form would be used: *Ich wuensche dass Heinrich weniger Zeit ... haette*. In some varieties of English, *were* occurs instead of *was* as a "subjunctive survivor". Instead of handling counterfactuality in the chooser of primary tense, we could set up a separate system counterfactual vs non-counterfactual to be entered before we come to primary tense. Then, the entry condition for primary would be declared to be non-counterfactual.

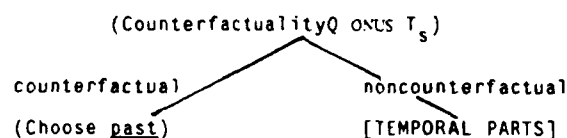


Figure 10-5: Counterfactual part of primary tense

10.3.2. The push to secondary

There are consequences for secondary tense, if primary past is used to mark counterfactuality, the details of which I will not go into here. Essentially, secondary tense takes over the task of encoding the temporal relation primary tense cannot encode when it is used to mark counterfactuality and in this respect the consequences are similar to those following a choice of modal. For instance, we find past-in-past where the simple past is used when there is no counterfactuality.⁵⁶ Consider the following pairs of examples:

[a] If Henry and Anne had been divorced, ...
(COUNTERFACTUAL)

[b] Henry and Anne had been divorced by the time I met them
(NON-COUNTERFACTUAL)

[a] If he did a second term as Vice President, Bush would have
a strong claim on the top spot in 1988 (COUNTERFACTUAL)

[b] People didn't know it at the time, but FDR would be elected
a fourth time (NON-COUNTERFACTUAL)

Although the same markers are used in the [a] and [b] members of the pairs above, the temporal relations are different. They are in fact simpler for the [a] versions, since primary tense is used to mark counterfactuality. Predictably, the non-counterfactual *When Henry spent less time worrying* ($T_2 \subset T_1$) correlates with the counterfactual *If Henry had spent less time worrying* (where $T_2 \subset T_1$ is still the only temporal relation expressed).

10.4. Summary of primary tense chooser

Finally, let me bring together the parts of the tense chooser that have been proposed. The three parts of the chooser were introduced separately: the part that deals with the general case of choosing among three tense features, the part that deals with the special context situation of choosing between only past and present, and the initial part of the chooser that checks for counterfactuality. Now they can be brought together in the diagram in Figure 10-6.

The features past and present appear more than once in Figure 10-6; future appears only once. The

⁵⁶ There is an additional phenomenon to note with secondary tense. In independent clauses, once primary past has been selected to mark counterfactuality, secondary future is used to mark the logical consequence, i.e., what follows logically rather than temporally, of the counterfactual hypothesis, yielding *would*, i.e., what is called the conditional. The temporal marking is pushed even further down, to tertiary tense, in such cases. Thus we get *if ..., she would have survived him*, a selection of past-in-future-in-past, where the first two rounds of tense selection have been made for logico-modal reasons rather than for temporal ones. Again, of course, I need to present arguments for this account before I can really present it as a useful one. However, I will not pursue this here.

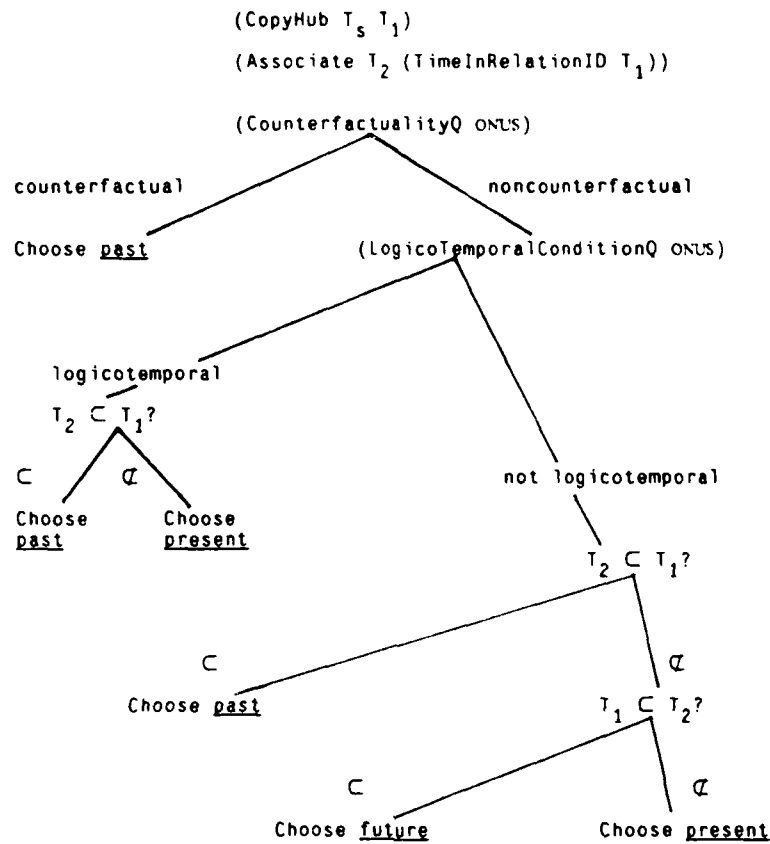


Figure 10-6: The full chooser of primary tense

former two features have disjunctive choice conditions and it is useful to tabulate the various conditions under which they may be chosen; see Figure 10-7.

			past	present	future
CATEGORIAL	COUNTERFACTUAL		COUNT.		
	NON-COUNTERF.	LOGICO-TEMPORAL	PAST	NON-PAST	
		NON-LOGICOT.	PAST	PRESENT	FUTURE
NON-CATEGORIAL			modal		

Figure 10-7: Choice conditions for primary tense terms

11. USES OF PRIMARY TENSE CONSISTENT WITH THE ACCOUNT

Many different uses of the primary tenses have been noted in the literature. Any general account of tense has to be consistent with these uses. The uses of a tense are taken as evidence for the general account. For instance, in order to account for the uses of primary past and present, a number of different contrasts have been proposed, in particular PAST vs. UNRESTRICTIVE, PAST vs. NON-PAST, and REMOTE vs. ACTUAL. All of these differ from the choice conditions I have specified, $T_2 \subset T_1$ vs. $T_2 \not\subset T_1$ & $T_1 \not\subset T_2$, and I have shown how these alternative interpretations are less useful in Chapters 6, 7, and 8. In this chapter, I will show how the choice conditions I have specified are consistent with the uses to be examined. In Chapter 13, I will return to a general consideration of the nature of tense uses and the question whether they should be represented in tense inquiries or not.

11.1. Overview of uses

Before discussing the various uses of primary tense, I will give a bird's-eye-view of them in the table in Figure 11-1. The horizontal dimension represents the primary tense terms and the vertical one lists a number of uses.

	past	present	future
INSTANT	Henry left the room (when...)	Now Henry leaves the room	Henry will leave the room
REPEATED	Henry jumped up and down a couple of times	Now Henry jumps up and down	Henry will jump up and down a couple of times
HABITUAL	Henry left at 4 in those days	Henry leaves at 4 on Tuesdays	Henry will leave at 4 in future
GENERIC	Before the Industrial Revolution snow was white	Snow is white in spite of the Industrial Revolution	In a post- industrial society snow will be white again
FUTURATE	(Yesterday Henry left tomorrow)	Henry leaves tomorrow	Tomorrow Henry will leave in a week
METAPHOR	Did you want to see me?	And so Henry says to me: ...	?

Figure 11-1: Some uses of primary tense

I will examine four aspects of primary tense uses, three non-metaphorical ones and one metaphorical type, and will indicate for each one how the uses are consistent with our account. The aspects are:

1. **Implicit secondary tense:** uses where the relation between T_2 and T_3 is not one of identity although no secondary tense has been chosen to mark the relation explicitly. The most notable examples are the futurate present and the epistemic past.
2. **The identification of a value for T_3** in universes other than that of the current speech situation, universes defined in plays and screenplays, travel itineraries, historical tables (i.e., brief summaries of historical events, chronologically ordered in a table), legends, and so on. Whatever serves to define T_3 , the reasons for choosing a particular primary tense remain the same.
3. **The nature of the event time, T_e :** This time may be the time of a single occurrence of the event, habitually repeated occurrences of the event, of potential occurrences, and so on, but these variations do not change the way in which T_e is located temporally.
4. **Tense metaphor:** There are metaphorical uses where events and situations are referred to temporally as if they had different temporal locations. The most important example is the historic (dramatic) present.

11.2. Implicit secondary tense: No secondary with T_2 distinct from T_3

Implicit secondary uses are like a primary tense selection (a relation between T_1 and T_2) with a subsequent secondary tense selection (a relation between T_2 and an additional time T_3), except that there is no explicit secondary tense. The normal relation obtains between T_1 and T_2 , but T_3 (i.e. T_e) is not the same as T_2 . In other words, although we have chosen not to specify a secondary tense, T_2 and T_e are temporally separated. I will characterize this as an implicit secondary past or future. For instance, from the point of view of temporal reference, the following two examples are the same:

Henry leaves tomorrow. ($T_1 \circ T_2 \subset T_3$)

Henry's going to leave tomorrow. ($T_1 \circ T_2 \subset T_3$)

We can list the following cases and will consider each one briefly. The temporal relations encoded by an explicit tense selection (in PrimaryTense) have been printed in italics and the implicit temporal relation that could have been marked by a selection of a secondary tense have been left unchanged:

- Implicit past-in-past: $T_3 \subset T_2 \subset T_1$.
- Implicit future-in-future, the mirror image of the preceding case: $T_3 \supset T_2 \supset T_1$.
- Implicit future-in-past: $T_3 \supset T_2 \subset T_1$.
- Implicit future-in-present: $T_3 \supset T_2 \circ T_1$.

11.2.1. Implicit past-in-past

When there is no explicit tense selection to indicate that $T_3 \subset T_2$, the precedence relation has to be established adverbially. Hornstein gives an example of what I call implicit past-in-past ([Hornstein 77]):

Yesterday (T_e). John left a week ago. (T_2)

Notice that there are two adverbial time specifications in the example. This fact supports the interpretation of

the example as implicit past-in-past, rather than just an ordinary use of the simple past where $T_2 \circ T_3$.⁵⁷ [Riviere 80] (p. 120) offers the following example:

Henry met her three years before.

and observes that this means (in our terms) 'three years before T_T ' and not 'three years before T_S '. It is different in this respect from:

Henry met her three years ago.

(= 'before T_S ') and T_T can be used to account for this difference. In other words, the first example can also be expressed through a choice of secondary, followed by a specification of the secondary tense as past, yielding past-in-past: *Henry had met her three years before*.

Of course, the choosers set up here also predict that tense combinations that explicitly express more than one tense relation should be ambiguous with just one adverbial time specification like *yesterday*. Again, this turns out to be the case:

Henry had left the house *yesterday*.

This may mean either that the event of leaving took place yesterday or that it is past with respect to yesterday, depending on whether *yesterday* specifies T_e or specifies T_T .

11.2.2. Implicit future-in-future

I will not discuss this situation and will merely quote an example from [Hornstein 77]:

Tomorrow (T_T), John will leave in a week. (T_e)

11.2.3. Implicit future-in-past

[Huddleston 69] (p. 787) gives an example of an implicit future-in-past:

Yesterday he left tomorrow.

⁵⁷ We can perhaps imagine the following context for Hornstein's example:

Aren't you also getting fed up with Henry? He is absolutely impossible, he never gives me any reliable information. I've been asking him about John's trip to Kuala Lumpur. He had already told me that John would leave next month, but suddenly, yesterday, John left a week ago. But I'm sure that when I meet Henry tomorrow, John will leave in a week.

Palmer observes of examples where T_T (specified by an adverbial like *yesterday*) is distinct from T_e , although neither secondary past nor future has been selected, that "though [tense] normally indicates the time of the activities or activity [T_e , CM] described in the sentence, it may also be used to indicate the time at which the sentence is or was valid" ([Palmer 74], p. 38). He calls this use epistemic (I will return to similar examples in the discussion of indirect speech below). Given my framework, I would put Palmer's observation in a slightly different way: Primary tense always indicates what Palmer calls the time at which the sentence is valid, what I have called relevant time. However, this time is not always the same as the time of the event (activity or activities). When it is not, and when this is not marked explicitly by secondary tense, we may get what Palmer calls the epistemic use of tense.

He comments that "such examples are comparatively rare, but I believe they are not, to be regarded as in any way ungrammatical". Examples of implicit future-in-past certainly do not seem to be very central to English tense (if indeed they are accepted at all) and naturally occurring examples seem rare.⁵⁸ Palmer calls examples like *Yesterday John came tomorrow* "awkward" but suggests that e.g. *At that time he didn't come till next week* is "more natural". Schibsbye offers the following example ([Schibsbye 65], p. 71).

On Wednesday next he sailed for Australia, from San Francisco;
sailed, that is, if he escaped destruction in Larry Blaesdale's
car--or if nothing else happened to him.

This example is, of course, different from Huddleston's. For one thing, although T_3 , the time of sailing, is future with respect to the general time of the story, it does not "cross" T_5 .

Another example of implicit future-in-present:

I arrived in Freetown on a Saturday and the train for Pendembu
left on the following Wednesday; I had hoped to find servants engaged for
me when I arrived, but Jimmie Daker, to whom I had an introduction, who had
promised months before to do his best, had forgotten all about it.

(Greene, *Journey without Maps*)

11.2.4. Implicit future-in-present

With the so-called future or futurate use of the simple present, what is future is not T_2 in relation to T_1 , but instead T_3 in relation to T_2 . (As already noted, this account of the "futate present" explains why we do not find future reference with explicit past-in-present.⁵⁹) This makes sense when we examine the nature of plans, arrangements and the like. There is an important distinction between the plan, schedule, program, etc. and the execution of the plan, schedule, program, etc.: the former is present and only the latter is restricted to the future. My claim is that one reason for choosing the present is that there is a plan⁶⁰ (which is executed at some time in the future, often adverbially specified) and that what is important is that the plan is PRESENT. In other words, the relevant time is the time of planning not the time of execution and it is the relevant time that is present (i.e., located at T_3). We can be explicit about the planning aspect, as in this example taken from a travel brochure.

⁵⁸ Similar examples with explicit present-in-past are better. [Huddleston 69] also draws attention to the ambiguity in Palmer's example ([Palmer 65])

He was coming to see me yesterday.

Under one interpretation, *yesterday* does not specify the time of his coming to see me (i.e. T_2); instead it specifies only T_2 , the time we have been calling T_1 . This is the reading we get when the temporal adverbial is thematic (*Yesterday he was coming to see me*). We can even add another temporal adverbial to specify T_2 as in *Yesterday he was coming to see me in just a few days*.

⁵⁹ The situation is quite different in e.g. Swedish where the "present perfect" can have a future reference. The English past-in-present is very special, differing both from the German "equivalent" and the Swedish "equivalent".

⁶⁰ "Plan" is too restricted a notion as examples in [Leech 71], [Wekker 76] and [Prince 82] show. The problem with "plan" is that it suggests it is intended, has a planner, and so on. But if "plan" is allowed to include unintended present circumstances from which the future will arise—as in *The sun rises at 5:30 tomorrow*—we get closer to the truth. Wekker suggests the characterization "complete determination (and the speaker's belief that this is possible)", i.e., "the speaker believes that a future event can be completely determined by present circumstances" (pp. 85–6). This is broader than but includes notions like plan and arrangement.

Also visit the Great Wall of China. ... A special highlight planned for one evening is a famed Peking Duck dinner.

Although the duck can only be a future highlight for a traveler (if the vantage point before his or her trip is adopted), the duck can be a planned highlight (i.e., not a phenomenon of gustatory experience) right at the time of reading.

For a similar line of reasoning and conclusion about the present and the "programmed future" use, see [Woisetschlaeger 77]. An account where the plan is taken as present, which becomes the reason for choosing the present tense, comes close to an Augustinian way of looking at time: a present of future things (see [St. Augustine 98], xi, 18). He notes that

we generally think about what we are going to do before we do it, and *this preliminary thought is in the present*, whereas *the action* which we premeditate does not yet exist because it is *future*. ...

So when we speak of foreseeing the future, we do not see things which are not yet in being, that is, things which are future, but it may be that we see *their causes or signs*, which are already in being.

Simple present in "programmed future" reference and future-in-present (see below) follow St. Augustine's observations. The simple future (as opposed to the future-in-present) does not follow his characterization of future time; only references to future that are primary present (the simple present and the future-in-present—see Section 9.1) correspond to St. Augustine's philosophical position. The primary future tense is typically used to refer to future time as if it were actual although it does not yet exist without focusing on "causes of signs, which are already in being". See also the discussion in Section 9.1.4 on the "rashness" of speakers to treat future events as actual.

11.2.5. The constraints on implicit secondary tense

The preceding Sections have exemplified only four implicit secondary tenses, at least one of which, future-in-past, is highly marginal. Considering just secondary past and future, we might expect to find six different implicit secondary tenses, but we do not. There is not implicit past-in-present, nor an implicit past-in-future. The table in Figure 11-2 summarizes what the possibilities are.

	PRIMARY		
	past	present	future
SECONDARY past	+	-	-
future	(+)	+	+

Figure 11-2: Implicit secondary tense options

The fact that there is no implicit past-in-present is of interest because it brings to attention the character of the English primary present and the way it differs from, say, the German equivalent. In English it is necessary to use an explicit past-in-present in examples like *Henry has lived here since 1960*. German uses the

simple present:

Heinrich lebt hier seit 1960.
Heinrich lives here since 1960.

This difference points to another difference: the character of the so-called present perfect, which is more like a simple past tense in German.

The lack of an implicit past-in-future does not seem surprising, since the implicit past step would be in the opposite direction of the explicit future step. The same situation holds for the marginal implicit future-in-past, of course: Again, the implicit step is a reversal in direction in relation to the explicitly marked step.

11.3. A note on the determination of T_s : Universes of tense selection

I have characterized T_s as the time of the speech event itself. However, T_s need not be assigned the value of the actual time of speaking. It can be given a value in another universe that is set up. Thus it is really the zero time of the current universe of discourse that defines a framework of reference. This explains a number of primary tense uses that might be thought to be inconsistent with our tense account if it is not realized that the universe in which deictics like T_s are given a value need not be the one of the actual speech situation. A good example of a context in which a different universe of deictic reference is created is a travel itinerary.

Itineraries in travel brochures often create their own successive universes of experience for the reader as he or she is taken through a trip. Consider the following example from a twenty day trip to China, taken from a travel brochure:

SATURDAY, 8th Day. XIAN-LUOYANG

The train *takes us today* to Luoyang, one time capital of China during the Han and Chou dynasties. The most famous tourist site there is the Lungmen Cave, a monument to Buddhist influence in China during the 6th century. Behold the White Horse Temple, one of the first Buddhist temples in China. And don't miss the Luoyang Municipal Museum.

SUNDAY, 9th Day. LUOYANG (LOYANG)

The site of Luoyang has been inhabited since Chinese history began. Parts of the wall built during the Han Dynasty still stand. Visit what we *missed yesterday*--Wang Cheng Park, the site of two Han Dynasty tombs; and Luoyang's tractor plant, the first to be built in China.

Each day defined by the itinerary constitutes a new universe in which there is a T_s .

The universe created within which something is present can be purely imaginary, as in the universe of a movie. In the first paragraph of the following excerpt from a review of a movie set in the future, the reviewer looks at the movie from outside, from the present. In the next paragraph, we are taken along into the world of

the screenplay, the future world, and this world is now the temporal reference frame.⁶¹

Blade Runner is a superdesign movie: in showing you how the future may well look it is transmitting the feel of life in that possible future. It doesn't feel so hot.

In the screenplay by Hampton Fancher and David Peoples (based on a novel by the late science-fiction master Philip K. Dick) we're in a metropolis that might be Los Angeles or New York with apocalyptic gangrene. The streets, perpetually swaddled in supersmog, swarm with a human stew of races ...

(*Newsweek*)

Other contexts in which universes supporting a T_s value are created include legends accompanying pictures, summaries in historical tables, where each year in the chronology typically defines a new reference universe, as in *1066—William invades England*, (cf. [Leech 71]), and references to stories. [McCawley 81b] (p. 88) gives the following example of the last category.

I've just read a story in which someone steals the crown jewels.

I'm writing a story in which a student who has read *War and Peace* fails a comparative literature exam.

11.4. The nature of event time

A number of different tense uses such as instantaneous, habitual, and gnomic (generic) are recognized in the literature as distinct and it is often thought that they have to be accounted for separately. However, once we examine the nature of the event time, T_e , it is quite clear that these uses do not need separate treatments. Rather, T_e ranges over single events, habitually repeated events, and so on, cf. Section 4.4.

11.4.1. Single vs. repeated vs. habitual event

When an event type (for example *jumping*) is named in a clause, the speaker may refer to a single instantiation of the event type, repeated instantiations, or habitual instantiations as the following examples illustrate:

Henry jumped once for joy. (SINGLE)

Henry jumped up and down a couple of times to test the strength of his legs. (REPEATED)

Henry jumped a great deal in his youth. (HABITUAL)

The tense considerations are the same: is the single/repeated/habitual instantiation of the event type named past, present, or future? The value of T_e , i.e. the period of the instantiation of the event focused on in a given clause, naturally varies according to whether the instantiation is a single occurrence, repeated or habitual. But that variation does not affect the inquiry about precedence; a precedence relation between T_e and any other time can be determined regardless of whether T_e represents a single instantiation of an event, a repeated instantiation or a habitual one.

⁶¹The last sentence of the first paragraph has the simple present, *doesn't feel*. This is probably the reviewer's comment about the view presented by the movie: The feel of life transmitted by the movie doesn't feel so hot now, at the time of reviewing/viewing. An alternative interpretation is that it means something like 'we're now in that future and it doesn't feel so hot here'. Under the second interpretation, the move into the world of the movie takes place already in the last sentence of the first paragraph.

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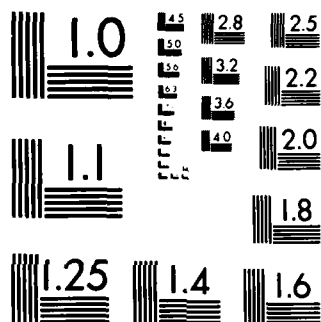
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In spite of this, both single instantiation and habitual instantiation are often set up as separate and different uses of tenses, primarily the simple present. However, as I have argued, they are consistent with my account.⁶²

11.4.2. Extension vs. intension of event/state

Sometimes a distinction is drawn between a particular and a generic or gnomic use (i.e., extension vs. intension). It is reminiscent of single vs. habitual occurrence discussed above. Again, we would have to recognize the tense uses in the tense chooser either by incorporating the uses themselves or by re-interpreting the general choice conditions if it could be shown that the uses are inconsistent with the choice conditions I have proposed.

Ullian writes ([Ullian 78], p. 87) that

gnomic or general truth uses of tense markers in effect neutralize all the temporal distinctions of the system. Thus a statement like: *water boils at 212° F* does not have a specific temporal referent (past, present or future); rather the simple present tense in this case refers to an event which may occur at any time.

This characterization is misleading. What is marked as PRESENT is not any given instantiation of the boiling event. If this were the case, it would indeed be odd to call it PRESENT. Rather, we mark the generic characterization as holding at present. Examples such as:

Birds lay eggs.

Snow is white.

Man is a primate.

Water boils at 212° F.

have not had present tense chosen because they are tenseless, temporally unrestricted or the like, but because the generic characterization is valid at present. [Jespersen 31] (p. 17) makes the same point that "it is wrong, as is often done, to speak of such sentences as timeless" and he observes that when the present tense is used in this way "it is because [the sentences] are valid now". The linguistic expression itself, he says, "says nothing about the length of duration before or after the zero point".

The generalization about snow being white holds at PRESENT. If the generic characterization belongs to the past, we choose past (e.g. *Before the Industrial Revolution snow was white* and *Billions of years ago, when the atmospheric pressure at sea level was different, water boiled at 190° F*). The inferred meaning may be "eternal truth", but if we consider for example *Man is a primate*, we can see that this falls out from the fact that the validity of the attribution is PRESENT and the fact that taxonomies like this one are defined in a way

⁶²HABITUAL can be treated modally (instead of temporally) in English--used *to/would/will* and so on. That does not affect my point about its temporal status, of course

which prohibits or neutralizes all time variation.⁶³ From the point of view of tense, *Henry is officer of the day* is just like *Man is a primate*. Both are valid at present; one happens to extend considerably because of the nature of the taxonomy.

11.5. Tense metaphor

There are at least two uses of primary tenses that are best understood as metaphorical: present for PAST time and past for PRESENT time.

11.5.1. present for PAST time

The use of primary present to refer to PAST time is called the historic (dramatic) present. This use is sometimes taken (as Langacker took it in [Langacker 78]) as an argument against seeing the present tense in general as referring to PRESENT time. However, it is, I believe, best interpreted as a *tense metaphor*: we choose to speak of the past as if it were PRESENT (retaining adverbial time references to the past, though). As with all metaphors, it has force precisely because it does have a non-metaphorical use—reference to PRESENT time in the case of the present tense. I shall not go any further into this, leaving it outside the domain of this account without presenting any arguments. The only point I need to make is that I do not consider the dramatic present to be a valid argument against the hypothesis that the present tense refers to PRESENT time. (Langacker ([Langacker 82]) now seems to adopt a similar position.)

11.5.2. past for PRESENT time

It seems that there is another tense metaphor, which is like the reverse of the historic present: Certain utterances may be expressed as if they were PAST in order to achieve a certain indirectness. Leech suggests that the connotation is indirect/polite ([Leech 71], p. 23) and offers the following examples.⁶⁴

Did you want me?

Yes, I hoped you would give me a hand with the painting.

Palmer groups this indirect/polite use with unreality (what I have called counterfactuality); see [Palmer 74], p. 47. However, as Leech points out, it is unlikely that the indirect/polite use derives from this non-temporal reason for choosing past, since we would get *would* (i.e., future-in-past) in main clauses rather than the simple past.

⁶³ We may also note in passing the use of the simple past Jespersen calls the *gnomic preterit* ([Jespersen 24]): A state of affairs is presented as past, but "eternal truth" can be inferred, as in *Boys were always boys*. And a "gnomic past-in-present": *Boys have always been boys*. Here, as with the simple present (and indeed other forms of expression, such as *Boys will be boys*), "eternal truth" is an inferred meaning and the examples differ in predictable ways: inference from PAST, PRESENT, PRESENT experience of PAST events etc. to generalize to "eternal truth".

⁶⁴ According to Leech, this use is perhaps more developed in British English than in American English.

12. A SUMMARY OF PAST VS. PRESENT AS THE PRIMARY TENSE DISTINCTION

12.1. The Opposition Past vs. Present: Three Interpretations to be rejected

In the primary tense chooser as presented here, the distinction between past and present is represented as 'precedes' (C) vs. 'neither precedes nor follows' (abbreviated as "O") when all three tense terms are possible choices (i.e., when it is not the case that a logico-temporal condition is to be expressed) and as 'precedes' vs. 'not precedes' when only past and present are possible choices (i.e., in logico-temporal conditions).

As we have seen, the literature on English tense suggests at least three major alternative ways of viewing the distinction between past and present to the one adopted here.

1. A chooser built on the first to be rejected would choose present because the temporal reference is UNRESTRICTED (or because it is timeless) and past because the reference is PAST.
2. A chooser built on the second interpretation would choose present primarily because $T_x \not\subset T_y$, i.e., because of the feature NON-PAST; PAST vs. PRESENT has been re-interpreted as PAST vs. NON-PAST (as in Section 10.2.2, but as a general interpretation, not in the specific contexts mentioned there).
3. A chooser built on the third view would choose between past and present according to whether the meaning was REMOTE or ACTUAL.

None of these alternatives are very helpful—I have indicated why they are not now.

12.1.1. The nature of the present tense

The first two interpretations crucially have to do with the interpretation of the present tense. Both centre on the perception that the present tense is not restricted to reference to present time.⁶⁵

- The use of the present tense to refer to *unrestricted time* (as in *Wood floats on water*) is assumed not to be crucially PRESENT, since the time is unrestricted. Furthermore, since it is unrestricted it is not restricted to the past time. (This interpretation of the present tense is compatible with a three-term primary tense system.)
- The other argument is based on the use of the present to refer to *future time* when it is part of a program, a schedule, a time-table or the like. As I have shown in Sections 11.2.4 and 11.4.2, both of these can be accounted for with the $T_x \supset T_y$ representation. (More accurately, $T_x \not\subset T_y$ & $T_y \not\subset T_x$.)

⁶⁵ As [Langacker 78] p. 867 states: "I hardly need argue that the present-tense morpheme does not really mark present tense. Its use with future sense, the historical present, and its habitual interpretation with perfective verbs have made this clear to virtually all investigators." Dare one object? Apparently: in a later fascinating study of English aspect ([Langacker 82], p. 291), Langacker himself "explains away" the historical present and future reference uses of the simple present as metaphors: "The speaker either reviews the object event or previews it, but in either case he verbally takes the hearer through it as if it were immediate". For the historical use of the simple present as a metaphor, see also Section 11.5.1.

There is another situation when the primary present may refer to FUTURE time, but this use is quite different from the restricted "planned/programmed" use: If a logico-temporal conditions is being expressed, the choice condition for present really seems to be NON-PAST (regardless of whether the event is planned or unplanned) and future is simply not an option. In our account, this is captured by designing a separate chooser fragment for logico-temporal conditions.

12.1.2. The nature of the past tense

The third interpretation is a generalization of the temporal interpretation of the opposition as NON-PRESENT vs. PRESENT, viz. REMOTE vs. ACTUAL. This interpretation focuses on the uses of the primary past. Its central concern is to bring unreality/counterfactuality and pastness together under one interpretation, hence the notion of remoteness. As is clear from the preceding discussion and the representation of the primary tense chooser in Figure 10-6, I have kept these two apart as choice conditions for past.

12.2. The existence of the primary tense future

Primary tense is a three-term opposition in this account; the assumption is that English has a primary future tense. As we have seen, this assumption (which is that of traditional grammar) has come under attack recently.⁶⁶ There are essentially two lines of arguments against the existence of a primary future. One is semantic and, since it has already been dealt with above, I will only review it briefly here. The other is based on verb morphology and will be discussed now. One line of argumentation is essentially semantic and says that the so-called future is modally different from the past and the present tenses, with the future as a modality rather than a tense. Observations of this type are of course the most interesting in the present context. But I will also touch on another line of argumentation, based on morphology.

12.2.1. Semantic arguments against an English future tense: futurity and modality

In my discussion of semantic arguments against the existence of a primary future tense, I argued first that philosophical or metaphysical reasons for treating *will* as a modality rather than a tense are irrelevant, since English semantics need not conform to such reasons. What we need are indications that we choose *will* for modal rather than temporal reasons. The conclusion is that we choose primary future basically for temporal reasons and that modal colourings are inferred attributes.

12.2.2. Arguments based on verb morphology

Arguments for *will* + infinitive as an expression of a modality rather than a future tense have sometimes been given support by morphological considerations. The argument is that the finite verb has a past form and a present form (marked vs. unmarked).

⁶⁶ Jespersen was fairly rare among traditional grammarians not to interpret *will* + infinitive as a future tense. Recent accounts influenced by structuralism tend to favour a two-tense analysis — e.g. [Palmer 74]. However, in his careful study of English expressions of futurity, [Wekker 76] presents a good case for a future tense in English.

12.2.2.1. Difference between word grammar and clause grammar

This is certainly an observation about the grammar of verbs, about verb morphology, but it does not automatically extend to the grammar of the verbal group or the grammar of the clause. Tense is a component of English clause grammar and the number of basic tense distinctions has to be determined independently of verb morphology, since tense distinctions in the clause can conceivably be expressed (realized) both analytically and synthetically. Similar situations are abundant across languages.

12.2.2.2. The issue of parallelism

The argument about the non-parallelism in expression is, in fact, weak even on its own terms. Halliday points out that when the polarity is negative or when the positive polarity is marked, tense realization is homogeneous: for past and present there is also an auxiliary, *do*. So we get:

did
do cancel
will

My argument here is not that we should disregard realizations at the word or phrase level for clause grammar, but that arguments have to be made for clause grammar as well. In the case of tense, there is not, as I have argued, any support for importing the two-way distinction from English verb morphology.

In summary, I have argued that the basic reason for choosing the so-called future tense is a temporal one, not a modal one. I have also briefly examined arguments offered in support of the idea that there is no future tense in English and found them to have little or no force.

13. WHAT TO REPRESENT IN TENSE INQUIRIES

13.1. The issue

I have chosen to let tense inquiries represent fairly general choice conditions statable in terms of precedence relations. These inquiries fall at a certain level of generality and abstractness. If I had used other principles of inquiry representation they might have been either:

- less general, reflecting more specific uses; or
- more generalized, with a higher degree of abstractness, giving us inquiries representing notions like REMOTE and ACTUAL.

I have already discussed the problems with the second approach. Basically, we would get inquiries too vague to make the right differentiations and to be given an operational interpretation.

I will now turn to the other end of the scale of generality/abstractness: what if we were to build tense choosers with inquiries representing specific tense uses like "futurate present", "gnomic present" and "habitual present"? In the discussion of the primary tense chooser I tried to show that this approach is not a necessity; the uses of the primary tenses we find are consistent with my account. However, let's look at the role and nature of tense uses in some more detail.

13.2. Use and context

In general, a particular use correlates with a particular context and given that we have specified a specific basic meaning for a tense as its choice condition or one of its choice conditions, we can predict what the use or inferred meaning is in a given context.

13.2.1. Syntagmatic context

For example, if we assume a basic meaning like "present" for the present tense, we can get inferred meanings like (present) "of single event", "of habit", and "of characterization" for *Henry swims* given contexts like *past his English competitor*, *every Tuesday afternoon*, and *0*, i.e., nothing, or *like a fish*.

To summarize:

	context	inferred meaning
Henry swims basic meaning: present	past his English competitors	of single event
	every Tuesday	of habit(ually repeated events)
	0	of characterization
	like a fish	

We can generalize the observations above about the interdependence between use and context in the following mock formula:⁶⁷

basic meaning / context_x ==> use_x

In the examples above the context is syntagmatic. The relevant context may also be paradigmatic.

13.2.2. Paradigmatic context

For present purposes it is not necessary to make a distinction between *use* and *inferred meaning*. The general claim that they are contingent upon a particular context rather than necessary or inherent is the same for both and in this they contrast with the basic meanings or choice conditions a chooser operates with. Kirsner & Thompson make a valuable contribution to the discussion of the nature of inferred meaning ([Kirsner & Thompson 76]). They draw a meta-semantic distinction between *meaning* and *message*. The latter can be characterized as (basic) meaning + inferred meaning. They stress the importance of considering both what is said and what is not said for the process of arriving at an inferred meaning. I will call this the *paradigmatic context*: the paradigm of semantic oppositions that define how what is being said is related to what is not being said.

One of Kirsner & Thompson's examples is highly relevant for our concerns. The sentence *I had intended to give you an exam next week* "strongly suggests that the speaker *no longer* intends to give the exam". This is, however, inferred meaning, as the following example they give shows:

I had intended to give you an exam next week,
and by God I will.

Here it is clearly indicated that the intention still holds. Kirsner & Thompson observe that "the MESSAGE of 'non-intention in the present' is not the [basic] MEANING of *had intended* but rather an inference from that MEANING". This inference is based most significantly on the fact that the speaker could have said *I intend to give you an exam* instead of *I had intended to give you an exam* (or *I intended to give you an exam*, for that matter) and by doing so her or she could have included T_s explicitly. "The point, Kirsner & Thompson write, is that the actual message delivered is inferred from both what is said and from *what could be said but is not*. In other words, to fully explain the use of a given signal and its meaning, we must consider the *semantic oppositions*: the *other* options, the *other* signals and *their* meanings also available to the speaker." They summarize their distinction diagrammatically; see Figure 13-1.

13.3. Creativity in use

The mock formula given above suggests that for a given tense the list of uses is not fixed; rather, it suggests that it is possible to create new uses as long as we can find new contexts for a basic meaning. If this is so, we have a strong reason for not building uses into a chooser, since that strategy would entirely miss the creative aspect of language use. It really seems to be the case that there is creativity here; that there is no fixed list of uses. We will see some evidence for the claim in Section 13.5.

⁶⁷ For a discussion of similar issues, see [Platzack 78]. Using a special kind of descriptive language, Ipish, Platzack is able to demonstrate more rigorously correspondences between use and context.

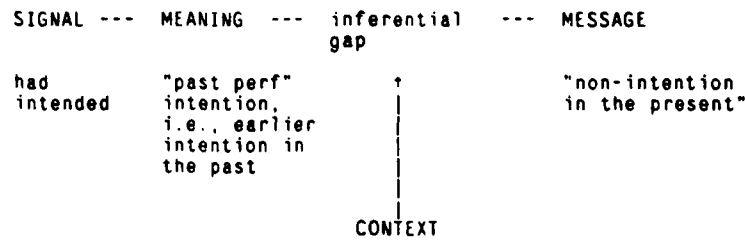


Figure 13-1: The distinction between meaning and message

At a more global level, the same point can be made for the distinction between functions of language and uses of language; [Halliday 73] writes:

With the child, each use of language has its own grammar ... With the adult this is not so. He may use language in a vast number of different ways, in different types of situation and for different purposes; but we cannot identify a finite set of uses and write a grammar for each of them. What we can identify, however, is a finite set of functions [so-called metafunctions, CM] which are general to all these uses and through which the meaning potential associated with them is encoded into grammatical structures. (p. 91)

Again, uses are associated with specific contexts, i.e., with situation types and functions can be shown to be general across these different types just as the "basic" tense meanings.

13.4. Conflation of uses

From the claim that we can create use_p in $context_p$, it follows that in a combination of $context_p$ and $context_q$ we should find a "conflation" of use_p and use_q , even though the basic meaning is constant. Consider the following made-up examples.

The H.M.S. Duckling sails tomorrow and every Saturday at 5 PM.

As usual we leave at eight tomorrow morning.

Typically, in fact by definition, trees *don't* allow double motherhood.

If you remember to check tomorrow morning you'll see that the sun rises in the West / that we rise according to plan at three.

A: Can you come to dinner tomorrow?

B: Sorry, we *dine* with Auntie on Thursdays.

What these examples have in common is that they "conflate" different uses of the present, uses that might turn out to be quite different reasons for choosing present in an account based on uses as they occur in a list. The "conflations" are less strange if it is recognized that the examples are all PRESENT as I have characterized it here. For conflations of future use and habitual use, see [Palmer 74], p. 67.

13.5. Indeterminacy and proliferation of uses

If we adopted a strategy of building uses like "eternal truth" into the chooser of PrimaryTense, we would end up with a potentially open set of reasons for choosing present. Consider the following list of constructed examples of types truth parallel to eternal truth:

Two plus two is four. --- *systemically true* (i.e., because of the system set up)

A man is an adult male human. --- *analytically true*

For every action there is a reaction. --- *true within a system by natural law*

° represents ungrammaticality --- *definitionally true*

Wood floats on water. --- *empirically true*

Policemen are trigger-happy. --- *stereotypically true*

There are many reasons such as "eternal" for choosing present, but they are not basic. What is significant is that something (a single event, a habit, a state, etc.) is PRESENT and it is this the PrimaryTense chooser asks about. For example, to argue that mathematical statements are timeless seems to be a philosopher's position. That would mean that a speaker has to have insight into the nature of mathematics in order to choose present in the timeless case. Or alternatively, that a speaker who doesn't know the nature of mathematics chooses present for the wrong reasons.⁶⁸

There is an additional problem with building uses like "eternal truth" into a tense chooser and this problem has to do with the non-discreteness of the different uses one can think of. Palmer illustrates this problem for "habitual" and "timeless truth" (i.e., eternal truth). He lists the following examples which span these two uses without a clear boundary between the two.

I always take sugar in tea.	HABITUAL
The milkman calls on Sundays.	
The Chinese grow a lot of rice.	
Cows eat grass.	
Birds fly.	
The Severn flows into the Atlantic.	
The sun rises in the east.	
Oil flows on water.	
Water boils at 100° C.	ETERNAL TRUTH

As Palmer puts it, "the distinction is not a linguistic one." And, to push Palmer's argument further, is *Birds fly* an analytic truth (*bird* = 'animal that can fly') or an empirical truth? Fortunately, as I have already indicated, the answer does not affect the way we choose tense in English.

13.6. Summary

To summarize the discussion of uses as candidates for inquiry representation, we can note the following reasons for not letting inquiries represent uses:

- Uses are context (situation) specific and not general across situation types.
- Uses are inferred in specific contexts, but they are neither necessary nor inherent.

⁶⁸ I am not arguing that uses of this nature cannot reasonably be reflected in the tense system of a language.

- Theoretically, there are as many uses as there are types of context; the list is not finite.
- Uses may be conflated, given the right contextual specification.
- Uses do not fall into discrete categories, but line up along extra-linguistically identifiable clines.

14. SECONDARY TENSE

The PrimaryTense chooser has been justified; we can now resume with the development of the tense chooser, which was last discussed in Chapter 10. After selecting a primary tense, the next step is to decide whether to have secondary tense or not.

14.1. Deciding whether to have secondary tense or not

The chooser of SecondaryTense has to establish whether a further time relation is to be expressed or not. The entire chooser is set out in Figure 14-1. I will follow up the branches individually.

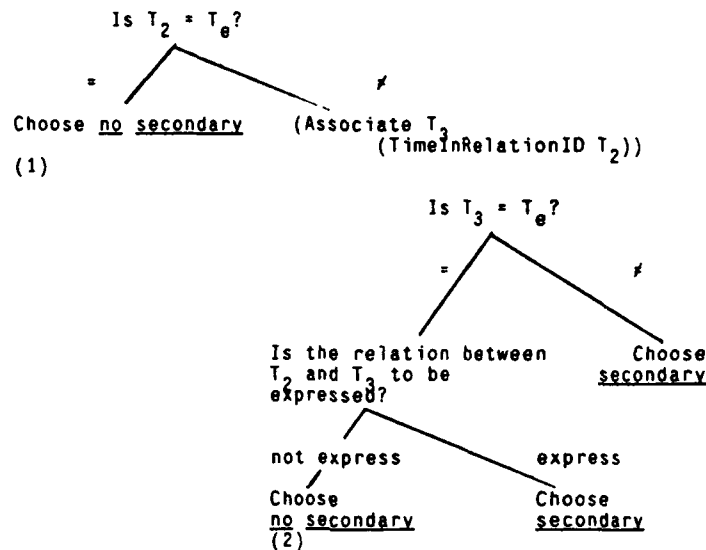


Figure 14-1: Chooser of SecondaryTense

The first step is to check whether T_2 (see the names given to the time variables in table 3-5) is identical to T_e , since, if it is, the tense chain between T_s and T_e has been completed and there is no reason to select a secondary tense. The question is

Is T_2 the same as T_e ?

(abbreviated in the Figure as " $T_2 = T_e$?"). If the answer is "same", the chooser chooses no secondary, but if the answer is "different", further questions have to be asked.

So if T_e and T_2 are not identical, the second step is to establish a new value for T_3 . The appropriate question is TimeInRelationID, repeated here for convenience:

What time is to be directly related to T_2 temporally through a specification of precedence or inclusion?

The answer is a new time, which is assigned to T_3 . (The other time T_2 is related to. T_1 , has already been "consumed" by primary tense; the relation to it has been expressed.) So, the identification is stated as:

(Associate T_3 (TimeInRelationID T_2))

If T_3 is the same as T_e , the relation between T_2 and T_3 may or may not be explicitly marked by tense. If it is, secondary is chosen, but if it is not, no secondary is chosen instead. The next step is to ask whether the relation should be explicitly expressed or not:

Is the relation between T_2 and T_3 to be expressed or not?

When the answer is "not express", no secondary is chosen. We have now come across two different reasons for choosing this feature, the situation when $T_2 = T_e$, which automatically ends the tense chain, and the situation when the relation between the two times is not to be expressed.

We still have one branch of the chooser to follow up. When T_2 and T_3 are different and the relation between them is to be expressed, the chooser chooses secondary, which is the input to SecondaryTenseType.

As we have seen, there are two ways in which the chooser can arrive at no secondary, marked (1) and (2). When the PrimaryTense selection is present, the outcomes of this chooser correspond to the simple present with for example instantaneous or generic reference for the first "Choose no secondary" branch in the chooser (1) and to the simple present with future time reference for the second "Choose no secondary" branch (2). In this case, the simple present expresses the presentness of a plan and the futurity of its execution is not expressed since no secondary is chosen. Cases of this kind were discussed in connection with primary tense uses under the heading of implicit secondary tense in Section 11-2. When secondary is chosen, we get past-in-present, future-in-past-in-present, and so on.

14.2. Deciding on the type of secondary tense

The task of the chooser of SecondaryTenseType is to establish whether T_2 precedes T_3 , in which case future is chosen, follows T_3 , in which case past is chosen, or whether T_2 is included in T_3 , in which case present is chosen. Two questions about precedence and one about inclusion are asked in the chooser, with the positive answer of each leading to an action of choosing — see Figure 14-2.

Every time there is a decision to choose to have a secondary tense, a new reference time must be set up and assigned to T_1 as its value. The various time points we assume may be referred to in one way or another adverbially.

Henry hadn't seen his cousin since last Friday yesterday.

Two weeks ago Henry was going to visit us tomorrow.

Tomorrow Henry will be going to resign in exactly two weeks.

Henry was preparing dinner when Anne stormed in.

In the third example, the time of the resignation is future (by a period of two weeks) with respect to the time frame set up by tomorrow. In this example the time frame happens to be the relevant time (T_1), but there may be additional time frames. In other words, although we could have managed with T_s , T_r , and T_e in this particular example, we need more time points for more complex tenses.

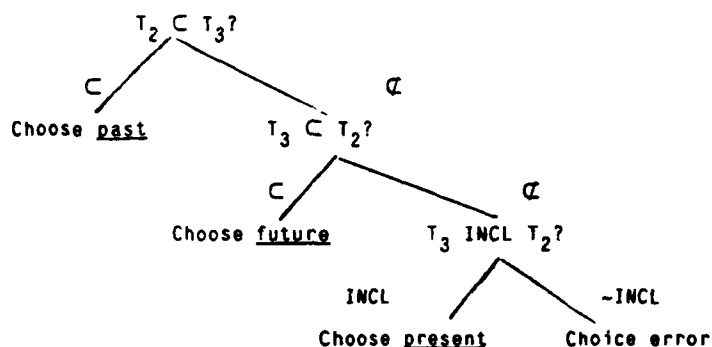


Figure 14-2: SecondaryTenseType chooser

Let me now briefly justify the treatment of the so-called perfect and progressive as secondary tenses (and not as aspects/phases). What is said here also applies to *have* and *be* as auxiliaries of tertiary and higher order tenses.⁶⁹ A full discussion of the so-called progressive is outside the scope of this report.

14.3. The secondary past

14.3.1. Tense interpretation: *Have* as an auxiliary of the past relation

The "perfect", realized by a form of *have*, has certainly proved to be a category that is difficult to characterize.⁷⁰ However, a recent characterization by [Schachter 81] (p. 15-16) fits very well with the overall characterization of tense developed here. He writes:

The basic use of the perfective (perfect, CM) auxiliary, I believe, is to signal the meaning of RELATIVE PAST. That is, the action or state designated by the dependent verb is placed in the past relative to a given point in time. This point in time may itself be past, present, or future ...

He gives the following examples in illustration of the observation that the point relative to which the action or state is past may be past, present, or future:

⁶⁹It may be noted that both *have* and *be* are auxiliaries of tense, modality, or voice, depending on the form of the following verb:

	infinitive	ing-participle	en-participle
have	MODAL	---	TEMPORAL
be	TEMPORAL	TEMPORAL	VOICE

⁷⁰For a recent thorough survey and assessment of theories of the "perfect", see [McCoard 76]. While I agree with most of his observations, I do not agree with all his conclusions. For some discussion of this issue, see [Anderson 82].

John had already eaten when Bill arrived.

John has already eaten.

John will have already eaten by the time Bill arrives.

These sentences are examples of the past-in-past, the past-in-present, and the past-in-future respectively.

Characterizations like Schachter's clearly classify *have* as a tense auxiliary, given my definition of tense as the expression of a relation between two times.

14.3.2. Aspect: an inappropriate category for *have*

It is quite clear that the so-called perfect is not an aspect (rather than a tense) in English, if we contrast the characterization of tense given above with Comrie's characterization of aspect as "different ways of representing the internal temporal constitution of a situation" ([Comrie 76], p. 52). He notes that the perfect is "rather different" from this: "it expresses a relation between two time-points, on the one hand the time of the state resulting from a prior situation and on the other hand the time of that situation".

14.3.3. Uses of secondary past consistent with the account

14.3.3.1. Inclusive time

The kind of situation in which *have* could be argued not to be a tense auxiliary of the past is what Jespersen calls inclusive time. I have already indicated that this use is not a problem for my approach, relying for example on Schachter's notion of "fully instantiated"; see Section 4.3.1 above and [Schachter 81] for the argument.

14.3.3.2. Other uses

For examples of the use of the secondary past, see also Section 15.5.

14.3.4. Secondary past with or without primary tense

Justification for considering *have* to be a past auxiliary is that it makes it possible to explain why a form of *have* in non-finite clauses, modal finite clauses or counterfactual finite clauses corresponds to either the simple past or the so-called present perfect in finite clauses.

In finite temporal clauses "pastness" can be expressed either as a primary tense or as a secondary tense (for differences, see below). For example, we have both *Henry was very obstinate last year* and *Henry has been very obstinate for quite some time*. In finite modal clauses or in non-finite clauses "pastness" can only be expressed by secondary tense, since there is no primary tense.⁷¹ So we get *Henry may have been very obstinate last year/for quite some time* and *For Henry to have been so obstinate last year/for so long is quite disturbing*. In counterfactual finite clauses, we do have a primary tense formally, but this tense is used up to mark counterfactuality through the selection of primary past. Consequently, temporal relations have to be expressed by a secondary tense: *If Henry had been very obstinate last year/for quite some time, he would not have been elected*.

⁷¹ The grammar in Figure 2-2 is an example: a clause is either finite or nonfinite. If it is finite, it is either indicative or imperative. If it is indicative, it is either temporal or modal. Only if it is temporal, is the Primary Tense system available: in all other cases, except in imperative clauses, only the secondary tense systems can be reached.

14.4. The secondary present

14.4.1. Relative present

The choice condition for the secondary present (as ' T_x neither precedes nor follows T_y ') captures a central characteristic of this tense. Since T_y almost always is the time of the event being expressed, i.e., T_e , the condition for choosing the secondary present is that the time of the event is to be presented as simultaneous with another time, i.e. as PRESENT RELATIVE to this other time.⁷² Simultaneity contrasts with sequence, of course, and we can see very clearly how the secondary present is selected in narratives to convey that two events are simultaneous rather than in sequence.

Flory leaned over the gate. The moon *was vanishing* behind the dark wall of the jungle, but the dogs *were still howling*. Some lines from Gilbert came into his mind ...

While Flory *was sitting* morosely in his bath, Mr. McGregor, in shorts and singlet on the bamboo mat laid for the purpose in his bedroom, *was struggling* with Numbers 5, 6, 7, 8, and 9 of Nordenflycht's 'Physical Jerks for the Sedentary'.

(Orwell, *Burmese Days*)

The situation is perhaps less clear when we refer to PRESENT time. However, it seems possible to argue that the secondary present is typically selected under the same conditions as in reference to PAST time. The difference is typically that in PAST narratives, the time in relation to which the secondary present expresses simultaneity is provided by an event encoded in the text, while in reference to PRESENT time, the time in relation to which simultaneity is expressed is the time defined by the act of speaking itself and is thus extra-textual rather than cotextually present. The simple primary present is used in commentaries on sports events, demonstrations, and the like, because these commentaries are "narratives" in PRESENT time involving sequentially ordered events.

14.4.2. Tense (inclusion) vs. aspect (imperfection)

Interpretations suggested for the secondary present (the progressive, the continuous, the extended aspect/tense) cover a fairly wide spectrum. One of the contenders is a framing or time inclusion interpretation. We find it in Sweet, Jespersen, Dóvty, Schachter, and Merrill (see e.g. [Jespersen 24, Schachter 81, Merrill 82]). It is an interpretation of *be ... ing* as a tense, since what it says is that one time (T_y) includes, or frames, another time (T_x). (I will take inclusion to be time inclusion: cf. [Merrill 82].) As such, it contrasts with aspectual interpretations, in which the progressive is analyzed as a kind of imperfective aspect. Its core meaning is then incompleteness of event rather than inclusion of one time in another. Thus, [Langacker 82] treats it as imperfectivizing. However, his particular characterization is not too far from the notion of inclusion. He writes that "ING focuses attention on a single, arbitrarily selected internal point relative to a process" (p. 281); the notion of an *internal point* suggests an inclusion relation where this internal point is included in the time of the process. (He notes that his characterization can be satisfied in two ways, either habitually or non-habitually: see [Langacker 82], p. 282.)

⁷² Note that simultaneous does not mean 'coextensive' here, but simply 'neither precedes nor follows'.

14.4.3. Inclusion

Of these two interpretations, the tense interpretation in terms of time inclusion and the aspectual interpretation, the former is the only one which fits with Halliday's analysis of *be ... ing* as a realization of a tense selection.⁷³ Thus time inclusion suggests itself as a candidate for the chooser question(s) leading to the choice of present as a secondary tense option. Instead of asking about a precedence relation between two times, T_x and T_y , we ask about an inclusion relation. We can see how this works with the present-in-past, present-in-present, and present-in-future.

14.4.3.1. Present-in-past

First, a present-in-past example:

A plastic fern in a gold pot sat in the opening and trailed its fronds down almost to the floor. The radio was softly *playing* gospel music. Just then the inner door opened and a nurse with the highest stack of yellow hair Mrs. Turpin had ever seen put her face in the crack and called for the next patient.

(O'Connor, *Revelation*)

Throughout this extract, the primary tense is past; for every clause T_2 precedes T_1 . One clause also has a secondary present tense selection, italicized above. The reason for selecting a secondary present here is that the time of playing (the value of T_3 for the clause) includes another time, T_2 . This other time is specified; it is the time of the opening of the door. As Jespersen points out, the present-in-past is often used "in a description of the general situation, which serves as setting to what happened", expressed by the simple past ([Jespersen 33], p. 264).

14.4.3.2. Present-in-present

We find the same type of example with the dramatic use of the primary present taken from the appendix of [Chafe 80]:

And then u--m ... he's... *fixing* himself up ... and ...
then all of a sudden you see these three boys who're ...
saw this whole thing.

The time of fixing includes the time of catching sight of the three boys all of a sudden.

Normally, the present-in-present is used to indicate that T_3 includes $T_2 \cap T_1$, the time of speaking. It contrasts with the so-called instantaneous simple present. Consequently, we do not use it when we give a blow by blow commentary on what is going on (as in demonstrations, sports commentaries, performatives and so on), but only when we want to indicate that the event time frames the moment of speaking.

14.4.3.3. Present-in-future

We can turn to a present-in-future example:

When Henry wakes up tomorrow, I will be crossing the Atlantic

⁷³There are, of course, other ways of interpreting present vs. present-in-present. If simple present were taken to be maximally extensive time reference, present within this would amount to a narrowing down of this maximal time extension. I will not explore this way of interpreting the opposition here: in Section 7.2.1.4 I pointed to problems that attach to an "unrestricted" interpretation of the simple present.

The time of crossing (assigned to T_3) includes the time of waking up (T_2). Jespersen (op cit.) gives a similar example, *I shall be having breakfast in a minute*, which he glosses as 'shall have begun breakfast'. Notice how this gloss points to the inclusion nature of the present-in-...: *In a minute* specifies T_2 which is included in T_3 . Hence the inference 'shall have begun'. (Perhaps this is even clearer with *in a minute* thematized: *In a minute I shall be having breakfast.*)

The mirror image of this type of example, as in *A minute ago Henry was reading*, has another possible use based on the inclusion relation. We can imagine the following conversation:

Katherine: What's Henry doing?

Anne: A minute ago he was reading.

Since Henry's reading includes the past time specified by *a minute ago*, it may in fact continue up through the time of speaking. Anne might have continued *so he probably still is*.

14.5. The secondary future

The resources for expressing a secondary future vary depending on what the primary tense selection is. The alternatives are tabulated in Figure 14-3. I will not deal with the conditions that provide the appropriate selectivity among the various options. Of the four listed in the table, it is clear that *be about to (build)* differs from the others in that it is chosen to express immediate futurity; it can be taken as a representative for *be on the verge of (building)* and other similar markers.

future-in-...		
past	present	future
was going to build	is going build	will be going to build
was to build	is to build	---
would build	---	---
was about to build	is about to build	will be about to build

Figure 14-3: Markers of secondary future

14.5.1. Future-in-past

The responsibility for asserting a future with respect to the past vantage point may rest with the speaker or with a participant in the sentence, e.g. the subject.

14.5.1.1. Speaker's future-in-past

Typically, the speaker uses future-in-past as an "author's would" etc., as in historical treatments in which the writer looks ahead:

This "flight", known as the Hejira, marked the beginning of the Mohammedan era--one that *was to exert* a strong influence on the development of mathematics.

(Boyer, *A History of Mathematics*)

By this time a schism had arisen between the western Arabs in Morocco and the eastern Arabs who, under the caliph al-Mansur, had established a new capital at Baghdad, a city that *was shortly to become* the new center for mathematics.

(Boyer, *op. cit.*)

14.5.1.2. Subject's future-in-past

In contrast, examples like the following are clearly future from the point of view of a participant, typically the subject of the clause.⁷⁴

Marina yawned. What a lazy life this was! She decided, at that moment, that she *would put* an end to this nonsense of hoping, year after year, for some miracle that *would provide* her, Marina Giles, with a nice house, a garden, and the other vanishing amenities of life. They *would buy* one of those suburban houses and she *would have* a baby. She *would have* several babies. Why not? Nursemaids cost practically nothing. She *would become* a domestic creature and *learn* to discuss servants and children with women like Mrs. Black and Mrs. Skinner. Why not?

(Lessing, *African Stories*)

In some cases either interpretation seems possible, a fact which strengthens the observation that the responsibility can shift. [Leech 71] says of

Twenty years later, Dick Whittington *would be* the richest man in London.

that it can be construed either as 'was destined to' or as 'he said to himself'. The former is future as speaker's responsibility, the latter future from Dick Whittington's point of view. Similarly with Leech's *Pitt was to be the next Prime Minister*, which can either be parallel to the history of mathematics example—the speaker knows what happened—or a plan in the past. For similar phenomena in the context of indirect speech, see Section 15.8 below.

⁷⁴ In this particular example, the lead into the participant oriented view of the future is in a clausal complement to *decide*; cf. the discussion of reported speech.

15. PRIMARY AND SECONDARY TENSE: PARADIGM AND COMPETITORS

15.1. Temporal oppositions: extended tense paradigm

In the discussion of the inferred meanings/uses associated with specific tense selections, the role of the paradigmatic context was emphasized. To see how various combinations of primary and secondary tense selections compete and differ in principled ways, we need something that can help us get at what Kirsner & Thompson characterize as "what could be said but is not". The systemic notation itself has been designed with this European structuralist principle in mind: the system shows direct oppositions. This is a minimal paradigm. In addition, it is useful to have a principle that specifies potential competitors that are not part of the same tense system, a principle to define an extended paradigm. The principle of potential competitors is attempted below.

Principle of potential tense competitors For any complex tense, there is a potential competitor for specifying the location of T_e with respect to T_s that can be arrived at by subtracting one of the tense choices.

The principle says that we can arrive at potential competitors by reducing the number of tenses in a tense complex. It predicts that the past-in-present has both the simple past and the simple present as potential competitors, that the future-in-present has both the simple future and the simple present as competitors and that the past-in-past has the simple past as a potential competitor — and so on. The principle does not say that these competitors are interchangeable. Rather: if you are willing to give up something, you may have a competitor in a simpler tense selection.

We are now equipped to examine some tense choices in more detail, contrast some potential competitors, and distinguish between "necessary meaning" and "possible inferable message".

15.2. Overview of tense competitors

The full paradigm of primary and secondary past and future tenses is set out in Figure 15-1; the secondary present has been left out.

The table has been designed to bring out how many steps are taken from T_s , one or two, whether the steps are past or future (and, whether there are two steps in the same direction or not), and, in the case of one step only, if this is the only tense selection or if there is a selection of present as well. The resulting classifications of tense selections will now serve as a basis for talking about what tense combinations have in common and how they compete.

15.3. Tense density

There are two ways of taking one step into the past or into the future from T_s , either it can be done in primary tense (through primary past or future), or it can be done in secondary tense with a primary present (which means that $T_s \circ T_r$ so that the secondary step also takes off from T_s when it takes off from T_r). So we can specify pastness and futurity the first time around either in primary tense or in secondary tense. We have both primary past/future and past/future-in-present.

In contrast, a second step—a second specification of pastness or futurity—can only be taken in one way,

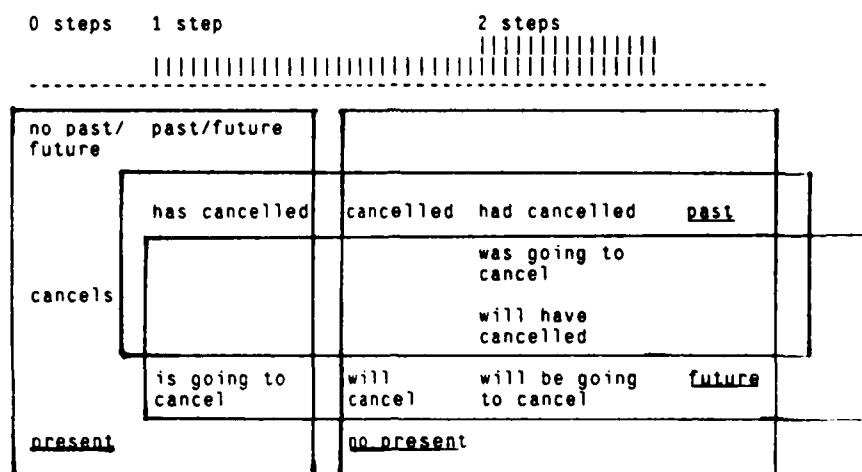


Figure 15-1: Primary and secondary paradigm

since there is no past/future-in-present-in-... There is thus a difference between the primary present and a higher order present; it is very unlikely that we get an additional tense selection after having chosen a non-primary present (cf. the discussion of the "stop rules" below in Chapter 7). And since it is the possibility of having past/future-in-present as well as simple past/future that gives us the rich possibilities of taking one step from T_s , we can expect not to find this with other reference times as long as the selection of past or future after a secondary present is highly unlikely. The possibilities for continued tense selection with primary tense and with secondary tense are summarized in the table in Figure 15-2. For all tenses in the table, except for secondary present, it is possible to continue the process of tense selection.

	past	present	future
primary	no secondary/ secondary	no secondary/ secondary	no secondary/ secondary
secondary	no tertiary/ tertiary	no tertiary i.e. STOP	no tertiary/ tertiary

Figure 15-2: Possibilities of continued tense selection

The result, then, is that there are more ways of referring to the past and to the future around T_s than around other times distinct from T_s . There is, so to speak, a higher density of tense.

15.3.1. Density and restriction on uses

A European structuralist description would probably predict that there is a higher degree of specialization around T_s than elsewhere, because the time space around T_s is more crowded by tenses than are the time spaces around other referent times that may be established. Such a prediction (modelled on e.g. vowel spaces and number of phonemes/allophones and the colour "space") corresponds to the facts. There are some differences between the range of uses of primary past, present, and future and secondary past, present, and future; these are largely predictable from my account.

15.3.2. Example: past, past-in-present and past-in-past

The past-in-past/future seems to take over the uses (meanings) of both the simple past and the past-in-present. [Schachter 81] (p. 16) observes that "while all perfective (perfect, CM) constructions share the relative-past semantics, the present perfect [past-in-present] is subject to a semantic restriction that does not apply to other perfective constructions". This restriction is to indicating "NONSPECIFIC relative past", according to him.⁷⁵

15.3.3. A dynamic explanation

The fact that the past-in-present is restricted in ways that the past-in-past/future is not falls out very naturally, if the dynamics of my chooser account are considered. Given that there is a state or event to report that is past with respect to the here and now, i.e., with respect to the time of speaking, we will explore the options in the following sequence:

1. First primary tense is explored. Unless there is something present about the past situation/event, past is chosen.
2. Then we come to secondary tense. If there is still a need to express the pastness of the situation/event, secondary past is selected.

In our example, notice that we only have the opportunity of selecting a secondary past *after* primary past has had its chance. We will only get to secondary past if there is something present about the event/situation (expressed by primary tense); otherwise we will not. However, if the event/situation is past, not with respect to the here and now, but with respect to a reference time that is itself past or future, we will get to secondary past with the full need to express pastness with respect to this non-present reference time.

The future-in-present *am/are/is going to* is also limited to an indication of present cause or present intention leading to something in the future and does not normally refer to simple prediction. However, this restriction does not seem to apply to future-in-past/future (*was/were going to cancel* and *will be going to cancel* in the table) where there is no simple future to compete with.

The table in Figure 15-1 brings out specific competitors as well as the notion of tense density. First I will turn to tenses that are ...-in-present and indicate what they have in common in contrast with their simple one step competitors. In other words, what do past-in-present and future-in-present share in contrast with simple past and simple future?

15.4. ...-in-present

The answer to the question turns on the notion of a relevant time that can be at the speaking time (through the choice of primary present). In other words, the answer turns precisely on the assumption that the perfect is past-in-present, a two tense selection, and that *am/is/are going to* is future-in-present.

⁷⁵ The literature contains many examples of an interpretation of the past-in-present as an INDEFINITE PAST. There are problems with characterizations of the past-in-present vs. the simple past cast in terms of specificity (definiteness), as [McCoard 76] shows. However, the general observation about restrictions that apply to the past-in-present but not to other combinations with a non-primary selection of past is still valid.

The general interpretation is that the relevance is PRESENT, either still (past-in-present) or already (future-in-present).

15.4.1. Causality

For many cases, this can be put in terms of causality: a process is connected with the present through its effect (past-in-present) or its cause (future-in-present).

The past-in-present means that something that happened in the past is still relevant. Consequently, in the primary tense system we choose present to indicate that there is "current relevance" and we choose a past secondary tense to indicate that the event occurred prior to the relevant time.⁷⁶ [Jespersen 24] (p. 269) says of the perfect that it is "a present, but a permansive present: it represents the present state as the outcome of past events, and may therefore be called a retrospective variety of the present". Jespersen's "outcome" is the "effect" of my informal causality characterization. This outcome/effect is clearest with past actions that bring about a change from one physical state to another. For example:

I'm sorry I can't pick you up. My car has been stolen.
Henry has broken his arm, so he can't help us.

The future-in-present:

Look at those clouds--it's going to rain.
I'm going to give up smoking tomorrow.

is present because what is currently relevant is (1) the cause of the future event or (2) the intention leading to the future event. Informally speaking, the future flows out of present cause or intention.⁷⁷ [Palmer 79] (p. 121ff) characterizes *be going to* as "essentially a marker of 'future in the present'" in that it "does not simply refer to the future, but rather to the future from the standpoint of the present". He argues for an interpretation where this future in the present is a "mirror image" of the perfect. Both are current relevance, one of "a cause or an initiation", the other of result.

⁷⁶ There are differences between British English and American English. Here I will be concerned with British English. In general, American English can use the simple past where British English would have to have past-in-present: see e.g. [Leech 71] (p. 33f) and [Zandvoort 72]. [Palmer 74] suggests that the difference is the result of a stricter notion of relevance in American English. Interestingly, a few hundred years ago "the distinction between past [simple past] and perfect [past-in-present] was not yet so clear-cut as now" (at least in British English), [Strang 70], p. 149. For instance, in Shakespeare, there are examples of the simple past where we would now use the past-in-present. Similarly, Shakespeare sometimes selects the simple present where we would choose the past-in-present: see e.g. [Brook 76], p. 106. Thus, English used to be like modern German.

⁷⁷ Although the past-in-present and the future-in-present share properties (they are both "in present"), the two tenses are not entirely parallel. One difference is the difference between "going to" the future and "having" the past: there are differences in the use of time adverbials, e.g. *since* and *until*. *Until* can be used with primary simple future (as in *Let me describe what will be my lodging until ...* [Golding *Rites of Passage*]), *since* cannot be used with primary past, only with past-in-present. We can say *It is going to/will rain until next Tuesday* and *It has rained since last Tuesday*, but not *It rained since last Tuesday*.

15.4.2. Immediacy

Palmer notes that both past-in-present and future-in-present are often used (frequently with *just*) to convey immediacy, as in the following examples (the first two provided by him; the first is from the Survey of English Usage at London University College):

All right, I know, I'm just going to send his contract out today just to keep him happier, you know.

I've just seen him.

Wheeler has told me just this minute that we dine in an hour's time at four o'clock.

(Golding, *Rites of Passage*)

15.4.3. Scene-setting

Palmer notes another use of future-in-present for which I find an intriguing parallel use of the past-in-present in [Leech 71]. Both may be used in a first sentence to set the scene, relating it to the here and now, and once the scene has been set, they can be followed by the simple future or the simple past. For example, with the future-in-present:

Is the Government going to say that we are going to have a National Enterprise Board which on the one hand will have powers ...?

(Palmer, *Survey of English Usage*)

and an example from [Wekker 76], p. 125 (where an observation similar to Palmer's is made):

Finally, tonight on to the weather forecast for the South. The night's going to be rather cloudy, but most places will remain dry. The temperature will fall around 4° C. near the coast, but a few degrees lower than this inland with some ground frost in some valleys and a few fog patches ... and the winds, they'll be southeast, light, force 1 to 3 overnight, and moderate or fresh, force 4 or 5, tomorrow.

(Nationwide, BBC, 20/2/75)

and an example with the past-in-present:

Joan has received a proposal of marriage; it took us completely by surprise.

(Leech)

Political oppression has taken its own savage toll. Early last year Nigeria expelled 2 million Ghanaian workers to ease the mounting problems it faced trying to provide work for its own population.

(*Time*, 16/1/84)

15.4.4. Exposition: flashback and anticipation

In a similar fashion, the past-in-present may set the scene for the (present-in-) present:

Jane Doe has cancelled her appointment with us on Wednesday morning.
I have two other applicants ...

(Personal message)

They, too, *have enrolled* in the new education of the '80s---they're
taking a course which will permit them to legally own and use tear gas.

(*Newsweek*)

and the (present-in-) present may set the scene for the future-in-present:

At the moment they're decorating their house and they're going to alter
odd parts of it

(Palmer)

15.5. Past/future-in-present vs. simple past/future

15.5.1. Background vs. current situation

The past-in-present often relates a past event to a current situation. In contrast, the simple past is used in narratives, where we are not trying to make a connection with the present; the general relevant time is past, so for any tense choice T_r precedes T_s . It is possible to think of contrasts like

Shakespeare has written some delightful sonnets (... so here are some of
them for you to read).

Shakespeare wrote the first stanza in the air, waiting for more inspiration.

In the first example, the past-in-present is appropriate because Shakespeare's work is still with us and can still affect us. In the second example, it would hardly be appropriate. It is difficult to think of a context in which there is anything present about this writing (never even recorded).⁷⁸ In the same text, there are often shifts in primary tense from a primary past for one part of the text that serves as a background expressed as a narrative to the rest of the text which is primary present—the current situation. When the text shifts from "background" to "current situation", we can predict a shift in the strategy used to refer to past events. In the background part, they will be reported as simple past as already suggested. However, in the "current situation" part they will be signalled by secondary rather than primary past: $T_r \circ T_s$ rather than $T_r \subset T_s$. The prediction is born out in the following example:

⁷⁸For some further observations about the simple past vs. the past-in-present in discussions of authors, artists and their works, see e.g. [Pickbourn 89], pp. 32-34.

(BACKGROUND:)

A caustic Chancellor Helmut Schmidt took the podium in the Bundestag last week to address the state of the nation--and the future of his own crumbling coalition. Upbraiding disloyal coalition partners in the Free Democratic Party, he expressed contempt for their recent threats to bolt from the alliance and join forces with the opposition. Taunting his Christian Democrat opponents, he proposed a dare: [...the story moves to Christian Democratic leader Kohl:] The CDU leader could afford to be patient....

(CURRENT SITUATION:)

his party is widely expected to win large majorities in both those elections. More significantly, recent polls now suggest that if a national election were held today [...] That prospect has frightened the Free Democrats into rocking the ruling alliance. In a desperate effort at self-preservation, the FDP has swung to the right. In Hesse, the local FDP has voted to break its coalition with the Social Democrats and run with the CDU in the upcoming election. And in the Bundestag, the Free Democrats are now at war with Schmidt ...

(Newsweek)

Naturally there is no immediate parallel with the future and the future-in-present with respect to narratives. But there are, again, differences that turn on the "present". [Palmer 79] (p. 125) notes that the simple future (including British English *shall*) is used "where it is clear that there is little or no present activity involved", citing examples like

She'll be in soon.

My babe-in-arms will be fifty-nine on my eighty-ninth birthday.

The year two thousand and fifteen when I shall be ninety...

(Palmer, *Survey of English Usage*)

He contrasts *The paint'll be dry in an hour* with *The paint's going to be dry in an hour*, which can be characterized as "inevitable".

15.5.2. Conditions

A difference between the simple future and the future-in-present that turns on the "in-present" part of the latter can also be seen in the presence of a conditional clause. When the future-in-present occurs in the main clause of a conditional clause, the condition is most likely to be PRESENT time (rather than FUTURE, as with cases where the main clause has the simple present); see [Wekker 76], p. 129. His example is:

We're playing for very high stakes here. If we go on like this, we're going to lose the whole game.

In fact, as Leech points out, future-in-present is usually inappropriate when the condition is FUTURE time ([Leech 71], p. 56). He finds the following example hard to accept:

*If you accept that job, you're never going to regret it.

This is what I would expect to be the typical situation given my account. Validity is normally assessed at the time directly related to the here and now, i.e., at T_p (cf. the references to [Palmer 74] in Section 11.2.1.) Consequently, conditions under which the validity should be assessed should typically relate to T_p . And, if $T_p \circ T_s$, i.e. if the relevant time is present, as in future-in-present (but not in the simple future), conditions should also relate to present time.

PARADIGM AND COMPETITORS

15.6. ...-in-past

When the primary tense selection is past, a time has been located before T_s and this time is a potential new frame of reference time for a secondary tense selection.

15.6.1. Narrative: flashback and anticipation

For example, in narrative, the need for further times often arises because background is provided (past-in-past) or anticipations given (future-in-past), as the following example indicates.

Jane McCluster, who *had been* a nurse before she *married*, *started* a farm within a month of arriving. Though she *had been born* and *brought up* in town, her experience of natives was wide, for she *had been* a sister in the native wards of the city hospital, by choice, for years; she *liked* nursing natives, and *explained* her feeling in the words: "They are just like children, and appreciate what you do for them." So, when she *had taken* a thorough, diagnosing kind of look at the farm natives, she *exclaimed*, "Poor things!" and *set about* turning an old dairy into a dispensary. Her husband *was pleased*: it *would save* money in the long run by cutting down illness in the compound.

(Lessing, *African Stories*)

The relevant time for the narrative is here (as it typically is) consistently past—encoded in the primary tense selection—and choosing secondary in the SecondaryTense system is a decision to specify another time relation in reference to this past relevant time.

So the main story line is set by the primary tense selection (nearly always primary past in narratives) and there is a secondary tense if there is a need to locate events at a time earlier than the main story line (as in the example above) or to anticipate later events. An additional example illustrates anticipation by the narrator himself:

Later he was to be famous and honoured throughout the South Caribbean; *we was to be* a hero of the people and, after that, a British representative at Lake Success. But *when I first met him*, he *was still* a struggling masseur, at a time when masseurs *were* ten a penny in Trinidad.

(Naipaul, *The Mystic Masseur*)

15.7. ...-in-past vs. simple primary

15.7.1. Future-in-past vs. simple past

The decision to refer to an event that takes place before T_s as future-in-past rather than as simple past has to be seen in the context of the planning of the text the tense selections are part of. If there is a reason to view the event from a point in the past (defined, for instance, by the general time of a story), future-in-past is used. Otherwise, the simple past can be used. To see this more clearly, consider the following two examples from Thornton Wilder's *The Cabala*.

The fact is that Mrs. Roy was pressing audiences in the Vatican with the hope of inducing His Holiness to commit a miracle, namely to grant her a divorce under the Pauline Privilege. This consummation, not without precedent, depended upon a number of conditions. Before taking any such step the Vatican would ascertain very carefully how great the surprise would be in Roman Catholic circles; American cardinals would be asked in confidence for a report on the matron's character ... This done, it would be well to gauge the degree of cynicism or approval the measure would arouse in Protestants. ... Whose opinion would be more valuable for this purpose than that of the austere directness of the American Colony? Miss Grier would be approached--and both women knew it--through channels exquisite in their delicacy and resonance; ...

Although Mrs. Roy did in fact get a divorce, Wilder outlines the steps of attaining it as seen from a time in the past, i.e., by using future-in-past. The reason is that the deal that Mrs. Roy and Miss Grier make (which Wilder proceeds to tell us about) has to be motivated by the anticipation at the time of the story of Miss Grier being approached by the Vatican (*Miss Grier would be approached--and both women knew it--through channels...*).

Now contrast the passage above with future-in-past with the following that tells us about how Mrs. Roy left after having made the deal with Miss Grier:

She [Mrs. Roy] bowed to us and fled. What emotion is it that lends wings to such matter-of-fact feet and blitheness to such thin dispositions? *The next year she married a young French yachtsman, half her age; she settled down in Florence and gave birth to a son.*

With this Mrs. Roy leaves the novel; her marriage and other activities need not be presented as anticipated by Wilder since they do not serve as motivations for actions by his characters and they can be reported in the simple past.

15.7.2. Past-in-past vs. simple past

The simple past specifies one step into past time and the past-in-past specifies an additional step. Given a past time of reference, the past-in-past takes off from this to specify something as past.

15.7.2.1. Flashback vs. story-line

As a result, the difference between the two tense combinations in discourse is typically main story line (the simple past) vs. flashback (the past-in-past). We have already seen an example of this in Section 15.6.1. The flashback has a different frame of reference from the main story line. Consider the following example:

His occasional bouts with the liquor bottle were accepted by the family as one of the more picturesque problems of owning an island. He stopped drinking--or at least slowed down--one night when God came to him in a dream. The Lord, he explained later, had scolded him for his wicked ways and told him to shape up.

(Islands)

The two past-in-pasts used are in boldface. Notice that the scolding is seen from the grandfather's perspective; it is past with respect to the time of his explanation.

15.7.2.2. Action vs. resultant condition

The difference may also be action (past-in-past) vs. resultant condition (past), as [Schibsbbye 65] points out, giving the following example (p. 74):

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He felt calm with the knowledge that everything was now settled.
Yes, everything had been settled.

This distinction is parallel to the distinction between past and past-in-present.

15.7.2.3. Scene-setting

Sometimes when a selection of past-in-past already has established that there is a new reference time with respect to which we are doing a flashback, subsequent selection can rely on this and need not go any further than a simple past. (Cf. Section 15.4 for the situation with past-in-present and past and with future-in-present and future in "scene setting" uses.) An example of this is the following excerpt from Purdy's *The Nephew*:

Boyd and Alma *had* other members in their family, but Cliff *was* the principal one. The others *were* married, with children, and *lived* far off, in California and Canada. They *never wrote* at all, but *sent* Christmas cards or Easter greetings when they *remembered*. And then, too, Cliff *had been* partly raised by Boyd and Alma, at least from the age of fourteen, when he *was* orphaned by the deaths of both parents in a plane accident.

During the four or five years he *had lived* with them in Rainbow Center, Alma *was* away most of the time teaching school in another town, and Boyd *was* often gone on his real estate deals, but for those five years Cliff *had been* in their house to come home to and to be responsible for, until Korea.

The first past-in-past establishes a time prior to the time period during which the story takes place. The time of Cliff's being orphaned is also prior to the general story time, but it has already been indicated through the previous tense selection that we are "in a flashback". The next paragraph is parallel. The time of Cliff's living with Alma and Boyd precedes the time of the story as does the time of Alma being away teaching: at the time of the story she is retired. However, again, only the first time is ordered with the help of a selection of the past-in-past.

What has just been exemplified is probably an instance of the same principle that allows us to be satisfied with a simple past rather than going on to select an additional tense to yield a past-in-past in a context of *before* and *after*. Jespersen notes that "in clauses beginning with *after* ... the simple preterit often means the same thing as the pluperfect" ([Jespersen 33], pp. 246-7), i.e., the past-in-past. One of his examples is *He stood motionless after she disappeared*.

15.8. Assigning a value to T_i : Indirect speech

An instance of the choice between a simple tense (typically simple past in narratives) and a complex one is found in indirect speech. Indirect speech is typically seen as a backshifted version of direct speech and rules are given for this backshift and the sequence of tenses (see e.g. [Jespersen 33] and [Quirk 72]). This derivational way of looking at indirect speech creates pseudo-problems, I think. The issues the derivational approach tries to address are taken care of straightforwardly if the time variables that have been assumed here are assigned in the right way. For example, if Henry told me yesterday:

The applicant cancelled her appointment last Friday.

the way I choose tense when I pass on the message will simply depend on how I assign a value to T_r . If I simply want to state that the appointment was cancelled at some time before now, I can say:

The applicant cancelled her appointment last Friday.

But if Sue thinks the applicant cancelled the appointment today, I might tell her:

The applicant had already cancelled her appointment yesterday.

letting T_r be yesterday instead of the time of the cancellation. If I am interested in conveying that I got the news from Henry, this might come out as

Henry told me that the applicant had cancelled her appointment last Friday.

where T_r is the reporting time. *Henry told me* serves the same function from the point of view of establishing T_r as *yesterday* does:

Henry told me	the applicant had cancelled ...
Yesterday	
T_r	

Both are past. The process of cancelling is past with respect to T_r in the report, whereas it is past in relation to T_s in Henry's original statement.

What happens, then, in indirect speech is simply that the report time is selected to be the relevant time. Consequently, the task of indicating that the cancellation precedes the report of it is left for secondary tense. From this it follows that the responsibility for the assertion is shifted from the speaker to the person whose speech is reported, usually explicitly marked in the reporting clause.

The shift in responsibility and from T_s to T_r need not happen. [Jespersen 24] (p. 294) comments on:

It was he who taught me that twice two is four.

He writes:

The use of the unshifted present here implies that the actual speaker is himself convinced of the truth of the assertion, whereas the shifting of the tense *also shifts the responsibility for the saying* onto the original speaker.

Hence the difference in "He told us that it was sometimes lawful to kill" (but he may have been wrong) and "I did not know then that it is sometimes lawful to kill" (but it is).

The distinction between time of report and time of speaker's conviction is handled simply by the assignment of a value to T_r .

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In the discussion of the simple present and of e.g. future-in-present, I made a distinction between time of plan and time of execution (along the same lines as St. Augustine did). It appears now that the possibility of viewing something from two different times is a fairly common type of phenomenon. In addition to time of plan vs. time of execution of plan, we have now come across time of report vs. time of conviction, but there are additional pairs.

For instance, [Leech 71] notes that cross-references in written documents are either present or past vs. future as in:

In Chapter 14 this distinction is/will be treated in greater detail.

We can choose to adopt a time of unfolding of the document, which creates a basis for past vs. future, or a time of existence of the document, which leads to cross-references that are all in the simple present. We have a similar choice of perspective with examples of what Palmer calls displaced time marking ([Palmer 74], p. 39), as in *The animal you saw was my dog* vs. *The animal you saw is my dog*.

15.9. Zig zags and their competitors

Both the future-in-past and the past-in-future are complex tenses that represent "zigzags": the primary tense selection is a step in one direction and the secondary tense selection is a step in the other direction. Consequently, the second step can cross T_s . The one-time-line model presented by Jespersen ([Jespersen 24] and [Jespersen 33]) prevents the second step (secondary tense) from crossing T_s : the future of future-in-past must be located before "now"; the past of past-in-future must be located after "now", i.e., after T_s . Similarly, [McCawley 71] (p. 113) writes that a past-in-future (to use our term) may not refer to something "that the speaker know to have already happened": These supposed restrictions were discussed and rejected in Section 7.2.2.4.

The restriction McCawley proposes (and before him, Jespersen) is not unnatural, however. In fact, the paradigm of tense competitors given in table 15-1 helps us account for McCawley's restriction as a typically inferred message (instead of a restriction). If the past of a past-in-future takes us to a time that precedes T_s , it would, all other things being equal, be more informative to use the simple past or past-in-present, thus indicating that the speaker knows and asserts that the event being described has taken place. So, if an employee tells his boss *I will have finished the job by noon tomorrow* it is quite reasonable for the boss to infer that his employee has in fact not finished the job, since, if he had, he could have said *I have finished the job*, indicating that he was ready for new tasks.

16. TERTIARY, QUATERNARY AND QUINARY TENSES

16.1. Deciding whether to have a tertiary tense

The chooser for TertiaryTense is parallel to that of SecondaryTense with one exception. It is not possible, I think, at this point in the tense chain to have a time relation but to choose not to express it by tense. Put in another way, we cannot push T_e one step further through adverbials alone as we can in *Yesterday Henry left a week ago*. Consequently, the chooser of TertiaryTense is one step shorter than the SecondaryTense chooser. In other respects it is the same, as the diagram in Figure 16-1 shows.

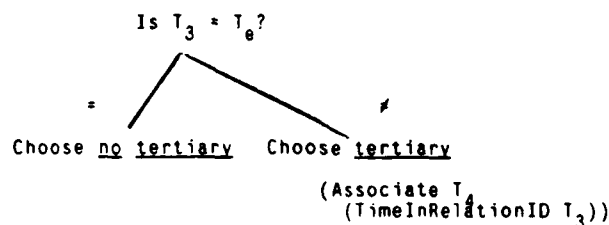


Figure 16-1: TertiaryTense chooser

16.2. Deciding on the type of tertiary tense

The chooser of TertiaryTenseType is completely parallel to the SecondaryTenseType chooser and the same diagram can be used as in Figure 14-2 above with a change of the names given to T_x and T_y of tertiary tense; see Figure 16-2.

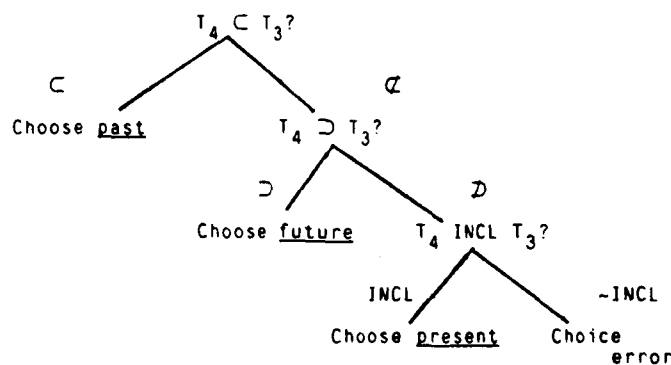


Figure 16-2: TertiaryTenseType chooser

Here are two tertiary tense examples, the second of these will be used to show how its tense selections contribute to its tense complex.

Costa Mendez was to meet in mid-afternoon Sunday with Haig at the State Department, but it was not until after 7 p.m. --- three hours after the session *was to have started* --- that the State Department announced that the meeting was postponed.

(*Newsweek*)

Tomorrow our hero of a friend will have been going to let his boss know our feelings for exactly two weeks in just a few days.

Here a second order past, realized as *have*, and a third order future, realized as *be going to*, have been chosen, but there is no fourth order tense. The complex tense is represented diagrammatically in Figure 16-3.

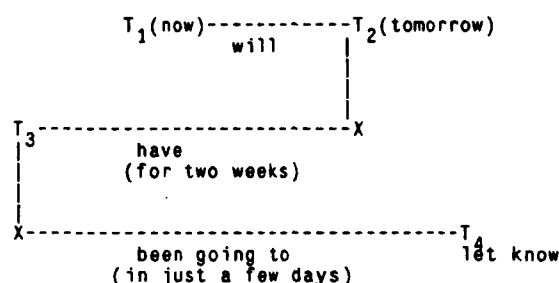


Figure 16-3: Tense diagram

The horizontal lines simply represent precedence relations; unless there are adverbial specifications, we cannot say anything about their lengths. The vertical lines are there for display purposes to indicate that the same time point participates in more than one relation in the diagram.

16.3. Quaternary tenses

The choosers of QuaternaryTense and of QuaternaryTenseType are identical to those of tertiary tenses with T_4 and T_5 replacing T_3 and T_4 and need not be duplicated here in the presentation.

16.4. Quinary tenses

Again, the choosers for QuinaryTense and QuinaryTenseType are quite parallel and need not be duplicated.

16.5. The stop rules revisited

The grammar in Figure 2-2 allows us to go on selecting tenses forever. This does not happen, of course, and in Section 2.3.1 I presented three stop rules that Halliday suggests describe the restrictions on what tense

combinations can be selected. The stop rules are repeated here for convenience:

1. **Restriction on going in the same direction:** The same tense feature cannot be selected twice consecutively other than as primary and then secondary.
2. **Restriction of zig-zagging:** As higher order than primary tense (i.e., as secondary, tertiary, quaternary, or quinary), future can be selected only once.
3. **Termination by present:** As a higher order than primary tense, present terminates a series of tense selections.

We can argue that these stop rules can be viewed as observations about what tense selections actually occur, but we do not need them as part of the *grammar*. The reasons for stopping are not so much grammatical reasons as reasons of meaning and text planning. In other words, constraints on communicative complexity lead to constraints on semantic and grammatical complexity.⁷⁹ Let's look at the various restrictions stated by the stop rules hold.

16.5.1. Restrictions on selecting the same tense twice

The reason we do not find a tense complex such as *will be going to be going to build* where future has been selected twice in a row as a secondary tense is that the complex communicative task this selection presupposes does not arise. The selection presupposes a situation where we need three reference times, two of which are in the future, and we need to take three steps into the future.

The general tendency does not seem to be to take more steps in the same direction than are absolutely required, but rather the opposite, as I noted in Section 15.4.3 in connection with examples of the simple past being used instead of the past-in-past.⁸⁰ Arguably, we do not get the parallel complex tense selection with all past, i.e., the past-in-past-in-past, as in *had had built*, because *have* as a tense auxiliary does not have an en-participial form.⁸¹ But we can reason in the same way as with the future-in-future-in-future: the need for such a complex way of referring to a past time does not arise. Schachter makes the same point in his discussion of the example **John has had eaten*: "there is unlikely to arise any situation to which such niceties are suited".

⁷⁹This might seem self-evident. It is not: my claim differs radically from the approach suggested by Hornstein in [Hornstein 81]. His theory of tense is based on [Reichenbach 47] and he claims that temporal structure is restricted to three elements, which we can gloss as T_s , T_p , and T_e . He applies his analysis to English, but suggests the restriction to these three times and the relations they can enter into are universal and innate. According to him, this explains why we do not get more complex tenses. This is a strange kind of explanation indeed. First, it purports to explain something that is not true even of the language under scrutiny: A three time account is simply inadequate for English; it will not take us any further than complex tenses of primary and secondary selection. Second, to say that there are only three times is to beg the question. Why should there only be T_s , T_p , and T_e ? We could equally well say that the maximum is six, hypothesize that this is universal, and claim to have an explanation. That hardly seems reasonable. Moreover, that exercise is not necessary, once we recognize that the restrictions obtain not because of the resource itself, tense, but because of our communicative needs. It may also be noted that it would be highly ad hoc to posit an innate universal for tense only; the principle at work in tense is certainly not unique to this area of language. I shall add a word about this in the conclusion. See also [Halliday 79b] on logical systems and structures in language.

⁸⁰However, Halliday notes examples of what he calls tense *smearing* where a more complex tense than is necessary is selected, typically in informal speech. So *perhaps he'd been going to have told her* is used for *perhaps he'd been going to tell her*.

⁸¹In spite of what is stated in for example [Quirk 72] where *had* is given as the en-participle: I owe this observation to Magnus Nordin.

Given that our explanation for why we do not find a past-in-past-in-... appeals to the improbability of the need for expressing such a complex set of temporal relations, we would predict that such a tense selection is better if the communicative need for it is stronger. This would happen when there is no primary tense, as in nonfinite clauses, so that we cannot use a primary past to express a precedence relation. Secondary tenses would have to assume the expressive burden. Schachter discusses such a case (op cit., p. 21). He notes that *?John seems to have had already eaten* is not as bad as one would perhaps have thought and suggests that the reason is that there is no other way of expressing the equivalent for the (finite) clause *It seems that John had already eaten* (which is primary past and secondary past).

The generalization is that if there is a strong communicative need for complexity, the grammar will allow us to be grammatically complex as well.

16.5.2. Restrictions on zig-zagging

Why do we not expect to find a tense expression as in *Henry was going to have been going to build this gazebo* which is future-in-past-in-future-in-past, i.e., has two secondary futures? Again, I think the answer is that such a tense selection presupposes a temporal complexity there is no need for. Assume that we are telling a story about Henry. This warrants a selection of primary past. Assume further that we want to flash forward or anticipate a situation that follows the chain of events that constitute the main story line. We can do this by selecting future as our secondary tense so that we get future-in-past. This is about as much temporal complexity as we are likely to find in a story. However, we may anticipate not the building event itself (as in *Henry was going to build a gazebo*) but the state of it having taken place (i.e., *Henry was going to have built a gazebo by the end of the following month*). This leads to a tertiary tense selection (tertiary past) and takes us two steps away from the main story. Now, we can perhaps imagine an example such as the following:

Theirs was a time of great hope. Their aspirations and anticipations soared. And young Wren was to build a cathedral even too magnificent for his boyhood dreams. But, alas, for the rest of his life, poor Henry was going to have been going to build a gazebo in a month for as far back as his friends could remember every time they met him.

But it is unlikely that any writer would force so many temporal reorientations on his or her readers. If the need arose, we might even get two selections of non-primary future.

16.5.3. Termination after higher-order present

I have suggested that the relation that leads to the selection of past and future is a precedence relation. It is the same type of relation we find expressed in certain relational clauses: "A is after/follows B" or "B is before/precedes A". Similarly with present as a higher order tense. The relation is one of inclusion and we also find it in certain relational clauses: "A is around/surrounds/includes B".

Given that tenses express a subset of the relations expressed by relational processes (the term used in [Halliday 82] and elsewhere; [Quirk 72] (p. 96) also use the term relational, cf. [Leech 71]), we can predict that we will not normally get present-in-present-in-..., as in *Sir Chris was being building this gazebo*, just as we do not normally get a higher order present with purely relational processes, as in *A is preceding B in the alphabet*.⁸² The same prediction applies to past-in-present-in-..., as in *Sir Chris was having built this gazebo*, and to

⁸²Schachter provides an explanation for why the "progressive" *be* is not followed by certain classes of verb and auxiliary: pp. 16-17.

future-in-present-in-..., as in *Sir Chris was being going to build this gazebo*.

With a present-in-present-in-... selection, there is the additional consideration of the kind of temporal complexity the selection presupposes: There would have to be a situation where we needed to state time inclusion twice in a row.

Again, just as with past-in-past-in-..., with sufficient ingenuity, we can do some paradigm pushing and come up with examples of for instance past-in-present-in-... and present-in-present-in-...; Schachter offers the following two examples (marked as "?"):

Whenever I see you, you're always just having returned from a vacation.

John is being home more and more often these days.

We can conclude, then, that Halliday's grammar of tense as presented in Figure 2-2 above is precisely what we want: grammatically, tense is an iterative resource and the restrictions on it come from semantic and discourse considerations.

17. CONCLUSION

To conclude the discussion, I will put my account into perspective at a number of levels by indicating how it could have been otherwise and how it fits into a larger picture. I will start with the question that prompted the whole investigation and move towards the proposals for answers.

17.1. The question

The question asked at the outset was "How is tense chosen in English?" It is part of the general concern with making choices in the grammar in conformity with a purpose for communicating (Section 1.2). It is not the usual one asked about tense. In fact, it is hard to find an account of tense that can be used as an answer, although a great deal has been written about tense. For instance, the two classic accounts in [Reichenbach 47] and [Bull 63] provide interpretations of tense, but do not tell us how to choose tense. The question we have inherited from traditional grammar is, of course, "What are the uses/significations of tense?"—a question taken over by interpretive semantics.

17.2. The framework of the answer

The framework used is prompted by the question just discussed. The notion of choice presupposes a way of stating choices. To make this possible, Halliday and others have developed systemic grammar (cf. Chapter 2).

The notion of controlling choice presupposes a mechanism for choosing. To this end, Mann and I have developed the chooser framework—I have used it here to state my account of how tense can be chosen in English (cf. Chapter 3). The account is primarily just that, an account of how to choose tense, but, secondarily, it is also a test of the chooser framework.

17.3. The form of the answer

The chooser framework allows us to choose a particular tense for any number of reasons. The body of work that has been done suggests that there are two extremes here. At one end we find attempts at a single Gesamtbedeutung; at the other end potentially quite open lists of tense uses. Although I think attempting to find one Gesamtbedeutung is desirable and may often be possible, I have not pushed in this direction for primary tense. I have avoided both these extremes; cf. the discussion of the interpretation of past vs. present. The general problem with the approach of a single Gesamtbedeutung is that the meaning posited is too abstract and not restrictive enough. The list approach, on the other hand, misses generalizations, does not pay attention to our ability as speakers to create new uses, and it elevates "overtones" of meaning that can be inferred from a more general account and a representation of context to the level of independent uses.

17.4. The answer proposed

17.4.1. Precedence and inclusion

The tense choosers here are built on the assumption that the central question they ask involves two times and a relation between these times of precedence, or, in the case of the present-in-..., inclusion. Tense is thus centrally about the ordering of times and expresses the same relation as "be after/follow", "be before/precede", "be at/equal", and "be around/include".

The times themselves, if specified, are expressed adverbially. Similarly, the distance between two times is expressed adverbially in English, not by tense as in some other languages.⁸³ Time relations are also expressed by subordinators (*after, before, while*) and conjunctives (*then, meanwhile, earlier, later, ...*). All these means constitute the entire potential for expressing time and time relations.

17.4.2. Seriality

The tense choosers always ask about a pair of times and any given tense selection only expresses the relation between these two times. However, since tense is assumed to be serial, the chooser for each new tense system identifies a new time to be related to one of the times of the previous system. Consequently, there is not just one reference time—the deictic zero time of the communicative event—but as many as there are tenses. Each new tense expresses a relation to a new reference time. We have seen the result of this analysis for the account of reported speech. We have also seen how we can account for selectivity among tense competitors, given this assumption.

The serial account entails a constant reorientation: each new tense has a fresh temporal frame of reference. In this regard, tense is, of course, just an instance of a class of serial constructions in English. Other instances are quantification and restrictive pre-modification in the nominal group.

⁸³ Distance has sometimes been attributed to the *be going to* future: [Leech 71] shows that this position is wrong. However, its alternative *be about to* does express near future.

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