

Discourse modes: aspectual entities and tense interpretation

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Cet article présente le concept de 'Mode du Discours', un niveau de structure locale dans lequel les formes linguistiques présentent une importance particulière. Il y a 5 modes: Narratif, Descriptif, Rapport, Informatif, Commentaire. Les modes ont des propriétés linguistiques qui les distinguent. Chaque mode introduit une classe d'entité aspectuelle (eventualité, statif généralisant, entité abstraite); et à chaque mode correspond un type particulier de progression sémantique. Enfin, il apparaît que l'interprétation du temps est dépendante du Mode. Trois principes expliquent la contribution du temps dans le discours.

This article introduces the notion of 'Discourse Modes', a level of local text structure at which linguistic forms make a difference. There are 5 modes: Narrative, Description, Report, Informative, Commentary. The modes have distinguishing linguistic characteristics. Each mode introduces a certain class of aspectual entity (eventuality, generalizing stative, abstract entity) into the universe of discourse, and has a particular type of semantic text progression. Finally, I show that tense interpretation differs according to mode: three principles are needed to account for the meaning of tense in discourse.

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1. Introduction

The study of discourse in recent years has focussed on pragmatic factors such as genre expectations, discourse coherence relations, and inference. It almost seems that there is no room for the information conveyed by linguistic forms. I attempt to right the balance here by proposing a level of discourse structure which is appropriate for close linguistic analysis¹. I will develop a classification of discourse passages according to the type of entities they introduce into the universe of discourse. The types of discourse entities are essentially aspectual. They include the familiar events and states, and some less-familiar categories.

Within a text one recognizes stretches that are intuitively of different types, e.g. narrative, description, argument, commentary. These stretches tend to have a particular force and a characteristic cluster of linguistic features and interpretations. I shall say that they realize different "discourse modes". I posit five modes: Narrative, Report, Description, Informative, and Argument. Each makes a different contribution to the text. The list is not exhaustive - it omits conversation and procedural discourse, for instance - but includes the modes that commonly appear in written texts. The list of modes should be relatively short if it is to capture significant generalizations. I will assume that the modes vary in point of view. I do not consider persuasive discourse a separate mode - or genre, for that matter; persuasion appears in texts of many kinds.

The interpretation of tense follows several patterns depending on the discourse mode of a passage. There are three main patterns of tense interpretation: Continuity, Anaphora, and Deixis. To calculate temporal location in a discourse passage one must have access either directly or indirectly to the discourse mode of the passage.

The notion of mode is also needed to understand the variety that occurs in discourse of different genres. Narrative fiction, for instance, consist of episodes: events and states in sequence, bound together more or less closely by a unifying theme. But narratives rarely consist entirely of such sequences. They also have descriptive passages, and sometimes commentary. In expository texts one often finds, in addition to the exposition, narrative sequences which depart from the argument line. The point here is simply that texts of almost all genre categories are not monolithic, but rather have passages of different modes. Perhaps the main exception would be texts in highly scripted genres in which variation is not allowed.

¹ I would like to acknowledge the helpful comments and questions from the audience at the Third Texas Workshop on Text Structure, where some of this material was presented; and especially the students in my seminar during the fall of 2001.

There is a certain correspondence between modes and genres. Narrative is paramount in the genre of fiction, argument-commentary is paramount in the genre of editorials, description is paramount in travel writing. Nevertheless it is common to have more than one mode in a text. In the expository genres, the report and argument-commentary modes are paramount; narrative sequences support them. In narrative description and commentary are subsidiary. Thus the discourse modes cut across genre lines. The specifics and examples that I give are all for English; but I think that the approach holds for language generally.

Sections §2 and §3 characterize the modes according to the type of entity they introduce, and the principle of semantic progression involved. Section §4 discusses each mode, with examples; the three patterns of tense interpretation are demonstrated here. §5 concludes.

2. Characterizing the modes: Interpreted linguistic features

2.1. The modes can be characterized with two interpreted linguistic features, both relating to temporality²

The first feature is the type of entity introduced into the universe of discourse; the second is the principle of advancement. I refer to the information conveyed by a particular composite of linguistic forms as an interpreted linguistic feature. One well-known example of such a feature is the way linguistic forms convey information about the type of eventuality expressed in a clause. The verb and its arguments - the entire verb constellation - together indicate whether a clause realizes an event or state, as is well-known.

I assume the framework of Discourse Representation Theory (Kamp & Reyle, 1993). In this approach linguistic information in the surface structure of a sentence licenses construction of a Discourse Representation Structure, with entities of different types and conditions that characterize them. Temporal relations between entities are calculated by rule.

The work discussed below is the result of an intensive study of a number of texts; I use the term 'discourse' for both speech and writing, 'text' for writing alone. There are about 25 texts in all; they come from varying genres and were chosen for the different discourse modes that they realize.

Before the discussion I give examples of text passages of the five discourse modes; the sources of the examples are given at the end of this article.

² I thank Maria Polinsky for this formulation.

1) Narrative

A few days later I called on Dr P and his wife at home, with the score of the Dichterliebe in my briefcase and a variety of odd objects for the testing of perception. Mrs. P showed me into a lofty apartment, which recalled fin-de-siècle Berlin. A magnificent old sendorfer stood in state in the centre of the room, and all around it were music stands, instruments, scores. There were books, there were paintings, but the music was central. Dr. P came in, a little bowed, and advanced with out- stretched hand to the grandfather clock, but, hearing my voice, corrected himself, and shook hands with me. We exchanged greetings and chatted a little of current concerts and performances. Diffidently, I asked him if he would sing.

Narrative primarily introduces events and states entities into the universe of discourse. They are temporally related to each other; tense conveys continuity.

2) Report

A week after Ethiopia started an offensive that it says is aimed at ending the two-year-old war, it is now clear that the whole of Eritrea could become a battlefield. With hundreds of civilians fleeing the region, Colonel Kidane said Ethiopian soldiers continue to skirmish with Eritrean soldiers on the run here in western Eritrea. Tonight, Ethiopian officials said planes bombed the main Eritrean military training center at Sawa, an American-built base 100 miles west of Asmara, the capital. The officials also said they had taken a village, Maidema, 30 miles from Asmara, on the way from the western front to the central front along the disputed border. That is where the next round of fighting, already heavy, is generally expected.

Report primarily introduces events and states entities into the universe of discourse. They are temporally related to Speech Time; tense is deictic.

3) Description

In the centre of the table there stood, as sentries to a fruit stand which upheld a pyramid of oranges and American apples, two squat old-fashioned decanters of cut glass, one containing port and the other dark sherry. On the closed square piano a pudding in a huge yellow dish lay in waiting, and behind it were three squads of bottles of stout and ale and minerals drawn up according to the colours of their uniforms, the first two black, with brown and red labels, the third and smallest squad white, with transverse green sashes.

Description primarily introduces states and ongoing events into the universe of discourse. They are temporally related to each other; tense is anaphoric to an established time.

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4) Informative

No one could survive without such precise signalling in cells. The body functions properly only because cells communicate with one another constantly. Pancreatic cells, for instance, release insulin to tell muscle cells to take up sugar from the blood for energy. Cells of the immune system instruct their cousins to attack invaders, and cells of the nervous system rapidly fire messages to and from the brain. Those messages elicit the right responses only because they are transmitted accurately far into a recipient cell and to the exact molecules able to carry out the directives.

Informative passages primarily introduce generalizing statives into the universe of discourse. They are atemporal. The text progresses by a principle of metaphorical location; tense is deictic.

5) Argument

It is likely that other new technologies will appear suddenly, leading to major new industries. What they may be is impossible even to guess at. But it is highly probable - indeed, nearly certain - that they will emerge, and fairly soon. And it is nearly certain that few of them, and few industries based on them, will come out of computer and information technology. Like biotechnology and fish farming, each will emerge from its own unique and unexpected technology. Of course, these are only predictions. But they are made on the assumption that the Information Revolution will evolve as several earlier technology-based "revolutions" have evolved over the past 500 years, since Gutenberg's printing revolution, around 1455. In particular the assumption is that the Information Revolution will be like the Industrial Revolution of the late eighteenth and early nineteenth centuries. And that is indeed exactly how the Information Revolution has been during its first fifty years.

Argument passages primarily introduce abstract entities and generalizing statives into the universe of discourse. They are atemporal. The text progresses by a principle of metaphorical location; tense is deictic.

Strikingly, all but one of these discourse modes is recognized in traditional rhetoric. Since the 19th century rhetoricians have recognized a group of basic 'text types', or 'forms of discourse'; they are similar to discourse modes, though without the linguistic focus (Alexander Bain 1866, John Genung 1900, Brooks & Warren 1958, Connors 1997). The notion of discourse modes was developed independently of the rhetorical approach. The similarities between the two are striking and, I think, validate each other. The discourse mode that is not included in the traditional forms of discourse is Report. The importance of report as a discourse mode may be due partly to mass communication, with the pervasive use of newspaper, television, and now internet reports. Moreover, diaries and other personal genres in which this mode is predominant are taken more seriously today than they were in the past.

2.2. Entities introduced by a text

Texts introduce discourse entities of several kinds, so that a natural question about a text is: what sort of thing does it deal with? More formally, we ask what kinds of entities are licensed by a given text passage for introduction into the Discourse Representation Structure. Most familiar are eventualities of different kinds: events and states, and a large category of statives - sentences that denote general situations expressing a pattern or regularity. I will also recognize a category of abstract entities consisting of facts and propositions. Thus there are three main classes of discourse entities (ignoring individuals and times, not relevant here).

Discourse entities are conceptual categories, expressed linguistically at the level of the clause. They are realized by verb constellations and nominal forms. Verb constellations have distinct distributional properties, as Vendler's work made clear (1957), and are covert categories of grammar in the sense of Whorf (1956). The entities of a text are evoked by interpreted linguistic features.

The main types of entity introduced at clause level are Eventualities and Abstract entities. They differ in temporality: eventualities are temporally located in the world, whereas abstract entities are not. (6)-(7) illustrate the main categories of eventuality.

- 6) Particular Situations: Events and States
 - a. *The lobster won the quadrille. Alice opened the little door. Lee rehearsed.*
 - b. *The cat is on the mat. Sam is tired. The Colonel owns the farm.*
- 7) Stative (general)
 - a. *The lion has a bushy tail. (Generic: kinds)*
 - b. *Mary speaks French. (Generalizing: patterns of situations)*
 - c. *John often fed the cats last year.*

The linguistic properties that distinguish these categories are quite well-known. Events and states are discussed in Vendler 1957, Dowty 1979, Smith 1991.

Events are dynamic, members of the other categories are not. However there are important differences between states, general statives, and abstract entities.

The class of General Statives includes Generalizing and Generic sentences. Generalizing sentences express regularities, patterns of situations rather than particular events or states. They are also known as gnomic, dispositional, general, and habitual. The latter two labels reflect the fact such sentences often have a frequency adverbial (*sometimes, always, never*). One test for whether a sentence is of the Generalizing type is whether it allows a frequency adverbial without disturbing the syntax or interpretation. If it does allow a frequency adverbial, it is almost certainly a generalizing sentences.

There are a number of special forms which lead to the general reading, e.g. *used to*, the agentive *-er* suffix, the middle voice, and the present simple tense with an event verb constellation. Krifka et al 1995 use the term 'characterizing' for the class that I call Generalizing sentences.

Generic sentences refer to kinds rather than individuals. In a sentence like *The lion has a bushy tail* the subject NP denotes the entire class of lions, not a particular lion or lions; see Carlson & Pelletier 1995. Definite NPs (*the lion*) and bare plurals (*lions*) are the main types of NP that are used as kind-referring. Characterizing generic sentences by syntactic means alone is notoriously difficult.

Generic and Generalizing sentences are derived by coercion from verb constellations that express specific eventualities at the basic level of categorization³. For instance, the verb, object argument and adverbial of examples (7b-c) above - *speak French*, *feed the cat*-express specific events. In context with a definite NP subject, simple viewpoint, and present tense, however, they have the generalizing interpretation. Similarly, generic sentences may have event verb constellations, as in *The lion eats meat*. Verb constellations that express states at the basic level also appear in general statives, as in (3) above, *have a bushy tail*.

Although generalizing sentences lack the dynamism of particular event sentences, they have some distributional properties of dynamism (Smith 1997). They can appear with forms associated with agency and control, and with pseudo-cleft *do*:

- 8) a. *John deliberately plays tennis every Friday.*
b. *I persuaded John to play tennis every Friday.*
c. *What John did was to play tennis every Friday.*

These distributional facts reflect the hybrid nature of generalizing sentences. The examples have a frequency adverbial but the interpretation is available for sentences without such adverbials. Although stative, they tend to have dynamic verb constellations (e.g., *play tennis*) and they involve a succession of dynamic events.

The generalizing interpretation of sentences like (6a) is due to a pragmatic constraint on bounded events that prevents them from being located in the Present. In the Present, events must be presented as ongoing, e.g. *John is talking*, *Mary is drawing a circle*. Event verb constellations are otherwise taken as conveying a general pattern, like *Tom (often) feeds the cat*. The Bounded Event Constraint is due to a principle of communication that holds in language generally: speakers follow the convention that

³ I distinguish a basic-level and derived level of categorization for verb constellations. At the basic level no additional morphemes or contextual support is needed (Smith 1997).

communication is instantaneous. The perspective of the Present is thus incompatible with bounded events, because the bounds would go beyond that perspective (Kamp and Reyle, 1993). There are well-known exceptions, notably performatives (*I christen this ship the 'Queen Elizabeth'*) and sports-announcer reports (*Now Jones throws the ball to third base*). Further exceptions are fictional narratives entirely set in the present.

The Vendlerian insight extends to the abstract entities of Facts and Propositions. They are discourse entities introduced by verb constellations in certain syntactic contexts. They have characteristic linguistic features and function as covert linguistic categories. Vendler showed this in his article "Facts and Events" (1967); the ideas are further developed in Peterson 1997, Asher 1993. Abstract entities differ from situations in how they relate to the world. Eventualities are located spatially and temporally in the world; abstract entities are not.

The main categories of abstract entity are Facts and Propositions. Facts are the objects of knowledge, while Propositions are the objects of belief. Conceptually Facts and Propositions can be distinguished from eventualities, which are spatiotemporally located and have causal powers. Facts are not so located, yet they are contingent for truth on situations being a certain way and arguably have causal powers. Propositions are not located, are not contingent, and do not have causal powers. Peterson 1997 gives evidence from various languages that the distinction between situations, facts, and propositions is universally linguistic as well as conceptual. He shows that essentially the same properties/tests support the distinction in such varied languages as Arabic, English, French, German, Hebrew, Hindi, Kannada, and Marathi.

Facts are assessments that we make of states of affairs, abstract or concrete.

- 9) Facts: objects of knowledge
- a. *I know that Mary refused the offer.*
 - b. *Mary's refusal of the offer was significant.*

We point out a fact, regret or rejoice in a fact. If there is a dispute about a fact, one challenges by asking, 'How do you know?' or 'Why are you so sure?' These questions assume that the speaker is in a position to know, or have satisfactory reasons. Questions of fact are empirical questions although facts are not part of the furniture of the world (Herbst, 1956). Facts transcend the limitations of subjectivity: they are 'objective', waiting to be discovered (Vendler 1972: 82). The class of fact predicates includes mental event verbs (*forget, discover, realize*); emotives (*regret, resent, deplore*), evaluatives (*matter, be significant, important, odd, mysterious*), psychological verbs (*surprise, amuse, annoy*).

Propositions are the objects of belief. They constitute the contents of

such mental states as beliefs, expectations, decisions, intentions. They are typically expressed by clausal arguments of verbs of propositional attitude and other predicates. According to Vendler, propositions belong to the particular individuals who hold them. Thus they are limited by subjective factors. Propositions are referentially opaque; Vendler points out that this property reveals their subjectivity. (10) illustrates:

- 10) Propositions: objects of belief
- a. *I believe that Mary refused the offer.*
 - b. *Mary's refusing the offer was unlikely.*

These notions of proposition are distinct from the common and more general use of the term, in which a proposition is the content that a sentence expresses, the sense of the sentence.

Linguistically, Fact complements can be distinguished from Propositions and clauses referring to situations. Peterson 1997 offers two relatively simple tests for identifying sentences that refer to Facts and Propositions. The tests are (i) substitution of That S for a clausal complement and (ii) substitution of an indirect question for a clausal complement. According to Peterson a clausal complement refers to a Situation (Event or State) if both of the substitution tests destroy grammaticality; (11) illustrates.

- 11) a. *Mary's refusing/refusal of the offer was followed by silence.*
b. **That Mary refused the offer was followed by silence.*
c. ***What Mary refused was followed by silence.*

A clausal complement refers to a fact if both substitution tests preserve grammaticality.

- 12) a. *Mary's having refused the offer was significant.*
b. *That M refused the offer was significant.*
c. *What Mary refused was significant.*

And finally, a clausal complement refers to a proposition if the first substitution test preserves grammaticality and the second does not.

- 13) a. *Mary's having refused the offer was inconsistent.*
b. *That M refused the offer was inconsistent.*
c. **What Mary refused was inconsistent.*

These tests are sometimes difficult to apply. Peterson refers to 'venderization', a pseudo-transformation that derives a nominal complement from an underlying full-sentence structure; and its opposite, a way of obtaining the underlying full-sentence structure (1997:75). The pseudo-

transformations allow liberties that are not part of the formal notion of transformation⁴.

Moreover, it's not always clear when a complex nominal has an underlying full-sentence structure. Abstract nouns often seem intuitively to involve a proposition and they tend to occur with predicates that allow sentential complements. When are we justified in positing a 'pseudotransformation' which substitutes a clause for an abstract noun or complex nominal? I give three examples in (14) with such substitutions; they are less and less plausible, I think.

- 14) a. *The routine transfer of power may not be the most dramatic feature of American democracy, but it is the most important.*
a'. *(The fact) that power is transferred routinely may not be the most dramatic feature of American democracy, but it is the most important.*
b. *The national outpouring after the Littleton shootings has forced us to confront something we have suspected for a long time: the American high school is obsolete and should be abolished.*
b'. *(The fact) that there was a national outpouring after the Littleton shootings has forced us to confront something we have suspected for a long time: the American high school is obsolete and should be abolished.*
c. *But it was the \$10 or \$11 price of February 1999, not the one today, that really deserved the headlines.*
c'. *The \$10 or \$11 price of February 1999, not the one today, really deserved the headlines.*
c''. *But that the price was \$10 or \$11 in February 1999, not the one today, really deserved the headlines.*

(14c) is a cleft sentence; c' gives a normalized version. Normalizations like this are sometimes necessary for the Peterson tests. Another test that distinguishes between types of entities is a quantificational one. Asher shows that quantifiers such as *everything*, *something*, can be used in sentences that express entities of the same class. But they are odd if the entities are of different classes (1993:33). Consider (15):

- 15) a. *Everything that happened took an hour.*
b. *Everything that John believes is true.*
c. *#Nothing John believes takes an hour.*

⁴ Peterson discusses the notions of transformation and pseudo transformation, following Vendler and Zellig Harris. Transformations are relations that obtain between sentences, or surface structures, not rules that generate sentences.

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(15a) involves events, and the sentence is good: the main clause expresses an event and the complement clause refers to events. Similarly, (15b) expresses and refers to propositions. But (15c) is odd, even uninterpretable, because it expresses an event and refers to a belief. The belief context and temporal location context are not satisfied by the same kind of entity.

The distributional characteristics of clauses referring to facts and propositions were stressed by Vendler. He observed that different types of entities systematically serve as arguments for different predicates (1967). In fact, clauses referring to Facts and Propositions have particular distributions. I assume that the linguistic correlates of abstract entities are part of the tacit knowledge that speakers draw on to interpret a text.

Not all expressions of abstract entities have distinct linguistic characteristics. The tests hold for clausal complements in sentences which refer to facts and propositions. Sentences directly expressing facts and propositions are not linguistically distinguishable.

Entities of different types predominate in each of the discourse modes. As a rough approximation, I shall say that the Narrative and Report modes primarily introduce situations; the Descriptive mode primarily introduces unbounded eventualities; the Informative mode primarily introduces statives; the Argument-Commentary mode primarily introduces statives and abstract entities. (16) summarizes:

16) Entities and modes :

<i>Narrative</i>	<i>Events, States</i>
<i>Report</i>	<i>Events, States</i>
<i>Description</i>	<i>States, ongoing Events</i>
<i>Informative</i>	<i>Generalizing statives</i>
<i>Argument</i>	<i>Abstract entities, Generalizing statives</i>

This summary ignores the question of how to decide when a given type of entity predominates. The question is addressed in Smith, in press.

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3. Temporality and advancement

The modes can be classified as temporal or atemporal, according to the types of entities that predominate in them. The classification is given in (17):

17) Temporality and the modes

<i>Temporally located</i>
<i>Dynamic: Narrative, Report</i>
<i>Static: Description</i>
<i>Atemporal</i>
<i>Informative, Argument</i>

Temporality is an important feature of texts: there is empirical evidence that people notice it automatically. In a set of experiments, Faigley & Meyer 1983 show that temporality determines how texts are grouped when genre was held constant. I summarize their work briefly.

Faigley & Meyer were interested in how readers classify texts and performed three experiments to find out. The methodology was the same in each: subjects were presented with various written texts and asked to group them 'according to type'. The subjects were identified as high and low knowledge readers (graduate students and undergraduates respectively); they did not receive training for the task.

Analyzing the results, the experiments looked for common characteristics among the texts that subjects grouped together. In the first experiment the texts were not controlled for genre or subject-matter. These factors turned out to be the main criteria that subjects actually used for grouping: for instance, people put narratives into a single group. The texts were controlled for both factors in the second experiment. The results showed that 'time' was a consistent underlying dimension. There was a correlation between the time specification and aspect of a text, and the subjects' classifications. All subjects put texts into three main groups, identified by Faigley & Meyer as (a) narrative, (b) process-description, (c) definition-classification. The texts differed in time specification and aspect. Faigley and Meyer 1983 conclude that there is a cognitive basis for text types if genre is controlled. Their notion of 'text types' is that of traditional rhetoric. Although traditional text types are not defined in linguistic terms, they are remarkably close to the discourse modes arrived at independently here, as noted above.

The reader progresses through a text in two senses. Due to the sequential nature of language, in hearing or reading a text one processes a word, phrase, or sentence and then another that follows it. The reader's attention shifts in progressing through the text, and questions arising from this have been the subject of much study (Grosz & Sidner 1986); they will not concern us here, however. Texts also advance in terms of their structure and the information conveyed, the focus of this inquiry. Advancement is a linguistic feature in the sense that information in the text gives rise to a particular interpretation.

All texts advance through a structure - dynamic and temporal or otherwise. We advance through the episodes of a story, the stages of an argument, the classifications of an informative text. Passages of the temporal modes advance as location - temporal or spatial - changes. With narrative the receiver moves through narrative time, where situations are related to each other. Description advances by changing time or place (change of scene). In Reports, situations are related to the time of report, often the present (Speech Time) and advancement involves a change of time. The atemporal modes advance by metaphorical changes of location through the information space.

The text modes of Argument and Information are not temporally organized, though they may include eventualities that are temporally located.

To understand text advancement in the atemporal modes we need something other than dynamism. We can find such a principle in the spatial domain, with the notions of metaphorical location, and metaphorical motion from one location to another. The semantic domain of an atemporal discourse can be seen as terrain to be traversed: a metaphorical space. The discourse advances as key reference moves metaphorically from one part of the domain to another. Such motion is closer to spatial than to temporal location. Space isn't unidimensional, like time: rather, it allows directions of various kinds. Similarly direction in a text domain can be hierarchically up or down, lateral, etc. We need the complexity of space to model metaphorical motion.

Texts are organized according to the domain and the particular focus of a given text. There are conventional organizing principles such as hierarchy, geography, chronology, cause. Understanding the way domains are organized is itself an interesting and difficult problem, beyond the scope of this discussion⁵.

I will identify for each clause a key referent that is semantically central; I then look for the metaphorical location of that referent, which I will call the Primary Referent in the discourse domain. The Primary is the central referent in a clause. For events the Primary is that referent that moves or changes; for states, it is the referent to which a property is ascribed or location maintained. This approach owes a great deal to the work of Talmy 1985, 2000. Motion and location may be literal or metaphorical. States are maintained rather than changed, focusing on what is predicated of the primary figure and how the components of the situation pertain to the figure. Similar ideas were put forth by Gruber 1965, and developed in localist theory. The basic insight "...is that the formalism for encoding concepts of spatial location and motion, suitably abstracted, can be generalized to many other semantic fields" (Jackendoff, 1990:25). Examples of the parallelism between the spatial and other semantic fields include possession (*The inheritance went to Philip*), ascription of properties (*The light changed from green to red*), and scheduling (*The meeting was changed from Monday to Tuesday*); the examples are Jackendoff's.

The notion of primary referent is not dependent on surface structure. The idea is to focus on the semantic information in the text and factor out the linguistic features that depend on presentation or perspective; eventually one wants to put everything together.

⁵ Work in Artificial Intelligence has attempted to deal with the problem; see Acker & Porter 1994 for an interesting approach.

I list some criteria for identifying the primary referent of a clause, based on the intuitive notions given above. The primary referent of an event or state clause can be identified with the criteria of (18) and (19):

18) Criteria for Primary referent of Events

The primary referent is that entity in an event which

- (a) Undergoes a change of state
*The high school outsider becomes **the more successful adult**.*
- (b) “us” causally affected by another participant
*The national outpouring has forced **us** to confront the situation.*
- (c) Doesn't exist independently of the event
*High school students present and past have come forward with **stories about cliques and an artificial world**.*
- (d) Moves or otherwise changes

19) Criteria for state primary referent

The entity in a state which is

- (e) Literally or metaphorically located
***Dragons** are usually arranged almost heraldically round a conceptual center point.*
- (f) Dependent on the situation for existence
*The predominant output was **the white ware** with transparent ivory toned glaze which made the kilns famous.*
- (g) Figure relative to a Ground
*A **group of kilns** is northeast of Ch'ang-an, the capital city of the T'ang dynasty.*
- (h) Has a property ascribed to it
*The most important kilns are **those at Tao-chu in Shensi**.*

The more specific criteria are applied before the general. Criterion (h) for instance, holds of the subject in any state sentence.

4. Advancement in the Discourse Modes

This section presents examples of each mode, with discussion of the principles of advancement and tense interpretation. The temporal modes advance through changes of location, temporal or spatial. The atemporal modes advance through metaphorical changes of location.

Narrative presents a sequence of consequentially related events and states, and the order in which they occur is crucial for understanding (Moens, 1987). The essence of a narrative is dynamism: narratives consist of events that occur in one after the other in time. Sequential interpretations are due to linguistic forms which convey that the initial endpoint of one situation follows the final endpoint of another. Narrative time advances with perfective event sentences, and with explicit temporal adverbials, and fails to advance otherwise. This is the basic finding of discourse dynamics (Hinrichs, 1986;

Kamp & Rohrer, 1983; Partee, 1984). I take it that the default is sequence; for simplicity I ignore flashbacks, changes of scale, etc.

When a narrative does not advance, it is due to sentences that introduce ongoing events, states (including present perfects), or statives. The eventualities they introduce are not bounded. Note that there is no necessary correlation between importance in the narrative and situations that move narrative time. Material that does not advance a narrative may be quite significant. (20) illustrates, with examples of narratives from texts of different genres:

20) Narrative

- a. *He stared at me morosely. He stood up slowly, graceful as a panther. He walked across the room and looked into my office. He jerked his head at me and went in. He was a guy who owned the place where he happened to be. I went in after him and shut the door. He stood by the desk looking round, amused. 'You're small-time,' he said. Very small-time.'*
- b. *One night in November 1961, Alice went into the tub room to put some clothes in her old wringer washing machine. When she turned on the light, there was a rat the size of a small cat sitting on the machine. Alice screamed, grabbed three-year-old Danny and one-year-old Lisa and dashed into the street.*
- c. *Polyergus [ant] workers periodically undertake a slave raid in which about 1,500 of them travel up to 150 meters (492 feet), enter a Formica nest, expel the Formica queen and workers, and capture the pupae. Back at the Polyergus nest, slaves rear the raided brood until the young emerge. The newly hatched Formica workers then assume all responsibility for maintaining the mixed-species nest.*

The sentences of (20c) are generic: they express a pattern of events rather than any particular events. They constitute a 'generic passage' in the sense of Carlson & Spejewski, 1997. Within the pattern, the events are related to each other in the manner typical of narrative.

In narratives like this tense indicates continuity for clauses of dynamic closed events; it is anaphoric otherwise.

21) Properties of the Narrative mode

Entities: events and states

Temporality: located in time

Advancement: events related to each other in (narrative) time

Tense Interpretation: Continuity and limited anaphora

Narrative is probably the most-studied and best-understood of the modes. For that reason, I will have little to say about it here.

Reports give an account of eventualities and their significance from the temporal standpoint of the reporter. What advances the text is not the dynamism of events but the position of the reporter. The difference is in some ways reminiscent of Benveniste's distinction between *histoire* and *discours*, as Prof F. Lambert points out.

Eventualities are related to Speech Time, rather than to each other. In reports there is "... an immediate link between [Speech Time] and the reported events" (Caenepeel 1995:231). I have found report passages in texts of various genres. Reports are discussed in Caenepeel 1995 as a genre. This is not surprising: there is a certain correspondence between genres and modes, as noted above.

In reports, eventualities are ordered with respect to an advancing Speech Time and to changing location. Order of presentation, a key factor in narrative, is less significant in the report mode. Caenepeel observes that the order of presentation could be changed in a report without changing the information given. (22) illustrates with fragments from two newspaper articles;

22) Report

A week that began in violence ended violently here, with bloody clashes in the West Bank and Gaza and intensified fighting in Southern Lebanon. Despite the violence, back-channel talks continued in Sweden. Israeli, Palestinian and American officials have characterized them as a serious and constructive dialogue on the process itself and on the final status issues. News accounts here say that Israel is offering as much as 90 percent of the West Bank to Palestinians, although it is difficult to assess what is really happening by the bargaining moves that are leaked.

Thus, tense is deictic in Reports. It is typical for tense to change rather often, as above.

23) Properties of the Report mode

Entities: events and states, statives
Temporality: dynamically located in time
Advancement: oriented to Speech Time
Tense Interpretation: Deictic

In Description, specific scenes are portrayed with language. Time is stable or suspended, without dynamism. If there is motion it doesn't involve significant changes of state and there is no sense that time advances. Tense is anaphoric: all the sentences of a given passage have the same Reference Time. Advancement is spatial: the text advances as the reader goes from one part of the scene to another.

Discourse modes

Usually a locative adverbial appears at the beginning of a description, with scope over the material that follows; such a phrase appears in both examples below.

24) Description

- a. *In the passenger car every window was propped open with a stick of kindling wood. A breeze blew through, hot and then cool, fragrant of the woods and yellow flowers and of the train. The yellow butterflies flew in at any window, out at any other, and outdoors one of them could keep up with the train, which then seemed to be racing with a butterfly. Overhead a black lamp in which a circle of flowers had been cut out swung round and round on a chain as the car rocked from side to side, sending down dainty drifts of kerosene smell*
- b. *On the big land below the house a man was ploughing and shouting admonitions to the oxen who dragged the ploughshares squeaking through the heavy red soil. On the track to the station the loaded wagon with its team of sixteen oxen creaked and groaned while the leader cracked his they understood... On the telephone wires the birds twittered and sang... The wind sang not only in the wires, but through the grasses, and the wires vibrated and twanged*

To account for the temporal stability of descriptions, I suggest that they be modeled with a durative time adverbial that has scope over the entire passage.

The eventualities expressed in these fragments include states and ongoing events (progressives), which fit the anaphoric pattern discussed above. There are also perfective events. All are Activities. In this context one interprets the events as continuous and/or iterative, e.g. the breeze blowing through, the lamp swinging, the birds twittering. This interpretation is not inconsistent with the perfective viewpoint. The perfective of an Activity focuses a bounded unit that may but need not coincide with the endpoints of the Activity, as shown in Smith 1999. In descriptive contexts the activities are commonly expected to continue more or less indefinitely. Perfective events do not fit the anaphoric pattern: anaphora is limited to unbounded events.

To reach a better understanding of description, consider (25), a variant of (24b). I've changed the example slightly; here sentence 3 has a telic verb constellation (*walk to school*). The descriptive mode is undisturbed: strikingly, sentence 3 does not have dynamic force in this context.

- 25) *1 On the big land below the house a man was ploughing and shouting admonitions to the oxen who dragged the ploughshares squeaking through the heavy red soil. 2 On the track to the station the loaded wagon with its team of sixteen oxen creaked and groaned. 3 A group of children walked to school. 4 On the telephone wires the birds twittered and sang*

In this context the event of sentence 3 is taken as atelic, an instance of coercion. The descriptive mode overrides the potential dynamism of the event.

The coercion effect can be attributed to the tacit time adverbial of description posited above. Within the scope of a durative time adverbial telic sentences regularly undergo a shift of situation type to atelic. This is a general phenomenon (Moens & Steedman, 1987, Smith 1995). (26) illustrates two well-known cases:

- 26) a. *The children walked to school for an hour*
b. *Mary read a book for an hour*

The durative time adverbial overrides the telicity of the internal verb constellation.

These sentences can only be taken as atelic: there is no sense that the children got to school, or that Mary completed the book - on the contrary.

Similarly, *A group of children walked to school* in (25) has a shifted interpretation: it is atelic under the scope of the tacit durative adverbial of description. The actual duration of such an adverbial is determined by context. The assumed time is often either the time during which the situation is expected to hold - in (24a) perhaps the duration of the train trip - or the time it takes for the perceiver to scan a scene and become aware of its properties.

In description, the anaphoric pattern of tense interpretation holds for all eventualities. There are coercion effects due to the tacit adverbial of duration.

27) Properties of the Descriptive mode

Entities: events and states

Temporality: statically located in time

Advancement: spatial

Tense Interpretation: Anaphoric

The Informative mode conveys information of a general nature. State and stative entities predominate in passages of this mode. There tend to be many sentences expressing generalizations about a kind or class of situations.

The mode is essentially timeless, though there may be information concerning changes and development. Advancement is metaphorical in the domain. It occurs as the metaphorical location of primary referents change.

I trace the primary references in two fragments; they are underlined in each full clause; \emptyset indicates a zero NP; I assume that anaphoric relations have been determined, e.g. between the subject NP *humpbacks* of sentence 1 in (28) and the pronoun subject *they* of sentence 2. For simplicity, I analyze only tensed clauses

Discourse modes

28) Informative

- a. 1 Humpbacks are found in every ocean. 2 Together with blue, fin, sei, Bryde's, and minke whales, they belong to the rorqual family of baleen whales. 3 Fully grown females, which are bulkier than the males, can weigh 40 tons and ϕ reach lengths of 50 feet. 4 Humpbacks tend to favor shallow areas, often quite close to shore, and they are among the most sociable of the great whales and the most active at the surface, all of which makes them among the easiest to observe.
- b. 1 Imaging has shown that men start losing brain tissue earlier and in larger chunks than women do ϕ . 2 a Men are particularly prone to tissue loss in the frontal and temporal lobes, areas associated with thinking and feeling, b while women tend to lose tissue in the hippocampus and parietal areas, c which are associated with memory and visual and spatial abilities. 3 Brain scans have also shown that no single part of the brain is responsible for pain.

The primary referents are not difficult to identify in (28a). The only location changes are from the class of humpback whales to the class of fully grown female humpback whales and back again. S4 has a clausal complement so there are two Primaries [Humpbacks tend [ϕ to favor shallow areas]]. In the embedded clause the Primary is shallow areas - according to Dowty 1991, volitional involvement in the event or state is an Agent property. The limited motion reflects the interpretation of the passage: it offers a collection of facts about humpback whales. In (28b) the primary referents may seem problematic, especially in the latter clauses. The relative clause 2c presents a quasi-symmetrical situation: if x is associated with y, y may be associated with x. But using the criteria presented above, it is clear that x is the primary referent and y is metaphorical location of that referent. In this case x is the head of the clause, *the hippocampus and parietal areas*. In S3 the whole sentential complement is the primary referent; and within the complement, *pain*, that referent which is dependent on the situation for existence.

The properties of the Informative mode are summarized in (29):

29) Properties of the Informative mode

Entities: primarily Generalizing statives

Temporality: atemporal

Advancement: metaphorical motion through the domain

Tense Interpretation: Deictic

An Argument text brings something to the attention of the reader, makes a claim, comment, or argument and supports it in some way. Claims themselves don't have a particular linguistic form: they appear in all sorts of linguistic structures. If I assert something new, surprising, or tendentious it's

a claim, provided that it occurs in an appropriate context. For example, note the last clause of S1 in (30b) below: "The American high school is obsolete and should be abolished." This is a fairly dramatic claim; in linguistic form it is indistinguishable from a banal statement - ignoring lexical items.

The mode of argument discusses states of affairs, facts, and propositions. The text may ascribe a certain significance to a state of affairs; give the author's personal opinion; ask a question; make a prediction. (30) presents examples; the primary referents are underlined. The fragments below introduce abstract entities in positions of prominence and the text progresses by metaphorical motion.

30) Argument

- a. *1 A pretty good argument can be made that the defining moment of American democracy didn't occur in 1776 or 1787, as commonly supposed, but in 1801 - on the day that John Adams, having been beaten at the polls, quietly packed his things and went home. 2 Only then did we know for sure that the system worked as advertised.*
- b. *1 The national outpouring after the Littleton shootings has forced us to confront something that we have suspected for a long time: the American high school is obsolete and should be abolished. In the last month, high school students present and past have come forward with stories about cliques and the artificial intensity of a world defined by insiders and outsiders, in which the insiders hold sway because of superficial definitions of good looks and attractiveness, popularity and sports prowess.*

In (30a), the primary referent of S1 is the complement clause; and within that clause, the primary referent is *the defining moment*, as noted. The primary referent of S2 is again the complement clause: beliefs and other mental states are located metaphorically with their possessors. In (30b) the primary referents are fairly straightforward, according to the criteria set out at the beginning of this article. The properties of this mode are summarized in (31):

31) Properties of the Argument mode

Entities: primarily abstract and Generalizing statives
Temporality: atemporal
Advancement: metaphorical motion through the domain
Tense Interpretation: deictic

Passages of each type of discourse mode have been presented here, with some discussion; for more detail see Smith, in press.

5. Conclusions

I will close with some examples that show shifts from one mode to another. (32) gives the beginning of an article about humpback whales from the "National Geographic", a monthly magazine of popular science. In this context one expects a text to be informative in mode. The first two sentences fit this expectation: they are in the informative mode, giving general information about whales. At sentence 3 there is a shift to narrative: the sentences introduce specific events, ordered relative to each other.

- 32) *1 When a big whale dives, currents set in motion by the passage of so many tons of flesh come eddying back up in a column that smooths the restless surface of the sea. 2 Naturalists call this lingering spool of glassy water the whale's footprint. 3 Out between the Hawaiian islands of Maui and Lanai, Jim Darling nosed his small boat into a fresh swirl. 4 The whale that had left it was visible 40 feet below, suspended head down in pure blueness with its 15-foot-long arms, or flippers, flared out to either side like wings. 5 "That's the posture humpbacks most often assume when they sing," Darling said. 6 A hydrophone dangling under the boat picked up the animal's voice and fed it into a tape recorder. 9 With the notes building into phrases and the phrases into repeated themes, the song may be the longest - up to 30 minutes - and the most complex in the animal kingdom. 10 All the humpbacks in a given region sing the same song, which is constantly evolving.*

After three more sentences of narrative, the text returns to the informative mode at sentence 9 and continues in this mode for some time.

The final example is also a shift to narrative, this time from the argument-commentary mode. It is from the same article as (30a) above.

- 33) Argument to narrative

I feel reasonably certain of the final verdict on the current impeachment affair because I think history will see it as the climax of a six-year period marred by a troubling and deepening failure of the Republican party to play within the established constitutional rules. It was on Election Night 1992, not very far into the evening, that the Senate minority leader, Bob Dole, hinted at the way his party planned to conduct itself in the months ahead: it would filibuster any significant legislation the new Democratic President proposed, forcing him to obtain 60 votes for Senate passage.

In the first paragraph the clauses all refer to facts and propositions proposed by the first-person speaker. The second paragraph shifts to narration: the clauses introduce events. The shift is cued by the first sentence of the second paragraph: this use of the it-cleft construction is a typical way of setting the scene in English narrative often used in fairy tales, 'It was a dark and stormy night when the beautiful princess stole out into the forest.'

In this article I have introduced the notion of 'discourse mode'. I have characterized five discourse modes according to the interpreted linguistic features of the entities introduced and principle of advancement. I have also shown that tense interpretation in a clause depends on the context, more specifically, the discourse mode in which the clause appears. Temporality in the wider sense has proved to be important in accounting for texts at the local level of mode.

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Sources of examples according to their numbers in the text

- (1) Oliver Sacks, The Man Who Mistook his Wife for a Hat
- (2) NYTimes 2000
- (3) James Joyce, The Dead

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- (4) Cell Communication. John D. Scott & Tony Pawson. Scientific American 2000
- (5) The Information Revolution, Peter Drucker, Atlantic Monthly, 2000
- (14a) Hijacking the Rulebook, Peter Ehrenhalt, New York Times 1999
- (14b) Let Teenagers Try Adulthood, NY Times 1999
- (14c) Cheap Oil's Tough Bargains, NY Times 2000
- (20a) Raymond Chandler, The Long Goodbye
- (20b) J. Anthony Lukas, Common Ground
- (22) NY Times 2000
- (24a) Eudora Welty, Delta Wedding
- (24b) Doris Lessing, Under My Skin
- (29a) Listening to Humpbacks, Douglas H. Chadwick\National Geographic, 1999
- (29b) NY Times 1999
- (30a) same as 14a
- (30b) same as 14b
- (31) same as 30a