

1. A two-dimensional analysis of lexical aspect

In this chapter, I describe an analysis of lexical aspect, that is, aspectual structure that is usually taken to be inherent to types of situations.¹ I will argue that in fact, the relationship between the aspectual interpretation of a lexical predicate and the lexical predicate itself is indirect, and the result of (mostly conventional) **construals** of the lexical predicate in the tense/aspect constructions of the language. Thus, it is a misnomer to describe lexical aspect as the “inherent aspect” of predicate types or situation types.

Nevertheless, not all lexical predicates act alike with respect to aspect, and the differences in behavior are linked to the different situation types denoted by the lexical predicates. (By **situation type**, I mean the qualitative semantic classification in terms of types of experiences described by predicates, such as directed motion, perception, fracture, etc.) In fact, lexical predicates vary dramatically with respect to aspectual interpretation. Lexical predicates cannot be placed into a small number of classes with respect to their aspectual behavior. Lexical predicates fall into an enormous number of classes, even for the few predicates investigated in this chapter and the next one.

This fact is not surprising in the framework of Radical Construction Grammar (Croft 2001). Radical Construction Grammar takes the diversity of distributional patterns seriously, and argues that grammatical categories, including aspectual categorization, are defined in terms of the constructions of the language and the interpretation of the elements in those constructions. In aspectual analysis, the categories are defined by the tense-aspect constructions of the language (in these chapters, English), and the interpretation of the predicates in the constructions. If anything, the constructions will be more semantically uniform than the predicates that occur in the constructions. As noted below, I will argue for a largely uniform interpretation or construal of the three main English tense-aspect constructions, the Progressive, the Present and the Past. However, it is at least as likely that a polysemy analysis of the tense-aspect constructions will be necessary, and a few problematic cases that suggest a polysemy analysis will be discussed in the appropriate sections. A Radical Construction Grammar analysis of English lexical predicates and tense-aspect constructions is given in chapter 2.

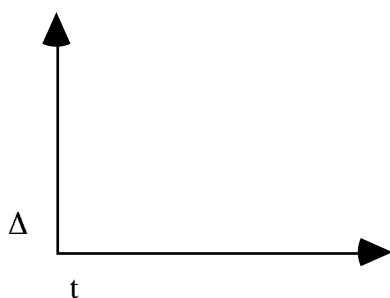
Radical Construction Grammar is a theory of syntactic representation, not a theory of semantic representation. A theory of semantic representation that is harmonious with Radical Construction Grammar would be a Radical Frame Semantics. In a Radical Frame Semantics, semantic units would be defined in terms of the larger semantic structures in which they are found. These chapters do not really represent a thoroughgoing Radical Frame Semantic analysis of lexical aspect. However, certain points of the exposition are best thought of in Radical Frame Semantic terms, and they will be noted at the relevant places.

1.1. The semantic representation

Aspect is generally defined as the temporal structure of a situation (see, e.g. Comrie 1976:3). However, this definition does not make explicit an important second dimension of aspect. Aspect involves not just the temporal structure of a situation, but also its qualitative structure, namely the qualitative states it possesses over time. Aspect must be understood as the interaction of two independent dimensions, qualitative state/change and time. We will represent these independent dimensions geometrically, in a two-dimensional diagram (see Figure 1). The abscissa represents the course of time (notated **t**) and the ordinate, qualitative states and changes (notated **Δ**):

¹The terminology of aspect is very confusing: a term is used for different aspectual types by different analysts, and a particular aspectual type is given different terms. The term ‘situation’ is used here as a cover term to include states as well as processes, following Comrie 1976. A summary of terms used in this book and by others is given at the end of the chapter.

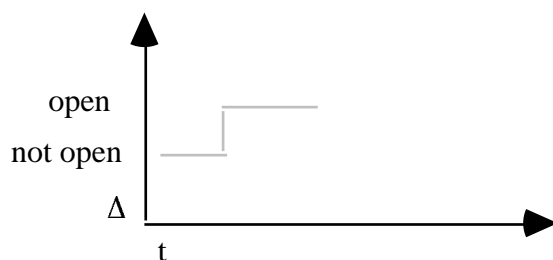
Figure 1. The two-dimensional representation for verbal aspect.



The Δ dimension represents only the relevant or salient qualitative states and changes in a situation. The participant(s) involved in a situation of course possess many different qualitative states at any given point in time—e.g. for a newspaper, its size, weight, information content, the language it is in, political orientation, etc.—and many different stative relations with other entities at that point in time—its location, who owns it, etc.—and it is involved in many different processes²—it is being read by someone, it is being held by someone, it is slipping from someone's grasp, it is altering the knowledge state and emotional state of the reader, etc. However, only a subset of the myriad states, relations and processes in which an entity is involved is relevant to the semantics of a particular predicate as in *The newspaper is heavy*, *The newspaper is in French*, *The newspaper is on the sofa*, *I read the newspaper*, *The newspaper said nothing about the riot*, *The newspaper slipped out of my hands*, etc. Only the relevant states and changes are represented on the Δ dimension for any particular predicate.

A situation is represented as a contour on the t/Δ diagram, the **aspectual contour** of the situation. The aspectual contour of a situation describes the course of a situation from its beginning to its end. For example, the diagram in Figure 2 represents the situation of a door opening, in the sense of the English verb *open* in which any state other than closed is defined as 'open':³

Figure 2 The aspectual contour of a door becoming open



The diagram represents the course of the situation from its **rest state** (not open) through to its **result state** (open). (By convention, the rest state is represented in the diagrams at the lower end of the Δ dimension, the result state at a higher point.) More precisely, the diagram

²The term 'process' is used here to denote any nonstative situation (see §2.1).

³There is another sense of 'open' in which 'open' describes only the state of being wide open; see §2.5.3.

represents the full history of the participant⁴ in the situation, namely the door. The rest state does not imply that the participant is not doing anything else preceding or following the situation described by the predicate. It is best to think of the rest state as the state of the situation not taking place—it does not specify qualitatively what, if anything else, is actually happening to the participant at the time. It does imply that whatever else is happening to the participant is not relevant or salient to a characterization of the situation denoted by the predicate.

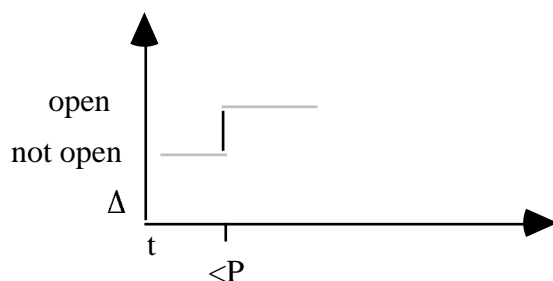
The diagram in Figure 2 presupposes that there is a single aspectual contour associated with a situation. This is an oversimplification. In chapters 3-5, I will present arguments and analyses of multi-participant situations in which there are two or more aspectual contours, usually but not always associated with specific participants in the situation. For now, I will assume that there is a single aspectual contour for a situation, although in fact the contour will apply only to one participant, typically the one that is specified as undergoing some change.

A further consequence of the fact that aspectual contours are contours of what is happening to individual participants is that each aspectual contour is limited to only what happens to that participant in its **history**, that is, the period of time in which it exists. For example, if we say *Patty is smart*, which is taken to be an inherent or lasting trait of the individual Patty, the fact that Patty's lifetime is finite does not have any bearing on the construal of the property of being smart as a “permanent” property of the individual. We think of intelligence as an inherent property of the individual, in contrast to a contingent property, which may change during the lifetime of the individual. That is, permanent or **inherent** properties of transient individuals, such as a person's intelligence, can be differentiated from **transitory** properties of the same individuals, such as being happy or being ill.

An aspectual contour has a different structure, that is, a different slope, at different points or intervals over the time course of the event. I will call each uniform part of the aspectual contour a **phase** of the aspectual contour.

The aspectual contour represents our (simplified) encyclopedic knowledge about the course of an event. The aspectual contour does not properly represent the aspectual meaning of a sentence containing a **verb stem** such as *open* and a **tense-aspect (TA) construction** such as the English Past Tense construction, as in the sentence *I opened the door*. The aspectual structure of *I opened the door* is represented in Figure 3:

Figure 3. The aspectual contour and profile for *I opened the door*.



The most important feature in Figure 3 (compared to Figure 2) is the specification of a particular phase in the situation as actually asserted by the sentence, namely the

⁴The term ‘participant’ refers to any entity involved in a situation, not just persons.

instantaneously construed change of state of the door from being not open to being open. This phase of the situation is the **profile** of the sentence meaning. In cognitive approaches to semantics, every linguistic expression's meaning is represented as profiling some part of the relevant semantic structure. The relevant semantic structure is called the **frame** in frame semantics (Fillmore 1982, 1985), or the **base** in cognitive grammar (Langacker 1987). Fillmore and Langacker describe the semantic frame/base as consisting of that information necessary for understanding the profiled concept. For example, we cannot understand the concept represented by the word *Tuesday* without knowledge of the calendrical cycle, specifically the celestial cycle defining days and the cultural cycle defining weeks (Fillmore 1982). I will henceforth use the term 'frame' to refer to this theoretical construct.

A strict definition of a frame would be that the frame represents the presupposed information in an expression, that is, what the hearer can safely infer to be true if the expression itself correctly describes a real-world situation. In this example, one can safely infer that the door was previously closed and as a result of the action is now open. The Past Tense also indicates that the change of state occurred at a time point preceding the present. However, there is some evidence indicating that a semantic frame is an **idealized cognitive model** (Lakoff 1987) of a situation, and hence may specify properties of the situation that are not found in all of the real-world situations to which the linguistic expression is applied.

The diagram for *I opened the door* in Figure 3 is the semantic representation of the verb stem plus the TA construction. A further analytical step would be to separate the contribution of the semantics of the verb stem from the contribution of the semantics of the TA construction. In this example, it appears to be simple: the verb stem contributes the aspectual contour and the profile on the aspectual contour and the Past Tense contributes the specification that the profiled part is mapped onto a point of time preceding the present (indicated by '<P' in the above diagram). However, here as elsewhere in linguistic semantics, the analysis is not so simple. One must examine the combination of a wide variety of verb stems with a wide variety of TA constructions, and try to identify systematic patterns of semantic variation for both the verb stems and the TA constructions (see chapter 2).

I believe that it is possible to identify a general meaning for the English TA constructions examined in chapter 2: Present, Progressive, Past, Present Perfect, so-called container adverbials (*in 3 hours*), durative adverbials (*for 3 hours*), temporal locative adverbials (*at 5:00, on Tuesday*), the prospective (*be about to*), the conative (*try to*) and the adverb *almost*. However, the process of combining verb stem and TA construction involves more than simply unifying the properties of the semantics of the verb stem and the semantics of the TA construction.

In many cases, the combination of verb stem and TA construction involves a **construal operation**, that is, a reconceptualization of the situation's aspectual structure. Sometimes the reconceptualization of the situation's structure is simply a shift in what part of the aspectual contour is profiled. In other cases, it involves a more substantial restructuring of the aspectual contour of the situation, using a combination of encyclopedic knowledge about the situation, context-specific knowledge of that particular instance of the situation type, and general cognitive operations such as shift of attention. In English, many of these construal operations take place in sentences without any overt derivation of a new verb stem. However, in some cases (e.g. the progressive), there is an overt derivation of a new verb stem. In other languages, such as Russian, many alternative construals are possible only when accompanied by overt derivation.

A striking phenomenon is that the semantic construal operations alter the profile and/or the aspectual contour on both the Δ and t dimensions simultaneously. For example, a coarser grained scalar adjustment (found with the habitual interpretation of bounded processes; see §2.1) simultaneously requires a coarser grained scalar adjustment on t and Δ . In the habitual sentence *I eat bagels for breakfast*, a coarser grain size on t —yielding the multiple occurrences of the "eat bagel" situation over a long period of time—is accompanied by a coarser grain size on Δ —yielding a construal of the event as a point-like state rather than as a

process extended on Δ . This fact is one of the most important pieces of empirical evidence supporting the two-dimensional representation of verbal aspect. The conceptualization operates on both dimensions at once, and the two-dimensional geometric representation system allows for an elegant and perspicuous representation of the simultaneous conceptualization processes on both dimensions.

1.2. A classification of aspectual types of situations

1.2.1. Aspectual types and aspectual classes

In this section, I will present a set of aspectual types for situations. An **aspectual type** is a combination of an aspectual contour PLUS a profile on some phase of the aspectual contour. An aspectual type represents an aspectual construal of a particular situation. Thus, *open* (intr.) and *be open* have the same aspectual contour but represent different aspectual types, because the intransitive verb profiles the change of state while the adjective profiles the result state. Aspectual types are universal, that is, they are descriptions of semantic structures that are found in different languages and can be identified across languages.

The predicates in a particular language may be divided into **aspectual classes** based on their distributional behavior in the TA constructions of the language. Aspectual classes, unlike aspectual types, are language-specific: the “same” predicates vary in their aspectual behavior across languages, even though they appear to be translational equivalents of their English counterparts. I will describe some of this cross-linguistic variation in chapters {not yet written}. In chapter 2, I will examine the English aspectual system.

In §§1.2.2-1.2.6, I will argue that there are eighteen distinct aspectual types required for describing the aspectual behavior of verbs in English (and, presumably, other languages). This number is much greater than the number of aspectual types proposed in earlier theories. However, the analysis of aspectual types in this section is based not on hair-splitting distinctions but on a systematic analysis of aspectual types in terms of the sequence of phases in the aspectual contour and the different possible profilings on an aspectual contour. The foundation of the system is the analysis of phases. There are seven types of phases, out of which the eighteen aspectual types are formed. Moreover, the eighteen aspectual types are based on general constraints on the structure of aspectual contours of situations and on the possible profiled phase of the aspectual contours. The system underlying the aspectual types is described in §1.3.

Aspectual classes of predicates cannot be identified with aspectual types. First, aspectual classes are language-specific classes of predicates in the language. Aspectual classes are defined on the basis of their occurrence and interpretation in the TA constructions of the language. Aspectual types, in contrast, are the representation of semantic structures which are applicable to the interpretations of aspectual classes of predicates across languages. For this reason, following the convention established by Comrie (1976) and Bybee (1985), the names of aspectual classes will be capitalized, since they are language-specific. The names of aspectual types will be given in lower case, since they are semantic and applicable across languages.

The second reason why aspectual classes cannot be identified with aspectual types is that they do not line up in a one-to-one fashion. An important fact about human languages is that a single aspectual class of predicates need not have the same aspectual type in the various TA constructions of the language. Many aspectual classes construe the situations they denote into different aspectual types, depending in part on the TA construction in which the predicate occurs. This phenomenon is one of the chief reasons why aspect is so complex: predicates in English and other languages can be quite flexible in their possible aspectual construals. This phenomenon also reveals a shortcoming in earlier analyses of aspect. In earlier analyses, aspectual classes and aspectual types are not distinguished, and thus predicates which are ambivalent in aspectual type pose a problem for those classifications.

The starting point for most current research on verbal aspect is the classification proposed by Vendler (1967). The Vendler classification is summarized in Table 1:

Table 1. The Vendler classification of aspectual classes of predicates

I. States (by definition, unbounded and durative): <i>X be happy, X love Y</i>
II. Processes
A. Unbounded (atelic): activities : <i>X dance</i>
B. Bounded (telic): events
1. Punctual (construed as instantaneous): achievements : <i>X shatter Y</i>
2. Durative (construed as having duration): accomplishments <i>X cross Y</i>

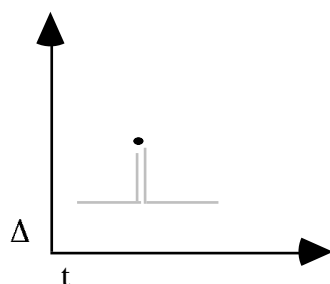
The terms used in Table 1 will be defined in the following sections. We will use the Vendler classification as the starting point for our description and analysis of aspectual types and aspectual classes.

1.2.2. Three kinds of states

The basic distinction between **states** and **processes** is that states do not involve any sort of change while processes do. In other words, a state has no extension on the Δ dimension, while a process does. However, states do vary as to their temporal extent.

There exists a small class of predicates that describe **point states**, including *be 5 o'clock* and *be on time*. These predicates describe a state that lasts for only a point in time. This means that the state does not hold before the point in time, and ends immediately after that point in time. The aspectual type for point states is given in Figure 4:

Figure 4. The aspectual type of point states



Only the point state itself is profiled; the remaining phases of the aspectual contour are part of the frame. We can infer that the inceptive phase immediately precedes the point state and a terminative phase immediately follows it, since we know that a point state lasts for only a single point in time. We will call the point state phase a **p-state**.⁵ In fact, the inception, p-state and termination phases are conceptualized as all occurring in the same point in time, because they all are construed as occurring instantaneously.

Technically, there should be only two qualitative states represented in the Δ dimension in this diagram: 'not being 5:00' and 'being 5:00', for example. That is, the Δ dimension should not be represented as consisting of a continuous line on the ordinate axis, but instead should

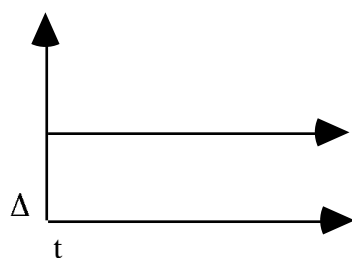
⁵Phases will be described with lower-case terms, because they are semantic.

be just two points on the axis representing the two states. We will leave that understood; the reader should assume that the only possible states are those indicated by the rest state at the lower end of the ordinate axis, and any other states in the diagram.

The vertical lines indicating inception and termination should therefore be interpreted as changes of state that are conceptualized by the speaker as instantaneous quantum leaps on the Δ dimension. We will call these quantum leaps **transitions**. Transitions are phases of the aspectual contour. Transitions are of two types. The first transition phase in Figure 4 is a **directed transition (d-transition)**. A directed transition is a change away from the rest state to another state of the aspectual contour. The second transition phase in Figure 4 is an **r-transition**: a return or reverse transition to the rest state (one can imagine 'r' as mnemonic for 'return', 'reverse' or 'rest state').

The second type of state is conceptualized as an inherent property of the individual. These are **inherent states**, such as *be tall* or *be Persian*. Being inherent, they are conceptualized as lasting for the entire history of the individual. That is, the endpoint of an inherent state is the end of the history of the individual. In other words, the time scale on the abscissa of the t/Δ diagram is construed relative to the history of the individual whose aspectual contour is designated in the diagram. Inherent states thus have an unchanging aspectual contour, as in Figure 5:

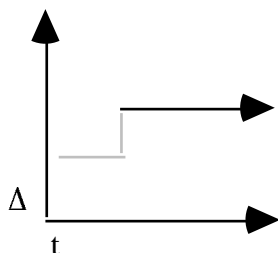
Figure 5. The aspectual type of original inherent states



The profiled phase in Figure 5 will be called an **i-state** phase.

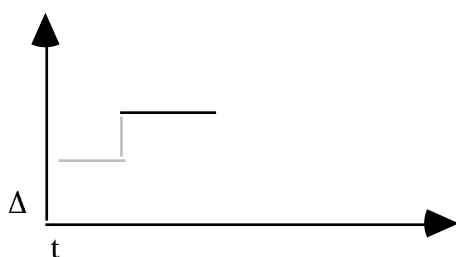
Actually, the aspectual type in Figure 5 only applies to **original inherent states**, that is, ones that held from the origination of the individual. For example, being a rock is an original inherent state: something does not become a rock (on the human time scale, at any rate). Many inherent states are **acquired** however. For example, a tall person was short in her/his childhood, but once s/he is tall, s/he remains tall. Likewise, one can become an American, and once one has acquired citizenship, one usually keeps it (or at least, we construe someone as keeping it). The aspectual type of acquired inherent states is illustrated in Figure 6:

Figure 6. The aspectual type of acquired inherent states



The third and last type of state is a **transitory state**, which can be extended in time but is not permanent, such as *(door) be open* and *(Jack) be ill*. A transitory state may also be a point in time, or at least profile just a point in time, since transitory states are acceptable with point locative adverbials: *Jack was ill at 5:00* (meaning that Jack was in the state of being ill at 5:00).⁶

Figure 7. The aspectual type of transitory states



The profiled phase in the transitory state aspectual type will be called a **t-state** phase.

Transitory states pose an interesting and difficult problem of representation. Transitory states include their inception in the aspectual contour but not their termination. The asymmetric treatment of inception and termination may seem odd. After all, what it means for a situation to be transitory is that it has both a beginning and an end. The motivation for representing inception and termination asymmetrically is the asymmetry of time. If the transitory state holds at some point or interval of time, we know that it began at some point in the past. As for the future, we simply represent it as not necessarily lasting for the history of the individual (that is, a line that does not extend forward indefinitely on the *t* dimension, as with inherent states). The transitory state has the potential to come to an end, but as a future event, its termination is not epistemically certain. The possible future states of the individual are represented by the possible positions on the Δ dimension. In the examples given so far, those possible states are just two: the state profiled by the predicate, and the rest state. So the *t/Δ* diagram for transitory states given above indicates that in the future, either the transitory state will persist, or it may end. (For example, one can say *Ann was ill on Tuesday*, and continue it as either *...but she's well now* or *...and she still is*; see §2.5.4.)

⁶In an appropriate context, this sentence can be interpreted as Jack fell ill at 5:00. This further reading of the sentence will be discussed in §2.5.4.

The argument in the preceding paragraph is based on a general principle: for the representation of the aspectual structure of the root or stem, only that part of the aspectual contour that can be safely presupposed will be included.

These, then, are the three types of states: point states, which occur only at a point in time; transitory states, which occur in a finite period of time, a point or an interval, but whose boundaries are not fixed; and inherent states, which are construed as lasting throughout the history of the individual, at least once they are acquired. We now turn to processes.

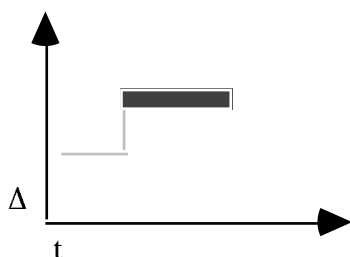
1.2.3. Two types of activities (unbounded processes)

Activities are unbounded processes, such as running, swimming, and dancing. A process involves change, that is, more than one point on the Δ dimension (unlike states). Activities in particular involve continuous change on Δ , but change that does not lead to a new resulting state. It is this latter property that makes activities **unbounded**. Activities must be extended in time; they are not compatible with punctual locative adverbials, unlike transitory states. The sentence *She danced at 11pm* is unacceptable under the interpretation that she was in the middle of dancing at 11pm (it may be acceptable under an inceptive reading; see §2.5.4). On the other hand, activities are transitory; they do have a beginning and an expected end.

Activities subsume two different aspectual types. The first type, **undirected activities**, involve change that is not construed as a directed change. For example, dancing is a process that is usually construed as an undirected activity, namely the activity of moving one's body in various ways. Dancing may also be construed as directed, as in the transitive *They danced an oberek*. As such, dancing is an accomplishment, not an undirected activity (see §1.2.5).

The aspectual type of undirected activities is represented in Figure 8:

Figure 8. The aspectual type of undirected activities



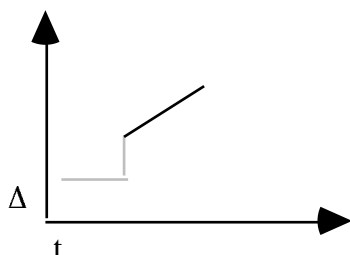
The profiled phase of an undirected activity is represented by a zigzag line, giving extent of the Δ dimension, and with an unprofiled inception phase and unspecified extension on the t dimension, in order to indicate its transitoriness.⁷ The profiled phase in the diagram will be called a **u-process** (undirected process): it is undirected and extended in both the t and Δ dimensions.

The choice of a zigzag line to represent u-processes is not entirely arbitrary. Many undirected activities do involve some sort of cyclic process at a coarse-grained level of attention. For example, walking is taking a series of steps, as is dancing (albeit different kinds of steps). As will be seen in §2.5.3, there is a close relationship between u-processes and cyclic achievements (see §1.2.4 for a definition of the latter).

⁷The use of a wide solid bar instead of a zigzag is due to the shortcomings of the Microsoft Word 5.0 graphics package, and my ignorance of other graphics programs.

There are also **directed activities**, such as *widen* in *The crack widened* or *expand* in *The balloon expanded slowly*. Directed activities involve a change that is construed as a directed change. A widening crack and an expanding balloon are increasing on their respective spatial dimensions. However, there is no natural endpoint to the process, as with achievements (see §1.2.4). The aspectual contour of a directed activity is given in Figure 9:

Figure 9. The aspectual type of directed activities



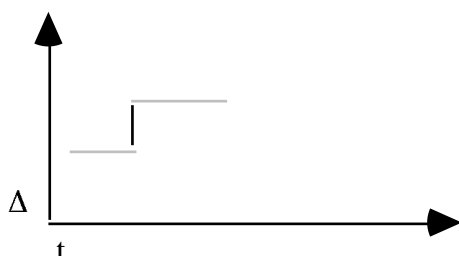
The profiled phase is a vector indicating the gradual directed change involved in a directed activity. We will call the profiled process a **d-process**.

1.2.4. Achievements (punctual events)

Events are bounded processes. All **bounded** processes are bounded by the existence of two distinct states on Δ , the rest state and the result state. The process itself traverses the distance on the Δ dimension from the rest state to the result state.

Achievements are **punctual** events: they traverse this distance instantaneously, in a single point in time, via a quantum leap transition from the rest state to the result state. That is to say, the event is conceptualized or construed as taking place instantaneously, at the temporal “grain size” chosen by the speaker. (In other contexts, the same event may be construed as being extended over time.) More precisely, the transition is profiled in an achievement’s aspectual contour, and is bounded by the rest state at the beginning of the transition and the result state at the end of it. An example of an achievement is a verb like *open*, in the reading where a door being open just a crack is considered to be open (see §1.1). The aspectual contour of this sense of *open* is given in Figure 10:

Figure 10. The aspectual type of a reversible directed achievement



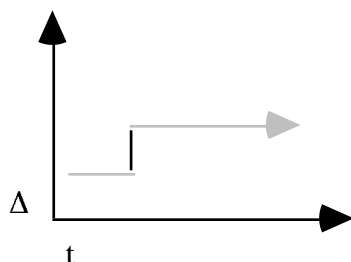
An achievement is punctual, which means that it is compatible with punctual locative adverbials (*The door opened at 10:00*). Achievements are not compatible with the present

progressive, unless they are reconceptualized as taking time (see §2.5.3). For example, *The door is opening* does not mean that the instantaneous change of state occurred at exactly the same time as the speech event, but that the opening event is interpreted to represent the process of the door moving to a fully open position, a process that takes time to take place.

The punctual character of an achievement is a property of the profiled part of the aspectual contour. This means that the result state, as an extended state, is not profiled. Only the first point of the result state is profiled, representing the transition from the rest state to the result state. This is, however, sufficient to obtain the entailment that the individual achieved the result state in the semantic representation.

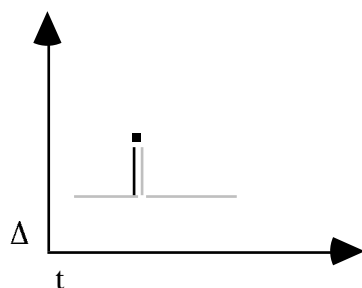
The result state of an achievement can be any of the three types of states. *Open* is an example of a transitory result state. An achievement ending in a transitory result state is called a **reversible (directed) achievement**, reversible because the result state is transitory. An achievement may also end in an inherent result state. Many verbs of destruction are examples of achievements with inherent result states, e.g. *break*, *shatter*, *die*: These are **irreversible (directed) achievements**, illustrated in Figure 11:

Figure 11. The aspectual type of an irreversible directed achievement



These two types of achievements, distinguished by the nature of the resulting state, are **directed achievements**: the change of state is directed to a new, at least temporarily lasting, result state. The third type of achievement is the one in which the result state is a point state; hence, the individual immediately returns to the rest state after momentarily achieving the point state. These are **cyclic achievements** such as *flash*, *squeak*, *tap*, in their **semelfactive** or “once-only uses”. The diagram for cyclic achievements is given in Figure 12:

Figure 12. The aspectual type of a cyclic achievement



The pointstate is simply the topmost point of the transition. As with the representation of point states, the r-transition and rest state are included in the aspectual contour.

Verbs such as *flash*, *squeak* and *tap* are also used to describe an iteration of cyclic achievements, as in *It's flashing/squeaking*. The iterative reading corresponds to a construal of the situation as an undirected activity of iterated flashes, squeaks, taps etc. These verbs differ from verbs construed as activities only in that they allow for the semelfactive, cyclic achievement interpretation as well (see §2.5.3).

1.2.5. Accomplishments, the incremental theme, and the verbal scale

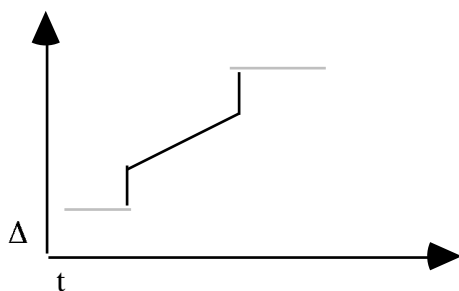
Accomplishments differ from achievements in that they are durative (extended in time) as well as involving a change from one state to another. They involve a directed process which incrementally brings about the change to the result state. For example, in *Jack ate a pizza*, the incremental eating of bites of pizza leads to the result state—the entire pizza being eaten.

Dowty (1991) describes the entity undergoing the incremental change the **incremental theme** (Dowty 1991). In fact, however, it is not clear that the incremental theme is actually an argument at all. For instance, Dowty notes that in the case of motion such as *Jack drove from Chicago to New York*, it is the path of Jack's motion, not Jack himself, that is incrementally acted on. More precisely, it is the relative position of Jack as he proceeds along the path of motion that changes incrementally. Dowty calls the figure of motion the **holistic theme**.

Hay, Kennedy & Levin (1999) argue that the ‘the “incremental theme” is properly construed as a measure of some property of an argument of a verb, *not* an argument, although it may be expressed by an argument-like expression such as *swim the Channel*’ (Hay, Kennedy & Levin 1999:141; see also §4.1). They adopt Dowty's term ‘holistic theme’, and apply it to any argument possessing the relevant measurable property of the verb. Hay, Kennedy & Levin also argue that ‘the nature of the scale depends on the lexical meaning of the verb’ (ibid.). For this reason, I will call the “incremental theme” the **verbal scale** (see §4.1 for further discussion).

In fact, the verbal scale has a natural endpoint or result state only by virtue of a definite measurement on the relevant scale. The sentence *Jack ate pizzas all afternoon* has a measurable scale just as much as *Jack ate a pizza*, but there is no unit of measurement in the former sentence because of the uncountability of the bare plural form of the holistic theme *pizzas*. In fact, directed activities also possess a verbal scale, although that scale does not have a natural endpoint or result state (see also Hay, Kennedy & Levin 1999). But it is the possibility of a definite measurement on the relevant scale that differentiates accomplishments from directed activities. I will represent this possibility as a bounded temporal interval including a directed change phase, as in Figure 13:

Figure 13. The aspectual type of an accomplishment



Three phases of the accomplishment are profiled, at least in the English Past Tense: the **inception** of the directed process (i.e. the d-transition from the d-process not taking place to

the d-process taking place), the directed process itself, and the **completion** of the d-process—i.e. the transition from the d-process to the result state. Thus, accomplishments are unlike the other aspectual types we have presented so far, which have profiled only one phase of the contour. This is because accomplishments are temporally extended and temporally bounded processes. Accomplishments are bounded by their inception and completion transitions.

From the perspective of the t/Δ diagram for accomplishments, it can be seen that directed achievements are temporally **trivial** versions of accomplishments (see Dowty 1991:568): the inception and completion phases of directed achievements coincide, since there is no intervening process. Or conversely, one can characterize accomplishments as “stretched out” versions of directed achievements, where the stretching out of the process can be measured incrementally. I will describe directed achievements as possessing a **trivial verbal scale**.

Justification for profiling the inception and completion phases is provided by the difference in behavior of accomplishments compared to activities and transitory states with interval locative adverbials. As noted above, sentences with activities or transitory states such as *She danced in the afternoon* or *She was miserable in the afternoon* simply indicate what situation held during the afternoon; they do not indicate whether or not the situation also held before (in the morning) or after (in the evening; see §2.5.4). With accomplishments, however, the entire event including inception and completion is asserted to have taken place in the relevant time period: *She wrote her term paper in the afternoon* entails that she began and completed the term paper in the afternoon. A further justification for profiling the inception and completion phases is given in §1.2.6.

Accomplishments, like achievements, may have a point state, a transitory state, or an inherent state as the result state. (Figure 13 simply indicates a result state without properly specifying what sort of result state it is.) A **reversible (directed) accomplishment** would be something like *I pruned the hedge*, in which pruning the hedge takes time, but does not last (the hedge grows out again). An **irreversible (directed) accomplishment** is an event like *I burned down the shed*; the shed is gone and cannot be burned down again. A **cyclic accomplishment** would be a process that incrementally proceeds to a result state, upon reaching which the participant instantaneously reverts to the rest state. An example of a cyclic accomplishment is the creation of an ephemeral object, as in *Judith danced the kopanica in three minutes*. The performance is an accomplishment, but what is created is the performance itself, and it is gone as soon as it is completed (for an analysis, see §7.2).

It is not always easy to identify the nature of the result state. For instance, in *I read the book*, the event may be repeated again. From this, one could conclude that *read (a book)* is a reversible accomplishment. However, as Dowty points out, *the book* is not an incremental theme (verbal scale) but a **representational-source theme** (see §7.2). The true verbal scale is defined on perceptual/cognitive impression created in the process of reading the book. That impression ends upon finishing the book. One can in fact immediately read the book again and obtain the perceptual/cognitive impression (the resulting state) once again. In other words, *read a book* is also a cyclic accomplishment.

Another example also discussed by Dowty is problematic in a different way: *I painted the diningroom*. Here the analysis depends on what the rest state is taken to be. If the rest state is that the diningroom is “lacking a coat of a particular instance of paint”, then once it has been completely painted with that paint, then it is in an inherent result state and we can say *The diningroom is painted*. In this construal, *paint the diningroom* is an irreversible accomplishment (if the paint can peel off, then it is a reversible accomplishment). But I can paint the same diningroom more than once; in fact, I can repaint it as soon as the first coat of paint is dry, if I want to. This is because one can paint over an already painted surface (Dowty 1991:591). In this case, the rest state of the diningroom is taken to be “having a surface on which paint can be put”, and the diningroom reverts to its rest state as soon as the painter has finished applying any amount of paint to the walls. In this construal, *paint the diningroom* is also a cyclic accomplishment.

This last example demonstrates that even a straightforward-seeming accomplishment predicate like *paint (a room)* can vary in its aspectual type depending on the construal of this state of affairs by the speaker. This phenomenon raises an important issue in the analysis of word meaning. Since word meaning (and construction meaning and sentence meaning) represents a construal of the speaker's experience, we must distinguish between two types of explanations of linguistic patterns.

The first type are explanations that are based on how speakers variously construe the states of affairs which they experience (which we represent in some format). These are explanations of why particular experiences are conceptualized as a certain aspectual type (or display a certain type of ambivalent aspectual behavior), and why some experiences are conceptualized differently in other languages. We may call these types of explanations **conceptual explanations**, following Langacker's (1976) use of the term 'conceptual structure' to refer to the universal experience of human beings. The explanation given above for the aspectual types allowed by English *paint (a room)* is a conceptual explanation. Conceptual explanations typically refer to the complex nature of our actual experience in the world, and how it lends itself to multiple alternative conceptualizations, one of which is conventionally assigned to a verb stem in a particular TA construction.

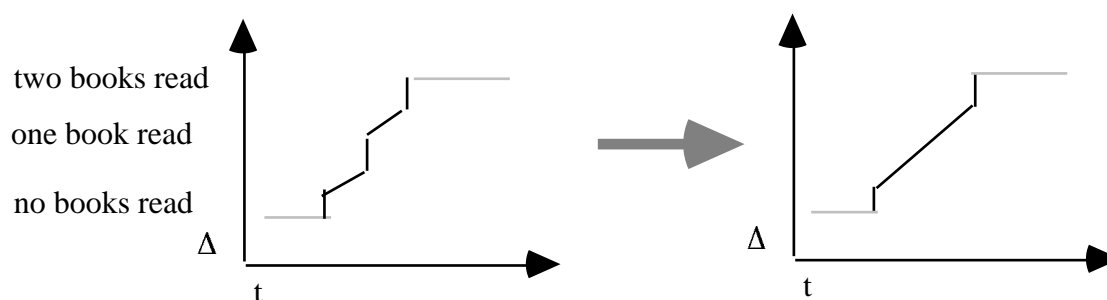
The second type of explanation presupposes the construal of a speaker's experience in a particular way in a linguistic expression. The second type of explanation shows how the interaction of the linguistic semantic representations of component parts of sentences, such as the aspectual structure of verbs and the aspectual structure of TA constructions, account for the meaning of the whole sentence as a consequence of the meaning of the component parts. Such explanations may include alternative construals of aspectual types and shifts of profiles in aspectual representations. We may call these types of explanations **semantic explanations**, following Langacker's (1976) use of the term '(linguistic) semantic structure' to refer to the conventionalized construals of human experience in linguistic forms. Examples of semantic explanations are the analyses of phasal verbs such as *start*, *finish* and *stop* in §2.2. In this book, I will periodically point out where I am offering a conceptual explanation and where I am offering a semantic explanation.

All of the examples of holistic themes that have been described so far are singular countable entities over which some effect can be measured. As Dowty argues, there are incremental themes that are not participants in the event encoded as syntactic arguments. The most common example is the path in verbs of directed motion, as in *Ernie ran to the door*: the incremental theme is the path Ernie takes from his original location to the door. The role of the incremental theme will be discussed in detail in §4.1.

Dowty notes that a determinately quantified argument also functions as an incremental theme (verbal scale), as in *I read two books in three hours*. We will call this a **derived verbal scale** (compare Dowty 1991:570). Even predicates that normally are not accomplishments may have a derived incremental theme, as in *The rioters broke fifty windows in ten minutes*.

In the derived verbal scale interpretation, the situation is reconstrued as a series of incremental achievements where the final state of the prior achievement in the series is the initial state of the next achievement. The scalar adjustment is coarse enough on both t and Δ that the d-transition is construed as an incremental so that each final/initial state is contiguous on the t and Δ scales:

Figure 14. The aspectual type of a derived incremental theme

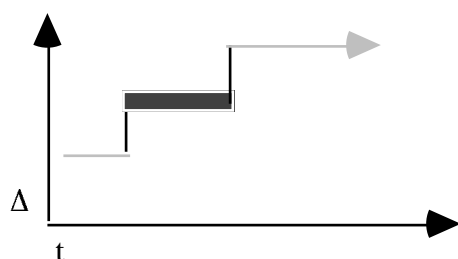


This is another example of a construal operation (scalar adjustment) that operates simultaneously on t and Δ .

1.2.6. Runup achievements: durative but not incremental

There is another aspectual type which has a different aspectual profile from any of those given above. A number of achievement verbs, including *die* and *fall asleep*, are acceptable in the progressive (*She's dying!*) with the interpretation that the participant is undergoing a process—the “runup”—which culminates in the achievement (death). The process has a specified resulting state, like an accomplishment. However, dying does not involve an incremental change to achieve that state: a dying person is not “half-dead” in a measurable way (despite the idiom); instead s/he is still alive until the instant in which s/he dies. In other words, dying is like an accomplishment without a verbal scale, or like an unmeasurable achievement that is “extended” over time. These events will be called **runup achievements**, and the representation of the interpretation with the runup process is as follows:

Figure 15. The aspectual type of an irreversible runup achievement



Runup achievements, in their runup interpretation, are thus bounded processes which lack a verbal scale and yet are extended in time. Since they are bounded, the inception and completion transitions are profiled. The justification for profiling the inception and completion transitions is found in the use of container adverbials with runup achievements, as in *She died in a week*. The acceptability of container adverbials with runup achievements demonstrates that container adverbials do not require a verbal scale to be acceptable. Instead, container adverbials require the profiling of the temporal boundaries of the event, namely the inception and completion transitions.

Runup achievements, like (ordinary) achievements and accomplishments, may be divided into three types. An **irreversible (directed) runup achievement** has an inherent result state,

as in *be dying*. A **reversible (directed) runup achievement** has a transitory result state, as in *be falling asleep*. A **cyclic runup achievement** would be one interpretation of *flash* in *The lighthouse is flashing*, namely the one which describes a single relatively slow rotation of the lighthouse light when the observer is fairly close to the lighthouse: one can see the light in the lighthouse coming around, culminating in it instantaneously passing over the observer.

1.3. The general structure of aspectual types

In §1.2, I presented a classification of aspectual types occurring in simple predicates—verbs and predicated nouns and adjectives—in English, and presumably in other languages (evidence for other languages will be presented in subsequent chapters). The aspectual types can be analyzed in terms of the phases of the aspectual contour, and which phase (or phases) is profiled. The basic phases of any aspectual contour are summarized in Table 2:

Table 2. Classification of basic phases in an aspectual contour

I. Stative: <i>p-state, i-state, t-state</i>
II. Dynamic
A. Transitions: <i>d-transition, r-transition</i>
B. Processes: <i>d-process, u-process</i>

The basic aspectual types described in §1.2 are summarized in Table 3:

Table 3. Classification of basic aspectual types of verbs (predicates)

profiled contour preceding (result) state:	type of (result) state:		
	point	interval	history
none (state profiled)	<i>point state</i>	<i>transitory state</i>	<i>inherent state (original/acquired)</i>
achievement	<i>cyclic achievement</i>	<i>reversible (directed) achievement</i>	<i>irreversible (directed) achievement</i>
accomplishment	<i>cyclic accomplishment</i>	<i>reversible (directed) accomplishment</i>	<i>irreversible (directed) accomplishment</i>
runup achievement	<i>cyclic runup achievement</i>	<i>reversible (directed) runup achievement</i>	<i>irreversible (directed) runup achievement</i>
profiled countour preceding process:	type of process:		
	undirected	directed	
none (process profiled)	<i>undirected activity</i>	<i>directed activity</i>	

The aspectual types in Table 3 represent constraints on possible, or at least probable, aspectual contours of situations. We may describe the constraints on possible/probable

aspectual contours of situations in terms of the general sequential structure of phases of the aspectual types.

All aspectual contours (except original inherent states) can be described as having three parts. The first part is the rest state, which is always a t-state and always unprofiled. The second part is a directed transition. The directed transition may be simply a d-transition (achievements), or stretched out to a d-transition - d-process - d-transition (accomplishments) or d-transition - u-process - d-transition (runup achievements). The directed transition is followed by the third part, an outcome. If the directed transition is profiled, the outcome may be a t-state, i-state, or (at least for achievements) a p-state. A p-state phase is always followed by an unprofiled r-transition - t-state (the rest state). When the directed transition is not profiled, the outcome may be any phase other than a transition: t-state, i-state, p-state, u-process or d-process.

It is assumed that the unprofiled directed transition is always punctual; that is, accomplishments and runup achievements do not have u-process or d-process phases as their outcome. This may not always be the case (see §2.5.3). However, these aspectual types are definitely much rarer than the ones listed in Table 3.

1.4. Basic aspectual types of situations and aspectual classes of predicates

As I noted in §1.2.1, aspectual classes of predicates cannot be equated with aspectual types. Aspectual types are construals of situations. An aspectual class consists of predicates which possess certain conventionalized aspectual construals when occurring in certain TA constructions of the language. Many aspectual classes of verbs display ambivalent aspectual behavior, in that they construe the situation as one aspectual type in one TA construction and sometimes as another aspectual type in another TA construction. Aspectual classes may also allow multiple aspectual construals for a single TA construction. For this reason, there are more aspectual classes of predicates in a language than the number of aspectual types presented in §1.3.

There are generally good semantic explanations for the ambivalent (or even multivalent) aspectual behavior of an aspectual class, having to do with the nature of our encyclopedic knowledge of the situations denoted by the predicates in the class. These explanations are conceptual explanations: how real-world knowledge leads to a particular construal of an event's aspectual structure in the semantics of a particular language.

Aspectual classes of predicates are language-specific. Situation types may be construed differently in other languages than in English. However, the variation in aspectual behavior in languages is found within a language as well. A speaker may reconstrue a situation in a particular context and thus create an innovative utterance. For example, one can say *She was always tall (for her age)* in which case the inherent state *be tall* is reconstrued as a transitory state, namely the state of being tall at a specific age. A more extreme example of an alternative aspectual construal of *be tall* has been suggested to me: *She is being tall* could be used to describe a girl who gets up on a box in order to be as tall as or taller than her friends.⁸ The inherent state *be tall* is reconstrued as an activity in this context.

Thus, an aspectual classification of predicates in a language depends in part on one's imagination in finding an appropriate context for a particular aspectual construal. One often underestimates the semantic flexibility of the aspectual construal of predicates, particularly in a language such as English which typically does not express alternative construals with overt derivational morphology.

In other cases, the aspectual type construal differs depending on the semantic type of the argument. For example, *be dry* is a transitory state when applied to a shirt, but an inherent

⁸I am grateful to Anna Mawhinney for pointing out this possible interpretation to me.

state when applied to the climate of a particular geographical region. In this and other cases, one can argue that there are different senses of the predicate. For example, the climate of Death Valley can be described as dry even though on certain (very infrequent) days, it is in fact raining there; but a shirt cannot be described as dry when it is wet, even if it is dry during most of its history. Nevertheless, these examples demonstrate that one must be very careful in describing the semantics of predicates and their possible aspectual construals. One must also accept that there will be variation and uncertainty as to whether certain aspectual construals are possible for certain classes of predicates.

Not all aspectual construals of a predicate are of equal status in the language. Some aspectual construals are conventionalized, while others are not. *She is being tall* as described above represents a nonconventional aspectual construal of the predicate. On the other hand, *She is tall*, referring to an inherent state holding at the present moment, is a conventional construal of *be tall*. The aspectual classes defined in chapter 2 represent the most common and most conventionalized aspectual construals of the situation types denoted by English predicates. However, the classification is based on introspection, which can be an unreliable guide. A more reliable guide to convention would be a corpus study of predicates, with the relative frequency of the various construals. Such a study, examining all predicates in all possible TA constructions, or even just the three TA constructions used in chapter 2, would be a massive effort. In the meantime, an introspective study can make certain general points about the nature of the aspectual classification of predicates and what it teaches us about the semantics of aspect.