

# DYNAMIC FRAMES IN EVENT STRUCTURE

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ABSTRACT. The concept of a “dynamic frame” is introduced for use in the analysis of event structure. It is the external boundary metaphorically encircling a perceived event which determines the temporal scale on which the event is interpreted. The dynamic frame is used in two examples to simplify the analysis of English phenomena: 1) it is shown that semelfactive verbs can be considered a special case of accomplishment verbs and 2) it is shown that the futurate use of the progressive can be analyzed similarly to achievement verbs used in the progressive.

## 1. INTRODUCTION

In the analysis of tense-aspect systems, it is clear that the role of context must be taken into account, although it is often not clear how to formalize context within a linguistic framework. This paper recommends the introduction of a “dynamic frame” from which any specific event is viewed.

Human perception has limits—we can not resolve perceptual stimuli to an arbitrary degree of precision. Objects on the horizon that are close together merge into one visual perception. Audible ticks repeated at a high frequency merge into a continuous tone. We feel only one source of pain when pricked by two pins that are close together. It is reasonable to hypothesize that the same perceptual phenomenon extends to the human perception of time and that it would impact on the linguistic encoding of events.

Unlike our five senses however, which have absolute and static limits on the resolution of our perception of stimuli, our perception of events in time is probably more like our imaginative capabilities. Say we imagine a dog—probably the initial image is of the dog’s entire body, and it probably fills our “mind’s eye”. However, we can arbitrarily “zoom in” to imagine just the dog’s head or tail, or “zoom out” to imagine the dog in someone’s back yard. There are no limits to that perception—we can zoom out until we’re imagining the dog from the moon, or zoom in until we’re imagining the dog’s cells or DNA. In both these cases we have lost the dog per se because it is either too small or too large; although we have the imaginative power to picture objects at any arbitrary

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magnitude, even in our imaginations images cannot maintain arbitrary levels of detail. This boundary that seems to encircle our imaginative perception the way a camera lens constrains our view is what here is referred to as the “frame”. Because it acts like a psychological “zoom lens” it is a “dynamical frame”.

As with our imagination our perception of time, likewise, has a dynamical frame through which we interpret and linguistically encode events. We can talk about events on the scales of millennia or nanoseconds but, again, not with arbitrary detail. In this paper I argue that the frame is an important component of event structure that is encoded in tense-aspect systems and that by explicitly noting its contribution to the semantics of tense and aspect, we can better characterize the contribution of syntactic, morphological, and pragmatic factors, as well better accounting for the range of meanings certain morphemes give rise to.

## 2. DYNAMIC FRAME

Consider the sentences in (1) through (3) below.

- (1) Jennifer is climbing the ladder.
- (2) Jennifer is climbing the CN Tower.
- (3) Jennifer is climbing Everest.

The three utterances are identical in argument structure and event structure, however the temporal scale on which they occur is significantly different. “Climbing the ladder” is probably understood as occurring on the scale of minutes, “climbing the CN Tower” on the scale of perhaps a day, whereas “climbing Everest” is probably understood on the scale of months. This difference is best characterized by differences in frame which establish the scale on which the utterance is to be interpreted. In this case, the primary cue for the frame comes from the direct object which, as part of the semantics of the word, includes an understanding of both physical and temporal scale. Since the frame can be cued by other structures in an utterance, it is possible to have multiple factors with conflicting frame information such as the example in (4).

- (4) ? Jennifer is climbing Everest tomorrow.

The unmarked interpretation of this utterance would be that the event—the climbing of Everest—should occur, start to finish, within the span of one day. While still grammatical, the listener is forced to develop a marked interpretation in order to resolve the contradiction of time scales. Perhaps Jennifer has super-powers, or perhaps “Everest” is a the nickname given to a challenging hike

by the local community. Even though the sentence is syntactically grammatical and semantically interpretable, there remains a slight cognitive dissonance that is best characterized by a conflict in cues to the temporal scale the event is meant to be interpreted on—that is a difference in frame.

### 3. DYNAMIC FRAME AND VERBAL CATEGORIES

The concept of a dynamic frame can permit us to simplify our inventory of verbal categories. Vendler (1967) provided the most influential classification system which had four categories: states (“live”), activities (“run”), accomplishments (“eat an apple”), and achievements (“arrive”). The literature for other languages and language families often have other classification systems, for example Kindaichi (1950) has been most influential on the classification of Japanese verbs. However, it is often the case that mappings can be drawn between these systems and Vendler’s (Jacobsen 1982).

One criticism that can be brought to bear against Vendler’s categories is its failure to characterize the difference between punctual achievements (like “arrive”) and other punctual semelfactive verbs (like “knock”). The difference between these two classes is clearest in the progressive as in (5) and (6).

- (5) The train is arriving at the station. (achievement)
- (6) Jennifer is knocking on the door. (semelfactive)

The two sentences differ in their entailments; in (5) it is not true that “the train has arrived” although in (6) it is true that “Jennifer has knocked on the door.” Moreover, the progressive has the effect of giving duration to the event in (5) culminating in the action itself, whereas the interpretation of (6) is iterative. In this respect semelfactives do not behave like any of Vendler’s other categories—it appears semelfactives are a class unto themselves.

However, imagine that we have video of Jennifer knocking on the door and that we play back a single knock in slow motion. As the action proceeds frame by frame, (6) remains equally true although the action is no longer punctual. In fact, in this marked circumstance, “knock” is indistinguishable from an accomplishment.

The difference between “knock” in slow motion, and “knock” as we would normally interpret it, is a difference in frame—the temporal scale on which the event is being interpreted. Thus, it may be that semelfactives are simply non-prototypical accomplishments whose inherent frame is relatively so large that the perception of the event is punctual. When attempting to put a punctual accomplishment in the progressive a conflict arises since the progressive requires

a durative interval. One potential resolution of that conflict is to interpret an interval filled with a repeated event—that is, the prototypical semelfactive interpretation.

If this is indeed the case that semelfactives are a special case of accomplishments in which the frame is relatively much larger than the event itself, we should likewise be able to artificially expand the frame of prototypical accomplishments such that they are interpreted as both punctual and iterative in the progressive. This is in fact the case as in the example in (7).

- (7) I used to be a vegetarian but now I'm eating meat almost everyday.

#### 4. DYNAMIC FRAME AND THE FUTURATE

In (5) the conflict between the punctual verb and the progressive is resolved differently than in (6). In fact, in combination with achievements, the progressive results in an interpretation that is quite outside its prototypical meaning—that an action has begun, but not yet been completed.

Freed (1976) makes a convincing argument that Vendler's verbal categories have distinct phases associated with them, maximally an onset, nucleus, and coda. The nucleus is where the primary meaning of the verb rest—the onset and coda phases represent periods in which preparations for or denouements of the action take place. Onsets and codas often only become relevant in periphrastic constructions with verbs such as “start”, “begin”, “be about to”, etc. The onset, however, is also relevant for the interpretation of the progressive with accomplishments, Freed argues. That is, the durative interval that the progressive usually highlights is the nucleus. In an accomplishment however, which does not have a durative nucleus, the conflict is resolved by shifting focus to the onset phase where the process leading up to the event has begun, but the event itself has not occurred. Consider (8).

- (8) The plane is landing. (achievement)

In this example, the plane is certainly not on the ground, but probably the pilot has announced “flight crew, prepare for landing,” the plane is probably dropping altitude, and perhaps the landing gear has already been lowered. Even though the core meaning of “land” has not yet come about, the process has been initiated.

The progressive has yet another peculiar use in English regardless of verbal category—to indicate future events. If we incorporate the notion of frame into our analysis, however, the futurate becomes indistinguishable from an achievement+progressive.

It has been widely noted that the futurate use of the progressive in English carries the connotation of a predetermined or planned event (Binnick 1991:289); (Smith 1991:246). Freed (1976:53) states concerning the onset of events: “[The onset] is a preparatory stage necessary before the nuclear activity of the event is actually initiated,” and goes on to speculate that planning could be included in the onset. I would state this more forcefully and claim that planning is not only included in the onset, but that planning extends the duration of the onset to match our expectations. The frame of the event must also be dilated to accommodate the onset—so much so that the nucleus becomes perceived as punctual relative to the onset and frame. At that point, the event becomes indistinguishable from an achievement, and so in the progressive, naturally the interval highlighted becomes the onset, not the nucleus. That is, the process of the event (i.e. the plan) has been initiated, but the actual action of the event (the nucleus) has not yet begun—it will occur in the future.

This argument is strengthened by the fact that with achievements there is no clear boundary between when the progressive gives rise to a “process has been initiated” interpretation and the futurate. If we add “on time” to (8), it becomes equally true when the landing gear is down and the plane is descending as when the plane is only halfway to its destination and every point in between. Consider another achievement, “get married” as used in the examples in (9).

- (9) a. We’re getting married! [Excited thoughts of the bride during the ceremony]  
 b. We’re getting married tomorrow.  
 c. We’re getting married in June.

(9a.) is a prototypical example of an achievement+progressive. But imagine sliding the point of speaking backwards in time—to the beginning of the ceremony, to before the ceremony, to the night before the ceremony... to the moment after the engagement. There is no point at which the examples in (9) could not be the excited thoughts of the happy couple, nor is there any point at which (9) could not be referring to an event expected to occur in the future. Like the airplane, at each of the different temporal points in (9), we understand a different set of events that have lead up to that moment, but that are cumulative, beginning at a certain point (take-off or the engagement).

## 5. CONCLUSION

We have seen how the addition of a simple concept—the dynamic frame—that is grounded in human perception has a great deal of potential for the

analyses of tense-aspect systems. Specifically, two applications have been provided. First, it allows us to reduce the category of semelfactive verbs to a case of accomplishments. Second, it allows us to characterize the futurate use of the English progressive by showing how it is similar to an achievement verb in the progressive.

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