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# Localizing cross-linguistic variation in Tense systems: On telicity and stativity in Swedish and English

Björn Lundquist

It is well known that the aktionsart/lexical aspect of a predicate influences the temporal interpretation and the aspectual marking of a sentence, and also that languages differ with respect to which aktionsart properties feed into the tense-aspect system (see e.g. Bohnemeyer & Swift 2004). In this paper, I try to pin down the exact locus of variation between languages where the stative–dynamic distinction is mainly grammaticized (e.g. English, Saamáka) and languages where the telic–atelic distinction is mainly grammaticized (e.g. Swedish, Chinese and Russian). The focus will be on the differences between English and Swedish, and I will argue that these two languages crucially differ in the nature of Assertion Time (or Topic/Reference Time, Klein 1994, Demirdache & Uribe-Etxebarria 2000): whereas the assertion time in English is always punctual in imperfective contexts, assertion time in Swedish can extend to include minimal stages of events. The Assertion Time is introduced by a (viewpoint) aspect head that is present in both languages, but not phonologically realized. The difference can thus not be ascribed to the presence or absence of overt tense, aspect or verb morphology, or to a special tense value, as argued in one way or other by, for example, Giorgi & Pianesi (1997), Demirdache & Uribe-Etxebarria (2000) and Ramchand (2012). Once this factor (i.e. the nature of Assertion Time) has been isolated, it becomes evident that all verbs in English and Swedish, regardless of telicity or dynamicity, can be assigned either a perfective or an imperfective value. Moreover, I will argue that the English progressive–non-progressive (or 'simple') distinction is independent of viewpoint aspect (i.e. the perfective– imperfective distinction) made in, for example, the Romance languages.

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## 1. INTRODUCTION

As is well-known, the temporal system of English is highly sensitive to the stative–dynamic distinction (Taylor 1977; Dowty 1979; Giorgi & Pianesi 1997; Bohnemeyer & Swift 2004), as is seen in the simple fact that all non-stative verbs have to surface in the progressive form in episodic present tense, while stative verbs surface in the simple form, as shown in (1) and (2):

(1) a. We are playing football. (Activity)
b. #We play football. (Habitual only)

(2) a. John owns the brewery. (State)
b. *John is owning the brewery.

The state-sensitivity seen in English has been explained with the help of the following meaning postulates proposed by Taylor (1977), given here as formulated in Dowty (1979:166):

1. If $\alpha$ is a *stative* predicate, then $\alpha(x)$ is true at an interval $I$ just in case $\alpha(x)$ is true at **all moments within *I***.
2. If $\alpha$ is an activity verb or an accomplishment/achievement verb, then $\alpha(x)$ is only true at an **interval larger than a moment**.
3. If $\alpha$ is an accomplishment/achievement verb, then if $\alpha(x)$ is true at $I$, then $\alpha(x)$ is false of all subintervals of $I$.
4. If $\alpha$ is an activity verb, then if $\alpha(x)$ is true at $I$, then $\alpha(x)$ is true for all subintervals of $I$ which are larger than a moment.

If we assume that Speech Time is punctual, as is standardly assumed (see Giorgi & Pianesi 1997 for discussion of the notion of punctuality, and Section 3.3 below for a reformulation of this restriction), it will follow that predicates that are only true at intervals larger than a moment cannot be true at Speech Time, i.e. non-stative predicates cannot be true at a punctual Speech Time. All non-statives have to be stativized in order to appear in the episodic present, and (as argued by e.g. Vlach 1981 and Parsons 1990) the progressive derives a state, an in-progress state, from non-stative verbs.[1] In this paper I assume that events connect to Speech Time via Assertion Time (from now on abbreviated AST-T), see e.g. Demirdache & Uribe-Etxebarria (2000), and also Reichenbach (1947) on the related term 'Reference Time', and Klein (1994) on the related term 'Topic Time'. If we assume that assertion time is identical to the speech time in the present tense, we can derive the restriction on non-stative predicates in the present tense, following the logic above. Basically, one cannot assert that an event takes place at a punctual speech time, if the event requires more than a point in time to be evaluated.

However, not all languages show the state-sensitivity of English (see Bohnemeyer & Swift 2004 for a typological overview). As shown for Swedish below, a non-stative verb can appear in the episodic present tense:

(3) Vi spelar fotboll.
*we play football*
'We are playing football.'

If Taylor is right, how can we account for Swedish and many other languages that show little or no state-sensitivity? The questions that this article investigates are the following:

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- When is it possible to locate the Assertion Time within the run-time of the event, i.e. when is it possible to make an assertion about a sub-interval of an event?
- How is it possible to capture the cross-linguistic variation seen between Swedish and English?

The latter question has been answered in several different ways in the literature. I will briefly go through some proposals here, and show how they fail to account for the relevant differences between English and Swedish. Several linguists have tried to tie the strict state-sensitivity in English to the nature of the present tense in English. Ramchand (2012) claims that the present tense in English imposes a strict IDENTITY (or an equal-relation) between Speech Time and Event Time, while other languages only require a temporal OVERLAP between the Speech Time and the Event Time (see Section 3.1 below). The same reasoning is also used by van de Vate (2011) to explain the difference between the state-sensitive creole language Saamáka and non-state-sensitive languages like German and Dutch. The problem with this approach is that the state-sensitivity in English is not restricted to the present tense, but extends to the past tense and the perfect as well. This will be discussed in detail in Section 3 of this paper, where I will argue that AST-T can never be located inside a non-stative predicate in English, regardless of the value of tense. For an explanation along the lines of Ramchand (2012) to work, the generalization has to be stated over AST-T rather than Speech Time.

A morphology-based proposal is given by Giorgi & Pianesi (1997). According to them, English verbs lack 'verb' morphology (here, Theme-vowels), and are not marked as verbs in the lexicon. Instead, verbal lexical items need a verb feature in the syntax, which they can either get from a perfective aspect node or a generic aspect node. Perfective verbs are not true at moments, which forces a present tense verb to get a generic interpretation (and here, states are argued to be generics as well). There are some problems with this approach. First, many verbs in English have overt verbalizers (*-ate, -ify, -ize* and *-en*), and the overtly marked verbs are state-sensitive just as all other verbs. Secondly, as will be discussed in Section 2, English verbs, both stative and non-stative, as well as progressives, CAN show either typical imperfective behavior or perfective behavior, depending on the context. A similar proposal is presented by Demirdache & Uribe-Etxebarria (2000). They claim that the absence of aspect morphology in English triggers an identity relation between AST-T and Event Time, which is the characterization of perfective aspect. This proposal cannot explain imperfective interpretations of stative verbs in English, or imperfective interpretations of stative verbs and activity verbs in Swedish.

Another way to solve the problem would be to assume that Swedish has a phonologically null progressive operator. However, as we will see in Section 3, this cannot be the case either, since Swedish is telicity-sensitive: telic predicates cannot get a progressive interpretation in Swedish (at least not without overt morphology).

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This is crucially different from the English progressive, which can be applied to both telic and atelic predicates. One could of course argue that Swedish has a progressive operator, that in contrast to the English one, only applies to atelic verbs. However, as will be shown in Sections 3.4 and 3.5, states can be selected for in Swedish, i.e. atelic eventive predicates have a different distribution compared to states. If there were a null progressive (or some other type of stativizer) that applies to dynamic atelic verbs in Swedish, we would expect atelic dynamic verbs to surface in the same contexts as stative verbs. As we will see in Sections 3.4 and 3.5, in the contexts where Swedish shows state-sensitivity, both lexical states and progressives (i.e. derived states) are licit in English.

Note that the telicity-sensitivity in Swedish (and many other languages) is predicted by Taylor's meaning postulates: AST-T cannot be located inside a telic predicate (i.e. an accomplishment or an achievement), since the predicate will not be true for any intervals within the event, but only for the whole event (the third of Taylor's meaning postulates, as given in the introduction).

In this paper, I will argue for the following points:

1. The temporal differences observed between English and Swedish cannot be due to the presence or absence of overt morphology. Rather, the difference originates in different limits on imperfective aspect, and aspect is not overtly expressed in either of the two languages.
2. The English progressive is a state (at least as far as syntax is concerned), and crucially, there is no null progressive in Swedish deriving stative predicates from dynamic (telic or atelic) predicates.
3. If we accept Taylor's characterization of the four predicate types (or aktionsart), and if we further assume that we need AST-T (or Reference Time/Topic Time) to mediate between Speech Time and Event Time (Reichenbach 1947, Klein 1994, Demirdache & Uribe- Etxebarria 2000, 2004), we have to conclude that AST-T can only be located within predicates that are true at moments (i.e. states) in English, while it can be located within both predicates that are true at moments and predicates that are true only at intervals in Swedish. The easiest way to capture this is by saying that AST-T in English is a point in time, while AST-T in Swedish can be an interval, at least in 'imperfective' contexts.
4. Viewpoint aspect is not marked in English and Swedish: both states (including progressives) and non-states have all the typical perfective and imperfective readings found in, for example, the Romance languages, modulo the restrictions imposed by the nature of the AST-T in the two languages. Still, every clause in Swedish and English has a viewpoint aspect value, i.e. all clauses are either imperfective or perfective.

I should note here that there could be alternatives to point 3 above. It could, for example, turn out that Taylor's meaning postulates are irrelevant to the syntactic and

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| | Duration | Dynamic | Endpoint |
|---|---|---|---|
| State | + | − | − |
| Activity | + | + | − |
| Accomplishment | + | + | + |
| Achievement | − | + | + |

**Table 1. Vendler's verb classes.**

semantic computation. One could alternatively go for a Vendlerian system (Vendler 1967), where the four classical predicate classes (or aktionsart) are defined with three binary features, as shown in Table 1.[2]

If we follow the system presented in that table, we simply have to reformulate point 3 above to something like: AST-T in English cannot be located inside a predicate with a +Dynamic feature, while AST-T in Swedish cannot be located inside a predicate with a +Endpoint feature. Crucially, the other points still stand; the difference between English and Swedish would still be located in the semantic content of a functional head that is not phonologically realized, and viewpoint aspect would still be unmarked in the two languages. The function of the progressive would be simply to delete a +Dynamic feature. I will not provide any arguments in favor of the Taylor-based solution over the Vendler-based solution. For clarity of exposition, I choose to follow one of them, namely the Taylor-based solution.

As will be seen in the next section, in perfective contexts, AST-T is presumably identical to the Event Time, and then AST-T will have to have some temporal duration. I will thus assume that AST-T in English can have duration only when it is identical to the event time.

The relationship between aktionsart and aspect has previously been discussed by Bohnemeyer & Swift (2004), among others. Bohnemeyer & Swift claim that telic predicates in many languages, including German, by default get a perfective interpretation, while atelic predicates get an imperfective interpretation. As they also discuss, in a language like English, all dynamic predicates get a perfective interpretation by default.[3] My claim is in many ways similar to theirs, though in my view there is no such thing as 'default aspect'. As will be argued in this article, predicates of all types can be interpreted as both perfective and imperfective in both English and Swedish. The nature of AST-T only imposes restrictions on a certain type of imperfective aspects, the so-called PROGRESSIVE imperfective, where the assertion time is located within the run-time of a specific event. In English, only states – lexical states, or derived states including progressives and generics – can get an imperfective interpretation, though states can get a perfective interpretation as well. In Swedish, only states and processes, including derived states and processes, can get an imperfective interpretation. On the other hand, dynamic predicates can only get an imperfective interpretation in English if they first have been turned into states,

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and telic predicates in Swedish can only get an imperfective interpretation if they first have been turned into atelic predicates (stative or non-stative).

## 2. TENSE, AKTIONSART AND VIEWPOINT ASPECT

Linguists more or less uniformly agree that temporal relations should be broken down into three separate levels: tense, viewpoint (or outer) aspect and aktionsart/inner aspect. These three levels are highly intertwined, and hard to study in isolation from each other. Tense provides information about how an event or state is temporally located with respect to Speech Time (or Utterance Time). For example, in (4), the three tenses of English are given: in (4a) a state is located before Speech Time (past), in (4b) a state is located at the same time as Speech Time, and in (4c) a state is located after Speech Time (future):

(4) a. He was tired yesterday. (Past)
b. He is tired now. (Present)
c. He will be tired tomorrow. (Future)

Aktionsart or lexical aspect is related to the shape of the event, for example if the event has an endpoint, if it has duration or if it is dynamic. We have already seen two ways of defining the four classical predicate types states, activities, accomplishments and achievements: Taylor's meaning postulates, which build on the predicate's (sub-)interval properties, and Vendler's system, which makes use of three binary features (±Dynamic, ±Durative and ±Endpoint). The four classes can be divided into two macro-classes: predicates without an endpoint (Vendler), or predicates that are true of sub-intervals of the event (Taylor), i.e. states and activities, and predicates with an endpoint (Vendler) or predicates that are not true at any sub-interval of the full event (Taylor), i.e. accomplishments and achievements (see also Krifka 1998 for an extensive discussion of telicity).[4] The former are called atelic predicates and the latter are called telic predicates. The telicity of a predicate can be diagnosed with the help of temporal adverbials: atelic predicates can be modified by the adverbial expression 'for X time', and telic predicates can be modified by the adverbial expression 'in X time', as shown in the examples in (5)–(7) below. Some verbs are lexically specified for aktionsart/inner aspect, as is the case for most stative verbs, as in (5). In other cases, the inner aspect is determined by the nature of the verb's arguments and modifiers, as seen in (6) and (7).

(5) He owned the company for two years/#in two years. (Atelic, State)

(6) a. He ran for two hours. (Atelic, Activity)
b. He ran to the store in two hours. (Telic, Accomplishment)

(7) a. He wrote poetry for five hours. (Atelic, Activity)
b. He wrote a poem in five hours. (Telic, Accomplishment)

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I will refer to the time of the event or the state as the event time (henceforth, EV-T). Following the line of research instigated by Reichenbach (1947), and developed by e.g. Comrie (1981), S. Vikner (1985), Klein (1994), Giorgi & Pianesi (1997) and Demirdache & Uribe-Etxebarria (2000), I will assume that the EV-T is not directly accessed by Speech Time, but rather that AST-T (or Reference Time/Topic Time) mediates between Speech Time and EV-T. I will assume that AST-T is introduced by an aspect (Asp) node located below Tense (that is anchored to the Speech Time/Utterance Time) and above a node carrying information about EV-T, following the line of thinking in e.g. Klein (1994) and Demirdache & Uribe-Etxebarria (2000). AST-T can be seen either as a temporal argument of Asp (labelled Z(eit)P), as proposed by Stowell (1993) and developed in Demirdache & Uribe-Etxebarria (2000) and Stowell (2007), or as a value present only as an index on Asp. The same can be said about EV-T with respect to V (see Demirdache & Uribe-Etxebarria 2000) and Speech Time with respect to Tense. For the purpose of this article, it is not important whether temporal information is encoded in special argument slots, or located in the temporal/aspectual heads (but see the end of Section 2.1 for further discussion). In the syntax, Tense establishes a temporal relation between Speech Time and AST-T, while Asp relates AST-T to EV-T.

### 2.1 Aspect and its relation to the progressive form

Aspect, or viewpoint/outer aspect, provides information about the perspective the speaker takes with respect to an event or a state. In many languages (e.g. the Romance languages), a morphological distinction is made between imperfective aspect and perfective aspect.[5] Perfective aspect is used to indicate that the event is seen as bounded, or as a whole (see e.g. Comrie 1976, Giorgi & Pianesi 1997), and imperfective is used to indicate that only a sub-part of the event is focused on. The focus in this article is on the imperfective aspect, since this is where we find a difference between Swedish and English, but the perfective aspect will be discussed as well. Even though aspect is not overtly marked in Swedish and English, I will assume that every sentence has an aspect value, either perfective or imperfective (see discussion in the concluding section below).

The imperfective can be split into two sub-categories: PROGRESSIVE and NON-PROGRESSIVE, where the non-progressive covers habitual, generic and possibly iterative aspect (see e.g. Filip 2000). In this paper I will use PROGRESSIVE in small capitals for the semantic progressive imperfective aspect, and the term progressive form for the English progressive form, i.e. *be* V-*ing*. I will assume that what is common for the sub-types of imperfective aspect is that the AST-T is located inside the Event Time. I will assume that habituals and generics contain derived states (see Parsons 1990), in which AST-T is located in the default case. I will not go into the technical detail of how generic and habitual states are derived here, but only point out

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that in English, the simple form is crucially used for NON-PROGRESSIVE imperfective aspect, as shown in (8).

(8) a. Dogs bark. (Generic)
b. My father always drinks tea in the morning. (Habitual)

In the PROGRESSIVE imperfective aspect, AST-T is located inside an ongoing event or a (non-generic, non-habitual) state. As has been suggested earlier, and as will be argued for in great detail below, AST-T in English is punctual, and can thus only be located inside predicates that are true at moments, i.e. states (or derived states) in accordance with the first of Taylor's meaning postulates set out in the introduction above. In Swedish, AST-T cannot be located inside a telic predicate (i.e. an accomplishment or an achievement), since telic predicates will not be true for any intervals inside the event, but only for the whole event, in accordance with the third of Taylor's meaning postulates.

Note that PROGRESSIVE imperfective aspect should not be confused with the English progressive form, which actually can be perfective in certain contexts. The PROGRESSIVE imperfective aspect can be characterized as an event going on, or a state holding, where the endpoint and the starting point is of no relevance. The focus is only on a sub-interval (or a point in time) of a larger event or state. Technically it can be characterized as AST-T located inside EV-T. In English, the progressive form has to be used for dynamic verbs to get this reading, as in (9a), while the simple form is used for stative verbs, as in (9b). In both these examples, no assertion is made about the full event or state described in the main clause, but only about a small portion of the event that is somehow related to the event described in the modifying embedded temporal clause.[6]

(9) a. John was writing a letter when I entered the room.
b. When I came back home, my brother owned the company.

In Swedish, the PROGRESSIVE imperfective reading is available for atelic dynamic verbs as well as for states in the simple tenses, as illustrated in (10b) ((10a) is taken from Platzack 1979).

(10) a. Storken flög ovanför mitt hus *på/i tio minuter.
*stork.DEF flew above my house on/in ten minutes*
'The stork flew/was flying above my house for ten minutes.'
b. Storken flög ovanför mitt hus när den blev skjuten.
*stork.DEF flew above my house when it was shot*
'The stork was flying above my house when it was killed.'

We can tell from the choice of preposition in (10a) that the sentence is atelic (i.e. *i* instead of *på*).[7] The main clause in (10b) has a PROGRESSIVE interpretation: we make an assertion about a sub-part of the whole event, and this sub-part is temporally

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related to the event described in the embedded clause. With a telic predicate, as in (11) ('fly to X'), the progressive interpretation is not available, making (11b) semantically odd; the only interpretation available is a sequential reading: the bird was shot first and then it flew to my house. That is, we have to see the two events as two completed events.

(11) a. Storken flög till mitt hus på/*i tio minuter.
*stork.DEF flew to my* house on/in ten minutes
'The stork flew to my house in ten minutes.'
b. #Storken flög till mitt hus när den blev skjuten.
*stork.DEF flew to my house when it was shot*
#'The stork flew to my house when it was shot.'

Again, note that the telicity-restriction in Swedish also follows from Taylor's postulates: an accomplishment like 'fly to my house' is only true when the whole event is taken into account, in this case, the stork's flying from some contextually salient location to my house, and can crucially not be true at any sub-intervals of the event.

In English, even though the progressive form has to be used for dynamic verbs to express PROGRESSIVE aspect, it is not the case that the progressive form always gives rise to PROGRESSIVE imperfective aspect. The progressive can also be used in bounded contexts, as in (12) where the adverbials 'for X hours' and 'from A to B' yield bounded readings, i.e. in the examples in (12), we make an assertion about the whole event. Here, the simple form can be used as well. Lexical states can be bounded as well, as is shown in (12c).

(12) a. Yesterday it rained/was raining for two hours.
b. Yesterday I worked/was working from 9 to 5.
c. He owned the company from 1984 to 1989.

A temporal *for*-phrase thus modifies atelic predicates, but it provides boundaries for the event. The *for*-phrase and the verb create a complex predicate with the same temporal properties as a telic verb, i.e. a predicate that denotes an event that is not true for any sub-intervals of the whole event: the event of 'raining for two hours' is not true for any sub-intervals of the whole event. Just like a telic event, a verb modified by a temporal *for*-phrase will get a perfective interpretation unless it is within the scope of a higher stativizing operator, like a habitual or generic operator. Hence, predicates modified by 'for X hours' and 'from A to B' need to surface in the perfective in the Romance languages in non-generic/non-habitual contexts, as exemplified for Spanish in (13) and (14).[8]

(13) Ayer llovió/*llovía durante dos horas.
*yesterday rain.PRET.3RD/rain.IMP.3RD for two hours*
'Yesterday it rained for two hours.'

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(14) Ayer trabajé/*trabajaba desde las 9
*yesterday work.PRET.1ST.SG/work.IMP.1ST from DEF.FEM.PL 9*
hasta las 5.
*to DEF.FEM.PL 5*
'Yesterday I worked from 9 to 5.'

As we see, English progressive predicates can be bounded in contrast to Romance imperfectives.[9] In other words, the progressive form in English does not unambiguously signal be unboundedness, or indicate that only a sub-part of the event is in focus. Note also that many of the Romance languages have a periphrastic progressive in addition to the imperfective. The copula in the progressive constructions can be marked either imperfective or perfective (or *pretérito*, as it is called in Spanish), depending on the boundedness of the event, which shows that the progressive–simple distinction is largely independent of the perfective–imperfective distinction:

(15) a. Ayer estuvo/*estaba lloviendo durante dos horas.
*yesterday was.PRET.3RD/was.IMP.3RD raining for two hours*
'Yesterday it was raining for two hours.'
b. A las dos estaba/*estuvo lloviendo.
*at DEF.FEM.PL two was.IMP.3RD/was.PRET.3RD raining*
'At two o'clock it was raining.'

This aspect distinction is not expressed in English, which again shows that the progressive is not an imperfective *per se*. Rather, the progressive, just like states in general, can have a perfective interpretation, or an imperfective interpretation (most commonly a PROGRESSIVE imperfective).[10] Stativity is a prerequisite for PROGRESSIVE imperfective aspect in English. The progressive operator stativizes a non-stative predicate, and the derived stative predicate can be assigned a PROGRESSIVE imperfective value. A non-stative predicate could not be assigned a PROGRESSIVE imperfective value, due to the nature of AST-T in English.

One might still want to call the English progressive form a type of 'aspect', but it must be remembered that the progressive form does not determine the boundedness, or the viewpoint taken of the event. Rather, it creates an in-progress state (Parsons 1990), i.e. it changes the aktionsart of the predicate, and thus has more in common with, for example, endpoint-inducing verb particles and endpoint-demoting conative constructions than the aspect marking we see in, for example, the Romance languages. The progressive, together with other aktionsart modifiers like, for example, phasal verbs have to be located below the viewpoint aspect projection, in something that we can call the extended verb phrase. The head of the extended verb phrase forms a relation with viewpoint aspect, giving the following functional hierarchy:[11]

(16) *Proposed functional hierarchy*
Tense [(Viewpoint) Aspect [Extended VP (Progressive, phasal verbs, etc.) [VP/Lexical Aspect]]]

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Dynamic verbs in the simple form can have NON-PROGRESSIVE imperfective interpretations, as we have already seen in example (8), but most commonly a simple dynamic verb receives a perfective interpretation. Whereas imperfective aspect is characterized as having AST-T inside EV-T, perfective aspect can be characterized as AST-T being identical to EV-T, as in Demirdache & Uribe-Etxebarria (2000). If this characterization is correct, it simply cannot be true that AST-T is always punctual in English, as the event time in typical perfective predicates, as in (17), is clearly not a point in time:

(17) a. We built the house in five years.
b. He ran for three hours.

If Demirdache & Uribe-Etxebarria (2000) are right, we have to conclude that AST-T in English can be either a point in time or a longer interval. I will assume that AST-T can be an interval in English, but only when it is identical to the event time. The AST-T in English could thus have two possible values: it can either be punctual (default) or be determined by the EV-T.[12] This will rule out PROGRESSIVE interpretations of dynamic predicates in English: a progressive interpretation of an dynamic predicate requires a non-punctual AST-T, but AST-T in English can only be non-punctual when it is identical to the EV-T. When AST-T and EV-T are identical, an assertion is made about the whole event and, crucially, not a sub-part of it.

The simplest way of characterizing viewpoint aspect in Swedish and English is to assume that the aspect head can carry either the value IDENTITY or WITHIN:

*Values of the viewpoint aspect head*

- AST-T is identical to EV-T = Perfective aspect
- AST-T is within EV-T = Imperfective aspect

The perfective aspect can thus be seen as an anaphoric aspect: AST-T and EV-T are co-referential.[13] The value of AST-T is determined by EV-T. The imperfective aspect can be seen as a pronominal or referential aspect: the category Asp introduces a new temporal entity, disjoint from EV-T. Above I have defined imperfective aspect as AST-T within EV-T, but it would also be possible define imperfective aspect as 'AST-T not identical to EV-T'. One would then have to give a pragmatic account for the within-relation, for example by stating that it would be uninformative to make an assertion about a time where no event is going on, or no state holds. Note, however, that Reichenbach (1947), Giorgi & Pianesi (1997), Demirdache & Uribe-Etxebarria (2000) have claimed that the perfect locates AST-T after EV-T. If this is true, 'non-identity' would not be a sufficient definition of imperfective aspect. There are, however, several alternatives to the Reichenbachian analysis of the perfect that are compatible with the 'non-identity' analysis, for example, an analysis of the perfect as a derived resultant state, in which the AST-T could be located. For clarity of the

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argumentation in this paper, I will keep the definition above that imperfective aspect locates AST-T within EV-T. It is, however, possible that the only function of Asp is to introduce a temporal argument (or variable) that is either co-referent with or disjoint from EV-T. The aspectual values 'identity' and 'within' could follow solely from the value of the index: an anaphoric AST-T would of course give rise to an identity relation, and a referential/pronominal AST-T could plausibly give rise to a within-relation.

If we follow Stowell's idea that AST-T is represented in the syntax as a temporal argument (ZP), we can state the difference between English and Swedish as follows:

(18) A non-anaphoric ZP in English can only denote a point in time, while a non-anaphoric ZP in Swedish can denote either a point in time or an interval.

In this account, the difference between the two languages is thus only in the value of a zero pronominal element. This would not be an unexpected locus of variation, as we know that languages may differ when it comes to possible values of *pro* for example (e.g. Italian vs. Icelandic).[14]

If, on the other hand, we choose to represent AST-T as an index on Asp, we have to state that the a new index introduced by AST-T in English can only be interpreted as a point in time. I leave it up to the reader to decide which technical solution is the best one. In the rest of the article I will simply talk about PROGRESSIVE imperfective aspect as 'AST-T within EV-T', and perfective aspect as 'AST-T = EV-T', without reference to the exact syntactic structures.

The definition of the perfective above might need some reformulation to hold cross-linguistically. As discussed in e.g. Ramchand (2004) and Romanova (2006), perfective predicates in Russian (and other Slavic languages) are able to pick out certain sub-parts of the event, for example, a starting point, or possibly an endpoint. In these cases, a temporal relation seems to be established between AST-T and a certain sub-event within the macro-event. We can still view this as an identity relation, only that the identity is not between the time of assertion and the whole event time, but rather a sub-event.[15] The choice of perfectivizing prefix will determine which sub-event an assertion is made about. In other words, it seems to be possible for a language to make fine-grained distinctions within the perfective, but even in these cases, we are dealing with an identity relation.[16]

From the discussion of English above we can conclude that dynamic predicates in the simple form, stative predicates in the simple form and predicates in the progressive form can have either perfective or imperfective interpretations, at least in the Romance sense. There is only one reading missing in English: PROGRESSIVE readings of simple non-stative verbs. If we follow Taylor's meaning postulates as was given in the introduction, the obvious conclusion is that AST-T in English is always punctual unless it is identical to EV-T, and thus cannot meaningfully denote a sub-part of an

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event that is not true at moments. That is, it should not be possible to talk about a point in time of an event named by a predicate that is only true at sub-intervals larger than a moment, since by definition, the predicate in itself cannot hold at a point in time. It is possible though to derive states from non-states. In English, this can be done with the help of, for example, the progressive, which derives in-progress states from non-states (see Parsons 1990). As will be further argued below, predicates in the progressive form in English, always behave like stative predicates, and not like 'imperfective' predicates. As has been mentioned above, and as will be carefully argued for below, both states and activities can get a PROGRESSIVE interpretation in Swedish, while telic predicates cannot. From this we can conclude that AST-T can be longer than a moment in Swedish, even in cases where it is not identical to EV-T, and that there is no phonologically null progressive head in Swedish (that would create states or atelic predicates from telic predicates).

It should be noted that a sentence with an activity verb in the PROGRESSIVE imperfective aspect means something slightly different in Swedish and English. The Swedish sentence in (19) does not really mean the same thing as the English sentence in the translation line:

(19) Vi spelar fotboll.
*we play football*
'We are playing football.'

In the Swedish sentence, AST-T picks out one or several minimal stages of a football-playing event. In English, the progressive has turned the activity predicate into an in-progress state, possibly by erasing boundaries of the minimal stages of the event, and the AST-T picks out one moment of the in-progress state. The Swedish sentence and its English counterpart have the same aspect value, i.e. AST-T is located within EV-T, but they still mean something slightly different. This difference in meaning is parallel to the difference between a perfective activity verb in the simple form and the progressive form in English, as in (20):

(20) a. It was raining for two hours.
b. It rained for two hours.

Both sentences above are perfective, but whereas (20a) is a perfective in-progress state, (20b) is a perfective activity event.

## 3. AST-T INSIDE EVENT TIME: ENGLISH VS. SWEDISH

In the following five sub-sections, I will look at five different contexts that can all be argued to have AST-T located inside EV-T: (i) past tense with overt AST-T modifiers, (ii) the universal perfect, (iii) episodic present tense, (iv) modals with episodic complements, and (v) complements of ECM/raising verbs like *discover* and

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*realize*. As will be shown, only states, including progressives, are allowed in these contexts in English. In Swedish, only atelic predicates are allowed in the first three contexts, while the last two contexts show a strong preference for states, just like in English. The fact that we see state-sensitivity in certain contexts in Swedish is of importance for the argument in this paper. If it turned out that activities and states always patterned alike, we could assume either that activities in Swedish are just a subtype of states (i.e. a type of predicate that is true at moments) or that Swedish has a phonologically null progressive head, that only applies to atelic predicates. The fact that predicates in the progressive form in English always pattern like states provides strong evidence for the claim that the English progressive is a derived state (as claimed by Vlach 1981 and Parsons 1990), and not a certain type of aspect. As will be briefly discussed below, there are strategies in Swedish too for deriving states from dynamic predicates, most notably pseudo-coordinations (see Tonne 2007 for an extensive discussion).

### 3.1 Past tense and AST-T modifiers

The first context I will look at is past tense sentences containing *when*-clauses. In English, the interpretation of the temporal relation between the *when*-clause and the main clause crucially depends on the nature of the events in the two clauses.[17] The event denoted in the *when*-clause is most naturally to be interpreted as taking place within the time of the event/state when the main clause predicate is a lexical state or a derived state (here, the progressive is the derived state that is relevant), while the event in the *when*-clause is interpreted as preceding the event time of the predicate when the main clause is non-stative. The telicity of the event is of no relevance in English. I will for now label the two different relations as 'Overlap' and 'Sequential'.

(21) a. When I arrived, John owned half the company. (State, Overlap)
b. When I arrived, John was writing the letter. (Progressive, Overlap)
c. When I arrived, John wrote the letter. (Telic, Sequential)
d. When I arrived, John wrote poetry. (Atelic, Sequential)

In Swedish, both dynamic and stative atelic predicates in the main clause can get an overlap-interpretation, while telic predicates get a sequential reading, as shown in (22):

(22) a. När jag besökte honom bodde han hos sina föräldrar. (State, Overlap)
*when I visited him lived he at his parents*
'When I visited him, he lived with his parents'
b. När jag kom in i rummet åt han glass. (Activity, Overlap)
*when I came in i room.DEF ate he ice-cream*
'When I entered the room, he was eating ice-cream.'

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c. När jag kom in i rummet skrev han dikten. (Telic, Sequential)
*when I came in in room.DEF wrote he poem.DEF*
'When I entered the room, he wrote the poem'

This section will answer two questions: (i) Why does the state/dynamic distinction give rise to the two interpretations (sequential vs. overlap) in English? and (ii) Why is it the the atelic–telic distinction rather than stative–dynamic distinction relevant in this context in Swedish. First, however, a note about temporal adverbs is in order. I will assume, following Demirdache & Uribe-Etxebarria (2004), that temporal adverbials like *when*-clauses do not directly give the AST-T of the main clause, but rather relate the AST-T to the point in time or interval given by the adverbial clause. The relation between the time interval or point given by the adverb is not necessarily one of identity, at least not for a *when*-clause that triggers a sequential reading. Temporal identity is not imposed by adverbs like *last year* or *yesterday* either, as illustrated in the following two examples, one with a simple eventive verb, and one with a progressive verb:

(23) a. I wrote a letter yesterday.
b. Q: How come you didn't see any movies last year?
A: Well, I was writing my dissertation last year.

In (23a), the letter-writing did not necessarily take a whole day. We assume that the assertion time is identical to the event time in (23a), i.e. we make an assertion about an interval that lasts exactly as long as the letter-writing takes. The function of the temporal adverbial is only to locate the AST-T within the time interval denoted by *yesterday*. Crucially, identity is not required. The example in (23b) is interesting, since the main clause is a (derived) state. Here, a temporal identity between the state and the time span is at least pragmatically plausible, but is not required. The event/state denoted by the main predicate might very well have extended last year (i.e. the writing might have started two years ago, and might have continued until this year). The event/state might have also be shorter than the whole year. The subject might have either finished the dissertation within last year, or just stopped writing it at some point. The AST-T in (23b) is thus not identical to the EV-T, i.e. we are not making an assertion about the full in-progress state of writing a dissertation. It is rather a point in time, located somewhere within the derived state. The AST-T is further located somewhere within time interval denoted by the temporal adverb, i.e. *last year*. The assertion in (23b) is thus only that there is a point in time located within last year, where the subject was in the in-progress state of writing his dissertation. Our world-knowledge tells us that the duration of the event presumably was fairly long, and since the dissertation-writing is given as the main argument for not seeing any movies last year, we can conclude that the dissertation-writing probably covered most or all of last year. But this is not asserted, only filled in by our world-knowledge

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and pragmatics. If the simple past tense is used in (23b) (e.g. *I wrote my dissertation last year*), the whole event must have taken place within last year, since the assertion time now is identical to the event time, and the assertion time/event time is located within last year.

Other temporal modifiers directly specify EV-T, for example the durational adverbials *for x time* and *in x time*.[18] As has already been mentioned, a *for*-phrase specifies the time span of an atelic predicate, while an *in*-phrase specifies the time span of a telic predicate. An atelic predicate with a *for*-phrase modifier behaves like a telic predicate, which is predicted from Taylor's meaning postulates: there is no sub-interval of the predicate *run for five hours* for which the predicate *run for five hours* is true.

The temporal relation between the time denoted by the adverbial and the AST-T (or possibly EV-T) of the main clause can be specified in various ways, for example, *before* or *after*. The relation between the time adverbial and the main clause predicate is in these cases quite transparent, and Swedish and English do not show any unpredictable differences here. The semantics of *when* is less transparent. *When* relates the AST-T of the embedded predicate to the AST-T of the main clause. In the sequential reading of *when*, we seem to get a reading that is similar to *after*, i.e. the event in the main clause takes place after the event in the *when*-clause takes place, but the two assertion times are much more directly connected when a *when*-clause is used compared to an *after*-clause. In (21c) and (21d), both the main predicate and the embedded predicate are perfective, that is, both predicates are non-stative, which forces an identity relation between AST-T and EV-T in each clause. Since we have a sequential reading, rather than an overlapping or simultaneous reading, we must conclude that *when* established neither an identity relation nor a within-relation. Rather, a temporal *while*-phrase has to be used to give overlapping or simultaneous reading.[19] Let us assume the following semantics for *when*:

> *When* locates the AST-T of the embedded clause (AST-T1) before the AST-T of the main clause (AST-T2), but there is no temporal interval or point in time between AST-T1and AST-T2.

We can assume this definition for the overlapping cases in (21) and (22) as well. When the main predicate is stative, the AST-T is punctual, and it is located somewhere inside EV-T. If the predicate inside the *when*-clause is eventive, the AST-T is an interval which is temporally identical to the EV-T. *When* locates the AST-T in its complement just before and abutting the AST-T of the main clause. The EV-T of the main clause presumably spans a much longer interval, starting well before the event in the *when*-clause. This gives rise to the Overlap interpretation.[20] The definition of English *when* can be applied to Swedish *när* 'when' also. The difference we see between activity verbs in English and Swedish is not triggered by differences between English *when* and Swedish *när*, but in the nature of the imperfective topic time.

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Modification by a *when*-clause can thus be seen as a test for (im)perfective aspect: an Overlap interpretation is only possible when the main clause predicate is imperfective, i.e. when the AST-T is within the EV-T, and a Sequential interpretation is forced when the main clause predicate is perfective, i.e. when the AST-T is identical to the whole event. In English, only states can be assigned an imperfective value, and therefore an Overlap interpretation is only possible when one of the predicates is stative. In Swedish, both states and activities can be assigned an imperfective value, which makes overlap interpretations possible for both states and activities.

Sequential readings seem to be unavailable for both lexical states and progressives (the sequential reading is unavailable for the progressive in (21b)), as shown for states in (24):

(24) a. # When my brother, who we thought were dead, came back, he owned the family company. (Overlap only)
b. # When John saved the kitten, Lisa loved him. (Overlap only)

The coerced reading 'start to love/own' seems to be unavailable in (24), which is unexpected, given that we have argued that states can be perfective.[21] It should, however, be noted that sequential readings are unavailable for many stative verbs in languages with marked viewpoint aspect as well, as can be seen in the Spanish examples (25a, b). Note, however, that the same Spanish predicate can carry perfective marking in other contexts, as in (26a, b).

(25) a. ??Cuando Juan salvó al gatito, Maria lo amó.
*when Juan save.PRET.3RD TO.DEF kitten Maria him love.PRET.3RD*
Intended: 'When Juan saved the kitten, Maria fell in love with him/started to love him.'
b. ??Cuando volvió mi hermano, fue el dueño de la compañía.
*when return.PRET.3RD my brother be.PRET.3RD DEF owner of the company*
Intended: 'When my brother returned, he became the owner of the company.'

(26) a. Juan amó a su mujer durante dos años.
*Juan love.*PRET.3RD *to his wife for two years*
'Juan loved his wife for two years.'
b. John fue el dueño de la compañía durante dos años.
*John be.*PRET.3RD DEF *owner of DEF company for two years*
'John was the owner of the company for two years.'

Presumably, starting points of states are not salient enough to be picked up by a *when*-clause. However, a starting point, and an endpoint, can be imposed on states with a delimiting adverbial (such as *for X time*), yielding a perfective interpretation (with perfective marking as a consequence).[22]

The perfective and the imperfective aspect can also be teased apart with the adverb *still*.[23] The adverb *still* adds an implication that the event was going on before

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AST-T, and that it is still going at AST-T. By adding *still*, we therefore make sure that AST-T is included in EV-T. *Still* is thus incompatible with a sequential relation between a *when*-clause and the main clause, and compatible with an overlap relation, as shown in (27). Throughout the paper, I will use the adverb *still* as a test for imperfective aspect.

(27) a. When I entered the room, John was still writing poetry. (Activity, Overlap)
b. *When I entered the room, John still wrote poetry. (Activity, Sequential)
c. When I came home, my father still owned the company. (State, Overlap)

For Swedish, as we have seen, clearly telic predicates get a sequential reading when modified by a punctual *when*-clause. As expected, the Swedish equivalent of the adverb *still* is not licensed in this context, as shown in (28):

(28) När jag kom in i rummet skrev han (*fortfarande) dikten.
*when I came in in room.DEF wrote he still poem.DEF*
'When I entered the room, he (*still) wrote the poem.'

The overlap reading is available as soon as the predicate is atelic, as in the three contexts below: the conative version of (28) in (29a), a predicate with a non-quantized object in (29b) and a stative predicate in (29c). As shown, the adverb *fortfarande* 'still' is felicitous in these contexts, and there is no sequential reading:

(29) a. När jag kom in i rummet skrev han fortfarande på dikten.
*when I came in in room.DEF wrote he still on poem.DEF*
'When I entered the room, he was still writing/working on the poem.'
b. När jag kom in i rummet åt han fortfarande glass.
*when I came in i room.DEF ate he still ice-cream*
'When I entered the room, he was still eating ice-cream.'
c. När jag besökte honom bodde han fortfarande hos sina
*when I visited him lived he still at REFL.POSS.PL*
föräldrar.
*parents*
'When I visited him, he still lived with his parents.'

The contrast between (28) and (29) clearly shows that only atelic predicates can get PROGRESSIVE imperfective interpretations. That is, AST-T can only be located inside a predicate that is true at sub-intervals of the event.

One possibly problematic fact for the claimed correlation between telicity and AST-T placement is presented by Tonne (2007). She notes that both (30a) and (30b) below can receive a progressive reading, i.e. a reading where AST-T is located inside the event time (Norwegian example from Tonne (2007:195), the corresponding Swedish sentences behave like the Norwegian examples):

(30) a. Barna leste da jeg kom inn.
*child.PL.DEF read when I came in*
'The children read/were reading when I entered.'

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b. Barna leste en bok da jeg kom inn.
*child.PL.DEF read a book when I came in*
'The children read/were reading a book when I entered.'

The example in (30b) has an indefinite quantized object, and we would expect that the quantized object would make the predicate telic, and therefore non-progressive. However, the verb *read* is well-known for allowing both telic and atelic interpretations with quantized objects, in both English and the Scandinavian languages, as exemplified here for English:

(31) a. He read a book for an hour/in an hour.
b. I read the newspaper for an hour/in an hour yesterday.

This shows that the correlation between (a)telicity and PROGRESSIVE interpretation still holds. Tonne's example just shows that certain typical accomplishment verbs can behave more like degree achievements in certain context (compare a typical degree achievement, e.g. *The hole widened for an hour/in an hour*).[24]

Summing up, once carefully investigated, we see that telicity restricts the availability of PROGRESSIVE readings of the simple past in Swedish in the same way as dynamicity restricts the availability of PROGRESSIVE readings in English.

### 3.2 The universal perfect

In the Reichenbachian system, the perfect realizes a temporal structure where the AST-T/Reference Time is located after the Event Time. However, when it comes to the universal perfect, the AST-T actually needs to be included in the Event Time, as illustrated in (32):

(32) I have been sitting here ever since 5 o'clock.

The sitting has to take place at AST-T, which is here identical to Speech Time (since it is a present perfect rather than a past perfect), for (32) to be felicitous. In other words, AST-T can be included in the EV-T in perfects, just as in the present (progressive) and past (progressive) tense.[25] It should be noted that many languages use the present tense in contexts where the universal perfect has to be used in Swedish and English. This is true both of languages that lack a special present perfect tense form, i.e. Japanese and Hindi (Naoyuki Yamoto and Rajesh Bhatt, p.c.), and of some languages that have a special perfect tense form, like Dutch and Italian, where the perfect tense in general cannot express the universal perfect (Marleen van der Vate and Irene Franco, p.c.).[26] I will therefore assume that the location of EV-T with respect to AST-T in the perfect tenses is partly underspecified. Thus, the semantic interpretation of the perfect cannot be that of establishing a specific relation between AST-T and EV-T. It is more plausible that the perfect functions to either introduce a so-called perfect time span (see e.g. Mittwoch 1988, Iatridou, Anagnastopulou & Izvorski 2001) or create

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a higher level resultant state or target state (see Parsons 1990, Katz 2003), though the exact characterization of the perfect tense is of no importance for this article. What is important is rather that we see the same difference between English and Swedish in the perfect tense as we see in the past tense.

In English, just like in the present and past tense, non-stative predicates need to carry progressive marking in the universal perfect. It does not make any difference if the predicate is an activity, as in (33a), or an accomplishment, as in (33b). States, as usual, surface in their simple form, as shown in (33c):[27,28]

(33) a. He has been running/#run ever since five o'clock this morning.
b. He has been writing/#written the paper ever since five o'clock this morning.
c. He has lived here ever since 1985.

Note that we see the same effect in the past perfect (i.e. pluperfect), which tells us that the effect is not triggered by the nature of Utterance Time/Speech Time, but rather AST-T:

(34) When we came to soothe him, he had been crying/#cried ever since his parents left him.

In Swedish, the telicity effect is very strong in the universal perfect, as seen in the contrast between an activity, in (35a), and an accomplishment, in (35b):

(35) a. Jag har sprungit ända sedan klockan 5.
*I have run ever since clock.DEF 5*
'I have been running ever since 5 o'clock.'
b. *Jag har skrivit brevet ända sedan klockan 5.
*I have written letter.DEF ever since clock.DEF 5*
Intended: 'I have been writing the letter ever since 5 o'clock.'

States pattern with activity verbs, as expected:

(36) Jag har bott här sedan 2004.
*I have lived here since 2004*
'I have lived here since 2004.'

Telic predicates can of course occur in the perfect tense, but only with the interpretation that the whole event has been completed prior to AST-T (as in *I have already written the letter*). Note that this reading is not available with the temporal modifier *ever since* (see Mittwoch 1988 for discussion).

### 3.3 Episodic present tense

Let us assume that AST-T and Speech Time are co-temporaneous in the episodic present tense. That is, in the present tense, we make an assertion about an event taking place or a state holding at Speech Time. In the imperfective aspect in English,

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we would thus have a punctual AST-T that is located within EV-T, and the Speech Time would be identical to AST-T, as schematized in (37):

(37) *Imperfective present tense*
SP-T = AST-T, AST-T within EV-T

The progressive form has to be used for all non-stative verbs in order to get an episodic present tense reading, as shown in (38). As we also see, the adverb *still* is felicitous here, showing that AST-T really is located inside EV-T:

(38) a. John is (still) writing the letter. (Accomplishment)
b. We are (still) playing football. (Acticity)
c. John (still) owns the brewery. (State)

If a non-eventive verb is used in the simple present tense form, a generic or habitual reading is the most salient one. We assume that generic predicates have a phonologically null stativizer. Thus, a generic sentence like the one in (39) has the same tense-aspect structure as the other imperfective present tenses above. The difference is that a different stativizer is used in the generic than in the progressive, and the generic stativizer is not pronounced:

(39) We play football. (Generic/Habitual only)

If we assume that Speech Time is a point in time, we can rule out a present perfective: in a perfective predicate AST-T is always identical to the whole event, and the whole event is longer than a point in time (at least it requires a transition from one state to another). An identity relation could not possibly hold between a point in time and a time span that is longer than a point in time. However, there are reasons to suspect that Speech Time can have duration in some cases. If Speech Time has duration, the perfective present tense would have the following structure:

(40) Perfective present tense
SP-T = AST-T, AST-T = EV-T

A perfective present tense could only pick out an event that takes place as the speaker is speaking. This is pragmatically odd, but this is presumably the right characterization for so-called reportive uses of the present tense, as discussed in Parsons (1990:Chapters 12 and 13). The reportive present tense is exemplified in (41) (from Parsons 1990:30):

(41) And the Maryland delegation goes two to one for the democrats!
(Uttered by a newscaster)

Another instance where the event takes place in the same time as the utterance is with so-called performative predicates like *promise*, as discussed by Austin (1962) and exemplified in (42):

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(42) I hereby pronounce you husband and wife.

We have thus no reasons to rule out a perfective present tense. Rather, we have to state that the present perfective is limited to certain contexts, where the whole event actually takes place at Speech Time.[29] If we were to assume that the present tense in English established a within-relation between Speech Time and AST-T rather than an identity relation, we would expect fewer restrictions on the perfective present tense, i.e. we would expect to be able to use it to talk about events that have started and will culminate sometime in the future.

Whereas the stative–dynamic distinction is very clearly seen in the English present tense, the telicity effect is much more subtle in Swedish, and superficially it seems that even clearly telic events can surface in the present tense with ongoing readings, as can be seen in (43a), where a present tense telic sentence includes the adverb *nu* 'now'. Example (43b) shows that the verb phrase really is telic.

(43) a. Jag skriver brevet nu.
*I write letter.DEF now*
'I'm writing the letter right now.'
b. Jag skrev brevet på fem minuter/*i fem minuter.
*I wrote letter.DEF on five minutes for five minutes*
'I wrote the letter in five minutes/*for five minutes.'

It is tempting to analyse (43a) as an imperfective PROGRESSIVE present tense:

(44) *Progressive present tense*
SP-T = AST-T, AST-T within EV-T

If this is the right analysis, we have to give up the claim that assertion time cannot be located inside telic events in Swedish. However, we have established above (Section 3.1) that *fortfarande* 'still' is a test for imperfective aspect and, as shown in (45), *fortfarande* is not licit in the present tense when the predicate is telic (unless we force a generic/habitual reading):

(45) *Jag skriver fortfarande brevet.
*I write still letter.DEF*
Intended: 'I'm still writing the letter.'

This shows that AST-T is not located inside EV-T in (43a), and that we need another way to account for the presence of the adverb *nu* in the example. First, however, note that *fortfarande* is licit in the present tense contexts with all types of atelic verbs (even in non-generic contexts), that is, present PROGRESSIVE readings are available. This is shown here for the conative version of (43a) in (46a), a simple activity verb in (46b) and a stative verb in (46c):

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(46) a. Jag skriver fortfarande på brevet.
*I write still on letter.DEF*
'I'm still working on the letter.'
b. Han springer fortfarande.
*he run.PRES still*
'He is still running.'
c. Han äger fortfarande företaget.
*he own.PRES still company.DEF*
'He still owns the company.'

From this we can conclude that the restriction on having AST-T inside a telic event holds in the present tense as well, i.e. in Swedish we see the same telicity-sensitivity in the present tense as we see in the simple past and the perfect. This is of course expected: we would not expect that tense restricts the way AST-T and EV-T are connected.

We must, however, conclude that the present tense in English and Swedish are different. As we saw above, by assuming that the present tense in English always establishes an identity relation between Speech Time and AST-T, we could account for the available readings of the present tense.

In Swedish, an identity relation will not capture the possible readings of the present tense. The Swedish sentence in (43a) above is not a reportive reading. The most salient reading of (43a) is that the event starts at Speech Time, or even right after Speech Time. It is thus presumably an instance of the future use of the present tense, as illustrated here:

(47) Jag kommer om två timmar.
*I come.PRES in two hours*
'I'll come in two hours.' or 'I'm coming in two hours.'
(*'I come in two hours.')

Note that the future use of the simple present tense is not available in English (see e.g. Giorgi & Pianesi 1997 for discussion). The Swedish present can thus be defined in one of the following ways:

(48) a. Speech Time is not after AST-T (i.e. Speech Time is within, before or identical to AST-T).
b. Speech Time is identical to or before AST-T.

To decide between (48a) and (48b), we have to ask whether a within-relation can hold between Speech Time and AST-T, i.e. whether we can make an assertion about an event that started in the past and will end in the future, when using the simple present tense. The judgements are tricky here, but it seems that time span adverbs cannot pick out an interval that starts before Speech Time and ends after Speech Time, but only an interval that is entirely located after Speech Time. This is illustrated in (49),

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where the follow-up clause is odd since it implies that the event started before Speech Time:[30]

(49) Jag skriver det här brevet på en halvtimme, (#så jag borde
*I write.PRES this here lettter on one half.hour so I should*
vara klar om 15 minuter).
*be done in 15 minutes*
'I will write this letter in 30 minutes, so I should be done in 15 minutes.'

Note that (49) also has a coerced generic reading, which is available in the English simple present tense as well, though this reading is more felicitous with another type of DP, for example, *I write this type of letter in 30 minutes, so I should be done in 15 minutes* (*since I started 15 minutes ago*). Note that (49) is fine without the follow-up clause, in a near-future (or starting now) reading, in a context like 'I will write this letter in 30 minutes, and then I'll join you guys for a beer in the pub'. Let us then conclude that Speech Time in the Swedish present tense is either identical to AST-T or located before AST-T. In perfective aspect, i.e. contexts where AST-T is identical to EV-T, we are restricted to a reportive, performative or future-shifted interpretation. In the imperfective aspect, i.e. when AST-T is within EV-T, we get an ongoing present tense interpretation, as well as a future interpretation. In the ongoing present tense, we could assume that Speech Time is identical to AST-T, and thus have some duration. The Swedish tense-aspect system thus seems to be similar to the tense-aspect systems in Slavic languages, though aspect is morphologically marked in Slavic, but not Swedish. As is well-known, in the Slavic languages where present tense verb can carry perfective or imperfective marking, perfective forms trigger a future-shifted reading (though performative/reportive uses are also available, as in Swedish), while imperfective verbs are interpreted as progressive (or habitual), as is shown in (50) for Russian (examples from Eugenia Romanova, p.c.):

(50) a. Po-stroju dom. (Perfective)
*PF-build.1SG.PRES. house*
'I'll build a house.'
b. Stroju dom. (Imperfective)
*build.1SG.PRES house*
'I am building a house.'

Summing up, the present tense in Swedish can surface in four different temporal configurations, while in English it can surface only in two. The different configurations are given in the following list:

(i) Perfective present tense: SP-T = AST-T, AST-T = EV-T, English and Swedish. This is the structure for the reportive present tense and performative speech acts.
(ii) Imperfective present tense: SP-T = AST-T, AST-T within EV-T, English and Swedish. In English, this is the structure for lexical states and derived states

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(generic and in-progress states) in the present tense. In Swedish, this is the structure for present tense interpretations of all atelic predicates, including states, processes and generics.

(iii) Perfective future tense: SP-T before AST-T, AST-T = EV-T, Swedish only. This is the structure for telic predicates in the present tense when they are not used as reportive, performative or generic predicates.

(iv) Imperfective future tense: SP-T before AST-T, AST-T within EV-T, Swedish only. Not discussed above, the future interpretation is also available for imperfective predicates. This is predicted, since we do not expect that the tense value should restrict the possible aspect values. An example of an imperfective future tense is given in (51).

(51) Han är nog fortfarande hemma när du kommer dit.
*he is probably still home when you come there*
'He will probably still be at home when you get there.'
( = 'He is probably still at home (#when you get there).')

It is beyond the scope of this paper to discuss the exact relation between the two different tense values that can be spelled out by the present tense marker in Swedish, i.e. 'before' and 'identity'. The present tense might just be vague, or underspecified; for example, the only information that the present tense marker provides could be that no part of AST-T precedes speech time. But the present tense might also be genuinely ambiguous, for example, it could realize a tense node with either the value 'before' or 'identity'. This option is assumed in the list above. A third option is that present tense always imposes a strict identity relation between speech time and AST-T, even in Swedish, and that the future interpretation has its origin in a covert modal verb (realized by *will* in English). I will leave this for future investigation.[31]

It is of course tempting to draw parallels between the aspect-restrictions and tense-restrictions in English and Swedish. The difference between the Swedish present tense and the English present tense is only seen when there is a non–co-referent relation between AST-T and Speech Time, just like we only see a difference between English and Swedish in the aspectual domain when AST-T is not co-referent with EV-T. However, the difference in tense between English and Swedish does not seem to be located in the nature of Speech Time, but rather in the possible values of tense (e.g. *before*, *after*, etc.).[32]

### 3.4 Complements of modal verbs

The aktionsart and aspect of a verb embedded under a modal verb influence the interpretation of the modal verb in subtle and intricate ways (see e.g. Eide 2005 for a detailed discussion). In this paper I am only interested in one question regarding this interaction between modality and aspect/aktionsart: When is it possible to get

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a present tense, PROGRESSIVE interpretation of a verb embedded under an epistemic modal?[33] That is, when is it possible to get Speech Time and AST-T inside Event Time, in the context of a modal? The structure I am interested in is given in (52):

(52) Modal [Speech Time = AST-T, AST-T within EV-T]

The purpose of this section is not to lay out the intricate interactions between modality and tense/aspect but rather to illustrate that the state-sensitivity holds for infinitives in English as well, and further to show that some Swedish modal verbs show state-sensitivity, just like their English counterparts. The second point is important, as it shows that the distinction between states and activities is syntactically relevant in Swedish. This point is also made in Section 3.5 below.

In English, non-stative predicates need to carry progressive marking to get a present tense ongoing reading ((53a) and (54a)). Simple infinitives get a future-shifted reading, usually with deontic force ((53b) and (54b)). The telicity of the main predicate is of no importance (the examples in (53) and (54) are based on examples in Ramchand 2012).

(53) a. John must be swimming. (Epistemic, present tense)
b. John must swim. (Deontic, future-shifted)

(54) a. John must be writing the letter now. (Epistemic present tense)
b. John must write the letter now. (Deontic, future-shifted)

The sentences in (53a) and (54a) above could both be the answer to the question *What do you think John is doing now?* while the sentences in (53b) and (54b) could not. Stative verbs can surface in the simple infinitival form:

(55) John must own half the company now. (Epistemic, present tense)

The Speech Time and AST-T are presumably identical in the sentences above, and the AST-T is located inside the Event Time, i.e. these are statements about events that hold at Speech Time. The data above shows that infinitives in the complement of modals are sensitive to the stative–dynamic distinction as well, just like finite verbs and perfects.

Turning to Swedish, it is clear that epistemic readings are most easily available for stative verbs and copular constructions, as shown for the modal *måste* 'must' in (56):[34]

(56) a. Detta bröd måste innehålla tillräckligt med fiber.
*this bread must contain sufficient with fibers*
'This bread must contain enough fibers. (Let's buy it!)'
b. Han måste verkligen älska sin fru.
*he must really love* REFL.POSS *wife*
'He must really love his wife. (Judging from the amount of flowers he sends her.)'

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c. Kakan måste vara klar nu.
*cake.DEF must be ready now*
'The cake must be ready now.'

Future oriented deontic readings are also possible in the sentences above, given the right context (e.g. 'The next type of bread we produce must contain enough fibers to count as a healthy bread').

For non-stative verbs, deontic, future-shifted interpretations are often preferred, but given the right context, epistemic, Speech Time oriented readings are possible. Assume that a person is standing outside a big building, and he can hear from inside a lot of balls bouncing and people running around. In this context, he may very well utter:

(57) De måste spela fotboll därinne.
*they must play football there.in*
'They must be playing football in there.'

Thus, once again, dynamic atelic predicates pattern with states in Swedish. Note that in English, in this very context, the main predicate has to surface in the progressive form. When it comes to telic predicates, it is harder to get the epistemic reading, even impossible, I would say. The best context I can suggest is the following: Mary sees a slightly blurred picture of a man holding something green in his hand, and holding his hand quite close to his mouth. Someone asks Mary what the man in the picture is doing, and she answers:

(58) (??)Han måste äta ett äpple.
*he must eat an apple*
Intended: 'He must be eating an apple.'

Even in this context, the above sentence is marked, compared to the perfectly grammatical (57) (a future or habitual deontic reading of (58) is of course possible). The sentence in (58) improves considerably, in the epistemic use, when the object is introduced by a preposition (i.e. in the conative construction, 'eat on an apple'), which triggers an atelic reading. When no direct sensory input is present at Speech Time (as the sound in the context of (57) and the picture in the context of (58)), an ongoing present tense interpretation of the event denoted by the complement of the modal seems to be impossible, regardless of the telicity of the predicate. The judgments are very subtle, though I find both (59a) (accomplishment) and (59b) (activity) infelicitous as answer to the questions 'Why isn't John here today? What do you think he is doing?':

(59) a. #Han måste skriva det där brevet.
*he must write this there letter.DEF*
'He must be writing that letter. (Remember, that's what he said he would do today.)'

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b. #Han måste spela fotboll.
*he must play football*
'He must be playing football. (Remember, he said that he might miss today's meeting because of his football.)'

The sentence in (59a) is slightly more marked than the sentence in (59b), indicating that telicity is a factor here as well. Crucially, neither is as good as the English clauses with the progressive, illustrated in the translation lines.[35] This again clearly shows that the simple forms in Swedish are not equivalent to the progressive forms in English.

If we probe for an answer containing a stative verb, the epistemic interpretation of *must* is easily available. The sentence in (60) is a perfectly felicitous answer to the questions 'Why isn't John here today? Where do you think he is?':

(60) Han måste vara på sitt kontor.
*he must be on his office*
'He must be in his office.'

Other modals, such as *kunna* 'can'/'may' and *borde* 'should', also show strong preferences for stative complements when they are used as epistemic modals (with Speech Time oriented interpretations). This is shown in (61) for *kunna*, which has at least two different readings: an ability reading and an epistemic possibility meaning. As an answer to a question like 'What do you think John is doing?', only the epistemic interpretation makes any sense. As shown in (61a), an activity verb in the complement of *kan* (present tense of *kunna*) is not felicitous in this context (though it is felicitous in the ability reading).

(61) a. ??Han kan skotta snö.
*he may shovel.INF snow*
'He may be shoveling snow.'
b. Han kan vara ute och skotta snö.
*he may be.INF out and shovel.INF snow*
'He may be out shoveling snow.'
c. Han skottar snö.
*he shovel.PRES snow*
'He is shoveling snow.'

A periphrastic construction, like *vara ute å* 'be out and' works much better (indicating that these periphrastic constructions are stative, just like the English progressive), as shown in sentence (61b), and the simple present tense without any modality is unproblematic, as shown in (61c).

These contrasts, as well as the contrasts seen with *måste* with stative and dynamic complements, show that the stative–dynamic distinction is relevant in the syntactic/semantic computational system in Swedish. At present, I do not know why modals in their epistemic uses are highly state-sensitive, but it could be argued that the

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complements of modals are structurally reduced, lacking certain projections related to the temporal interpretation. It could also be argued that epistemic modals in general modify propositions, or facts, and that the temporal properties of propositions are similar to those of states (for example, one could say that there is no need for any special type of assertion time to evaluate states and propositions).

### 3.5 Complements of punctual ECM/raising verbs

As discussed in Hallman (2009), the ECM verbs *discover* and *reveal* select stative verbs and progressives in English, as shown in (62) (from Hallman 2009):

(62) a. The inspector revealed/discovered Max to be a liar.
b. The inspector revealed/discovered Max to be lying.
c. *The inspector revealed/discovered Max to lie.

The same effect can be seen in the raising predicate *turn out*, as in (63):

(63) a. I wondered what John was up to, and he turned out to be writing/*write a letter.
b. I thought that John was rich, and correctly, he turned out to own half the company.

It is not obvious what the Reichenbachian structure of these sentences would be. I will for now assume that the predicates *discover*, *reveal* and *turn out* pick out an assertion time (the time of discovery/revelation), and this time is located inside the event time (as denoted by the infinitival verb phrase), i.e. the discovery takes place as the event is going on.[36]

In Swedish, neither *upptäcka* 'discover' nor *avslöja* 'reveal' take ECM complements. However, the Swedish equivalent of 'turn out', *visa sig*, can be used as a raising predicate. *Visa sig* seems to select for stative predicates, just like English *turn out*. A search of the Swedish tagged corpus PAROLE (http://spraakbanken.gu.se/parole/) for the string 'visa/visade/visar/visat sig V' ('Show infinitive/present/past/participle) *sig* Verb') gives around 700 hits. The most common verb in this context is *vara* 'be', followed by *ha* 'have'. Otherwise, stative lexical verbs like *innehålla* 'contain' and *betså av* 'consist of' are also quite common, as is modal *kunna* 'can; know'.[37]

If we take the verb *lie*, as used in (62) above for English ECM constructions, the difference in grammaticality is not very strong, though the copula + NP complement in (64a) is clearly preferred over the verbal complement in (64b). The non-raising version is also perfectly fine with a full verb:

(64) a. Han visade sig vara en lögnare.
*han showed* REFL *be a liar*
'He turned out to be a liar.'

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b. ?Han visade sig ljuga.
*he showed* REFL *lie.*INF
Intended: 'He turned out to be lying.'
c. Det visade sig att han ljög.
*it showed* REFL *that he lied*
'It turned out that he lied.'

The fairly mild effect seen above might be because of the inference from a habitual, or possibly stative, interpretation of *ljuga* 'lie' in (64b). If, however, an episodic reading is forced, an eventive verb seems to be outright ungrammatical. If we take (65) as a starting point, setting a context that forces an eventive reading, it turns out that a stative/copula verb is fine in the complement (66a), while an eventive verb is not. The eventive verb is, however, fine in the non-raising version (66c):

(65) Jag letade efter min kollega.
I went for my colleague
'I went looking for my friend.'

(66) a. Han visade sig vara på sitt kontor.
*he showed* REFL *be.*INF *on* REFL.POSS *office*
'He turned out to be in his office.'
b. *Han visade sig undervisa.
*he showed* REFL *teach.*INF
Intended: 'He turned out to be teaching.'
c. Det visade sig att han undervisade.
*it showed* REFL *that he teach.*PAST
'It turned out that he was teaching.'

As pointed out in the discussion of (64), it seems like habitual interpretations sometimes interfere. Still, however, habitual readings are much more marked in the infinitival complement of *visa sig* than true states, as is shown below. Finite complements are not sensitive to the state–habitual distinction:

(67) a. Han visade sig äga halva företaget. (State)
*he showed* REFL *own.*INF *half company.*DEF
'He turned out to own half of the company.'
b. ??Han visade sig äta middag på Grand Hotel varje dag. (Habitual)
*he showed* REFL *eat dinner on Grand Hotel every day*
'?He turned out to eat dinner at Grand Hotel every day.'
c. Det visade sig att han åt middag på Grand Hotel varje dag.
*it showed* REFL *that he ate dinner on Grand Hotel every day*
'It turned out that he ate dinner at the Grand Hotel every day.'

Summing up, the punctual raising verb *visa sig* clearly does not allow episodic interpretations of infinitival activity verbs in its complement, as shown in (66b) above, and even strongly disfavors habitual interpretations, see (67b). However, stative verbs

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are fine. I do not know why *visa sig* in Swedish selects stative complements, and for now I will assume that this selection is encoded in the lexical entry of *visa sig*. It would of course be nice to have a more principled explanation of this selectional restriction, but I will leave this for future research.[38,39]

### 3.6 Summing up and discussion

Above we have looked at five contexts where we see state-sensitivity in English, i.e. contexts where dynamic verbs have to surface in the progressive. Table 2 provides a summary of the English data.

Semantically, it could be argued that AST-T is located inside the Event Time in these five contexts. As far as I am aware, a dynamic verb can never surface in the simple form when AST-T is located inside Event Time. Instead, the progressive form has to be used, and as we have seen above, the progressive behaves like a stative predicate, at least as far as syntax is concerned. In other words, we have every reason to conclude that the English progressive is a derived state, i.e. something that is true at moments rather than minimal stages, according to Taylor's characterization.

The Swedish pattern crucially differs from the English one, as shown in Table 3. Note that there is no column for 'progressive' here, since overtly derived in-progress states in Swedish have not been investigated in this paper.

The clear telic–atelic split in rows 1–3 in Table 3 shows that there is no covert progressive/stativizer in Swedish, at least not of the English type (which, as we have seen above, applies to both telic and atelic predicates). Rows 4 and 5 in this table show that dynamic atelic predicates do not behave like states across the board. This importantly tells us that there is no special type of progressive operator in Swedish that

| | Progressive | State | Activity | Telic event |
|---|---|---|---|---|
| 1. Past PROGRESSIVE | √ | √ | * | * |
| 2. Universal perfect | √ | √ | * | * |
| 3. Episodic present | √ | √ | * | * |
| 4. Present PROGRESSIVE under modal | √ | √ | * | * |
| 5. Comp. of punctual ECM/raising | √ | √ | * | * |

**Table 2. State-sensitive contexts in English.**

| | State | Activity | Telic event |
|---|---|---|---|
| 1. Past PROGRESSIVE | √ | √ | * |
| 2. Universal perfect | √ | √ | * |
| 3. Episodic present | √ | √ | *(??) |
| 4. Present PROGRESSIVE under modal | √ | % | * |
| 5. Comp. of punctual ECM/raising | √ | * | * |

**Table 3. State- and telicity-sensitive contexts in Swedish.**

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applies only to dynamic atelic predicates. Rather, atelic predicates are truly 'dynamic' in Swedish (as opposed to English progressives). If we accept Taylor's postulates, we must conclude that AST-T can be located inside predicates that are true only at intervals, as well as predicates that are true at moments (states). However, AST-T in Swedish cannot be located inside accomplishments and achievements, i.e. predicates that lack the subinterval properties of activities (and states). As discussed above, this follows from Taylor's meaning postulates, since accomplishments and achievements are not true for ANY sub-interval of the event: if the AST-T were placed inside the run time of the event, it would have to pick out only a sub-interval of the event.

## 4. CONCLUDING DISCUSSION

In this paper I have investigated two typologically different languages: Swedish and English. Swedish is telicity-sensitive, and English is state-sensitive. I have shown that the state-/telicity-sensitivity is not restricted to individual tenses, but holds across the whole tense paradigm, both when tense morphology is present and when it is absent. This leads me to conclude that the state-sensitivity in English does not directly result from the lack of (or scarcity of) tense morphology. Further, the difference between English and Swedish, I think, does not originate in the presence or absence of a functional head in any of the languages, but rather the value of a functional head (a viewpoint aspect head).

I have argued that the state-sensitivity in English derives from of the nature of AST-T: the imperfective AST-T is punctual and therefore PROGRESSIVE interpretations are restricted to predicates that are true at points in time. Note that there is nothing especially deep or even controversial about this claim; it simply follows from the meaning postulates of Taylor (1977) (as given in the introduction), combined with the idea of Assertion Time as a mediator between Speech Time and Event Time. Given that PROGRESSIVE readings of dynamic predicates are acceptable in Swedish, we have to conclude that AST-T can be an interval in Swedish, being able to take care of predicates that are not true at moments (dynamic predicates), as well as predicates that are true at moments (states) (again, this simply follows from Taylor's characterization of stative and non-stative verbs). The telicity-sensitivity also follows from Taylor's postulates: if AST-T were to be placed inside of a telic event, it would only pick out a sub-interval of the event, and the telic predicate would not be true for any sub-interval.

I have also argued that the restriction on PROGRESSIVE interpretations (which follows from the nature of the non-anaphoric AST-T) has nothing really to do with viewpoint aspect: all types of predicates can receive either imperfective or perfective interpretations in both Swedish and English. Nor should progressive marking in English, or say, conative marking in Swedish, be treated as aspect

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marking. The progressive form makes a PROGRESSIVE interpretation possible by making a dynamic predicate stative, but the PROGRESSIVE interpretation is never obligatory with a predicate with progressive marking. The progressive is simply a function that stativizes (non-stative) predicate, and as a consequence, a PROGRESSIVE interpretation is possible. Similarly, a conative construction in Swedish does not create an imperfective (or PROGRESSIVE) predicate; it creates an atelic predicate that later can be assigned a PROGRESSIVE value (but also a perfective value). Viewpoint aspect is simply not marked in Swedish and English. However, this does not mean that viewpoint aspect projections are absent in the two languages, or that viewpoint aspect is just vague in the two languages. Rather, most probably, all Swedish and English sentences carry an aspectual value, either perfective or imperfective. There are several reasons for suspecting this.

First, as is mentioned in note 10 in this paper, in embedded contexts it can easily be seen that the past tense can receive either a perfective or an imperfective reading. For example, the sentence *Paul said that John and Bill were drunk* is ambiguous. It can mean that John and Bill are drunk at the moment when Paul utters the sentence (imperfective/simultaneous interpretation) or it can mean that John and Bill were drunk some time prior to the time picked up by the matrix tense (perfective). Crucially, however, the sentence is not vague: it cannot mean that John was drunk at the moment when Paul uttered the sentence, and Bill was drunk prior to that.

Secondly, the same set of adverbs that trigger perfective marking and perfective interpretations in, for example, the Romance languages also trigger perfective interpretations in English and Swedish. For example, delimiting temporal adverbial like 'for X time' gives rise to perfective interpretations, as illustrated for Swedish in (68):

(68) När jag kom hem bakade mamma kakor i en halvtimme.
*when I came home baked mother cookies in a half-hour*
'When I came home, my mother baked cookies for half an hour.'

The only reading available for (68) is a sequential reading: my mother baked cookies for half an hour, starting at my arrival. Further, unless we assume that an aspect projection is always present with either a perfective or imperfective value, we have serious problems explaining the difference seen between English and Swedish with respect to aspect (i.e. state-sensitivity vs. telicity-sensitivity).

If we take the characterization of the difference between Swedish and English presented in this paper to be correct, we can start to speculate about what properties of tense systems are universal. Two possible universals are given below:

(i) Stative predicates are the only type of predicates that are true at moments.
(ii) AST-T cannot be located within a telic predicate, presumably because of the lack of homogeneity of the telic predicate (that is, there is no minimal stage of a telic predicate that will cover both the process and the cumulation of the

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telic predicate, i.e. there are no subintervals of telic predicates that are event-structurally identical to the whole interval of the predicate).

The second universal above is possibly stated too strongly, since it actually says that PROGRESSIVE interpretations of telic predicates should be impossible even in languages that have overt aspect morphology, as in the Slavic and Romance languages for example, unless we assume that the imperfective morphology makes the predicate atelic before giving it an imperfective value.

It is beyond the scope of this paper to investigate this fully, but some facts that support universal (ii) above are worth mentioning. First, Slavic languages lack definite and indefinite articles. Imperfective sentences containing typical accomplishment verbs can therefore be interpreted as processes (e.g. 'write book for X time'), i.e. the direct object does not bound the event. However, a quantified direct object does bound an event (i.e. makes the event telic) and, as discussed in Romanova (2006), an imperfective clause with a quantified object cannot receive a PROGRESSIVE interpretation, as in (69a) below, but only a habitual interpretation, as in (69b). Note from the translation line in (69a) that the progressive in English is fine in this context (examples from Romanova 2006:80–81):[40]

(69) a. *V eto vremja on pil stakan vody.
*in this time he drink.PAST.IMP glass water*
Intended: 'At that moment he was drinking a glass of water.'
b. On pjët stakan moloka v day.
*he drink.PRES.IMP glass milk in day*
'He drinks a glass of milk every day.'

This suggests that the restriction on locating AST-T inside the Event Time of a telic predicate holds for Russian, and possibly other Slavic languages as well.[41]

Also in Romance languages, here taking Spanish as the example language, it is actually hard or impossible to get a PROGRESSIVE interpretation of a clearly telic predicate in the simple imperfective. To show this, one has to be very careful in setting up the context correctly, since habitual interpretations arise very easily (Antonio Fábregas, p.c.). Given the context in (70a), the simple imperfective form is unacceptable, see (70b), and only the imperfective progressive can be used, as in (70c) (examples from Antonio Fábregas, p.c.):[42]

(70) a. [Context: I went to John's office and gave him a form to fill out. When I came back to his office half an hour later . . . ]
b. *Todavía rellenaba el formulario.
*still fill.out.IMP the form*
Intended: 'He was still filling out the form.'
c. Todavía estaba rellenando el formulario.
*still was.IMP fill.out.PROG the form*
'He was still filling out the form.'

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Note that a PROGRESSIVE interpretation is possible for atelic predicates in the simple imperfective form:

(71) a. [Context: I went to see what John was up to.]
b. Todavía rellenaba formularios.
*still* *fill.out.IMP* *forms*
'He was still filling out forms.'

Still, to fully verify point (ii) above, much more detailed cross-linguistic work is needed.

Regarding cross-linguistic variation in the tense-aspect system, the following three possible sources are identified:

(i) AST-T: AST-T can be specified as punctual in a language (e.g. English), while it can span larger intervals in other languages, as in Swedish. (Presumably it is always possible for AST-T to have its reference determined by EV-T.)
(ii) Operations for making predicates true at moments: In English, the progressive can turn virtually all predicates into states, i.e. something that is true at moments. In Swedish, there is no obvious counterpart to the progressive, though we have seen a couple of possible Swedish periphrastic constructions with similar functions, such as the English progressive (note that they do not have to be used in Swedish as often as in English, given that atelic predicates can surface in the simple form in most 'progressive' contexts).
(iii) Morphological syncretism in the tense/aspect system: In Swedish, for example, the same form (the present) can be used as both present tense (i.e. speech time is within AST-T), future tense (i.e. speech time before AST-T), and also as habitual tense/aspect. In English, no future reading is possible for the simple present tense.[43] In general, there is huge cross-linguistic variation in how the different available tense forms in a given language cover the different logically possible tenses and aspects.

The point–interval distinction should presumably have repercussions for the lexical and functional inventory in the two languages under discussion. Both languages can of course in the end have basically all types of predicates in the PROGRESSIVE aspect, but we predict that the point–interval distinction forces languages to develop different strategies. In English there is a highly grammaticized strategy for turning events into states, namely the progressive (*be* V-*ing*), which makes it possible for dynamic predicates to receive a PROGRESSIVE interpretation. There will be little functional pressure to derive atelic dynamic verbs from telic dynamic verbs, since dynamic verbs of all types will have the same aspectual limits.

In Swedish, on the other hand, the functional pressure for stativizing verbs will be weaker, since the stative–dynamic distinction is of less importance in the syntax than it is in English. Surely, there are stativizing operations in Swedish as well, most notably

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pseudo-coordinations like *sitta å* V 'sit and V', but they are less grammaticized (and less frequent) than the English progressive. On the other hand, my impression is that operations that derive atelic dynamic predicates from telic dynamic predicates are more commonly employed in Swedish than in English. I give two examples in (72) below: bare singular objects and PP objects (conative constructions). Both strategies exist in English also, but they are more restricted, as the following two examples show:

(72) a. Vi bakar tårta.
*we bake.PRES cake*
'We are baking a cake/cakes.' (*'We are baking cake.')

b. Jag syr på en klänning till mitt bröllop.
*I sew.PRES on a dress for my wedding*
'I am sewing a dress for my wedding.'
(*'I am sewing on a dress for my wedding.')

A bigger quantitative study would, however, be required to verify the prediction that strategies for turning telic predicates into atelic dynamic predicates are more common in Swedish than in English.

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## NOTES

1. I will not discuss *how* in-progress states are derived. I will focus just on the fact that progressives have the same temporal properties as lexical stative verbs, with a few exceptions, as the planned future reading, as in *We are landing in 15 minutes* (see e.g. Rothstein 2004 for discussion). I will assume that the function of the progressive is similar to the so called 'universal grinder' in the nominal domain, which turns count nouns into mass nouns. The progressive is thus basically erasing the boundaries of the minimal stages of events, making them true at points in time instead of larger intervals.
2. Sometimes a fifth verb class is identified, namely semelfactive verbs (see Smith 1991), like e.g. *jump*. These verbs get an iterative interpretation when they appear in typical imperfective contexts, e.g. *He was jumping for ten minutes*. This class will not be discussed in this paper.
3. This observation has also been made by linguists looking at languages that lack overt tense morphology, where telicity or stativity sometimes influences the tense interpretation. Sometimes telicity seems to be the main factor, see Matthewson (2006) for Lillooet Salish, and Lin (2007) for Chinese, and other times stativity seems to be the main factor, see van de Vate (2011) for discussion on Saamáka.

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4. It is still an open question if accomplishments and achievements are qualitatively different. Even achievements seem to have some duration, as can be seen from the fact that they can appear in the progressive, as in *He was reaching the top* and *He was dying* (see Giorgi & Pianesi 1997 for discussion). I will not discuss achievements separately in this paper, but rather focus on the telic–atelic distinction and the state–dynamic distinction.
5. In some languages, more fine-grained distinctions are made, as in e.g. Bulgarian, where neutral aspect as well as imperfective and perfective aspects are found, see Smith (1991) for general discussion and Iatridou et al. (2001) for discussion on Bulgarian.
6. The function of *when*-clauses and other temporal adverbs will be discussed in Section 3.1.
7. Note that *i* 'in' is used for atelic predicates, in contrast to English, where *in* is used for telic predicates.
8. In Spanish, the past perfective is called *pretérito*. I use the gloss PRET for the past perfective in Spanish.
9. In Slavic languages, atelic predicates in the past tense are not marked with a perfective prefix, even when they are bounded, as in the Russian example in (i) (example from Klein 1995):

   (i) Ivan rabotal c dvuch do pjati.
   *Ivan work.PAST.IMP from two to five*
   'Ivan worked from two to five.'

   The verb above does not have any overt aspect marking at all, in contrast to perfective verbs, which in general carry aspectual marking in the form of a prefix. There are reasons to suspect that the unmarked verbs in Slavic are aspectually unmarked, as can also be seen in the fact that some non-prefixed verbs are clearly perfective. For example, in Czech, the unmarked verb *dat* 'give' can only get an imperfective reading if it carries the so-called secondary imperfective marker *-va*, otherwise it only has a perfective interpretation (Lucie Medova, p.c).
10. Another context where the perfective–imperfective ambiguity can be seen for stative and progressive predicates is embedded clauses (i.e. Sequence of Tense). An embedded past tense state or progressive can either be interpreted as being simultaneous or prior to a matrix past tense verb:

    (i) a. He said that his brother owned the company (from 1982 to 1985).
    b. He said that it was raining (from 2 to 5).

    The temporal adverbials in (ia, b) force perfective interpretation, and the perfective interpretation is incompatible with a simultaneous interpretation. Without the temporal adverbials, an imperfective interpretation of the embedded predicate is available, which makes available a reading where the matrix event time and the embedded event time overlap. It is well known from the Romance literature (see e.g. Giorgi 2009 and references therein) that a perfective embedded predicate triggers prior interpretations, and an imperfective embedded verb triggers simultaneous interpretations in this context.

    Yet another context where aspect ambiguity is seen is in the interpretation of modals. As discussed in detail in Bhatt (2000) and Hacquard (2009), root modals cross-linguistically get actuality entailments when they appear in the perfective aspect. In English, modals are ambiguous, due to the lack of aspect marking, as can be seen in (ii) (example from Hacquard 2009):

    (ii) a. In her twenties, Jane could/was able to swim across Lake Balaton, though she never did. (Imperfective, no actuality entailments)
    b. Yesterday, Jane could/was able to swim across Lake Balaton, ??but she didn't. (preferably Perfective, with actuality entailments)

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11. Operators that derive habituals and generic states are presumably located above the extended VP, as progressives can be interpreted habitually, in the right context, as shown in the following pair of examples:

    (i) a. My mother is always drinking a glass of wine when I come home.
        b. My mother always drinks a glass of wine when I come home.

    In (ia), the subject is always in the in-progress state of drinking a glass of wine at the time picked out by the temporal adverbial, while in (ib), a sequential reading is the most natural.
12. As mentioned in the introduction, Demirdache & Uribe-Etxebarria (2004) try to make a connection between overt morphology and availability of certain aspect values, just like Giorgi & Pianesi (1997). The claim is that the identity relation arises because of the lack of overt aspect morphology. However, states in English, and all atelic verbs in Swedish, can get a PROGRESSIVE interpretation, despite the fact that no aspect morphology is present.
13. Strictly speaking, it is more correct to characterize the perfective aspect as a *cataphoric* aspect, since the AST-T is determined by a succeeding element, i.e. EV-T. I will however take 'anaphor' to be a term that covers both forward and backward co-reference, and thus the perfective aspect can be seen as an anaphoric aspect. Note, however, that it is the reference of AST-T that is determined by the EV-T, and not the other way around.
14. It is possible that the difference in value of the non-anaphoric ZP also gives rise to differences in Tense. This will be briefly taken up again in Section 3.3.
15. One might say something similar about verb particles in Swedish (and English), which often seem to pick out endpoints of events, as in (i):

    (i) Bill drack upp ölen när jag kom.
    *Bill drank up beer.DEF when I came*
    'Bill finished/drank up the beer when I came.'

    Intuitively, it seems that the assertion time picks out the very end of a larger event. I suspect, however, that verb particles create short telic predicates, similar to achievements. The particles should thus not be seen as aspect markers, rather they are modifiers of the predicate. As shown in the next example, there is no implication that the event of drinking up a beer is a sub-event of a larger beer-drinking event:

    (ii) När jag kom fram till baren drack Bill upp Johans öl.
    *when I came up to bar.DEF drank Bill up Johan's beer*
    'When I reached the bar, Bill finished Johan's beer.'

    Here, Bill might just have entered the scene right before me, and he might not have been involved in any beer-drinking whatsoever before my arrival. It is possible that some of the Slavic perfectivizing prefixes should be seen as aktionsart modifiers rather than pure viewpoint aspect markers.
16. As was noted in note 5 above, some languages make a three-way distinction in the aspect system: perfective, imperfective and neutral. In the neutral aspect, the assertion necessarily includes the starting point of the event, but not necessarily the endpoint. We could characterize the neutral aspect as a type of imperfective aspect, since AST-T is not identical to EV-T here, but as being more restricted than the imperfective in other languages in that AST-T actually must include the starting point of the event.
17. See C. Vikner (2004) for an extensive discussion of the semantics of *when*-clauses. Swedish does not mark the distinction between so-called definite and indefinite *when*-clauses, in contrast to e.g. Danish and German, as pointed out by C. Vikner (2004).

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18. There is further a use of *in X time* in English that specifies the relation between the speech time and the assertion time, as in *I will go there in two minutes*. This use will not be discussed in this article.
19. There are some cases when the predicate of the *when*-clause has not reached its telos before the event in the main clause takes place. Two examples are given in (i):

    (i) a. John got hit by a car when he crossed the street.
        b. John was kidnapped when he walked to the bus.

    It not necessary that John has reached the other side of the street when he got hit by a car in (ia); he just needs to have started the event. The same is true for (ib): John does not have to have arrived at the bus before the kidnapping takes place. The difference between *John got hit by a car when he crossed the street* and *John got hit by a car when he was crossing the street* is very subtle. My English informants note that a street-crossing event somehow needs to be already present in the discourse when the simple past tense is used (thanks to Gillian Ramchand and Peter Svenonius for discussion). This could indicate that the assertion is still about the full event. Endpoints can be cancelled even in main clauses when we are talking about 'familiar' events, as shown in the contrast between the following two examples:

    (ii) a. #John crossed the street but he never reached the other side.
         b. As usual, John crossed the street between First and Second Avenue, but this time he didn't make it to the other side.

    Still, in languages with overt aspect marking, the non-endpoint reading is not available when the predicate is marked perfective, as in e.g. Spanish and Serbian.

    There are some other slightly marked cases where at least the event time of the main clause and the *when*-clause are partly overlapping.

    (iii) (?)When John danced with Mary, Bill danced with Sue.

    This could mean something like 'When John began dancing with Mary, Bill began dancing with Sue'. However, we know we can get starting point readings with activity verbs, e.g. *John ran* can mean something like 'John started running', or 'John ran away'.
20. The definition of *when* above also covers cases when the predicate in the embedded clause is stative, and the main predicate is eventive, as in (i):

    (i) John broke his elbow when I was at home.

    Here, the embedded AST-T is a point in time located inside EV-T. This assertion time is located right before the AST-T/EV-T of the main verb. Note that *when* and *while* give rise to similar interpretations when the embedded clause is stative:

    (ii) John broke his elbow while I was at home.

    There seem to be a tighter connection between the two events when *when* is used. This might follow from the direct way the two Assertion Times are related in the *when*-clause.
21. Coerced 'start-to' readings are available for some but not all copulative constructions, compare (ia) and (ib):

    (i) a. When John came back home, Lisa was happy. (Overlap or Sequential)
        b. When he came home, he was the owner of the family company. (Only Overlap)

    It is possible that the restrictions on sequential readings for copulative constructions are the same as the restrictions on copulative constructions in the progressive, though that discussion is outside the scope of this article.

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22. For some reason we cannot get sequential readings of progressives even when there is a delimiting adverbial clause. Instead we just end up with an ungrammatical (or at least semantically uninterpretable sentence), as can be seen in (i). Note the difference between the simple form and the progressive.

    (i) a. (#When I came home,) my sister was talking on the phone with her best friend for over two hours.
        b. (When I came home,) my sister talked on the phone with her best friend for over two hours.

    The contrast suggests that the starting point of a progressive predicate is never available for temporal modification.
23. The adverb *already* can also be used, as discussed in Vlach (1981).
24. An anonymous reviewer points out that examples like the following can be found on the Internet:

    (i) Johanna skrev ett brev när vi kom till hennes lägenhet.
    *Johanna wrote a letter when we came to her apartment*
    'Johanna wrote/was writing a letter when we came to her apartment.'

    I find (i) marked in the PROGRESSIVE interpretation, just as I find the sentence *Hon skrev ett brev i en timme* 'She wrote a letter for an hour' marked (see also Bohnemeyer & Swift 2004 for similar German facts), though not necessarily completely ungrammatical given a suitable context. I take the *still*-test to be a perfectivity test, and the 'for X time'-test to be a telicity test. For me, and the Swedish native speakers I have consulted, predicates that cannot be modified with 'for X time' do not pass the *still*-test. Since this article is not about how to create telic verb phrases, but rather how telic predicates influence the temporal interpretation, I have chosen to use only clearly telic verb phrases in my examples. For some reason, definite internal arguments seem to have a stronger quantizedness effect than indefinite internal arguments, and this is why I have chosen to use only definite internal arguments in my examples. If it is possible to coerce a telic predicate to get an atelic interpretation, a PROGRESSIVE reading should always be possible.
25. Evidence from sequence of tense phenomena also shows that the universal (present) perfect patterns like the present tense, see (ic, d) below, while existential (present) perfect patterns like past tense, see (ia, b) below. In the existential perfect and the past tense, an embedded past tense verb can be interpreted as contemporaneous with the matrix verb, while a past tense verb embedded under a present tense or present perfect matrix verb is always interpreted as past with respect to the matrix verb (which is also possible for past tense and existential perfect matrix verbs) (see Iatridou et al. 2001 and references therein for discussion.)

    (i) a. John claimed that Mary was sick. (Ambiguous)
        b. Since Christmas, John has claimed on several occasions that Mary was sick. (Ambiguous)
        c. Since Christmas, John has been claiming that Mary was sick. (Unambiguous)
        d. John claims that Mary was sick. (Unambiguous)

26. Note that effect is not necessarily seen for habituals in the universal perfect.
27. Present perfects (of any kind) cannot be modified by *still*: **He has still been running* (*ever since five o'clock*). The reason for this is not clear. It is possible that *still* is incompatible

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with perfects due to the implicit or explicit time span, which delimits the event. Speech time (and AST-T) presumably adds the right boundary of the event. Note that past perfects can be modified by *still*, but only in a certain type of existential reading (which seems to have properties more similar to the past tense), e.g. *When John arrived, Bill had apparently still been writing the letter*, compare **When I came to London, John had still been living there for five years*.

28. An anonymous reviewer points out that temporal *for*-phrases are licensed in Universal Perfects, as in *He has been running for two hours now*. If it is true that a temporal *for*-phrase bounds the event, and hence makes it perfective (in the absence of higher stativizing operators), it is not obvious why it is licensed in universal perfects. For now I will just assume that *for*-phrases in Universal Perfects are 'perfect level' adverbials, as opposed to 'eventuality level' adverbs, see Dowty (1979) and Iatridou et al. (2001), and as perfect level adverbs, they are outside the scope of viewpoint aspect.
29. It is possible that the so-called 'historical present', as in *In 1994 John arrives in London* . . . , could be characterized as a perfective present tense in certain contexts. See Zucchi (2003) for discussion.
30. Note that the temporal PP headed by *på* cannot give a future starting point of the event, as the *in*-PP can in English. Another preposition has to be used for this reading in Swedish, namely *om* 'about'.
31. See also discussion of this issue in Giorgi & Pianesi (1997).
32. The claim made in Section 2.1 above that non-anaphoric ZPs always denote a point in time in English is presumably true for both Swedish and English when it comes to ZP's denoting Speech Time. There is no reason to suspect that a ZP that denotes the Speech Time is an interval in other contexts than the reportive present tense and performatives.
33. Note that I am not primarily interested in the epistemic–deontic distinction. Both deontic and epistemic modals can take both stative and non-stative complements (in the simple infinitival form), though the interpretation is often future-shifted with non-stative verbs, see C. Vikner & S. Vikner (1997) and Eide (2005) for discussion of Scandinavian data and Ramchand (2012) for discussion of English data.
34. When a modal verb takes an infinitival perfect complement, as in *John must have murdered Bill*, an epistemic reading is always possible (actually, in Swedish, it is the only reading available). I will assume following Parsons (1990) and Katz (2003) that perfects are on some relevant level treated as derived states, though this point is of no importance for this paper.
35. To save the sentences in (59), a periphrastic verbal construction has to be used, for example, *vara* (*ute*) *å* . . . 'be out and . . . '.
36. At least *turn out* can also take a perfect complement, as in *He turned out to have written many books on the subjects*, where the reference time follows the event time. The same is true of the Swedish equivalent of *turn out to*, discussed below.
37. Interestingly the copula/auxiliary *bli* is quite common in the complement of *visa sig*. *Bli* is commonly translated as 'become' or treated as a change of state auxiliary, i.e. not a state. In all the examples found, *bli* could only be translated into English as 'be', indicating that *bli* possibly also has a stative use. A typical example of *bli* following *visa sig* is the following: *Detta skulle visa sig bli hennes sista möte* 'This would turn out to be her last meeting'. It does not seem correct to talk about this as a change of state. More research has to be done on this use of *bli*.

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38. It should be noted that the same state-sensitivity is seen in e.g. Spanish for the equivalent of 'turn out' – *revelar* (i.e. only lexical states or progressives are allowed in the complement of *revelar*). This suggests that the state-sensitivity should be structurally derived.
39. An anonymous reviewer points out that the infinitival complement of *visa sig* is tenseless (in the sense of Wiklund 2007), and suggests that the state-sensitivity can be derived from that. There are, however, many predicates selecting for tenseless infinitives, without additional state-restriction (e.g. phasal verbs like *start* and *continue*). Hence, tenselessness may very well be a part of the state-restriction, but it is not the only one.
40. *Stakan* 'glass' in the examples in (69) is probably a classifier rather than a quantifier. The important thing is that it functions to bound the event.
41. It is less straightforward to explain the nature of the so-called secondary imperfective in Slavic languages, where an imperfective suffix co-occurs with perfective prefix that clearly bounds the event. One possibility is that the secondary imperfective, just like the English progressive, can derive in-progress states from telic predicates (on top of locating AST-T inside Event Time).
42. Antonio Fábregas (p.c.) notes that it is possible to say a sentence like *Todavía escribo la letra* 'I still write the letter', but it seems to imply that I have been writing the letter for several days, i.e. that this is something I do daily (within a limited period) or habitually. This reading is not available in the simple present tense in English, but nor is it a reading that is obligatorily or preferred in the English progressive form.
43. Throughout this paper, I have ignored the so-called scheduled future reading of the English present tense, as in *I teach from 2 to 4 tomorrow*.

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