

Two Aspectual Puzzles in Saisiyat: an Argument for [co] Agreement

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1 Overview

The syntactic and semantic structure of the temporal/aspectual realm has provided fertile soil for inquiry into the properties of Universal Grammar. Many of its components, including Tense, Viewpoint aspect, and Aktionsart, have undergone careful investigation and submitted to elegant analysis. The interaction of these components, however, has been less amenable to a straightforward account: some combinations (e.g., past, perfective, and telic) are especially favored across languages, while others (e.g., perfective and present or stative) are disfavored. One particular construction, the Perfect, seems to have effects in different parts of the temporal/aspectual domain, and has resisted a neat, uniform analysis of its constellation of characteristics. The linguistic encoding of the external and internal temporal structure of events presents myriad puzzles to the researcher.

Building on an analysis of two aspectual puzzles in Saisiyat, an endangered Austronesian language of Taiwan, I lay the foundation for a theoretical account of how the parts of the temporal/aspectual area of the language faculty interact. I first introduce the new data of these puzzles and integrate them into the theoretical background of aspect. These puzzles have a straightforward account in the version of the Extended Now theory advocated by Iatridou et al (2001). I then extend the idea of coincidence (Hale 1984) into the aspectual realm, and define it as a relation between a higher and lower temporal object, which may be an interval or a point. I propose that agreement and licensing of the syntactic feature of coincidence, [co], on covert heads is responsible for the puzzling behavior of aspect in Saisiyat, and give a detailed semantics of both the overt and covert aspectual morphemes in the theory of coincidence. This theory of coincidence between temporal objects and [co] agreement between syntactic heads may be able to account for the interaction between Tense, Viewpoint, and Aktionsart across languages more generally.

2 Two aspectual puzzles

The two aspectual puzzles in Saisiyat that I analyze involve the markers [ina] and [ila]. [ina] invariably appears pre-verbally, while [ila] can encliticize to verbs, objects, adverbs, and occasionally subjects; these different positions appear to be associated with slightly different meanings. I only present examples in which [ila] encliticizes to verbs, and do not concern myself with [ila]'s word order properties.

2.1 First puzzle

[ila] is ambiguous with many predicates. One reading, approximated by the English 'already', marks an initial transition into the eventuality encoded by a predicate (1).

- (1) *Ataw* *m-ae'rem* *ila*
 Ataw AF-sleep ILA
 ‘Ataw has gone to sleep.’ = ‘Ataw is asleep already.’

The other reading, approximated by the English ‘still’, focuses on the fact that the eventuality signified by a predicate continues to hold up to the present (2).

- (2) *Ataw* *m-ae'rem* *ila*
 Ataw AF-sleep ILA
 ‘Ataw has been asleep for a while.’ = ‘Ataw is still asleep.’

The following scenario illustrates the ambiguity between these two readings: Ataw falls sick on Monday and remains so for the entire week. In this scenario, (3) is valid on Monday with an ‘already’ reading and on Friday with an ‘still’ reading.

- (3) *Ataw* ‘*ayaeh* *ila*
 Ataw sick ILA
 ‘Ataw has fallen sick already.’ (on Monday)
 ‘Ataw is still sick.’ (on Friday)

This ambiguity occurs productively with many predicates, including stage-level predicates like “be fat” and “be skinny” and activity predicates like “walk” and “hit the dog.” With these predicates, [ina] implies that the eventuality signified by these predicates has finished and no longer holds at present (4).

- (4) *Ataw* *ina* ‘*ayaeh*
 Ataw INA sick
 ‘Ataw was sick (but is no longer).’

2.2 Second puzzle

[ina] and [ila] differ in culmination implications with predicates that might be supposed to have a final goal-point or telos, like “cut the tree” or “close the door.” As above (4), [ina] implies that the eventuality signified by these predicates has finished, but it does not imply that the eventuality has culminated or reached its telos. As a result, the statement in (5) can be felicitously followed by (6), which implies that the culmination has not been reached (7).

- (5) *Ataw* *ina* *r<om>ae'oe:* *ka* *pinobaeh*
 Ataw INA <AF>drink KA wine
 ‘Ataw drank the wine.’

- (6) *okay* *il- 'amet-i:*
 NEG consume-finish-DEP
 ‘It is not finished.’

- (7) *Ataw ina romae'oe: ka pinobaeh. Okay il'ameti:*
 'Ataw drank the wine. It is not finished'

(7) is felicitous in Saisiyat (though not in English) because [ina] only implies that the activity of wine-drinking has ended, not that all the wine has been completely drunk up. With [ila] instead of [ina], the culminative reading is implied (8); therefore, (6) cannot follow (8) felicitously (9).

- (8) *Ataw r<om>ae'oe: ila ka pinobaeh*
Ataw <AF>drink ILA KA wine
 'Ataw drank the wine (completely).'

- (9) *Ataw romae'oe: ila ka pinobaeh. Okay il'ameti:*
 'Ataw drank up the wine. #It is not finished'

3 Analyzing the puzzles

I propose the following account of the two aspectual puzzles. [ila] has the semantics of the perfect, while [ina] is perfective. Most Saisiyat predicates are by default atelic, so that [ina] does not imply culmination; telicity (and thus culmination) is signaled by a covert Aktionsart head that may be selected by [ila] (Puzzle Two). [ila] gives different perfect readings depending on the lower aspect heads present. Because some lower aspect heads are covert, [ila] by itself is ambiguous between a U-perfect reading and a Resultative reading (Puzzle One).

3.1 Solving puzzle one: [ila] is perfect

I start by looking at Puzzle One: the ambiguity of [ila] between an “already” and a “still” reading. I start by positing that [ila] has the semantics of a perfect marker, for two reasons. First, the ‘still’ reading is very similar to the Universal Perfect (U-Perfect) reading of other languages; both readings imply that the eventuality signified by a predicate has obtained throughout a relevant time interval under focus (‘for a while’) up to the present time (‘still’). Second, [ila] can occur with almost all other aspect markers in Saisiyat, unlike, e.g., [ina], which is mutually exclusive with most other aspect markers. This suggests that [ila] occurs in a different position in the temporal domain than aspect; the perfect provides such a position.

I adopt the version of the Extended Now theory of the perfect, exemplified by Iatridou et al (2001), as it straightforwardly accounts for the difference between the U-perfect and the Existential (E-)perfect. The contrast between these two types of perfect is that in a U-perfect, the event occurs throughout (universally quantifies over) an entire time interval spanning pastward from evaluation time, while in an E-perfect, the event only occurs at one or more points within (existentially quantifies over) that interval. In Iatridou et al’s account, the perfect indicates that the reference time is an interval extending into the past, the Perfect Time Span (PTS), whose right boundary (RB) is the reference time point (the Reichenbachian

(1947) ‘R’) and left boundary (LB) is established either by an overt temporal adverbial (“since 1993,” “for three months”) or by context. Viewpoint aspect relates the event time interval to the PTS; the event will thus have taken place (either in whole or in part) prior to reference time, giving the anteriority reading. Iatridou et al (2001) propose that the difference between the U- and E-perfects is between imperfective and perfective Viewpoint aspects. The imperfective indicates that the event time is a superset of the PTS, so the event holds throughout the entire PTS, including at reference time, giving the U-perfect reading. The perfective indicates that the event time is a proper subset of the PTS, so the event only holds over some of the PTS, and does not hold at reference time, giving the E-perfect reading.

I model the ‘still’ or U-perfect reading of [ila] following Iatridou et al’s (2001) account: [ila] sets up the PTS, and imperfective Viewpoint aspect places the event time interval throughout the entire PTS (10).

(10) PTS: LB ----- RB (= Reference Time)
 Imperfective: (----- Event -----) = U-perfect

I take the ‘already’ reading of [ila] to be an Inchoative, focusing on the initial endpoint or ushering in of the eventuality. The eventuality begins before reference time, and may still hold at reference time. Because the initial endpoint is within the view of the focused interval, the eventuality begins within the PTS, and continues to obtain for at least part of the PTS, possibly up to reference time. Combining the PTS (from [ila]) with neutral Viewpoint aspect gives this reading, which places the initial endpoint of the event time interval within the PTS, but does not determine the final endpoint (11) (see Iatridou et al (2001) for Bulgarian).

(11) PTS: LB ----- RB (= Reference Time)
 Neutral: (--- Event --->

The Extended Now theory straightforwardly accounts for the ambiguity between the ‘already’ (Inchoative) and ‘still’ (U-perfect) readings of [ila]: these two readings come from an ambiguity between neutral and imperfective Viewpoints. Because there is no surface morphological difference between these two readings, the neutral and imperfective Viewpoint aspect heads are covert in these sentences. Depending on which covert head is selected in the numeration, one of the two readings with [ila] obtains. In the absence of any overt aspect marker, imperfective Viewpoint seems to occur as a default reading in Saisyat (12).

(12) *Ataw* *m-ae’re*m
 Ataw AF-sleep
 ‘Ataw is sleeping’

3.2 Solving puzzle two: the telic head

The second puzzle is that predicates expected to yield culminative readings with [ina] give terminative readings, and only yield culminative readings with [ila]. [ina] indicates that the event signified by the predicate has finished, but not necessarily with the accomplishment or achievement of the related goal. Besides giving terminative readings with unquantified objects, [ina] also gives such readings with quantified objects, as in (13), which does not imply that all five rice cakes have been eaten, and can be followed by an assertion that they are not finished (14).

- (13) *Ataw ina s<om>i'ael haseb ka tinawbon*
 Ataw INA <AF>eat five KA rice cake
 'Ataw ate five rice cakes (but might not have finished them all).'

- (14) *Ataw ina somi'ael haseb ka tinawbon. Okay il'ameti:*
 'Ataw ate five rice cakes. They are not finished'

While a terminative reading is always available with [ina], a culminative reading is also possible; however, [ina] never requires culmination. The culmination reading implied by [ila] appears with a variety of predicates, and with quantified objects, as in (15), which implies that all five rice cakes have been completely eaten up, and thus cannot felicitously be following by an assertion that they are not finished (16).

- (15) *Ataw s<om>i'ael ila haseb ka tinawbon*
 Ataw <AF>eat ILA five KA rice cake
 'Ataw ate five rice cakes (completely).'

- (16) *Ataw somi'ael ila haseb ka tinawbon. Okay il'ameti:*
 'Ataw ate five rice cakes (completely). #They are not finished'

However, with some predicates, [ila] does not imply culmination, in which case the event still holds at evaluation time. This is the U-perfect reading that [ila] can give with other predicates (17): the event has been obtaining for an interval, its initial endpoint beyond our viewpoint and its final endpoint not yet having occurred.

- (17) *Ataw k<om>a:at ila ka pinobaeh*
 Ataw <AF>write ILA KA letter
 'Ataw has been writing the letter.'

(17) can also yield the culminative reading: the letter is completely written. With [ina], the event of letter writing has finished, but the letter is not necessary written.

Based on these data, I make the following assumptions: [ina] is a perfective Viewpoint marker, which gives a terminative reading regardless of the predicate, while [ila] usually gives a culminative reading to predicates that can admit it, but can sometimes give a U-perfect reading as well (similar to Puzzle One).

3.2.1 Telicity in Saisiyat

As this puzzle hinges on telicity, I lay out background assumptions on telicity and how linguistic objects encode it. Telic predicates are those in which the event they signify has a goal-point or telos, a natural culmination to the event. How telicity is encoded varies both between languages and within a language. For example, in languages like English, when a verb combines with a quantized object, the discrete property of that object percolates up to the predicate, yielding telicity (e.g., “eat all the/five rice cakes;” see Krifka 1989). When a verb combines with a non-quantized object, the homogenous property of the object also percolates up, giving atelicity (“eat (some) rice cakes”). Case marking on the object DP also plays a role in telicity: in Finnish, some predicates are telic when the object is Accusative and atelic when it is Partitive (Kratzer 2003). Other morphemes not in the sphere of the object also contribute to telicity: e.g., the particle “up” can render predicates telic in English (‘eat’, ‘drink’, vs. ‘eat up’, ‘drink up’), while telicity in Slavic languages is encoded by verbal prefixes and in Mandarin by verbal enclitics (e.g., Tai 1984, Smith 1991).

I propose that in Saisiyat, most predicates that an English speaker would expect to be telic are actually atelic; they only signify a process, and not a culmination. This may be due to the poverty of quantification morphology in the Saisiyat DP: nouns are not marked for plurality, and there are no classifiers. As DPs in Saisiyat are never explicitly marked as quantized, the predicates they compose cannot be guaranteed a telic reading through quantization. Saisiyat case marking does not affect the telicity of predicates either: therefore, telicity must be encoded by an independent syntactic head. Without it, predicates always get an atelic reading; when atelic predicates combine with the perfective Viewpoint marker [ina], it yields a terminative, not a culminative reading. While [ila] seems to give a telic reading to predicates otherwise unspecified for telicity, [ila] is a perfect head, so it cannot also be the telic Aktionsart head, which is thus covert and selected by the higher head [ila]. When [ila] occurs with the telic head, it gives either a culminative reading, indicating the final transition, or an inchoative reading, indicating an initial transition. The difference between the inchoative and culminative reading is due to the semantics of the predicate: if it cannot easily admit of a final goal-point transition, an initial change-of-state is indicated instead.

I integrate this change-of-state into the account of [ila] as a perfect, setting up the PTS. When [ila] selects for the telic head, the change-of-state is placed within the PTS, so that the culmination or inchoation of the eventuality has occurred inside this time interval, and therefore happens before reference time. Because the change-of-state is punctual, but the PTS has duration, the change-of-state happens inside, not throughout, the PTS. This is a Resultative perfect reading: the state resulting from the transition obtains within the PTS. This result state can be the eventuality itself, if the transition is an initial point (inchoative reading), or the target state of the eventuality, if the transition is a final point (culminative reading). The telic head is only optionally selected by [ila]; when [ila] does not select for it, a U-perfect reading without a change-of-state is given.

When [ila] and [ina] occur together, the combination yields the Experiential perfect reading: perfective [ina] places the eventuality inside the PTS (i.e., “once before”), and the subject has had the experience of the eventuality (19-20).

(19) *Ataw ina ‘ayaeh ila*
 Ataw INA sick ILA
 ‘Ataw has been sick before.’

(20) *Ataw ina r<om>ae’oe: ila ka pinobaeh*
 Ataw INA <AF>drink ILA KA wine
 ‘Ataw has drunk (the) wine before.’

[ila] thus gives three different perfect readings (Universal, Experiential, and Resultative) depending on lower aspect markers. I modify the figures in (10-11) from the Puzzle One analysis to reflect the Resultative and Experiential readings.

(21) PTS: LB ----- RB (= Reference Time)
 Perfective (----) = Experiential
 Telic, Neutral C-o-S (--Result State--> = Resultative
 Atelic, Imperfective: (----- Event -----) = U-perfect

4 Complete account of the two puzzles: [co] agreement

So far, I have analyzed [ila] as a perfect marker and [ina] as a perfective marker. Since predicates in Saisiyat are atelic by default, [ila] is needed to select a lower covert telic head. When [ila] selects this head, a Resultative reading (inchoative or culminative) results; when [ila] does not select this head, a U-perfect reading results. The account still needs a mechanism for regulating the appearance of the covert telic head. The appearance of the telic head seems to be regulated by viewpoint aspect: the telic head must appear when [ila] occurs with neutral viewpoint, as this gives the Resultative reading, but does not need to appear when [ila] occurs with the imperfective, since telic endpoints will lie outside the PTS in the U-perfect reading. The telic head may appear with [ina] optionally, as [ina] does not imply a culminative reading but does allow it. I propose that the semantics of the neutral viewpoint head selects for the telic head, and that other viewpoints do not do so. However, it is not immediately apparent why the neutral viewpoint should select for the telic head, and not the perfective. In order to gain a clearer view, I elucidate a more precise theory of aspect.

4.1 Coincidence of temporal objects

Coincidence (Hale 1984) is a fundamental ordering relation between two linguistic objects, indicating whether the two objects overlap in some crucial way, such as spatiotemporal position. There are two values for coincidence: central coincidence [+co], in which (roughly speaking) the two objects overlap, and non-central

coincidence [-co], in which they do not. The contrast can be illustrated in the spatial realm with prepositions: [+co] is instantiated by ‘in’, ‘at’, or ‘on’, and [-co] by ‘to’, ‘toward’, ‘away from’, ‘off of’, etc. (Hale 1984). In the temporal realm, Demirdache and Uribe-Etxebarria (2001) extend coincidence to the simple tenses, where the speech time and reference time points can either coincide (the present [+co]) or not (the past or future [-co]). They also suggest that some aspects be modeled in the same way: if the reference time point coincides with (i.e., occurs within) the situation time interval, it gives the progressive [+co], while if this point precedes or follows that interval, it gives the prospective or retrospective [-co].

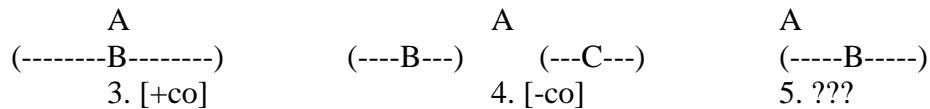
A drawback of Demirdache and Uribe-Etxebarria’s (2001) proposal is that the coincidence value [+/-co] is only precisely defined if both temporal objects are points, and thus either coincide with one another or not. If one object is a point and the other an interval, then the point can be contained within the interval [+co], be outside of it [-co], or lie at a boundary; in the last case, the coincidence value is unclear. If both objects are intervals, there are more possibilities than the two intervals merely being identical [+co] or completely exclusive [-co]. The intervals may partly overlap, be aligned at a boundary point, or one can be a proper subset of the other. The coincidence value for the first two options is unclear, while the third choice introduces asymmetry: the smaller interval is completely inside the bigger one [+co], but parts of the bigger do not coincide with the smaller [-co]. The following figures show how the multiple possible relations between two temporal objects cannot easily be assigned a value for the coincidence feature.

Figures (1-10): Possible Relations between Two Temporal Objects:

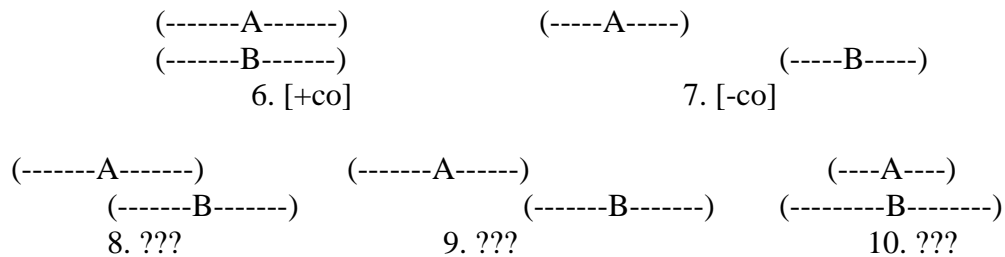
Point to Point:



Point to Interval:



Interval to Interval:



is genuinely ambiguous (see Pancheva and von Stechow (2004) for such a contrast in the relation of these two objects between the English and German perfects).

25) [ila] Perfect [+/-co]: R (= Reference Point)
(-----Reference Time-----) (= PTS)

As [ila] is not specified as either [+co] or [-co], it licenses both [+co] and [-co] covert viewpoint aspect heads. The covert [+co] viewpoint head has imperfective semantics: it takes a lower situation time interval, a higher reference time interval, and puts the higher in a subset relation [+co] with the lower (i.e., the reference time interval is contained within the situation time interval). This is the inverse of the semantics of [ina], and like [ina], the covert [+co] viewpoint head takes a process (eventuality interval) argument. While the telic head may be present, it is not required by the [+co] head, and cannot even be seen within the reference time, since the whole reference time is inside a subset of the process indicated by the predicate. Thus the [+co] head can never give a culminative or inchoative reading, even when combined with [ila], which seemed at first blush to be associated with telicity. The U-perfect reading always indicates that the process ‘still’ obtains at the reference point, which is by default interpreted as the speech time in Saisiyat.

26) U-perfect [+co]: R (= Reference Point)
(-----Reference Time-----) (= PTS)
(-----Event Process-----)

The covert [-co] viewpoint head that [ila] licenses is neutral viewpoint, indicating that the beginning of the eventuality occurs within the reference time (i.e., the PTS). I now give this head a more precise semantics: it takes a lower situation time point (a change-of-state), a higher reference time interval, and puts the higher in a superset relation [-co] with the lower (i.e., the reference time interval contains the situation time point). Because the [-co] viewpoint head selects a point as its lower argument, it requires a change-of-state or transition point below it. Since predicates in Saisiyat are by default atelic, the telic head must provide a change-of-state argument for the [-co] viewpoint head. The covert [-co] head requires the presence of the telic head by its semantics; when [ila] occurs with the [-co] head, the telic head must also occur. The change-of-state superimposed by the telic head either occurs as the initial endpoint (inchoative reading) or the final endpoint (culminative reading). Because the covert [-co] viewpoint head does not relate a process ending or beginning in the change of state to the reference time (i.e., with [ila], the PTS), the ensuing eventuality interval (the state or process itself, or the target state of an accomplishment) may or may not hold at the reference point.

27) Resultative [-co]: R (= Reference Point)
(-----Reference Time-----) (= PTS)
C-o-S (= Change-of-State)

4.3 Expressing telicity in Saisiyat

The covert [-co] viewpoint head, which requires the covert telic head to appear below it, can only be licensed by [ila]. Without overt heads with an agreeing [-co] feature, the covert [-co] head cannot be licensed. [ina] cannot license this head, as they compete for the same syntactic position in the viewpoint aspect projection. Saisiyat has no lower overt [-co] heads, nor higher tense heads that are [-co]. [ila] is the only possibly [-co] overt head occupying a different syntactic slot from the viewpoint head; since this viewpoint head is the only one requiring the telic head, transitively only [ila] can require the presence of the telic head. The rub is that [ila] can also license a [+co] covert viewpoint head, and thus not require telicity.

This poses a challenge to the Saisiyat speaker: there is no unambiguous way to indicate telicity. The surface presence of [ila] alone gives ambiguity between a telic Resultative reading and a U-perfect reading, while the surface presence of other aspectual heads, e.g., [ina], never guarantees the presence of the covert telic head. The Saisiyat speaker thus wants for a single reliable grammatical method to express telicity on the surface. However, this is not an insuperable problem: in Saisiyat, a telic reading is usually marked with [ila], not with [ina], though the telic head is allowed to occur with both. Conversely, [ila] usually is used to express telic readings, i.e., [ila] is usually used as a Resultative, not as a U-perfect. [ila] is the preferred means of signifying telicity (inchoativity or culminativity) in Saisiyat.

The explanation may lie in a universal bias against [+co] U-perfects in favor of [-co] E-perfects (e.g., the Experiential or the Resultative). Many languages only have an E-perfect and not a U-perfect, such as German; this seems to indicate that in these languages, the perfect is unambiguously [-co]. This makes sense for German, as Pancheva and von Stechow (2004) show that the German PTS does not include the reference point as its final interval. The reference point (the higher temporal object) is not included within the PTS (the lower temporal object); in other words, the German perfect is [-co]. Even in languages with U-perfects, such as English, the U-perfect reading is often hard to pick up out of the blue, e.g., without overt imperfective marking (“Mary has been running”) or durative adverbials like ‘for’ or ‘since’. This suggests that the English perfect, while allowing a [+co] value, is biased toward a [-co] value. If Saisiyat shares this universal bias toward [-co] and away from [+co] readings with the perfect, then the [-co] Resultative perfect would be the default reading of [ila]. In this case, [ila] is typically read with the telic head present, and, since there is no other consistent way to mark telicity in Saisiyat, then telicity is preferably expressed with [ila]. Consequently, [ina] is biased toward an atelic reading, because if telicity were to be expressed, the Saisiyat speaker would have used [ila], not [ina].

5 Implications for other languages and UG

I have proposed a precise definition of the coincidence feature [co] in the temporal/aspectual domain, and illustrated how agreement and licensing of the [co] feature on covert heads can account for the two aspectual puzzles in Saisiyat. If

coincidence is in fact at the core of temporal and aspectual relations in the syntax, then the possible combination or interaction of tenses and aspects is constrained by the need to agree in [co] features. This constraint is especially useful if there are as many possibilities for the semantics of a tense or aspect head as my account suggests, i.e., if different heads can select for either point or interval arguments, and can express all the possible relations between these arguments that I outlined in the figures. This richness of the semantics of tense and aspect is actually an asset of the theory I have outlined, since languages do display a diversity of and precision in aspectual meanings. At the same time, these varying tense and aspect heads have a single, bivalent [co] feature, and their co-occurrence is regulated by the need for agreement in their [co] features. Some examples illustrate how this theory captures both narrow differences and broad similarities across languages.

Many languages have default readings in temporal heads that show up when other heads are present. For example, perfective viewpoint often implies or requires past tense, and vice-versa; the same correlation often holds with imperfective viewpoint and present tense. These correlations are easily accounted for by feature agreement: [-co] perfective and [-co] past can license each other, as can [+co] imperfective and [+co] present. A similar correlation holds between perfectives and telics, on the one hand, and between imperfectives and atelics, on the other. [-co] perfectives can easily take a lower event time point argument (i.e., a change-of-state) and position it within a higher reference time interval; a language whose perfective requires a lower point argument thus must take a telic predicate to provide such a point. Statives, which are intervals, either cannot occur with such a perfective, or are coerced into inchoatives, which do have a point that the perfective can take as an argument. [+co] imperfectives have trouble taking a lower event time point argument: if the lower argument is a point, then the higher reference time argument must also be a point, since only a point, not an interval, can completely coincide with (i.e., be in a [+co] relation with) another point. If a language only allows reference time intervals (as suggested by some works on viewpoint aspect, e.g., Smith 1991), then in such a language, [+co] imperfectives can only take processes as arguments. While a composite telic eventuality, such an inchoative or an accomplishment, does have an event time interval in addition to the change-of-state point, the point will always be outside of the view of the reference time.

The coincidence theory of aspect may also be able to capture the different effects of seemingly related aspectual markers when they are located in distinct syntactic positions. I have proposed that a temporal or aspectual head is defined across two dimensions: the type of arguments it selects for (points or intervals), and the relation between the higher and the lower argument (coincidence). Perhaps these two dimensions are all that head needs to encode, and the specific semantic content of the temporal objects the head relates, i.e., whether the object is an eventuality, a reference time, or an evaluation time, may be independent of the head. In this view, the temporal objects are introduced into the syntax by one head, and the tense or aspect head only provides the relation between these objects.

Such a view may provide some traction for an analysis of Mandarin [-le], which appears in both post-verbal and sentence-final positions. Post-verbal [-le] has been argued variously to be a perfective, a resultative, a completive, and/or an inchoative marker, while sentence-final [-le] has been argued to give contrary-to-expectation or current relevance readings. According to accounts which attempt to give a unified account of the two types of [-le], in both positions [-le] marks a boundary (Huang and Davis 1989) or a transition (Soh 2009); the boundary or transition is between eventualities in post-verbal position and between propositions in sentence-final position. A boundary or transition is a point; [-le] takes a lower point argument and higher (perhaps unspecified) argument, and gives a [-co] relation between the higher and the lower argument. In post-verbal position, the lower argument point is an eventuality (change-of-state), while in sentence-final position, the lower argument point may be the whole proposition, including the subject. While this is a very rough account, it provides a foundation for capturing the behavior of the same morpheme in different head positions.

6 Contributions

The account of the puzzling behavior of the Saisiyat aspectual particles [ila] and [ina] makes several contributions to the study of aspect. I have provided further empirical evidence in favor of the version of the Extended Now theory of the perfect argued for in Iatridou et al (2001). Their Perfect Time Span theory accounts for the behavior of the perfect [ila] in Saisiyat, as well as the Saisiyat Resultative. In addition, I have started to develop a precise theory of tense and aspect centering on the coincidence relation between temporal objects, extending the work on coincidence in Hale (1984) and Demirdache and Uribe-Etxebarria (2000) among others. While tense and aspect heads can differ in both the type of relation between the objects and in the nature of the objects themselves, they all bear the same single bivalent coincidence feature [co]. The agreement and licensing of [co] features of temporal heads accounts for the puzzles in Saisiyat, and may prove to have general explanatory power for tense and aspect in UG. Temporal coincidence may be able to capture both the diversity in the meanings of temporal and aspectual heads across different languages and the similarities in the interactions of these heads.

References

- Demirdache, H. & M. Uribe-Etxebarria. 2000. The primitives of temporal relations. In *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, ed. by R. Martin, D. Michaels & J. Uriagereka: 157–186. Cambridge, Mass: MIT Press.
- Hale, K. 1984. Notes on world view and semantic categories: some Warlpiri examples. In *Features and Projections*, ed. by P. Muysken & H. van Riemsdijk, 233–254. Foris, Dordrecht.
- Huang, L. M. J. and P. W. Davis. 1989. *An aspectual system in Mandarin Chinese*. *Journal of Chinese Linguistics* 17. 128-166.

- Iatridou, S., E. Anagnostopoulou & R. Izvorski. 2001. Observations about the Form and Meaning of the Perfect. In *Ken Hale: A Life in Language*, ed. by M. Kenstowicz, 189-238. Cambridge, Mass: MIT Press. Reprinted in *Perfect Explorations*, ed. by A. Alexiadou, M Rathert & A. von Stechow. Mouton de Gruyter.
- Kratzer, A. 2003. Telicity and the Meaning of Objective Case. In *The Syntax of Time*, ed. by J. Gueron & J. Lecarme. Cambridge, Mass: MIT Press.
- Krifka, M. 1989. Nominal Reference, Temporal Constitution and Quantification in Event Semantics. In *Semantics and Contextual Expression*, ed. by R. Bartsch, J. von Benthem & P. van Emde Boas, 75-115. Dordrecht: Foris.
- Pancheva, R. & A. von Stechow. 2004. On the Present Perfect Puzzle. In *NELS 34*, ed. by K. Moulton and M. Wolf.
- Smith, C. 1991. *The Parameter of Aspect*. Dordrecht: Kluwer.
- Soh, H. L. 2009. Speaker presupposition and Mandarin Chinese sentence final -le: A unified analysis of the “change of state” and the “contrary to expectation” reading. In *Natural Language and Linguistic Theory* 27, 623-657.
- Tai, J. H.Y. 1984. Verbs and Times in Chinese: Vendler’s Four Categories. In *Papers from the Parasession on Lexical Semantics*, ed. by D. Testen, V. Mishra & J. Drogo, 289-296. Chicago Linguistics Society 20.