Decomposing Perfect Readings

Ruoying Zhao

Psychology and Language Sciences, Linguistics, University College London, London WC1E 6BT, UK; ruoying.zhao.14@ucl.ac.uk

Abstract: The previous literature established the set of ‘perfect’ readings, including experiential/existential, resultative, recent past, hot news, the Present Perfect Puzzle, the lifetime effect, and the lack of narrative progression. On the other hand, it has been noted that the present perfect in some languages other than English, as well as similar tense/aspect constructions in other languages, falls into the category of a ‘general-purpose past perfective’, namely a tense-aspect constructions sharing some properties with the English present perfect while not being subject to constraints such as the lifetime effect and the Present Perfect Puzzle. In this paper, I propose that the general-purpose past perfectives are presuppositionally neutral tense/aspect constructions that allow the standard past perfective reading. If a language has presuppositionally stronger alternatives for the past perfective (presupposing anaphoricity, uniqueness, etc.), by the Presupposed Ignorance Principle (PIP), the presuppositionally neutral past perfective form will be felicitous only if the presuppositionally stronger alternatives cannot be used. Otherwise, the presuppositionally neutral past perfective will behave like a general-purpose past perfective in the above sense. I argue that this competition is the source of many of the perfect readings observed. I further argue that the cross-linguistic variation in this respect follows from the available alternatives languages have. I illustrate this idea with three groups of languages: (i) English; (ii) French, German, Italian; and (iii) Mandarin Chinese, each illustrating a different set of alternatives available, in both the temporal and aspectual domains. This analysis allows me to decompose various perfect readings that come from different sources and make better predictions regarding which of these readings a tense/aspect construction in a given language has.

Keywords: present perfect; perfect readings; perfective aspect; past tense; NONFUTURE tense; Maximize Presupposition; Presupposed Ignorance Principle; cross-linguistic variation

1. Introduction

Many tense-aspectual constructions in the world’s languages have been labeled as the ‘perfect’. While there are many previous analyses focused on the English present perfect (Inoue 1979; McCawley 1971; McCoard 1978; Klein 1992, 1994; Iatridou et al. 2003; Portner 2003, 2011, to name a few) and other cross-linguistic studies comparing forms labeled as the ‘perfect’ (Grønn and Von Stechow 2017; Schaden 2009, among others), as the recent literature points out, the term ‘perfect’ itself may have several definitions Bertrand et al. (2022). There is the morphological definition, a tense-aspectual construction with an auxiliary and a past participle; and there is the semantic-pragmatic definition, a tense-aspectual construction that shares part of the same set of interpretations, inferences, and restrictions as the English present perfect. The generally accepted ‘perfect’-like properties represented by the English present perfect include:

(1) Different kinds of ‘perfect’-like properties

a. Experiential/existential

Mary has visited the Louvre.
(There is at least one instance of Mary visiting the Louvre prior to the speech time. This is also felicitous without a contextually salient past time.)
b. **Resultative**
   Mary has arrived.¹
   (The result state holds.)

c. **Recent past/hot news**
   The Orioles have won the game!
   (A past event presented as new information, often recent.)

d. **Universal Perfect/Continuative**
   Mary has been studying since this morning.
   (Mary is still studying.)

e. **Present Perfect Puzzle**
   *Mary has arrived yesterday.
   (Prohibited with a definite past temporal adverbial.)

f. **Lifetime effect**
   #Einstein has visited Princeton.
   (Prohibited with dead subjects.)

g. **No narrative progression**
   #Josef has turned around. The man has pulled out his gun.
   (Cannot be used in the narration of a series of past events which have taken place back to back.)

The previous literature debated the nature of these ‘perfect’-like properties. They may be entailments, pragmatic inferences, or presuppositions, or they may follow from a combination of these factors. In addition, there is a rich cross-linguistic variation of the ‘perfect’ forms (in both the morphological and semantic senses). For example, the morphological present perfect constructions in many Germanic and Romance languages are subject to fewer restrictions than the English present perfect. They behave like a ‘general-purpose’ past perfective in the following sense (along with several other tense-aspectual constructions in a variety of languages):

(2) **The ‘general-purpose’ past perfective**
   a. Has the experiential/existential reading but does not show the lifetime effect.
   b. Result state may hold at the utterance time but not required.
   c. Recent past possible.
   d. Definite past adverbials allowed.
   e. Narrative progression allowed.
   (Bertrand et al. 2017, 2022)

The ‘perfect’-forms in the semantic sense also show variation. For example, the Mandarin Chinese perfective particles *guo* and the sentence-final *le* are both associated with perfect-like readings, but they represent different subsets of the list in (1). The former is often exclusively experiential and resists in a resultative interpretation, and the latter strongly favours the resultative interpretation. Interestingly, neither of them is subject to the Present Perfect Puzzle constraint.

These variations motivate large-scale comparisons and cross-linguistic studies. There have been a number of recent corpus studies, such as Grønn and Von Stechow (2017) and the Translation Mining Project (de Swart 2016; van der Klis et al. 2020, 2022), with the aim of comparing the different usages and distributions of tense-aspectual constructions for the ‘perfect’ and the closely related past perfective readings. There is also fieldwork using a storyboard ‘Miss Smith’s Bad Day’ (Matthewson 2014), which is specifically designed for testing the various ‘perfect’ properties (Bertrand et al. 2022; Matthewson et al. 2017).

The large-scale fieldwork by Bertrand et al. (2022) shows that there is actually no cross-linguistically uniform ‘perfect’ category in the semantic sense. They propose a finer-grained classification of the various perfect and past perfective-like readings. In
the languages examined (15 languages from 8 families with a total of 22 tense-aspectual forms), they identify four categories: (a) past perfectives; (b) experiential-only forms (with an experiential reading but no resultative reading); (c) resultative-only forms (allow the resultative reading but excludes the experiential reading); and (d) hybrid forms (allow both the experiential and resultative readings).

In addition, the four categories can be grouped into two bigger categories: (i) the past perfective forms for Bertrand et al. (2022) involve a pronominal past tense in the sense of (Kratzer 1998; Partee 1973, a.o.); and (ii) all three other categories involve existential quantification over times (experiential) or events (resultative). This is summarized in the table below.

(3) Four cross-linguistic categories of perfect/past perfective forms

<table>
<thead>
<tr>
<th></th>
<th>Times</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pronominal</td>
<td>past perfective forms</td>
<td>—</td>
</tr>
<tr>
<td>Existential quantified</td>
<td>experiential forms</td>
<td>resultative forms</td>
</tr>
</tbody>
</table>

(Bertrand et al. 2022)

Note that Bertrand et al. (2022) did not identify any pronominal form in the domain of eventualities. In addition, the ‘hybrid’ category also allows for two possible analyses: lexical ambiguity between the experiential and the resultative readings, or a unified analysis. However, Bertrand et al. (2022) note that forms that fall into this category are very heterogeneous in terms of all the other ‘perfect’-properties such as Present Perfect Puzzle, Universal Perfect reading, recent past, and the lifetime effect. For this reason, it seems that a unified analysis can be very difficult to achieve. Moreover, there is the question of how to derive the variation in the other ‘perfect’-properties.

In this paper, I would like to propose an alternative categorization of the various perfect and past perfective forms, summarized in the table below.

(4) Different kinds of tense/aspect constructions

<table>
<thead>
<tr>
<th>Presuppositions</th>
<th>Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaphoricity</td>
<td>En past tense, Written Fr/Gr/It simple past</td>
</tr>
<tr>
<td>Uniqueness</td>
<td>En past tense</td>
</tr>
<tr>
<td>None</td>
<td>En present perfect, Fr/Gr/It present perfect</td>
</tr>
<tr>
<td>Anti-resultativeness</td>
<td>MC -guo</td>
</tr>
</tbody>
</table>

En: English; Fr: French (standard variety, spoken version); Gr: German (standard variety); It: Italian (standard variety); MC: Mandarin Chinese

Unlike Bertrand et al. (2022), where there is a contrast between pronominal (i.e., anaphoric) forms and existential forms (where the existential semantics is an entailment), I would like to argue for a classification similar to that of the nominal domain: anaphoric forms, unique forms, and presuppositionally neutral forms. They parallel the pattern of anaphoric definites and pronouns, unique definites, and indefinites in recent literature such as Schwarz (2009, a.o.), who argues for the separation of the anaphoricity and uniqueness presuppositions for definites. Indefinites are treated as presuppositionally neutral, with their existential reading and distribution derived from principles such as the Maximize Presupposition (Heim 1991; Percus 2006; Sauerland 2008; Singh 2011; Spector and Sudo 2017, a.o.) or similar principles. The set of alternatives available in a given language will affect the distribution of the relevant forms; it has been argued by Heim (1991, 2011) that indefinites may have a wider distribution and behaves as if they were ambiguous between
an indefinite and a definite reading if the presuppositionally stronger definite alternatives are absent in the language.

The version of Maximize Presupposition I assume in this paper is spelled out in (5) as the Presupposed Ignorance Principle (PIP).

(5) **Presupposed Ignorance Principle (PIP)**

Let \( \phi \) be a sentence, \( \psi \) be an alternative of \( \phi \). If:

a. whenever \( \psi \) is defined, \( \phi \) is also defined;

b. \( \psi \) in context \( c \);

then \( \phi \) is infelicitous in context \( c \).

(Spector and Sudo 2017)

Similar to the original Maximize Presupposition in Heim (1991) (presuppose as much as you can!), the Presupposed Ignorance Principle (PIP) forces the use of the presuppositionally strongest alternative that is felicitous in the context. It differs from the original Maximize Presupposition, in that the alternatives are not necessarily contextually equivalent in terms of assertion, which is preferable for the tense-aspectual forms, given the complications regarding aspects in Germanic and Romance languages, as well as certain data, where the reference time may be taken to be either a past interval or an Extended Now interval, which I will see in later sections.

Some basic patterns of the derived PIP/Maximize Presupposition are illustrated below. Pattern (6-a) shows that, when uniqueness is satisfied in the context, the indefinite is infelicitous. Pattern (6-b) illustrates that, in German, where the strong article is strictly anaphoric, the indefinite is prohibited for the anaphoric reading.

(6) a. (It is common sense that this phone has only one weight.)

\[ \text{The, } \#A\text{ weight of this phone is } 300 \text{ g.} \]


\[ \text{Mary has an ornithologist to-the seminar invited I hold of one/of the strong man not very much} \]

‘Maria has invited an ornithologist to the seminar. I don’t think very highly of the man.’

(Schwarz 2009)

Heim (1991) (and subsequent researchers) motivates the Maximize Presupposition principle by the observation that the indefinite in general does not come with a non-uniqueness or non-anaphoric presupposition. For example:

(7) Last night, a pathologically curious neighbor of mine broke into the attic.

Ref. (7) does not require for there to be more than one pathologically curious neighbor. Furthermore, it has been noted that some languages, such as many Slavic languages, DPs appear as if they were ambiguous between an indefinite, anaphoric, and uniqueness reading. Heim (2011) points out that I can simply analyze these ambiguous DPs as indefinites that are felicitous in more contexts than their English counterpart, since there are no competing presuppositionally stronger definite DPs in these languages.

In addition, PIP, similar to the original Maximize Presupposition principle, predicts that, if the context does not contain explicit information regarding the presuppositions of the alternatives, using a presuppositionally weaker alternative gives rise to the inference that the presuppositionally stronger alternative cannot be used. This inference is known as an anti-presupposition, illustrated in the example below.

(8) **Anti-presupposition**

(I don’t know how many children John has.)

All of John’s children play soccer.
presuppositionally stronger alternative: Both of John’s children play soccer.
Inference: John has more than two children. (Percus 2006; Sauerland 2008; Singh 2011, a.o.)

Given these assumptions, I would like to argue that the English past tense is lexically ambiguous between an anaphoric and a unique reading. The uniqueness presupposition accounts for the use of the English past tense in places that are unexpected for a strictly anaphoric tense. Languages such as (the standard variety of) French, German, and Italian differ from English in that (i) the simple past tense is generally unavailable in the spoken language, and (ii) the present perfect in these languages has a wider distribution than its English counterpart. I propose that the differences between the present perfect in English, on the one hand, and French, German, and Italian on the other, follow from the fact that the latter languages do not have the anaphoric and unique alternatives in the spoken register. Similarly, the distribution of the Mandarin Chinese perfective particles can be derived similarly: verbal -le being an anaphoric particle for events, and the sentence-final -le being the presupposition-less alternative. The particle -guo, on the other hand, represents a separate category with an explicit anti-resultative presupposition.

Similar to Bertrand et al. (2022), I would also like to argue for a separation of event- and time-based forms. Following (Matthewson 2006; Sun 2014), I assume that Mandarin Chinese is a superficially tenseless language with a covert NONFUTURE tense. I will argue that verbal -le is an anaphoric element of events and cannot be analyzed as reflecting the anaphoricity of the covert NONFUTURE tense.

The major contribution of this paper will be the following claims: (i) a presuppositionally neutral tense-aspectual form (e.g., the English present perfect, Mandarin Chinese sentence-final -le) will acquire many of the ‘perfect’-properties such as non-anaphoricity and non-uniqueness in the presence of presuppositionally stronger alternatives; (ii) the ‘hot news’, existential, and resultative perfect readings reflect the inherent ability of the presuppositionally neutral tense-aspectual form to function similar to an indefinite in the temporal or eventuality domain; and (iii) when analyzing a particular tense-aspectual form in a given language, it is necessary to take into account its alternatives.

2. Anaphoricity vs. Non-Anaphoricity

In Bertrand et al. (2022), the pronominal past perfective forms contrast with the other three categories where there is existential quantification over either times or events. In this section, I would like to argue that this contrast between the anaphoric tense-aspectual constructions, and the corresponding ‘non-anaphoric’ alternatives follow similar patterns in the nominal domain, where the non-anaphoricity and apparent existential semantics of the latter follow from competition with the presuppositionally stronger anaphoric alternatives. In the absence of competition, they may have a wider distribution and end up behaving more as a ‘general-purpose’ past perfective, as in (2).

In this section, I would like to propose that the presence of an anaphoric past tense alternative derives from the fact that the present perfect form in French, German, and Italian can occur with a definite past adverbial and allows narrative progression, unlike its English counterpart. In other words, I can maintain a unified analysis of the present perfect construction in English and these other languages (apart from the minor differences how aspects and Aktionsarten interact), where the present perfect is not inherently incompatible with definite past adverbials or narrative progression.

The main claim is that the English present perfect exhibits the Present Perfect Puzzle phenomenon and prohibits narrative progression only because the presuppositionally stronger anaphoric past tense must be used, according to PIP, as defined in (5).

I would also like to extend this idea to Mandarin Chinese perfective particles and argue that the distribution of verbal -le and the other non-anaphoric perfective particles follows the same pattern, but the antecedent must be an eventuality instead of a time interval.
2.1. Tenses

2.1.1. Present Perfect Puzzle

The Present Perfect Puzzle refers to the fact that the present perfect cannot occur with a definite past temporal adverbial, despite the fact that the event is located in the past.

(9) #Mary has arrived yesterday.

In addition, in sentences containing a past temporal adverbial, the reference time is always identified with the interval denoted by that adverbial. To see this, note that whenever a sentence contains a past temporal adverbial, the anaphoric past tense is always felicitous, even if the context (prior to the utterance) contains no salient past times.

(10) (The context does not contain any salient past time:)
    I went to Disneyland over the weekend. It was so much fun!

In the presence of other contextually salient past reference times, a sentence containing a past temporal adverbial always shifts the reference time to the time denoted by that adverbial.

(11) (Talking about Mary’s trip to Disneyland last Saturday:)
    A: Apparently, she had to wait for four hours to get onto any ride because it was so crowded.
    B: Yeah I can imagine that because it’s always crowded over the weekends. I went there last Wednesday and I barely had to wait.

Here, note that the reference time of A’s utterance is last Saturday, but, in B’s (second) utterance, the reference time is shifted to last Wednesday due to the presence of the temporal adverbial. I conclude that definite temporal adverbials always introduce a time interval with which the reference time must be identified.

I will assume the standard analysis of an anaphoric or ‘pronominal’ past tense (Abusch 1994; Chen et al. 2021; Heim 1994; Kratzer 1998; Partee 1973; Sharvit 2014, a.o), where ‘pronominal’ means that (i) the past tense is a variable of type $i$, receives its value from the assignment function $g$, and is infelicitous without a salient antecedent in the context; (ii) the possible values of the past tense are presupposed to precede the speech time; and (iii) it can be bound similar to a pronoun. In particular, the anaphoricity and the pastness are presuppositions. Given the fact that past temporal adverbials always introduce an ‘antecedent’ past interval, it follows that the presupposition of the anaphoric past is always satisfied.

I also argue that I need the present perfect to be flexible in what the reference time may be; it allows the reference time to be either a past interval or an Extended Now interval, as previously speculated by Grønn and Von Stechow (2017). This analysis contrasts with the ‘classic’ Extended Now analyses such as (Iatridou et al. 2003; McCawley 1971, 1988; McCoard 1978, a.o.), where the reference time of a present perfect sentence is always an Extended Now interval. Under the flexible analysis, if the reference time is a past interval, the present perfect has the anaphoric past as an alternative. This allows me to account for the following observation:

(12) Mary has visited the Louvre. She saw the Mona Lisa there.

In (12), the anaphoric past tense is licensed by a preceding present perfect. This pattern seems to be very widely spread and parallels similar patterns in the nominal domain:

(13) a. Every farmer who has a donkey beats it.
    b. Every girl who has visited the Louvre saw the Mona Lisa there.

These observations suggest that the present perfect may function as an ‘indefinite’ past which provides an antecedent for a subsequent anaphoric past. The present perfect
must allow the reference time to be a past interval. The only difference between the present perfect and the anaphoric simple past in this case is the discourse status of the reference time. Both the present perfect and the simple past should be compatible with a past perfective reading.

Under this assumption, with the simple past being presuppositionally stronger, PIP predicts that the simple past must be preferred whenever there is a past temporal adverbial or a contextually salient past reference time as the antecedent. In other words, the non-anaphoricity of the English present perfect is not an inherent property but a result of the competition with the anaphoric past.

2.1.2. Narrative Progression

Narrative progression refers to the use of a tense-aspectual construction for the purpose of narrating a series of past events interpreted as occurring one after another, often in the order of narration. There are several ways of analyzing narrative progression in the literature, most of which adopt some version of the Discourse Representation Theory (DRT) (de Swart 2016; Kamp 1981, 1988; de Swart 1998; Kamp et al. 2011; Partee 1984, a.o.). In general, I need two components to derive narrative progression: (i) an anaphoric link to a contextually salient time, usually established by the preceding discourse; and (ii) a way of updating the reference time, via a relation, usually being one of ‘abutness’ (i.e., back-to-back), which gives rise to the effect of ‘carrying the story forward’. In general, the second component is often associated with the perfective aspect and distinguishes it from the imperfective aspect, which is usually analyzed as having a ‘simultaneous’ relation, so it does not move the narration forward.

The underlying aspect for the English simple past form may interact with the Aktionssart of the eventuality. In general, statives in the simple past (e.g., \textit{was}) are interpreted as imperfective, and eventives in the simple past (e.g., \textit{hit}, \textit{opened the door}, etc.) are interpreted as perfective. This is illustrated in the examples below.

(14) Mary turned the handle. The door opened. The room was dark. She turned on the light.

I can see that the first two simple past sentences with eventive predicates present the eventuality as completed, and they also engage in narrative progression, where the turning-handle event and the door-opening event are interpreted as having taken place back to back, in the order of narration. On the other hand, the third simple past sentence with a stative predicate presents the state of the room being dark as ongoing at its reference time. It also does not ‘move the narration forward’ in the above-mentioned sense.

There are some exceptions to the general pattern above. For example:

(15) (A speaker talks about the conference from yesterday:)

\begin{itemize}
  \item[a.] I was nervous, and then I wasn’t anymore.
  \item[b.] The first talk was boring. The second one was very nice.
\end{itemize}

I can see that the states are interpreted as terminated, and they can move the narration forward. This suggests that the underlying aspect is perfective.

There can also be exceptions that may be related to the discourse coherence relations in the broader sense. For example, a stative simple past may also be interpreted as ‘just after’ the previous event if it describes the result of the former.

(16) Mary turned off the light. The room was pitch dark.

There are several other possible relations, such as simultaneity (\textit{Chris had a fantastic meal. He ate salmon.}) and precedence \textit{Max fell. John pushed him.}, which may also follow from discourse coherence relations such as elaboration and explanation, respectively (Kamp et al. 2011).
The underlying aspect in the (non-progressive) present perfect interacts with the Aktionsart of the VP in the same way. It has been noted by Iatridou et al. (2003) that (17) is ambiguous between an existential and a Universal Perfect reading. They argue that the former results from an underlying perfective aspect, while the latter has an underlying imperfective aspect. The Universal Perfect reading follows from the reference time being an Extended Now interval ($t \subset \tau(e) \land t_c \subset t \Rightarrow t_c \subset \tau(e)$).

(17) Mary has been sick.
   a. Existential: There is a state of Mary being sick, which is over, before the speech time.
   b. Universal Perfect: There is a state of Mary being sick which spans from the past and overlaps with the speech time (she’s still sick).

For the purpose of this paper, I take this as evidence that both the simple past form and the present perfect form in English have the same ambiguity regarding their underlying aspects.

I will also ignore the English past progressive and the present perfect with progressive morphology, since neither engage in narrative progression. Comparing the simple past and the (simple) present perfect, I can see that the key property that distinguishes the two alternatives differs only in the first property—the anaphoricity of the reference time. Given that the past tense has anaphoricity as part of its presupposition, it is presuppositionally stronger than the present perfect, which is neutral in this respect. Again, PIP will rule out the present perfect in this case, since narrative progression always involves the anaphoricity of the reference time, satisfying the presupposition of the past tense.

2.1.3. In the Absence of Competition

The previous two subsections show that both the anaphoric past and the present perfect are compatible with the anaphoric reading, but the anaphoric simple past has anaphoricity as an explicit presupposition. By PIP, the present perfect appears to be incompatible with the anaphoric reading when the anaphoric past is available as an alternative, giving rise to observations such as the Present Perfect Puzzle and the lack of narrative progression of the present perfect.

The tense-aspect constructions considered in this paper are repeated below. I can see that for French, German, and Italian, the anaphoric past is restricted to the written register. This means that, in the spoken register, the present perfect in these languages does not have a presuppositionally stronger alternative.

(18) Different kinds of tense/aspect constructions

<table>
<thead>
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<th>Presuppositions</th>
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<th>Times</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaphoric</td>
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<td>MC verbal -le</td>
</tr>
<tr>
<td>Uniqueness</td>
<td></td>
<td>En past tense</td>
<td>—</td>
</tr>
<tr>
<td>None</td>
<td></td>
<td>En present perfect, Fr/Gr/It present perfect</td>
<td>MC sentence-final -le</td>
</tr>
<tr>
<td>Anti-resultative</td>
<td></td>
<td></td>
<td>MC -guo</td>
</tr>
</tbody>
</table>

En: English; Fr: French (standard variety); Gr: German (standard variety, spoken version); It: Italian (standard variety, spoken version); MC: Mandarin Chinese

The competition-based analysis predicts that, in the absence of competition, the present perfect will be able to appear with past adverbials and engage in narrative progression. This is exactly the case in French, Italian, and German. In these languages, the simple past form, such as the present perfect, are both obligatorily perfective. Assuming that they should be alternatives that differ in presuppositions, I would expect them to compete in
the same way as in English. The set of alternatives is repeated in the table in (18). However, in the standard variety of these languages, the simple past form is generally unavailable in the spoken/colloquial register.\textsuperscript{3} It follows that, in this register, there is only one possible alternative for the past perfective reading: the present perfect. Therefore, the present perfect in these languages does not exhibit the Present Perfect Puzzle (19) and can engage in narrative progression (20).\textsuperscript{4}

\begin{itemize}
  \item[(19)] **No Present Perfect Puzzle**
  \begin{itemize}
    \item a. Gianni è arrivato ieri.
      Gianni AUX arrived yesterday
      \textquote[italian]{’(Lit.) Gianni has arrived yesterday.’} (Italian)
    \item b. Jean est arrivé hier.
      Jean AUX arrived yesterday
      \textquote[french]{’(Lit.) Jean has arrived yesterday.’} (French)
    \item c. Maria ist gestern angekommen.
      Maria AUX yesterday arrived
      \textquote[german]{’(Lit.) Maria has arrived yesterday.’}
\end{itemize}

\item[(20)] **Narrative progression**
  \begin{itemize}
    \item a. Gianni si è girato. L'uomo ha tirato fuori la pistola.
      Gianni REF AUX turned-around the-man AUX took out the pistol
      \textquote[italian]{’(Lit.) Gianni has turned around. The man has pulled out his pistol.’}
    \item b. Jean s'est retourné. L'homme a sorti son arme.
      Jean REF-AUX turned-around the-man AUX took-out his gun
      \textquote[french]{’(Lit.) Jean has turned around. The man has pulled out his gun.’}
    \item c. John hat sich umgedreht, und der Mann hat seine Pistole gezogen.
      John AUX REF around-turned and the man AUX his pistol pulled
      \textquote[german]{’(Lit.) John has turned around. The man has pulled out his gun.’}
\end{itemize}
\end{itemize}

2.1.4. Comparison with Previous Analyses

The analysis based on the competition between alternatives avoids some of the problems faced by the traditional Extended Now analysis, which derives this fact as a semantic contradiction that arises from modifying the Extended Now (an interval containing the speech time) with a past adverbial. One of these problems is noted by Portner (2011): they observe the Present Perfect Puzzle whenever the reference time is a contextually salient past interval, even in the absence of an explicit past temporal adverbial. This is unexpected if the Present Perfect Puzzle arises from adverbial modification.

\begin{itemize}
  \item[(21)] I enjoyed/#have enjoyed yesterday’s party.
  \item[(22)] Mary arrived/#has arrived on yesterday’s flight.
    \textquote[Portner 2011]{(Portner 2011)}
\end{itemize}

As Portner points out, since there is no direct modification of the reference time with a temporal adverbial, there should not be a semantic contradiction. Hence, any contradiction-based analysis cannot account for these examples.

Portner also points out that these constraints also surface when the reference time is clearly implied by an argument, which is the case in (21)–(22) (one can only enjoy a party at the party, and Mary can only arrive with the flight, etc.). I argue that, for this reason, the arguments with the temporal adverbial automatically provide an antecedent for the reference time in the sentence, and PIP forces the use of the anaphoric past tense. As long as the reference time is anaphoric to a salient past time, the present perfect should be prohibited, as in (23) and (24).

\begin{itemize}
  \item[(23)] (Talking about what happened yesterday:)
    # Mary has enjoyed the party.
  \item[(24)] #Mary has arrived on yesterday’s flight.
\end{itemize}
I can also compare the examples above with (25), which does not require the reference time to be last year or yesterday despite having last year and yesterday in an argument. In this case, the present perfect is acceptable.

(25) (In the absence of previous discourse:)
   a. I have seen last year’s best rated film.
   b. Mary has seen yesterday’s visitor.

The difference between (23)–(24) and (25) follows from the nature of the main event. In (23) and (24), it is necessary that Mary’s enjoyment of the party occurs during the party, and that Mary’s arrival is at the same time of the flight (yesterday). In contrast, in (25), the seeing event may be at any time, and the fact that I have yesterday in one of the arguments does not make the time interval yesterday salient. Together, these examples suggest that I should not derive the Present Perfect Puzzle based on adverbial modification, but rather the contextual saliency of the reference time.

The competition analysis also allows me to maintain the same analysis of the present perfect in languages that have this construction, as the behaviour of the present perfect diverges from the German analysis falls into both categories (i) and (ii). They argue that the English and German present perfect fall to do so. They fall into a few categories: (i) present tense-based theories; (ii) competition between scalar alternatives; and (iii) competition based on markedness. In the remainder of this subsection, I will discuss some representative analyses for each category.

Portner (2003) derives the Present Perfect Puzzle as a contradiction between the Extended Now semantics and a past reference time, with the Extended Now semantics being entailed by the perfect in English, the past tense (which they take to have an existential semantics rather than pronominal (26-b)) asymmetrically entails the present perfect, and this results in the scalar strengthening of the English present perfect to the following:

(26) Present, past and perfect in English (Pancheva and Von Stechow 2004)
   a. [PRESENT] = \( \lambda p(y, t). t_1 \geq t \land p(t_1) \)
   b. [PAST] = \( \lambda p(y, t). \exists t_2 [t_2 < t \land p(t_2)] \)
   c. [PERFECT] = \( \lambda p(y, t). \exists t' [t' \leq t \land p(t')] \)
   where \( t' \leq t \) iff there is no \( t'' \subset t' \) s.t. \( t'' \prec t \)
   d. Combined PRESENT PERFECT operator
   \[ \text{PRESENT PERFECT} = \lambda p(y, t). \exists t_2 [t_2 \leq t \land p(t_2)] \]
   (where \( t' \leq t \) iff there is no \( t'' \subset t' \) s.t. \( t'' \prec t \))

(27) Present, past and perfect in German (Pancheva and Von Stechow 2004)
   a. [PRESENT] = \( \lambda p(y, t). t_1 \geq t_c \land p(t_1) \)
   \[ \text{where } t_1 \geq t_c \text{ iff } \neg \exists t'[t' \subset t_1 \land t' \prec t_c] \]
   b. [PAST] = \( \lambda p(y, t). \exists t_2 [t_2 < t_c \land p(t_2)] \)
   c. [PERFECT] = \( \lambda p(y, t). \exists t' [t' \leq t \land p(t')] \)
   where \( t' \leq t \) iff there is no \( t'' \subset t' \) s.t. \( t'' \prec t \)
   d. Combined PRESENT PERFECT operator
   \[ \text{PRESENT PERFECT} = \lambda p(y, t). \exists t_2 [t_2 \leq t_1 \land p(t_2)] \]

Pancheva and Von Stechow (2004) argue that, in English, the past tense (which they take to have an existential semantics rather than pronominal (26-b)) asymmetrically entails the present perfect, and this results in the scalar strengthening of the English present perfect to the following:
(28) \[\text{[PRESENT PERFECT strengthened]}\]
\[= \lambda p_i t_c \exists t_1 \in t_c \land \exists t_2 (t_2 \circ t_c \land t_2 \subseteq t_c).\]

In other words, the reference time in a present perfect sentence is a strict Extended Now interval that must include the speech time as its final point. They then derive the Present Perfect Puzzle as a contradiction that arises from trying to modify the Extended Now using a past temporal adverbial, just as in typical Extended Now analyses.

In addition to the present tense problem, this analysis also incorrectly predicts that the English present perfect and the past tense have a scalar relationship, which is not true. In particular, the strength of scalar alternatives reverse under negation, as illustrated in (29)–(30) (where I take *any* to be the NPI version of *some*).

(29) a. Mary read all the books.
b. Mary read some of the books.
   **Inference:** Mary didn’t read all the books.

(30) a. It’s not the case that Mary read any book.
b. It’s not the case that Mary read all the books.
   **Inference:** Mary actually read some of the books.

In the positive sentences, (29-a) entails (29-b). Hence, the *some* in (29-b) is strengthened to *some but not all*. In the negative sentences, however, (30-a) entails (30-b). As a result, (30-b) includes the reading that ‘Mary read some books, but she didn’t read all the books’, where (30-a) is false.

Can I observe the same phenomenon with the present perfect and the past tense? Let me consider the following example, assuming that the present perfect and the past tense have the semantics in Pancheva and Von Stechow (2004).

(31) a. It’s not the case that Mary has been to the Louvre.
   \[\neg \exists t_2 (t_2 \subseteq t_c \land \exists e \text{[Mary-visit-Louvre(e)]} \land \tau(e) \subset (t_2))\]
b. It’s not the case that Mary went to the Louvre.
   \[\neg \exists t_2 (t_2 \preceq t_c \land \exists e \text{[Mary-visit-Louvre(e)]} \land \tau(e) \subset (t_2))\]
   **Inference:** \(\exists t_2 (t_2 \circ t_c \land t_2 \preceq t_c \land \exists e \text{[Mary-visit-Louvre(e)]} \land \tau(e) \subset (t_2))\]

If the past tense were actually a stronger scalar alternative to the present perfect, then, with scalar reversal under negation, the present perfect would become stronger instead. Hence, (31-b) would result in an inference that (31-a) is false, i.e., that Mary has indeed been to the Louvre at some point, in particular, during an interval that can only be expressed with the present perfect—an Extended Now interval. Given the perfective semantics (\(\tau(e) \subset t\)), this means it must be the case that Mary’s visit ends exactly at the speech time (since otherwise, (31-a) would be true). This is obviously not consistent with our judgements.

In general, (31-a) is judged to mean that Mary has never been to the Louvre, ever. On the other hand, given a contextually salient past time, (31-b) means that Mary did not go to the Louvre during that time and should be infelicitous otherwise. However, for Pancheva and Von Stechow (2004), the past tense is not pronominal but has existential semantics. They fail to derive the infelicity of (31-b) without a contextually salient past time or the judgement that (31-b) is about contextually salient past time. Now, suppose I do have a contextually salient past time. To make it consistent with the existential semantics, I will have to say that this time restricts the domain of the existential past tense (32-a)/present perfect (32-b). However, these two sentences will be semantically equivalent in that case, and I still do not observe the scalar reversal pattern.

(32) (Talking about last year:)
   a. It’s not the case that Mary has been to the Louvre.
   \[\neg \exists t_2 (t_2 \subseteq t_c \land t_2 \subseteq \text{last year} \land \exists e \text{[Mary-visit-Louvre(e)]} \land \tau(e) \subset (t_2))\]
b. It’s not the case that Mary went to the Louvre.
\[\neg \exists t_2 [t_2 < t_c \land t_2 \subseteq \text{last year}_c \land \exists e [\text{Mary-visit-Louvre}(e) \land \tau(e) \subset (t_2)]]\]

I conclude that the present perfect and the past tense are not scalar alternatives.

There are two previous analyses based on markedness and competition, Schaden (2009) and Michaelis (1994).

Schaden (2009) argues that both the present perfect and the simple past can be used for locating an event or interval in the past. In addition, the perfect semantically encodes a ‘perfect state’, which overlaps with the speech time and is responsible for the various inferences associated with the present perfect. Whether the perfect state is interpreted, however, depends on whether the present perfect is the ‘default form’ in a language.

In English, the default form for locating an event or interval in the past is the simple past, with the marked form being the present perfect. When the speaker uses the marked present perfect, the listener will infer that there is a reason to introduce a perfect state, which will provoke an effect of current relevance.

In languages such as French, Italian, and German, the present perfect is the default form, and the simple past is the marked form. Hence, using the default form will not make the listener wonder why the perfect state is included. On the other hand, uttering the marked simple past will invite the listener to interpret the absence of the perfect state, leading to the denial of current relevance.

According to Schaden (2009), the perfect readings are actually assertions, which all come from the perfect state overlapping with the speech time (assuming that the present perfect involves a present reference time). Schaden (2009) does not define the perfect state, and, in fact, the literature does not have a consensus on this issue; some researchers treat it as an arbitrary state that starts after the event’s culmination (de Swart 1998; Kamp and Reyle 1993), some treat it as the result state (for change-of-state events) (Moens and Steedman 1988; Smith 2013; Spejewski 1997). Other linguists have also proposed a ‘resultant state’ of the event having taken place or left it as a semantically free variable whose value is determined by the addressee via pragmatic principles (Musan 2001; Nishiyama 2006; Nishiyama and Koenig 2004, 2010; Parsons 1990, a.o.).

Regarding the difference in markedness in English and the other languages, Schaden (2009) argues that ‘it is not possible to simply derive the markedness from some intrinsic properties of the present perfect and the simple past’.

Other than the controversy regarding the perfect state, Schaden only derives the pragmatic inference of the absence of the perfect state for the simple past. However, since the perfect state is an assertion, this means that in French, Italian, and German, the perfect state should still be interpreted, even though the present perfect in these languages is the default form. This may be an issue, given the present perfects in these languages lack many of the perfect-readings observed in English.

2.2. Aspects

The previous subsection shows that, when there is an anaphoric past tense available, the non-presuppositional alternative for the same reading in the languages may appear as non-anaphoric, in a way that is parallel to indefinites in the nominal domain. In this subsection, I will extend this analysis to the perfective particles in Mandarin Chinese and argue that the language has a perfective marker presupposing an event antecedent, which competes with the other perfective particles without this presupposition. As a result, the other perfective particles appear as non-anaphoric.

In Mandarin Chinese, there are three perfective particles: verbal -le, -guo, and the perfective sentence-final -le. Verbal -le and the perfective sentence-final -le are distinguished by their positions in the sentence; the former always occurs between the main verb and the direct object, while the latter occurs at the end of the sentence.

There are many previous discussions of these perfective particles, with many focused on the distribution and the different inferences each has. I will postpone the discussion of
these previous analyses until later due to the vast amount of data as well as the sometimes conflicting judgements.7 In this section, I will focus on a previously unnoticed phenomenon, namely the distribution of the perfective particles in the presence of an event antecedent.

Verbal -le can be distinguished from the other two perfectives by the fact that it is the only felicitous choice when the asserted event is identified with a contextually salient event or as one event from a contextually salient collection of events. Ref. (33) illustrates the elaboration of a known event, and Ref. (34) illustrates the assertion of a new event (the winning event) that is part of a known collection of events (the Marathon).

(33) (Context: I know Lisi exercises every day, including yesterday. What kind of exercises did he do?)
   a. Lisi zuotian you le yong.
      Lisi yesterday swim LE.VB swim.N
      ’Lisi had a swim yesterday.’
   b. #Lisi zuotian you yong le.
      Lisi yesterday swim N LE.SF
      ’(Intended:) Lisi had a swim yesterday.’
   c. #Lisi zuotian you guo yong.
      Lisi yesterday swim GUO swim
      ’(Intended:) Lisi had a swim yesterday.’

(34) (Context: I are talking about the Tokyo Marathon this year. Who won the men and the women’s races?)
   a. Nanzi zu Kipchoge pao le diyi ming. Nüzi zu Kosgei pao men group Kipchoge run LE.VB first place women group Kosgei run
      le diyi ming.
      LE.VB first place
      ‘In the men’s race, Kipchoge got first place. In the women’s race, Kosgei got first place.’
   b. #Nanzi zu Kipchoge pao diyi ming le. Nüzi zu Kosgei pao le men group Kipchoge run first place LE.SF women group Kosgei run first
      diyi ming.
      place LE.SF
      ’(Intended:) In the men’s race, Kipchoge got first place. In the women’s race, Kosgei got first place.’
   c. #Nanzi zu Kipchoge pao guo diyi ming. Nüzi zu Kosgei pao le men group Kipchoge run GUO first place women group Kosgei run GUO
      diyi ming.
      first place
      ’(Intended:) In the men’s race, Kipchoge got first place. In the women’s race, Kosgei got first place.’

On the other hand, in out-of-the-blue contexts without an event antecedent, verbal -le is infelicitous.

(35) (Context: There is no contextually salient event when the following are uttered.)
   a. #Lisi zuotian you le yong.
      Lisi yesterday swim LE swim.N
      ‘Lisi had a swim.’
   b. Lisi zuotian you yong le.
      Lisi yesterday swim swim.N LE.SF
      ‘Lisi has had a swim.’
   c. Lisi zuotian you guo yong.
      Lisi yesterday swim GUO swim
      ‘Lisi has had a swim.’
Importantly, if felicitous, all three particles can occur with a contextually salient reference time. In (36), the contextually salient reference time is introduced by a past adverbial. In English, these sentences would require the anaphoric past tense and prohibit the present perfect.

(36)  
a. Lisi zuotian you le yong.  
Lisi yesterday swim LE swim.N  
‘Lisi had a swim yesterday.’
b. Lisi zuotian you yong le.  
Lisi yesterday swim swim.N L.E.SF  
‘Lisi had a swim yesterday.’
c. Lisi zuotian you guo yong.  
Lisi yesterday swim GUO swim  
‘Lisi had a swim yesterday.’

There are several things to note here. First of all, the contrast between (33)–(34) and (35) suggests that verbal -le requires an event antecedent, while the other two perfective particles do not. Secondly, the fact that all three particles can occur with a contextually salient past reference time given by an adverbial suggests that the anaphoric relation is based on events and not the reference time. In other words, these particles do not reflect the anaphoricity of the covert NONFUTURE tense.

Following Matthewson (2006), I assume that the NONFUTURE tense can function as a pronominal tense if needed. Since Mandarin Chinese does not have morphological means to indicate anaphoric dependencies in the temporal domain, I may speculate that the rich aspectual morphology compensates for that in the domain of eventualities.

In later sections, I will note that (35-b) and (35-c) are distinguished by the anti-resultative presupposition of guo. At this point, I will simply assume this.

To summarize the observations so far, Mandarin Chinese has three perfective particles and a covert NONFUTURE tense. Their presuppositions are shown in the table below.

(37)  
<table>
<thead>
<tr>
<th>Mandarin Chinese perfective particles</th>
<th>Event antecedent presupposition</th>
<th>Anti-resultative presupposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>verbal le</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>guo</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>perfective sentence-final le</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

I can see that verbal -le and guo have independent presuppositions, and both are presuppositionally stronger than the perfective sentence-final -le. Assuming the anti-resultative presupposition is not satisfied in the context, then, by PIP, whenever there is an event antecedent, verbal -le should be preferred over the other two alternatives, leading to the observations made in (33)–(34).

The Presupposed Ignorance Principle is repeated below.

(38) Presupposed Ignorance Principle (PIP)  
Let \( \phi \) be a sentence, \( \psi \) be an alternative of \( \phi \). If:

- whenever \( \psi \) is defined, \( \phi \) is also defined;
- \( \psi \) in context \( c \);

then \( \phi \) is infelicitous in context \( c \).

(Spector and Sudo 2017)

While, in theory, it may be possible to find a context that satisfies both the anaphoric dependency and the anti-resultative presupposition, in practice, these two presuppositions seem to be always mutually exclusive, due to the different discourse coherence relations they are associated with (Lascarides and Asher 2008, a.o.). When verbal -le is used, the discourse coherence relation is always one of elaboration; it adds additional information
to an event antecedent. In other words, the topic question should be about the asserted event. The anti-resultative presupposition of guo, on the other hand, requires the topic question being about some state (see Section 3). I have not been able to find a clear example of a context where both are true. For this reason, I will treat guo as neutral in terms of anaphoricity. Alternatively, should such examples be found, I can have the alternative analysis where guo also has an explicit non-anaphoric presupposition, making it the alternative with the strongest presuppositions.

(39) Presuppositions of Mandarin Chinese perfective particles (Alternative analysis)

<table>
<thead>
<tr>
<th></th>
<th>Event antecedent presupposition</th>
<th>Anti-resultative presupposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>verbal le</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>guo</td>
<td>×</td>
<td>✓</td>
</tr>
<tr>
<td>perfective sentence-final le</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

To conclude this section, I observe similar patterns in the domain of tenses and aspects; the competition between a presuppositionally stronger anaphoric item and alternatives not specified for anaphoricity results in the other alternatives being only felicitous when the presuppositions of the anaphoric item are not satisfied. I can see that the perfective sentence-final -le and guo are both limited to contexts where the event they mark is not anaphorically linked to a contextually salient event.

3. Hot News, Existential and Resultative Readings

In this section, I will discuss three closely related readings of the English present perfect: the ‘hot news’ reading, the existential reading, and the resultative reading. I will argue that the existential reading reflects the basic present perfect semantics and that the resultative reading follows from the Gricean principle of relevance and is limited to contexts where the topic question is about a current state.

The ‘hot news’ reading refers to the fact that the English present perfect can introduce a new event (and a new reference time) into the Common Ground without needing previous discourse. It is often compared to the ‘recent past’ reading, where a recent event is asserted as new information, without needing previous discourse. However, the literature has noted that the ‘hot news’ perfect reading does not require the event to be recent, but rather an event that the addressee does not know about (Depraetere 1998; McCawley 1971).

I argue that the inferences that arise from updating the Common Ground with a new event that is closely related to whether the topic question is about a current state. The first observation is that, when the topic question is about a current state, the assertion of a (change-of-state) event will give rise to the resultative reading of the present perfect. Recall that the resultative reading is characterized by the continuation of the result state, and it is not cancellable. Consider the following examples:

(40) a. (Mary meets her friend after a long time:)
   A: How are you doing?
   B: I’ve been diagnosed with cancer.
   Inference: B is currently sick with cancer.

b. (At a house party, I are waiting for friends to arrive. Bill hears the doorbell and opens the door for someone. Susan, however, is too focused on a video game and is unaware. She then notices voices at the door.)
   Susan: What’s happening?
   Katie: Mary has arrived. Let’s go meet her!
   Inference: Mary is here now.

c. (The postman comes to deliver a package, without knowing whether Mary is still here:)
   A: Here is a parcel for Mary.
B: Mary has gone home.
Inference: Mary is no longer here.

d. (Mary, who is not at home now, texts her roommate about the kitchen:)
Mary: I'd like to use the kitchen but you guys made such a mess last night.
Roommate: Don’t worry, I have cleaned the kitchen already.
Inference: The kitchen is clean now.
e. (I want to borrow Mary’s key to the office.)
Mary: I’ve lost my key.
Inference: The key is gone.

The above examples have in common that (i) the asserted event (and the reference time in which the event is located) is not part of the Common Ground prior to the utterance; and (ii) the result state of the asserted event helps answer (at least partially) the topic question. The latter observation motivates Portner’s (2003, 2011) analysis, where he formulates (ii) as a presupposition of the perfect operator, but he also gives the present perfect an Extended Now semantics.

I would like to argue that (i) follows from the fact that the present perfect can function as an ‘indefinite’ past and has the existential reading; and (ii) unlike Portner (2003), answering the topic question should not be an explicit presupposition of the present perfect, but rather, it follows from general pragmatic principles. More specifically, since the topic question can be answered by a current state (e.g., the speaker being sick, Mary (not) being here, the kitchen being clean, and the key being unavailable) and assuming that the speaker is being cooperative and makes relevant assertions (cf. the Gricean principle of relevance), the addressee will infer that the assertion of the (change-of-state) event helps answering the topic question. It follows that the result state of the asserted event is taken to be that current state which resolves the topic question. In other words, the result state must be a current state. In addition, trying to cancel the result state will be infelicitous, since the speaker would violate the Gricean principle of relevance.

In all of the above examples, the present perfect has the basic existential/experiential reading, namely the existence of a past event. However, simply asserting that a past event has taken place does not always give rise to a resultative reading. This is shown in the following example:

(41) (Talking about Mary’s experiences.)
She’s lost her key to the office (before).
... in fact, it’s still not found.
... but she found it later.

The fact that the sentence may be continued in either way suggests that the present perfect is not inherently resultative. I can see that (41) differs from the examples with the resultative reading in (40), in that the topic question is not related to whether her keys are still lost but simply whether a past losing event exists. This is indicated by the two possible continuations in (41). Since the topic question cannot be answered by a current state, there is no reason for the addressee to assume that the result state must be a relevant current state. Examples such as (41) and the interaction with the topic question pose difficulties to any previous analyses involving a ‘result state’ or a consequent state that follows from the event, such as de Swart (1998); Kamp and Reyle (1993); Musan (2001); Parsons (1990), among others. These analyses have in common that the resultative reading is taken to be an assertion that the result state or consequent state cover the (present) reference time. I do not see an obvious way for these analyses to derive the interaction with the topic question.

I would also like to argue that there are languages with an explicitly non-resultative (past) perfective marker. This point is exemplified by the distinction between the Mandarin Chinese perfective sentence-final -le and guo. The previous literature (Ilijic 1990; Li and Thompson 1989; Lin 2006, 2007; Pan and Lee 2004; Smith 2013, a.o.) notes that guo has a
'discontinuity of the result state' inference, which contrasts with the perfective sentence-final -le. This is illustrated below.

(42) a. Lisi ba dian nao nong-huai le.
   Lisi CAUS computer make-broken LE.SF
   ‘Lisi broke the computer yesterday.’
   **Inference:** The computer is still broken.

b. Lisi nong-huai guo dian nao.
   Lisi make-broken GUO computer
   ‘Lisi has broken this computer (before).’
   **Inference:** The computer is probably fixed.

However, both of these inferences are defeasible, as the following examples show:

(43) (Talking about what happened yesterday:)

   Lisi ba dian nao nong-huai le. Ranhou you xiu-hao le.
   Lisi CAUS computer make-broken LE.SF then again fix-well LE.SF
   ‘Lisi broke the computer yesterday. And then it got fixed again.’

(44) (What can you tell me about Lisi as a person?)

   Lisi nong-huai guo Zhangsan de dian nao. Xianzai hai mei xiu-hao.
   Lisi make-broken GUO Zhangsan GEN computer now still NEG fix-well
   ‘Lisi has once broken Zhangsan’s computer. It’s still not fixed today.’

There are several accounts in the literature for the discontinuity inference of -guo and the apparent resultative reading of the perfective sentence-final -le. Some take them as part of the assertive content, such as Lin (2006), some treat them as a presupposition (Lin 2007), and others argue that they are pragmatic implicatures (Pan and Lee 2004).

The most influential formal analysis is Lin (2007), based on repeatability. Lin argues that guo presupposes the repeatability of the event, in the sense that there is a distinct event e′ of the same description as the asserted event in some inertia-world such that the speech time tc ⊂ τ(e′). Lin’s analysis is motivated by the observation that the discontinuity inference is particularly strong when the direct object of the sentence is definite. He argues that this is because, when the object is definite, the repeatability presupposition in the above sense can only be satisfied if the distinct event e′ (with the same description, hence, the same object) is temporally distinct from the asserted event e. Lin has a slightly unconventional definition of τ(e), where it covers not only the time covered by e, but also the time covered by its result state. It follows that, since e′ and e must be temporally distinct and tc ⊂ τ(e′), the result state of the asserted e must not overlap with the speech time tc.

However, Lin’s (2007) analysis cannot explain why, in (44) above, the discontinuity inference can be cancelled, even when the event involves a definite object (Zhangsan’s computer).

For the resultative reading of the sentence-final -le, Lin argues that it explicitly presupposes the continuation of the result state. However, Lin does not distinguish it from the verbal -le. This leads to some confusion about some of his data. For this reason, I will leave them out.

I would like to argue that the resultative reading of the perfective sentence-final -le is of the same nature as the resultative reading of the English present perfect. Specifically, I treat the sentence-final -le as having the canonical perfective semantics. Assuming that the Mandarin Chinese covert the NONFUTURE tense is neutral about the discourse status of the reference time, it can function as an ‘indefinite’ (introducing a new reference time) or ‘anaphoric’ past if it needs to, as long as the reference time is a nonfuture interval (Matthewson 2006). It follows that the NONFUTURE tense, together with the sentence-final -le, can give rise to a reading similar to the ‘existential’ perfect reading, asserting the existence of a past event and introducing a new (past) reference time into the context.
The data in (42)–(44) illustrate the influence of the topic question on the availability of the resultative reading. In general, I can see that the resultative reading arises when some current state may help answer the topic question, and the assertion of a completed change-of-state event leads to the inferences that it is the result state of the event that answers this question. This is the case in Chinese (42-a) as well as in English (40). Since the resultative reading is contingent on the topic question, the resultative reading is easily cancellable if the topic question is not related to any current state. I can see that neither the use of the sentence-final -le (43) nor the English present perfect (41) leads to the resultative reading. They show the exact same pattern; in (43), the speakers are only interested in what took place yesterday, and the existence of a current state will not help answer that question. In (41), the speakers are interested in whether Mary’s past experiences include certain events. Likewise, no current state will answer that question. Both examples also show that I should not analyze the resultative reading as inherent to the English present perfect or the Chinese sentence-final -le, since they are perfectly acceptable without the resultative inference.

On the other hand, I argue that the Mandarin Chinese guo has a presupposition that the result state of the asserted event does not answer the topic question. In other words, if a result state can answer the topic question, guo will be infelicitous. The definition is given in (45).

\[
\text{(45) \ The presupposition of -guo} \\
\text{A sentence with -guo is infelicitous if:} \\
\exists q [\text{ANS}(q) \land P(p, q)], \text{ where} \\
a. \ e \text{ is the -guo-marked event;} \\
b. \ \text{ANS is true of a proposition if it is a complete or partial answer to the discourse topic at the time the sentence is uttered;} \\
c. \ P(p, q) \text{ is true iff } \forall w \in \cap(E_{(w, u)} \cup p), q(w) = 1, \text{ where } E_{(w, u)} \text{ is the modal base based on causality, accessed from world } w \text{ and utterance situation } u.
\]

More precisely, if there is a proposition q such that the accessible modal base based on causality entails q (i.e., q is the proposition asserting the result state of the event in p), and q answer the topic question, guo is infelicitous. I formulated this presupposition as the opposite of Portner’s (2003) presupposition of the English present perfect.

I argue that the distribution of the discontinuity inference of guo is dependent upon the topic question, similar to the resultative reading of the sentence-final -le. For example, in contexts such as (44), the topic question is not about the current state of Zhangsan’s computer, but rather what can I know about Lisi as a person (based on his past behaviour). In contrast, when the topic question can be answered by the result state of some event, such as (46), -guo is infelicitous.

\[
\text{(46) (Can I borrow the key to the office?)} \\
a. \ #\text{Wo diu guo yaoshi.} \\
\quad \text{I lose GUO key} \\
\quad \text{‘(Intended:) I’ve lost the key.’} \\
b. \ Wo ba yaoshi diu le. \\
\quad \text{CAUS key } \text{lost LE.SF} \\
\quad \text{‘I’ve lost the key.’} \\
\text{Inference: I can’t lend you the key because they are gone.}
\]

The perfective sentence-final -le, on the other hand, does not have this presupposition and can be used. In this case, since it is the only alternative (recall that verbal -le is limited to anaphoric use), it naturally gives rise to the resultative reading that the key is still lost. This reading is not cancellable in such a context and creates the illusional ‘resultative’ reading associated with the particle, which is easily cancellable in other contexts such as (43). Similar to the English present perfect, I take it as a result of Gricean principles. More specifically, the principle of relevance is that, in (46), the current status of the key...
can answer the topic question of whether the key is available. The speaker asserts the change-of-state event of losing the key, only if it is relevant. Therefore, it must be the case that the result state of that change-of-state event answers the topic question. It follows that the key is still lost and not available for borrowing.

Now I can compare this with Portner’s (2003) analysis of the English present perfect. He argues that the English present perfect presupposes that the result state of the event always answers the topic question:

(47) The presuppositions of the present perfect (Portner 2003)
A sentence $S$ of the form $\text{PERFECT}(\phi)$ presupposes:
\[ \exists q[\text{ANS}(q) \land \text{P}(p, q)], \] where
\begin{enumerate}
  \item $p$ is the proposition expressed by $\phi$, and
  \item the property $\text{ANS}$ is true of any proposition which is a complete or partial answer to the discourse topic at the time $S$ is uttered, and
  \item the operator $\text{P}$ is similar to an epistemic must:
  \[ \text{P}(p, q) \text{ is true iff } \forall w \in \cap(E_w \cup p), q(w) = 1, \] where $E_w$ is the epistemic conversational background accessed from world $w$ and utterance situation $u$.
\end{enumerate}

Ref. (47) says the use of the perfect presupposes that, if the proposition $p$ is true, then the accessible epistemic conversational background entails another proposition $q$ (usually the proposition asserting the result state of the event in $p$), which helps answer the topic question.

While the inference about the result state and the topic in (47) derives the resultative reading of the English present perfect in examples such as (40), analysing it as a presupposition inherent to the present perfect under-generates and over-generates in many contexts. In particular, it under-generates in the ‘hot news’ contexts, which I saw in (41). It over-generates in contexts where the result state of some change-of-state event is salient. I will discuss these in the next few sections.

In comparison, instead of analyzing the perfective sentence-final -$le$ as inherently presupposing the resultative reading (as in (47) above), I let it stay presuppositionally neutral about it. Instead, $guo$ is the particle that presupposes anti-resultativeness. In addition, the presupposition of $guo$ is also based on the topic question, which derives the fact that the ‘discontinuity’ inference of $guo$ only surfaces when the topic question is about some state.

The conclusion of this section is thus: the resultative reading naturally arises with the assertion of a past (change-of-state/ causative) event when the result state of that event answers the topic question. It should not be the inherent reading of the present perfect or the perfective sentence-final -$le$. In addition, $guo$ shows languages may also have an explicitly non-resultative perfective particle.

4. Uniqueness vs. Non-Uniqueness

In this section, I will discuss the remaining category in Table (4), i.e., the English past tense with the uniqueness presupposition. This is a novel analysis motivated by some data that have already been observed in the literature, namely, the out-of-blue (i.e., non-anaphoric) use of the English past tense (Chen et al. 2021; Heim and Kratzer 1998; Matthewson et al. 2019; Michaelis 1994, a.o.). A full justification of this analysis of the English past tense will probably require a paper on its own, so I will only focus on some of the key data and how they relate to the various perfect readings.

4.1. Contextually Salient Results

The first observation is that, in contexts where the result state of some change-of-state event is salient, the English past tense is felicitous (in fact, obligatory), despite the absence of a contextually salient past reference time. On the other hand, the use of the English present perfect is prohibited (48)–(49), despite the fact that they allow the ‘resultative’ reading. For this reason, an analysis that builds a resultative component into the present perfect will not
be able to account for its infelicity here. For example, Portner’s (2003) analysis will predict that it is obligatory; for Portner (2003), the present perfect presupposes the answering of the topic question by the result state of the asserted event (in this case, Borromini’s building of the church), and, in this context, this presupposition is clearly satisfied. In addition, since, according to Portner, the present perfect is in fact presuppositionally stronger than the alternative past tense, PIP will predict the opposite of what I observe.

(48) (Pointing at a church):
   a. #Who has built this church?
      #Borromini has built this church.
   b. Who built this church?
      Borromini built this church.

(49) (Looking at some litter:)
   a. #Who has littered here?
   b. Who littered here?
      (Matthewson et al. 2019)

Let me compare the present perfect to the Mandarin Chinese perfectives, in particular, the non-anaphoric particles guo and the perfective sentence-final le. In (50), I see that -guo is prohibited in similar contexts, which is expected under my analysis in (45), since a -guo-marked event cannot answer a topic question related to its result state. As a result, a -guo sentence can only be interpreted as being about the general experience and not related to the current pile of litter I am concerned with:

(50) (Looking at some litter:)
   a. Shui who reng laji le?
      who throw litter LE.SF
      ‘Who littered here (the litter I am looking at)?’
   b. #Shui who reng guo laji?
      who throw GUO litter
      ‘Who littered here (the litter I am looking at)?’

The contrast in (50) is also often used in the literature on Chinese aspects as evidence for the ‘resultative’ vs. ‘discontinuous’ reading of le and guo, and some linguists such as Lin (2007) actually put explicit ‘resultative’ semantics into le. Under my analysis, however, the judgement in (50) simply follows from the fact that the perfective sentence-final le is the only possible choice in this case (verbal -le requires an event antecedent, and guo presupposes non-resultativeness).

The following examples show that the resultative reading of the perfective sentence-final -le arises in contexts where the topic question can be answered by a current state, just like the English present perfect.

(51) (Mary meets her friend after a long time. They are talking about how they are doing now.)
   a. Wo bei quezhen aizheng le.
      I PASS diagnose cancer LE.SF
      ‘I’ve been diagnosed with cancer.’
      **Inference:** The speaker is currently sick with cancer.
   b. #Wo bei quezhen guo aizheng.
      I PASS diagnose GUO cancer
      ‘(Intended:) I’ve been diagnosed with cancer (i.e., I’m currently sick with cancer).’

(52) (Looking for Mary in the office.)
   a. Mali zou le.
      Mary leave LE.SF
'Mary has left.'

**Inference:** Mary is not here anymore.

b. #Mali zou guo.
Mary leave GUO

'(Intended:) Mary has left (so she’s not here anymore).'

(53) (I’m hoping to borrow the key to the office from Mary.)

a. Wo CAUS yaoshi nong-diu le.
I make-lost LE.SF

'I’ve lost the key.'

**Inference:** The key is gone now.

b. #Wo nong-diu guo yaoshi.
I make-lost GUO key

'(Intended:) I’ve lost the key (so it’s gone now).'

In these contexts, *guo* is infelicitous. To the extent that it can be interpreted, there is an inference that the current state is not identified with the result state of the asserted event. For examples, in (51), the *guo*-sentence suggests that Mary had been diagnosed with cancer and then recovered; in (52), that Mary has left and come back; in (53), that she has lost and then found the key again. These readings are odd in the examples above since the speaker is not providing relevant information or answering the topic question.

### 4.2. Uniqueness Presupposition of the English Past

The observations in the previous subsection present a puzzle. Both the English present perfect and the Mandarin Chinese perfective sentence-final -le allow the resultative reading that the result state holds at the speech time. However, they behave differently in contexts with a salient result state. In the next few subsections, I will argue that these contexts have in common that they entail a unique past change-of-state event (and hence, the time span of that event). English and Chinese differ, in that English has a tense alternative with an explicit uniqueness presupposition, which must be preferred over the presuppositionally neutral present perfect.

I argue that the group of data that (48)–(49) represent has in common that the reference time satisfies uniqueness. First, note that each of the contexts entails a state that must have followed from a past change-of-state event: the church that I see must have been built by someone, and the litter must have been discarded at some point. In each case, the change-of-state event is unique in the sense that there is exactly one such event that gives rise to the current state I see. I argue that the reference time is also unique, because it is taken to be the time span of that change-of-state event.

I argue that the obligatoriness of the English past tense in (48)–(49) follows from PIP, just like in the Present Perfect Puzzle examples. In other words, the English past tense is ambiguous between a strictly anaphoric past tense and a past tense presupposing only the uniqueness of the reference time. Since the present perfect does not have any of these presuppositions, it always loses the competition in English by PIP.

The uniqueness and anaphoricity presuppositions seem to be a real contrast rather than simply some kind of accommodation of the antecedent. One piece of evidence is that the pattern in (48)–(49) is only observed for the English past tense. It has been noted by Kratzer (1998) that the German simple past is infelicitous in sentences like (48)–(49), which is exactly what I expect from a strictly anaphoric past tense (see (54) below). In registers where it is available, the simple past behaves this way, i.e., also in French and Italian. If the felicity of the English simple past in (48)–(49) is due to accommodation, and assuming that accommodation processes of the antecedent based on contextual information (such as the salient result of a change-of-state event) is largely universal across languages, I would expect the same judgements as English in these languages as well, contrary to fact.

(54) (Pointing at a church:)

---

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a. #Borromini costruì questa chiesa.
   Borromini built this church
   ‘(Intended:) Borromini built this church.’ (Italian)
b. #Borromini construisit cette église.
   Borromini built this church
   ‘(Intended:) Borromini built this church.’ (French)
c. #Borromini baute diese Kirche.
   Borromini built this church
   ‘(Intended:) Borromini built this church.’ (German)

In these languages, these contexts allow (in fact, require) the use of the present perfect. Kratzer (1998) argues that this is the standard perfect reading without a contextually salient antecedent.

(55) (Pointing at a church:)

a. Borromini ha costruito questa chiesa.
   Borromini AUX built_PP this church
   ‘(Lit.) Borromini has built this church.’ (Italian)
b. Borromini a construit cette église.
   Borromini AUX built_PP this church
   ‘(Lit.) Borromini has built this church.’ (French)
c. Borromini hat diese Kirche gebaut.
   Borromini AUX this church built_PP
   ‘(Lit.) Borromini has built this church.’ (German)

In other words, I have evidence that the English past tense is distinguished from its counterparts in German, French, and Italian, in that it is felicitous when the context does not contain a antecedent, as long as some kind of uniqueness is satisfied. Since the present perfect in these languages is the only alternative available in similar contexts, I have the observation in (55).

4.3. Comparison with Previous Analyses

As I mentioned earlier, the data in (48)–(49) have been discussed in the literature on the past tense, because the obligatory use of the past tense is unexpected under a strictly anaphoric analysis. Previous proposals on the English past tense have argued that (48)–(49) suggest that: (i) the English past tense can spell out a present reference time and a perfect aspect ($\tau(e) \prec t_c$) (Kratzer 1998); (ii) the English past tense is ambiguous between a definite (i.e., anaphoric) and an indefinite reading (Grønn and Von Stechow 2016), and, moreover, the English past tense is unmarked for anaphoricity (Michaelis 1994); and (iii) the English past tense is ambiguous between an anaphoric and an existential reading, with the latter requiring some contextually salient domain restrictions (Matthewson et al. 2019).

It has been pointed out that, under the analysis in (i), it is unexpected that the English present perfect itself is prohibited in such contexts (Matthewson et al. 2019), and it also fails to explain why out-of-blue uses of the English past tense are not generally available but restricted to certain contexts. The analysis in Grønn and Von Stechow (2016) allows the indefinite operator to be freely inserted in the tense head; it therefore also over-generates the distribution of these non-anaphoric uses of the English past tense. Similarly, the analysis in Michaelis (1994) cannot control for the distribution of the anaphoric and non-anaphoric past tenses. The analysis in (iii) is not very clear about what suffices as a contextually salient domain restriction and simply uses the idea of a ‘specific event’.

In contexts where neither anaphoricity nor uniqueness of the past reference time are satisfied, the English past tense is prohibited.

(56) (Out of the blue:)
#Mary danced.10
Examples like (56) are difficult to rule out in the three alternative analyses presented by the previous literature.

On the other hand, I will be able to control for the distribution of similar data with the analysis that the English past tense has a uniqueness presupposition. The past tense is infelicitous in (56), because its presuppositions are not satisfied in the context. In addition, with the present perfect being presuppositionally neutral, I also easily derive the prohibition of the present perfect in these examples with the help of PIP.

5. Lifetime Effects

In this section, I argue that the uniqueness presupposition of the English past tense also accounts for the lifetime effects observed with the English present perfect. In particular, apart from (48)–(49), where the uniqueness of the reference time comes from the unique change-of-state event, I have another case where uniqueness is always satisfied. When the topic is about a person or entity entailed by the context, the reference time can be identified with the lifetime or the time span of that person/entity, and this time interval is always unique. If this time interval is a past interval (i.e., that person is dead or the entity no longer exists), the presupposition of the unique past tense will be satisfied. In this case too, the present perfect will be ruled out by PIP.

This analysis successfully derives the felicity of the past tense in examples like (57), despite the fact that there is no previously mentioned past time at the time of the utterance. The reference time is simply identified with the lifetime of the topic (person). Since the present perfect does not have the uniqueness presupposition, using PIP, I also derive the prohibition of the present perfect in this context.

(57) (Talking about Miguel’s late great-grandmother. There is no contextually salient past time.)
   Her name was/#has been Coco, and she had/#has had such a personality.

If the context is not clear about whether the reference time is completely in the past (i.e., the context does not entail whether that person is dead or not), using the past tense this way will invite listeners to accommodate the information that the person is dead. Using the present perfect, on the other hand, does not have this inference. I hence derive the following examples from the literature:

(58) (Talking about Einstein, whom I know is dead. There is no other contextually salient past time.)
   a. Einstein visited Princeton.
   b. #Einstein has visited Princeton.

(59) (Talking about an exhibit which I know is over. There is no other contextually salient past time.)
   a. Did you visit the exhibit?
   b. #Have you visited the exhibit?

(60) (Talking about Princeton. There is no contextually salient past time.)
   a. Princeton has been visited by Einstein.
   b. #Princeton was visited by Einstein.

(61) (Talking about what I did last Sunday.)
   a. Did you visit the Monet exhibit?
   b. #Have you visited the Monet exhibit?

(62) (I do not know if the Monet exhibit is still on.)
   a. Have you visited the Monet exhibit?
      Inference: The exhibit is still on.
   b. Did you visit the Monet exhibit?
      Inference: The exhibit is over.
It has been noted in the previous literature that the contrast between (58) and (60) is related to whether the topic is Einstein (dead) or Princeton (still exists). This contrast follows directly under our analysis that the reference time is taken to be the lifetime of the person/entity under discussion. Since it is common knowledge that Einstein is dead and Princeton is still there, the past tense is obligatory in (58), but only the present perfect is possible in (60).

The contrast between (59) and (61), on the other hand, suggests that the lifetime effect only arises when the reference time is taken to be the time span of the entity under discussion. When the reference time is a contextually salient past time (e.g., last Sunday), using the (anaphoric) past tense does not suggest that the exhibit is over, and the present perfect is prohibited since it loses the competition against the anaphoric past.

Finally, the contrast shown in (62) has motivated the previous literature to propose a repeatability presupposition of the English present perfect, that it is a modal with a ‘future possibility’ presupposition (Katz 2003). However, this analysis is difficult to extend to a lot of data. For example, I can easily find present perfect being used for clearly irrepeatable events such as:

(63) The president has been assassinated.

I argue instead that the contrast in (62) follows from the speakers’ accommodation of the time span of the exhibit as the reference time in the absence of a contextually salient past time. Note that the inference of the exhibit being over only arises in the absence of a contextually salient past time (cf. (61)). In contexts without any contextually salient past time, the felicitous use of the past tense suggests that the uniqueness presupposition is satisfied. The only unique time interval entailed by the context is the time span of the exhibit. Since the past tense also presupposes that the reference time is completely in the past, it must be the case that the exhibit (its time span) is over. In contrast, (62-a) does not have this inference, because the present perfect allows the reference time to overlap with the speech time. Ref. (61) also does not have this inference, since the past tense there is anaphoric to the contextually salient past time.

The cross-linguistic observation is that the present perfect in French/German/Italian does not display the lifetime effect (64).

(64) (Talking about Einstein today:)

a. Einstein ha visitato Princeton.
   ‘(Lit.) Einstein has visited Princeton.’

b. Einstein s’est exprimé sur ses convictions socialistes.
   ‘(Lit.) Einstein has expressed his socialist beliefs.’

c. Einstein hat Princeton besucht.
   ‘(Lit.) Einstein has visited Princeton.’

While previous analyses label them as general-purpose past perfective in the sense of (2), once I take the variation of the past tense into account, I may conclude that the present perfects in these languages have the same semantics as its English counterpart (other than the interaction of the underlying aspect with Aktionsart). Since these languages do not have the unique past tense like English, in (64), the present perfect becomes felicitous. As with the anaphoric reading, the presuppositionally weaker present perfect has a wider distribution when the presuppositionally stronger alternative is absent. The competition analysis successfully accounts for the alignment of the cross-linguistic variation of the present perfect and the availability of the presuppositionally stronger alternatives.

In Mandarin Chinese, none of the perfective particles display the lifetime effect. This is expected given that there is only a null NONFUTURE tense in the language and it does not affect the choice of the aspect particles.
6. More on ‘Hot News’
6.1. No Additional Presuppositions for the Present Perfect

Another group of examples that suggests that the English present perfect should not have additional presuppositions is the ‘hot news’ contexts. Earlier, I defined the ‘hot news’ reading as the assertion of a new event that is not part of the Common Ground, which is often discourse initial and close to empty. Previous accounts where the present perfect has a presupposition, such as Portner (2003), need to make additional assumptions regarding the ‘hot news’ reading, since in these contexts, it is questionable whether the Common Ground contains enough information to support the use of the present perfect.

In an impoverished Common Ground where I cannot find a topic question, Portner’s analysis will predict that the present perfect is prohibited. This is contrary to fact, as shown in the previous sections. The present perfect is often the only choice, unless the presuppositions of the past tense are satisfied.

Portner addresses this question by assuming that, in ‘hot news’ contexts, the Common Ground is actually not as impoverished as it appears. Portner argues that there is an implicit topic question related to the assertion, such as:

(65) The Orioles have won!

Implicit topic question: How are the Orioles doing lately?

Portner points out that, under the ‘hot news’ reading of the present perfect, (65) can be uttered to a complete stranger in the streets. He argues that the presupposition of the present perfect is satisfied, because the speaker has an assumption that the addressees are interested in the implicit topic question.

However, Portner does not provide a criterion for how to determine whether the Common Ground contains an implicit topic question. This analysis under-generates, since I can find many other impoverished, discourse initial Common Grounds that do not admit the use of the present perfect. An example is given below.

(66) (There is no previous discourse or contextually salient past time.)

Do you know? I’ve been to the Louvre.

#I went to the Louvre.

On the other hand, Portner’s analysis over-generates when the topic is about a specific past time. In this case, when answering the question, the anaphoric past tense is obligatory, and the present perfect prohibited. Note that in (67), this generalization holds despite the absence of an explicit temporal adverbial in B’s answer.

(67) A: What did Mary do last year?
    B: She moved to Kazakhstan.
    #She has moved to Kazakhstan.

Portner would predict that the present perfect should be preferred, since the speaker is answering the topic question, satisfying the presupposition of the present perfect.

I conclude that Portner’s analysis makes wrong predictions: the present perfect cannot have the extra presupposition in (47).

Instead, I argue that the ‘hot news’ reading of the present perfect, as well as the use of the present perfect with an impoverished Common Ground follow from the fact that (i) it can function as a standard, presuppositionally neutral past perfective and (ii) the Common Ground does not support the use of the presuppositionally stronger anaphoric or unique past tense.

7. Interim Summary

Let me summarize my proposal so far:
a. the present perfect can function as a presuppositionally neutral past tense;
b. the past tense is a presuppositionally stronger alternative of the present perfect for the past reading;
c. the English past tense has a non-anaphoric use, which follows from a uniqueness presupposition, and this presupposition is absent for languages such as French, German, and Italian;
d. I can maintain the same analysis of the present perfect in English, French, German, and Italian and derive the variation of the present perfect from the availability of the presuppositionally stronger alternatives.

(69) Aspects
a. the Mandarin perfective verbal -le differs from the perfective sentence-final -le and -guo, in that it presupposes an event antecedent;
b. Mandarin Chinese has a null NONFUTURE tense, as in Matthewson (2006); Sun (2014), and the perfective particles cannot be analyzed as reflecting the anaphoricity of the NONFUTURE tense;
c. -guo differs from the perfective sentence-final -le, in that it presupposes that the result state of the event does not answer the topic question;
d. the perfective sentence-final le is the presuppositionally neutral particle in Mandarin Chinese.

(70) The source of perfect readings
a. Non-anaphoricity (Present Perfect Puzzle, lack of narrative progression): follows from the competition with an anaphoric alternative;
b. Hot news, existential: introducing new reference time into the Common Ground and asserting the existence of a culminated past event;
c. Resultative: follows from Gricean principle of relevance and the existential reading above, answering a topic question about a current state with the assertion of a change-of-state event;
d. Prohibition of the present perfect when the result state is contextually salient (Borromini church example): follows from the competition with the presuppositionally stronger unique past (English);
e. Lifetime effect: follows from the competition with the presuppositionally stronger unique past (English)—past lifetime of an individual is unique.

8. Formal Analysis
In this section, I will present a sketch of the formal analysis of the ideas above.

8.1. Tenses
8.1.1. Unique Past Tense
Firstly, the English past tense has anaphoric and non-anaphoric (unique) versions, differentiated by whether there is an index argument in the structure. This is motivated by similar analyses of the anaphoric and unique readings of the definite article in the recent literature (Schwarz 2009, a.o.).

(71) Unique past tense
a. $\text{PAST}_{\text{uni}} = \lambda s_r. \lambda p_{(j,t)} : t \prec t_c \land \text{MI}(t) \text{ wrt to } p \text{ in } s_r$.
where \( \text{MI}(t) \) wrt to \( p \) means \( t \) is maximally informative with respect to \( p \) as in (72).

c. \([\text{(71-a)}]]^S = \lambda t [t < t_c \land \text{MI}(t) \text{ wrt to } p \text{ in } s_r]\)

(72) **Maximal informativeness**

For a temporal property \( q_{(i, st)} \), a time interval \( t \) is maximally informative w.r.t. \( q \) in \( s \) iff

a. \( q(t)(s) = 1 \), and
b. \( \forall t' [q(t)(s) = 1 \rightarrow \{s' | q(t')(s') = 1\} \subseteq \{s'' | q(t')(s'') = 1\}] \).

In the previous sections, I discussed two cases where the uniqueness of the reference time is satisfied: (i) the reference time is the time span of the unique change-of-state event that gives rise to a state in the Common Ground, and (ii) the reference time is the unique (life) time span of an individual under discussion. These are represented in (71) as temporal properties of the forms in (73).

(73) a. \( \lambda t. \lambda s. \exists e [e \text{ is the unique change-of-state event giving rise to a contextually salient state } s \land \tau(e) \subseteq t] \)

b. \( \lambda t. \lambda s. t \text{ is the (life) time span of the individual under discussion} \)

The reason why I need Maximal Informativeness in (72) is that time is dense. If I simply say something like ‘the unique \( t \) s.t. \( \tau(e) \subseteq t \) for some \( e' \), it will not make sense, because there will be infinitely many such (large) intervals. With Maximal Informativeness, I will be able to identify the unique maximally informative \( t \) with respect to the relevant temporal properties. Ref. (71) then, as a whole, yields an object of type \( i \), which can then saturate the temporal argument of the AspP (which I assume to be of type \( \langle i, st \rangle \)).

To illustrate with an example, the derivation of the Borromini example is given below:

(74) (Pointing at a church):

a. Borromini built this church.

b. \[
\begin{array}{c}
\text{TP} \\
\text{T'} \\
\text{T'} \\
\text{T} \\
\text{P}_{(i, st)} \\
\text{AspP} \\
\text{B.build this church} \\
\end{array}
\]

Here, I assume that the resource situation \( s_r \) is identified with the Austinian topic situation (Kratzer 2007, a.o.), as in Schwarz (2009), namely, the actual situation of the construction event of the church the speaker is seeing. In this case, \( p(t)(s_r) = 1 \) iff \( \tau(e') \subseteq t = 1 \) in \( s_r \), where \( e' \) is the building event of the church. The reference time of the sentence is the unique maximally informative interval \( t \) with respect to this \( p \), namely the minimal interval \( t \) such that \( \tau(e') \subseteq t \) in \( s_r \), where \( e' \) is the construction of the church.

The meaning of (74), is then the following:

(75) \( [[\text{(74)}]]^S = \lambda s. \exists e [\text{B.build this church}(e) \land \tau(e) \subseteq t[t < t_c \land \text{MI}(t) \text{ wrt to } p \text{ in } s_r]] \) in \( s \), where \( p \) is as explained above.

In other words, during the unique maximally informative interval \( t \), such that the event of the construction of the church takes place, it was Borromini who built this church.
8.1.2. Anaphoric Past Tense

In the recent literature on definiteness and anaphoricity, the consensus is that anaphoricity should involve the direct binding of an index (Arkoh and Matthewson 2013; Chierchia 1995; Jenks 2015; Schwarz 2009, 2013, a.o.). This analysis has the advantage (over the E-type analysis) of addressing the ‘formal link’ problem between antecedents and anaphoric elements (Heim 1990, a.o.), as well as accounting for languages that morphologically distinguish unique and anaphoric definites. For the same reasons, I will assume that the anaphoric past tense is distinguished from the unique past tense by an additional index argument.

(76)  

Anaphoric past tense

\begin{itemize}
  \item a. \text{P}_{\text{ana}} \rightarrow T' \rightarrow T' \rightarrow y \rightarrow \text{T'} \rightarrow \text{T} \rightarrow s_r \rightarrow \text{P}_{\text{tst}} \rightarrow \text{some temporal property}
  
  \item b. \text{[P}_{\text{ana}}] = \lambda s_r, \lambda P_{\text{tst}}, \lambda y : \exists t \langle t \prec t_c \land p(t)(s_r) \land t = g(y) \rangle , \text{d} t \langle t \prec t_c \land p(t)(s_r) \land t = g(y) \rangle
  
  \item c. \text{[(76-a)]} = d \langle t \prec t_c \land p(t)(s_r) \land t = g(y) \rangle
\end{itemize}

Since an anaphoric past tense should pick out the unique interval such that \( t = g(y) \), I do not need to resort to maximal informativeness with respect to \( p \) in order to guarantee uniqueness. I propose that the temporal property \( p \) here is a vacuous one:

(77)  

The temporal property for the anaphoric past

\( \forall t \forall s \{ p(t)(s) = 1 \} \).

(76-a) then as a whole yields an object of type \( i \), namely the unique past interval \( t \) such that \( t = g(y) \). It will then be able to saturate the temporal argument of AspP.

For the purpose of accounting for the anaphoric reading in general, I assume that this index can be dynamically bound. There are multiple ways of achieving this in the literature, some options include (Chierchia 1995; Groenendijk and Stokhof 1991, Heim 1982, 1983b, and Kamp et al. 2011), among others. The choice here will not affect the conclusions of this paper, as long as I distinguish uniqueness from anaphoricity. I am not committed to a particular version.

Let me go through some examples. There are three cases where the anaphoric past is felicitous: (i) there is some contextually salient past time; (ii) the sentence contains a temporal adverbial; and (iii) a preceding present perfect provides the antecedent (e.g., I’ve been to the Louvre. I saw some mummies there.).

In particular, case (i) is easily derived, since I only need to follow Heim and Kratzer (1998) and assume that the assignment function already has a value for the index \( y \) in a way parallel to how I account for the deictic use of pronouns. Case (iii) will require the dynamic binding of the index and a thorough analysis will be beyond the scope of this paper, but I will briefly discuss how this may be achieved in the next subsection, when I define the present perfect.

For case (ii), I observed earlier that, whenever the sentence contains a past adverbial, the anaphoric past tense will be felicitous without any other contextually salient past time. I propose that this is because the temporal adverbial directly binds the index \( y \) in (76-a). I propose the following semantics for temporal adverbials:
Temporal adverbials

\[ \text{[yesterday]} = \lambda p_{(i,st)}, \lambda s. \exists t [t = \text{yesterday_c} \land p(t)(s)] \]
where yesterday_c means the interval corresponding to ‘yesterday’ in the context.

Consider a sentence like Yesterday Mary walked the dog. Simplifying the event semantics, the AspP has the following semantics:

\[ \lambda t. \lambda s. \exists e [M. \text{walk the dog}(e) \land \tau(e) \subseteq t] \]

The tree for this sentence is the following (for simplicity, I am omitting the inner structure of the past tense in the tree):

\[ (80) \]

The temporal adverbial always introduces an index binder and binds the index argument in the tense directly. The overall semantics of (80) is:

\[ (81) \]

which is the correct reading of the sentence.

8.1.3. The Present Perfect

I follow Pancheva and Von Stechow (2004) and assume that the perfect operator moves to T and merges with the present tense, together forming a complex PRESENT PERFECT operator.

\[ (82) \]

This results in the structure in (83), with the index argument shown.

\[ (83) \]

There are several components to this proposal. First, this structure reflects the fact that the present perfect morphologically includes a present tense. The present tense is defined as in (82-a). It takes a resource situation argument, presupposed to reflect some situations whose temporal extent includes the utterance time \( t_c \), an idea motivated by the literature.
in situation semantics and how situations may correspond to tenses (Krater 2004; Percus 2000, a.o.). It then returns the temporal interval that corresponds to that situation. Here, the resource situation may correspond to the topic (present) situation or the actual situation of the utterance, or it may be bound in quantified sentences, as in the literature on situation semantics (Elbourne 2013; Heim 1990; Schwarz 2009, a.o.).

The second component of this proposal is the definition of the perfect operator. It takes a temporal argument \( t \) and an index argument \( y \) (also of type \( i \)) and poses a presupposition on the index that \( g(y) \preceq t \). In the case of the present perfect, I can see that (83) as a whole says that there is a temporal interval equivalent to \( g(y) \), which may not succeed the speech time. This is essentially the weaker version of the Extended Now in Grønn and Von Stechow (2017). The fact that the present perfect allows \( g(y) \) to overlap with \( t \), but does not require it, means that it can both function as a past tense and denote an Extended Now interval for the Universal Perfect reading (Iatridou et al. 2003).

Let me see how this analysis derives the Present Perfect Puzzle first. The index argument of the present perfect may be bound by temporal adverbials directly, in the same way as in (80) earlier. I want to derive the observation that, if both the present perfect and the anaphoric past are available alternatives, the anaphoric past should be preferred. There are several ways to achieve this. First, note that the anaphoric past tense is presuppositionally stronger than the present perfect. This is the basis of the Maximize Presupposition/PIP competition idea. The simplest way is to say that for every present perfect sentence of the form \( \text{Yesterday Mary has walked the dog} \), the same sentence with the anaphoric past tense \( \text{Yesterday Mary walked the dog} \) is a structurally derived alternative in the sense of Katzir (2007), and it should always be preferred, even without dynamic semantics.

Alternatively, in a dynamic setting, I will need to define the context update rules of the present perfect and the anaphoric past in a way similar to the indefinite and definite articles in Heim (1982, 1983a, and 1983b, a.o.). In Heim (1982, 1983a), indefinites and definites each have their own presuppositions, represented in terms of the Novelty and Familiarity Principles. I would like to adjust this analysis by letting indefinites and the present perfect be presuppositionally weaker and derive their distribution via Maximize Presupposition/PIP (Heim 1991, a.o.). In order to illustrate the idea, I will first have to briefly summarize some of the basic components of this system.

(84) Context
The context \( c \) is a set of assignment function-world pairs \( \langle f, w \rangle \) such that:

a. \( \{ w \mid \exists f \langle f, w \rangle \in c \} \) is the Stalnakerian Context Set (Stalnaker 2002), and
b. \( \forall f, f' \text{ s.t. } \exists w \langle f, w \rangle \in c \text{, } \text{dom}(f) = \text{dom}(f') \), written as \( \text{dom}(c) \).

When a sentence \( p \) is uttered, the updated context is written as \( c + p \).

(85) Presupposition satisfaction (variable-free)
Let \( c \) be a context. Let \( p \) be a sentence with presupposition \( \phi \).

Updating the context \( c \) with \( p \), written as \( c + p \), is defined iff \( \forall w \text{ s.t. } \langle f, w \rangle \in c \text{ for some } f, \phi \text{ is true in } w \).

(86) Context Update
If \( p \) does not contain any variable, and \( c + p \) is defined,

\( c + p = \{ \langle f, w \rangle \in c \mid p(w) \} \).

(87) \( c + \text{‘It’s raining’} \)
= \( \{ \langle f, w \rangle \in c \mid \text{it’s raining in } w \} \).

The anaphoric past presupposes that its index is familiar in its local context, and the present perfect does not have this requirement.

(88) Context update example of the present perfect
Let \( c \) be a context, \( p \) be an atomic proposition of the form \[ \text{PP, [PERFECTIVE [Mary dance]]] } \].
a. if \( i \in \text{dom}(c) \):
\[
c + p \text{ is defined iff for each } \langle f, w \rangle \in c, f(i) \preceq t_c, \text{ where } t_c \text{ is the speech time.}
\]
if defined,
\[
c + p = \{ \langle f, w \rangle \in c \mid \exists e [\text{dance}(e) \land \text{Agent}(e) = \text{Mary} \land \tau(e) \subseteq f(i)] \text{ in } w \}\]
b. else:
\[
c + p = \{ \langle f', w \rangle \mid f'[i]f \land f'(i) \text{ is an interval } t \text{ s.t. } t \preceq t_c \land \exists e [\text{dance}(e) \land \text{Agent}(e) = \text{Mary} \land \tau(e) \subseteq f'(i)] \text{ in } w, \text{ for some } \langle f, w \rangle \in c \},
\]
where \( f'[i]f \) means \( f' \) except that \( \text{dom}(f') = \text{dom}(f) \cup \{i\} \).

(89) Context update example of the anaphoric past
Let \( c \) be a context, \( p \) be a sentence of the form \([\text{PAST}_{\text{ana}} \text{ PERFECTIVE [Mary dance]}]\). \( c + p \) is defined iff:

a. \( i \in \text{dom}(c) \), and

b. for each \( \langle f, w \rangle \in c, f(i) \prec t_c \), where \( t_c \) is the speech time.

If defined,
\[
c + p = \{ \langle f, w \rangle \in c \mid \exists e [\text{dance}(e) \land \text{Agent}(e) = \text{Mary} \land \tau(e) \subseteq f(i)] \text{ in } w \}\]

I may then derive the observed patterns with a local version of PIP (Singh 2011), where PIP must be satisfied in each of the local contexts of the alternatives. This will derive the distribution of the present perfect and the anaphoric past in environments such as conjunction and quantified donkey sentences:

(90) a. Mary has been to the Louvre and it was/#has been very crowded.

b. Every girl who has been to the Louvre saw/#has seen the Mona Lisa there.

For sentences containing a past temporal adverbial, I may define the updated rule of temporal adverbials such as yesterdays as adding a new index to the context that is assigned to the interval ‘yesterday’. Sentences of the form Yesterday, \( p \) will always update the context first with yesterday, and then \( p \). Therefore, by the time the tense (coindexed as yesterday) in \( p \) is processed, the local context of the tenses will be one in which the index \( i \) is familiar.14

Local PIP will then derive the preference of the anaphoric past over the present perfect.

I can apply the same idea for cross-sentential anaphora (which require a dynamic analysis anyways). Recall that the present perfect may provide an antecedent for a subsequent anaphoric past. Suppose I update the initial context \( c \) with the following utterances (in the order shown below):

(91) a. \( p: \) Mary has been1 to the Louvre.

b. \( q: \) She saw1 the Mona Lisa there.

The context update will be written as \( c + p + q \), where the local context of \( q \) is the result of \( c + p \). In particular, for all \( \langle f, w \rangle \in c + p \), the present perfect will already have added the variable 1 to \( \text{dom}(c + p) \) and assigns it to an interval \( t \) such that \( t \preceq t_c \). If \( t \prec t_c \), \( c + p \) will satisfy the presupposition of \( q \), allowing the anaphoric reading of the past tense in \( q \). In other words, the present perfect can provide an antecedent for the anaphoric past tense to pick up.

In a dynamic setting, I will need to let the unique past tense have an index argument. For simplicity, I will assume that the unique past tense always introduces a new reference time, given that it is used without a contextually salient past time.15

(92) Context update example of the unique past
Let \( c \) be a context, \( p \) be an atomic proposition of the form \([\text{PAST}_{\text{uni}} \text{ PERFECTIVE [Borromini build this church]}]\).
\( c + p \) is defined iff:

a. \( i \notin \text{dom}(c) \), and
b. for each \( \langle f, w \rangle \in c \), there is a unique interval \( t \prec t_c \) such that \( \text{MI}(t) \) with respect to \( \lambda t . \lambda s . \exists e [\text{build}(e) \land \text{Agent}(e) = \text{Borromini} \land \text{Theme}(e) = \text{this church} \land \tau(e) \subseteq f'(i)] \) in \( w \), for some \( \{f, w\} \in c \),

where \( f'[i]f \) means \( f' \) is just like \( f \) except that \( \text{dom}(f') = \text{dom}(f) \cup \{i\} \).

The unique past tense also has stronger presuppositions than the present perfect. Using PIP, the present perfect cannot be used when the unique past tense is possible.

For languages like the standard varieties of French, Italian, and German, I keep the same definition of the present perfect. Since it is presuppositionally neutral regarding uniqueness and anaphoricity, when the (simple) past tense is not available in the spoken register of these languages, it fills in for both the anaphoric and the uniqueness readings of the English past tense, resulting in a general-purpose past perfective in the sense of (2). In addition, since the present perfect in French and Italian is always perfective, there is no Universal Perfect reading in these languages. This is because the Universal Perfect reading requires an underlying imperfective/progressive aspect (Iatridou et al. 2003).

8.2. Aspects

I follow Matthewson (2006) and Sun (2014) and assume that Mandarin Chinese has a null NONFUTURE tense. Hence, the resulting Asp\( ^P \) needs to be of type \( \langle i, st \rangle \), which then takes a temporal argument (the tense). (93) shows the standard analysis of the NONFUTURE tense, where the non-futureness is a presupposition. I also follow Matthewson (2006) and assume that the NONFUTURE tense can be anaphoric if needed.

\begin{equation}
\text{(93) The NONFUTURE tense}
\end{equation}

\begin{enumerate}
\item a. TP\( _{(s,t)} \) ⇒ a proposition

\begin{align*}
\text{T}_{(i)} & \quad \text{Asp}_{(i,st)} \\
\text{NONFUT} & \quad \text{denotes a property of times}
\end{align*}

\item b. [NONFUT] = \( \lambda t . \neg \exists t'[t' \subseteq t \land t' > t_c] \)
\end{enumerate}

Since Mandarin Chinese perfective particles encode the anaphoricity of events and not reference times, I need a way to allow event anaphora while leaving open the discourse status of tense. One possible way of achieving this is to insert an index argument for the aspect particles.

For verbal -le, which presupposes an anaphoric relation with some event in the context, I have:

\begin{equation}
\text{(94) verbal -le}
\end{equation}

\begin{enumerate}
\item a. TP

\begin{align*}
\text{T} & \quad \text{Asp}_{(i,st)} \\
\text{NONFUTURE}_z & \quad y \\
\text{Asp} & \quad \text{VP}_{(s,t)} \\
& \quad \text{Mary swims}
\end{align*}

\item b. [le\textsubscript{verbal}] = \( \lambda P . \lambda y . \exists e'[\rho(e', g(y))] . \lambda t . \lambda s . \exists e [P(e) \land \tau(e) \subseteq t \land e = g(y)] \), where \( \rho \) is taken to be the identity or the part-whole relation (cf. Section 2.2).
In other words, verbal -le takes an index argument, identifying the event it marks with the value of that index, with the presupposition that the event is related with some event $e'$ in the context by the relation $\rho$.

The other two perfective particles, the perfective sentence-finals -le and -guo, can be defined in similar ways. I included the index argument but without the relation presupposition. This analysis mimics the analysis of the Present Perfect I saw earlier, and I can derive their distribution (with respect to anaphoricity) via PIP. In addition, the perfective sentence-final -le is presupposition-less, and guo has the additional non-resultative presupposition.

(95) The perfective sentence-final -le

a. 

\[
\begin{array}{c}
TP \\
T \\
\text{NONFUTURE}_2 \\
\text{AspP}_{(i,s,t)} \\
y \\
\text{AspP}' \\
\text{le}_{sf} \\
\text{VP}_{(v,t)} \\
\text{Mary swims}
\end{array}
\]

b. $[\text{le}_{sf}] = \lambda P. \lambda y. \lambda t. \lambda s. \exists e [P(e) \wedge \tau(e) \subseteq t \wedge e = g(y)]$.

(96) -guo

a. 

\[
\begin{array}{c}
TP \\
T \\
\text{NONFUTURE}_2 \\
\text{AspP}_{(i,s,t)} \\
y \\
\text{AspP}' \\
\text{guo} \\
\text{VP}_{(v,t)} \\
\text{Mary swims}
\end{array}
\]

b. $[\text{guo}] = \lambda P. \lambda y. \lambda t. \lambda s. \exists e [P(e) \wedge \tau(e) \subseteq t \wedge e = g(y)]$,

where

(i) $\text{ANS}$ is true of a proposition if it is a complete or partial answer to the discourse topic at the time the sentence is uttered;

(ii) $\mathcal{P}(p,q)$ is true iff $\forall w \in \cap (E_{(w,u)} \cup p), q(w) = 1$, where $E_{(w,u)}$ is the modal base based on causality, accessed from world $w$ and utterance situation $u$.

Again, I assume that the indices can be dynamically bound, so I can extend this analysis to a dynamic setting along the lines of (88)–(92). I will omit the details due to the limited space in this paper.

9. Conclusions

In this paper, I examined the tense/aspect constructions with perfect-like and past perfective readings in three groups of languages: (i) English; (ii) French, German, and Italian (spoken register and standard variety); and (iii) Mandarin Chinese. I propose that the set of alternatives available for the past perfective reading (including the canonical, presuppositionally neutral alternative, and other alternatives with additional presuppositions, such as anaphoricity, uniqueness, and relations with the topic question) together with PIP, derive the set of perfect readings in these languages. This analysis allows me to decompose various perfect readings that come from different sources and make better prediction of which of these readings a tense/aspect construction in a given language may have.
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Notes

1. The resultative perfect reading is characterized by the fact that the result state cannot be cancelled: #I’ve lost my keys, but then I found them again. See (Bertrand et al. 2017, 2022); Matthewson et al. (2017). However, this only applies to the resultative reading and is not a general constraint of the present perfect.

2. The past-tense morphology may not denote a past time if embedded under a future operator, such as were in the following sentence: John decided a week ago that in ten days he would say to his mother that they were having their last meal together. These instances of embedded past are beyond the scope of this dissertation.

3. In German, this constraint excludes some statives, modals, and auxiliaries.

4. It has been observed that, in Dutch, there is no Present Perfect Puzzle, but the present perfect is not used for narrative progression (Bertrand et al. 2017). At this point, I do not have access to Dutch data regarding the availability of the simple past, so I cannot judge whether this is an exception to the pattern I observed. In any case, while the Present Perfect Puzzle seems to illustrate a simple, straightforward anaphoric reading, narrative progression involves additional mechanisms. The Dutch data may provide insights for a more complete analysis of the narrative progression that will account for Bertrand et al.’s (2017) observation, which is beyond the scope of this paper.

5. See Portner (2011) for a more detailed discussion.

6. In this paper, I distinguish the perfective sentence-final -le from the presuppositional particle labeled as the ‘sentential -le’ in the literature (Soh 2009; Soh and Gao 2006), which is is a sentence-level particle with a change-of-state presupposition. This distinction has not been made in the previous literature, which leads to confused judgements and conflicting data. Due to limited space, it will be impossible to give a detailed discussion to justify my claim. Briefly, the sentential -le and what I call the perfective sentence-final -le can be distinguished by: (i) the perfective sentence-final -le does not presuppose any change-of-state, and (ii) the perfective sentence-final -le does not allow the current stative, progressive, or habitual reading such as the presuppositional sentential -le, and (iii) it has been noted that the presuppositional sentential -le cannot occur with downward-entailing numeral-classifier phrase subjects (Soh 2009), while the perfective sentence-final -le is not subject to this constraint.

7. I believe many of the conflicting and vague judgements are due to misclassification, especially with the various particles homophonous to le. It is beyond the scope of this paper to fully justify my classifications and analyses of these particles. The reader can refer to my dissertation, which will come out later this year.

8. Here, it is important that we are dealing with the perfective sentence-final -le instead of the sentential -le, the latter of which is not a perfective particle, but rather a sentence-level operator that with a change-of-state presupposition. If the -le here is interpreted as the sentential -le, it will scope higher than Lisi youyang, which has only the habitual reading without aspectual marking (Sun 2014). The sentence will then presuppose that Lisi used to not swim and assert that Lisi now swims habitually.

9. For the litter example, the speaker also needs to assume that the litter is not accumulated gradually but discarded all at once. The judgement is subtle, but it seems that, under the ‘slowly accumulated’ pile of litter assumption, the present perfect in (49) significantly improves and may even be preferred.

10. A reviewer points out that Mary called seems to be felicitous out of the blue and suggests a relevance-based analysis. However, I believe her example does not necessitate relevance. In particular, almost all the contexts I can think of for the so-called ‘out-of-the-blue’ use of Mary called are ones in which the addressee returns from a short period of absence. In these cases, I may simply assume that the reference time is the contextually salient ‘just now’ or ‘the time of the addressee’s absence’. In other words, these are not truly ‘out of the blue’, but rather, similar to Partee’s (1973) I didn’t turn off the stove example, where the reference time is the contextually salient ‘20 min before the speaker leaves the house’ and can easily be incorporated into a strictly pro-nominal analysis of the past tense.

11. Katz (2003) also argues that the Present Perfect Puzzle follows from this presupposition, since it is impossible to repeat an event that ‘happened yesterday’, for example.
A reviewer argues that this sentence satisfies repeatability, since the future president could be assassinated. However, what I have in mind for this example has a de re interpretation of the president. In any case, the same judgement holds for examples with actual names, like Bill Gates has been assassinated!

Due to limited space, I will only introduce the most necessary definitions I need in this paper.

Arguably, I may need an additional principle regulating index use: the speaker should avoid using a new index if it is to be assigned to a value already assigned to some old index.

Since, in English, the anaphoric and the unique past tenses have the same morphology, I assume that the anaphoric reading always involves an anaphoric past tense. This assumption will not make any difference in terms of the predictions.

Note that, since event anaphora in Mandarin Chinese are always via a relation (either identity or part-whole), I do not need to define the index of verbal -le as familiar. It suffices to define all three perfective particles as adding a new index for simplicity.

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