Already: just scalarity

by

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Abstract

The particles still and already are commonly thought of and analyzed as particles that mirror each other. The particle still has been robustly argued to have an additive presupposition in the same vein as particles like too. However, I argue that a dual semantics for already, as all previous accounts attempt to implement, is untenable, motivated by asymmetries between the two particles.

Instead, I propose that already has no additive presupposition but instead an even-style scalar ‘likelihood’ presupposition enriched with an exhaustivity operator. Such an analysis offers empirical improvements over previous analyses, notably in its ability to directly capture the earlier-than-expected inference conveyed by already.

Thesis Supervisor: Roger Schwarzschild
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1 Introduction

In this paper, I explore the particles still and already, both of which have been widely assumed to be additive particles mirroring the other. I lay out the initial empirical picture, showing that still and already display surprising asymmetries. I go over two prominent accounts of still and already in section 2, which differ mainly in the presupposition of already, and argue that neither account can capture the asymmetry. In section 3, I motivate a revamped analysis of the presupposition of already as purely scalar instead of additive, and add a scalar presupposition to the additive presupposition of still. I show that this new analysis significantly extends the empirical domain for already.

2 Still as additive

Most accounts of still (Löbner 1989, Ippolito 2007, Greenberg 2009, Tellings 2017, inter alia) analyze it as having an additive presupposition: that the prejacent holds for some time earlier than the reference time. Such analyses share the following template:

\[(1) \text{ Mary is still in New York.} \]
\[a. \exists t' < t_{ref=now} \in C[\text{Mary is in New York at } t'] \text{ additive presupposition} \]

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1I’m deeply grateful to Roger Schwarzschild and Danny Fox for their patient guidance of this project. I’m also thankful to Moysh Bar Lev, Kai von Fintel, Shigeru Miyagawa, and many audience members and Workshop classmates for their input.
Mary was in New York at an earlier time.

b. Mary is in New York (now). assertion

We can check that these inferences survive under questions and conditionals, thus patterning as presuppositions:

(2) a. Is Ana still in New York?
    ⇝ Ana was in New York earlier.

b. If Al is still eating dinner with the president, we shouldn’t call him.
    ⇝ Al was eating dinner with the president earlier.

2.1 Continuity

With *still*, the presupposition also encodes a requirement for the truth of the pre-jacent to be continuous. (4) shows that *still* is infelicitous with a context in which Ana was in NY both yesterday and today, but not continuously.

(3) Context: Ana traveled to New York a week ago for a two-week conference.
    Ana is still in NY today.

(4) Context: Ana commutes to New York every day from NJ.
    # Ana was in New York yesterday and she is still there today.

I present two accounts of *still*. Both accounts treat these particles as contributing an additive presupposition, although they differ in their implementation of the continuity inference.
2.2 Löbner (1989) on *still*

Löbner (1989) implements a system in which the presupposition of *still* is stated as conditions on a time interval, deriving continuity and prior additivity. I present below an informal version of Löbner’s semantics for *still*.

- presupposition: There exists an admissible interval (AI), in which a proposition \( p \) starts out true, and either stays true throughout the interval or becomes false and remains so until the end of the interval. The AI ends with, and does not begin with, the RT; it can be stated as \((t_i, t_{ref})\) for some \( t_i < t_{ref} \).

- assertion: At no point in the AI is \( \neg p \) true. (Equivalent to \( p[t_{ref}] = 1 \).)

Applied to a sentence like “Ana is still in New York”, Löbner’s semantics will result in the following:

- presupposition: There exists an admissible interval just up until and including now, such that Ana was in New York in the beginning of this interval and either remains in New York until now, or left New York and remains outside of New York for the rest of the interval.

  \( \approx \) Ana was in New York earlier and either remains in New York until now or left New York and remains outside of New York until now.

- assertion: At no point in the AI was Ana not in New York.

  \( \approx \) Ana is in New York now.

\(^2\)Because \( p \)'s truth at the end of the AI (i.e. the RT) entails \( p \)'s truth throughout the AI, this assertion is equivalent to asserting the prejacent: \( p(t_{ref}) = 1 \).
2.3 Ippolito (2007) on still

Ippolito (2007) provides a Heim and Kratzer-based (1998) compositional account of still, whose denotation I present below.\(^3\)

\[
(5) \quad [\text{still}]^{c,g,w} = \lambda t \lambda e \lambda P_{v,i}(t,e) : \exists t' < t[P(e)(t') = 1], P(e)(t) = 1
\]


\([\text{still}]^{c,g,w}\) takes three arguments: a time variable \(t\), an eventuality variable \(e\), and a function \(P\). Its presupposition states that \(P\) is true of \(e\) and some time before \(t\). Its assertion states that \(P\) is true of \(e\) and \(t\).

Let us illustrate the denotation in (5) with the following structure. The time variable \(t_2\) will be ultimately supplied with the utterance time \(t_c\), and \(e_1\) is a free event variable\(^4\) in the structure which “saturates the two occurrences of \(P\) in the presupposition and in the assertion” in order for both to be about the same eventuality and to derive the continuity inference (Ippolito, 2007). \(P\) corresponds to an AspP resulting from the application of an imperfective (IMP)\(^5\) operator to a property of events that has been shifted from a property of times via Kratzer’s * operator (1998).\(^6\)

\[
(6) \quad \text{PRES} \lambda_2 [[\text{still} \ t_2 \ e_1] [\text{AspP IMP} *[\text{Ana be in New York}]])]
\]

\(^3\)I assume at least the following ontology throughout the rest of the paper. \(D_t\) is the set of all times (i.e. time intervals) \(t\); \(D_e\) is the set of all event(ualitie)s \(e\), and \(D_w\) is the set of all possible worlds \(w\). \(\tau_{(v,i)}\) is a function from eventualities to times; \(\tau(e)\) is read as “the runtime of \(e\). \(f_{(s,u)}\) is a function from worlds to modal bases. One source of confusion in this paper may be the letter \(t\). I use \(t\) to refer to time variables except with non-numerical subscripts, in which case \(t_...\) refers to times in the object language. I do not use traces in this paper.

\(^4\)Tellings (2017) recasts \(e_1\) as an event pronoun in his reinterpretation of Ippolito’s account.

\(^5\)I use IMP instead Ippolito’s “-ing”.

\(^6\)The * operator was introduced in order to account for temporal de re.
(7) $\text{IMP}^{c,g,w} = \lambda P_{(v,t)} \lambda e \lambda t. [t \subseteq \tau(e) \land P(e) = 1$]

(8) $\text{[* [Ana be in New York]}^{c,g,w} = \lambda e. \text{In all possible worlds } w', \tau(e) \text{ is a time when Ana is in New York in } w'. \text{ (Ippolito, 2007: (18c)) with predicate replaced}$

As noted by Tellings (2017) and Schwarzschild (p.c.), the result of applying the * operator leads to the problematic result that the property of events in (8) is not world dependent. Instead, we shall proceed with the derivation by modifying Ippolito’s account with a standard event semantics (such as in Beck and von Stechow 2015), in which the denotation of “Ana be in New York” is as follows:

(9) $\text{[Ana be in New York]}^{c,g,w} = \lambda e. e \text{ is an event of Ana being in New York in } w$

We shall proceed with the derivation, assuming that (9) replaces every instance of (8) in (Ippolito, 2007).

(10) $\text{IMP [Ana be in New York]}^{c,g,w} = \lambda e \lambda t. [t \subseteq \tau(e) \land e \text{ is an event of Ana being in New York in } w$

(11) $\text{[} \lambda_2 [(\text{still } t_2 e_1) [\lambda_{sp} \text{ IMP * [Ana be in New York]]}]^{c,g,w} = \lambda t : \exists t' < t [t' \subseteq \tau(e_1) \text{ and } e_1 \text{ is an event of Ana being in New York in } w]. t \subseteq \tau(e_1) \text{ and } e_1 \text{ is an event of Ana being in New York in } w$

Finally, PRES supplies (11) with the utterance time $t_c$, resulting in the following LF for “Ana is still in New York”.

7
(12) $[[\text{PRES } \lambda_2 [[[\text{still } t_2 e_1] [\text{AspP IMP }*[\text{Ana be in New York}]]]]^c.g.w$ is defined only if

$\exists t' < t_c [t' \subseteq \tau(e_1) \text{ and } e_1 \text{ is an event of Ana being in New York in } w]$ 

and if defined, $[[\text{PRES } \lambda_2 [[[\text{still } t_2 e_1] [\text{AspP IMP }*[\text{Ana be in New York}]]]]^c.g.w$

$= 1 \text{ if }$

$t_c \subseteq \tau(e_1) \text{ and } e_1 \text{ is an event of Ana being in New York in } w$

(13) Ana is still in New York.

a. presupposition: The salient event $e_1$ is an event [whose runtime includes some time $t'$ before the utterance time] of Ana being in New York.

$\approx$ Ana was in New York at some time prior to now.

b. assertion: The salient event $e_1$ is an event [whose runtime includes the utterance time] of Ana being in New York.

$\approx$ Ana is in New York now (continuously from her being there at a prior time).

The two accounts of L"obner and Ippolito amount to very similar presuppositions for still. For a sentence like “Ana is still in New York”, the presupposition requires that Ana was in New York at a prior time, and that this be continuously true if Ana was also in New York at the reference time.

One borne-out prediction of these analyses (as L"obner notes for his account) is their ability to account for the fact that still is infelicitous with an irreversible state
The predicates above are permanently true of an individual once they start to hold. Under both analyses, the presupposition contextually entails the assertion, since the presupposition states that the prejacent was true at a prior time. Since this contextually entails the prejacent holding at the reference time, the assertion is entailed by the presupposition, rendering these sentences infelicitous.  

3 Against already as additive

Previous accounts of already treat it as additive, but differ on the nature of whether its additivity is positive (Ippolito 2007) or negative (Löbner 1989). Both versions are schematized below.

(16) Mary is already in New York.

a. $\exists t' > t_{ref=now} \in C[\text{Mary is in New York at } t']$ positive (posterior)

additivity

It should be noted that still cannot be argued to be generally uncomposable with the perfect. The author provides the following example which still is compatible with the perfect, because its result state can become false:

(14) I’ve still only been to three countries.

This relies on a general principle that vacuous assertions (i.e. those which do not affect the context set) are infelicitous.
Mary will be in New York at a later time.

\[
b. \exists t' < t_{\text{ref}=\text{now}} \in C[\neg[\text{Mary is in New York at } t']] \quad \text{negative additivity (i.e. prior falsity)}
\]

Mary was not in New York at an earlier time.

Drawing from the broader literature on additive particles, it should be noted that the positive additive presupposition should be considered the null hypothesis for a particle like already. The negative additive presupposition has only been proposed to account for NPI particles such as NPI-even and either (e.g. Rullmann 2003).

3.1 Against negative additivity

I present below an informal version of Löbner’s negative-additive account semantics for already. Such an account can be said to roughly presuppose that the prejacent is false at a time prior to the RT.

- presupposition: There exists an admissible interval (AI), in which a proposition \( p \) starts out false, and stays false throughout the interval or becomes true and remains so until the end of the interval. The AI ends with, and does not begin with, the RT: it can be stated as \( (t_i, t_{\text{ref}}] \) for some \( t_i < t_{\text{ref}} \).

- assertion: “At some point in the AI, \( p \) is true”. (Equivalent to \( p[t_{\text{ref}}] = 1 \).)

Applied to a sentence like “Ana is already in New York”, Löbner’s semantics will result in the following:
• presupposition: There exists an admissible interval (AI) just up until and including now, such that Ana was not in New York in the beginning of this interval and remains outside of New York until now, or went to New York and remains there for the rest of the interval.
≈ Ana was outside of New York earlier and remains outside New York until now or went to New York and remains there until now.

• assertion: At some point in the AI, Ana was in New York.
≈ Ana is in New York now.

Löbner’s account for already closely mirrors that for still. In his system, “still $p$” and “already $¬p$” have identical presuppositions (i.e. conditions on admissible intervals) but opposite assertions. The motivation for such a property comes from German, in which the following two sentences have identical meanings, according to Löbner:9

(17)  Das Licht ist noch an.

‘The light is still on.’  

(18)  Das Licht ist nicht schon aus.

‘The light is not already off.’

3.1.1 Mittwoch’s objection

Mittwoch (1993) argues against Löbner’s semantics for already on the basis of the

9This claim is disputed in Mittwoch (1993).
following example, first cited in Löbner (1989) but attributed to Mittwoch:

(19) A: I’ve applied for American citizenship.
    B: Is your husband also applying?
    A: He is **already** American, for he was born in America. (Mittwoch, 1993: p. 74)

A’s response apparently lacks a prior falsity presupposition, but Löbner attempts to explains this as A’s perspective shift to accommodate the belief state of the interlocutor. However, Mittwoch argues against this explanation on the basis that such a move is generally not permitted for presuppositions:

(20) # John has stopped eating meat, for he has always been a vegetarian.  
    (Mittwoch, 1993: p. 74)

Furthermore, Mittwoch points out several examples against a prior falsity presupposition. She presents a felicitous use of *already* without prior falsity:

(21) *Of a baby receiving an inheritance at birth:*
    She is already rich.  
    (Mittwoch, 1993: p. 74)

She also presents an example with *already* in the antecedent of a conditional, whose presupposition projects above the entire sentence. This example is felicitous when *he* refers to a baby who was born American.

(22) If he is already American, he doesn’t have to be naturalized.  
    (Mittwoch, 1993: p. 78)
3.2 Ippolito (2007) on already

Ippolito (2007) offers further arguments against *already* as expressing prior falsity. She points out that Löbner’s presupposition, that an admissible interval ending at RT is such that the proposition \( p \) is initially false and remains false, or becomes true and stays true, incorrectly permits contexts in which the prejacent is false throughout time.

(23) *Context: John is not married and I doubt he will ever get married.*

#If he were already married, he would be living in the suburbs now. (Ippolito: p. 16)

(24) John isn’t already married.\(^{10}\)

#Men like him don’t ever get married. adapted from (Ippolito, 2007: p. 17)

In (23), Löbner’s presupposition is satisfied for the antecedent of the counterfactual conditional, but the sentence is infelicitous. In (24), a continuation which is compatible with Löbner’s presupposition is infelicitous.

To fix this problem, Ippolito replaces Löbner’s prior-falsity presupposition with a posterior-truth (i.e. posterior-additive) presupposition, which would clash with a context in which John will never be married throughout life. I present below Ippolito’s denotation for *already*, which is identical to that of *still* with the anteri-

\(^{10}\)Ippolito uses *yet* in the example, which I do not assume to be equivalent to *already*. As *already* may be a PPI, (24) should be read as the answer to a question.
riority operator ‘<’ reversed.

\[(\text{still})^{c,g,w} = \lambda t \lambda e \lambda P_{(v,(t,t))} : \exists t' > t [P(e)(t') = 1]. P(e)(t) = 1\]

I omit a full a derivation of the sentence “Ana is already in New York”, as it would be identical to the derivation in section 2.3 with ‘<’ flipped. The derivation would yield the following LF.

\[(\text{PRES } \lambda_2 [[\text{already } t_2 e_1] [\text{AspP IMP *[Ana be in New York]]]^{c,g,w} \text{ is defined only if} \]
\[\exists t' > t_c [t' \subseteq \tau(e_1) \text{ and } e_1 \text{ is an event of Ana being in New York in } w] \]
\[\text{and if defined, } [[\text{PRES } \lambda_2 [[\text{already } t_2 e_1] [\text{AspP IMP *[Ana be in New York]]]^{c,g,w} = 1 \text{ if} \]
\[t_c \subseteq \tau(e_1) \text{ and } e_1 \text{ is an event of Ana being in New York in } w. \]

(27) Ana is already in New York.

a. presupposition: The salient event \(e_1\) is an event of Ana being in New York whose runtime includes some time after the utterance time.
\[\approx \text{Ana was in New York at some time after now.} \]

b. assertion: The salient event \(e_1\) is an event of Ana being in New York whose runtime includes the utterance time.
\[\approx \text{Ana is in New York now (continuously to her being there at a later time).} \]
3.3 Against *already* as posterior-additive

Ippolito’s account avoids some of the problems found in Löbner’s analysis, but introduces its own. Ippolito limits her discussion to examples with imperfective aspect. Indeed, her semantics for both particles requires a single eventuality to hold true of a predicate at two distinct time points, meaning that both *still* and *already* are predicted not to be compatible with instantaneous eventualities, such as achievement predicates (contra Condoravdi 2002). However, I make the novel argument that *already* is in fact compatible, using data from *already*’s interaction with aspect and with instantaneous states.

3.3.1 An interlude: interaction with aspect

*Still* and *already* are compatible with statives and imperfective aspect.

(28) I still knew the hallways of my high school after twenty years away. stative
(29) I was still eating dinner when you went to bed. progressive
(30) I still play soccer. habitual
(31) I already know Russian. stative
(32) I am already eating dinner. progressive
(33) I already play soccer. habitual

With eventives in the simple past (perfective), *still* is incompatible unless interpreted as a habitual, or with a concessive reading.
(34)  ? I still ate the fish.... past perfective, concessive
≈ I still ate the fish despite....

(35)  I still played soccer (in middle age). past habitual

Already can combine with both the perfect and the simple past perfective:

(36)  a. I already reached the summit.
     b. I have already reached the summit.

(37)  a. I already left the party.
     b. I have already left the party.

The occurrence of already with the perfective cannot be thought of as including a silent present perfect.\(^{11}\) The English present perfect cannot occur with a temporal adverbial (the “present perfect puzzle” (Klein 1992)), with or without already:

(38)  a. Carla has left the party (*an hour ago).
     b. Carla has already left the party (*an hour ago).

However, the simple perfective with already can occur with a temporal adverbial:

\(^{11}\)For example, Kratzer remarks that the English simple past “must be a way of spelling out perfect aspect” (1998).

\(^{12}\)The felicitous temporal adverbial with already may have a relativity restriction; most speakers polled find (39) at least degraded compared to (40b). I leave this as a puzzle.

(39)  ? Carla already left the party at eight.
(40)  a. Carla left the party an hour ago.
    b. Carla already left the party an hour ago.

It can also be demonstrated that *already* with a past perfective (41b) is not equivalent to a past perfect (41a).\(^{13}\)

(41)  a. Ten minutes after the hurricane started, the dam had already broken.
    b. ? Ten minutes after the hurricane started, the dam already broke.

A posterior-additive analysis of *already* would have trouble accounting for the aspectual facts. An utterance such as (36a) would have a presupposition that its prejacent holds at some time after the RT, and an assertion that it holds at the RT. (36a) does not have the meaning that the speaker reached the summit twice (which would require the assumption that a single eventuality is able to be included inside two non-adjacent time intervals), nor can it have the meaning that the instantaneous reaching event continued after the RT, as instantaneous events cannot be continuous. Below, I present an informal paraphrase of what Ippolito’s analysis of (36a) would look like, assuming that PFV is the opposite aspectual relation as IMP and that PAST supplies a past reference time (set as 9am).

(42)  Don already reached the summit (at 9am).

    a. presupposition: The salient event \(e_1\) is an event [whose runtime is fully included inside some time after the reference time] of Don reach-

---

\(^{13}\)Most speakers reported (41b) as degraded, but offered an interpretation: (41a) is compatible with a context in which the dam broke five minutes after the start of the hurricane; (41a) is not.
ing the summit.
≈ Don reached the summit at some time after 9am.

b. assertion: The salient event $e_1$ is an event [whose runtime is fully included inside the reference time] of Don reaching the summit.
≈ Don reached the summit at 9am.

Ippolito would incorrectly predict that the supplied eventuality of reaching the summit holds at both a past reference time and a presupposed time after that reference time, either contradicting the instantaneity of achievement predicates or incorrectly predicting a disjoint eventuality across two non-adjacent time intervals.

3.3.2 Further examples without posterior additivity

In addition to felicitous examples involving achievement events, already is felicitous with statives which, in a given context, can hold true only for a single moment.

(43) Context: John is a runner, who runs continuously without stopping. He is running up a 5-mile route as we speak:
Wow, John’s already right beside milepost three!
\[\n\]
John will be right beside milepost three at a future time.

Ippolito’s future additivity presupposes that there will be a future time at which John is right beside milepost three, which incorrectly predicts an inference that
John stopped at milepost three. In contrast, *still* is infelicitous with instantaneous statives.

(44) *Context: John is a runner, who runs continuously without stopping. He is running up a 5-mile route slowly but surely as we speak:*

# Look, John’s still right beside milepost three.

*compare:* Look, John’s only right beside milepost three so far.

### 3.3.3 Temporal prejacents

Another piece of evidence in favor of *still* and *already* differing in additivity can be found in the discussion of examples in which the prejacent is a temporal predicate (Ippolito, 2007).

(45) It is already four o’clock.

(46) It is still four o’clock.

(47) It is only four o’clock.

(45-47) show the non-dual nature of *still* and *already*. (45) conveys that the speaker had mistakenly thought the current time was earlier than four o’clock, whereas (47) conveys the opposite meaning, that the speaker thought the current time was later. Ippolito notes that, for most English speakers, the meaning conveyed in (47) is not the same as (46), which is felicitous only in a context in which the speaker believes it is four o’clock both at an earlier time and at utterance time, leading to the inference that four o’clock is a non-instantaneous interval.
3.4 Counter-expectation

Still and already have been widely but controversially noted to have a counter-expectation meaning (see Löbner 1989, van der Auwera 1993, Michaelis 1996, Condoravdi, inter alia); neither account derives this inference. Below, I present some examples to demonstrate that a notion roughly describable as ‘counter-expectation’ plays a role in the meaning of already, without committing to the properties of this notion. I present a pair of examples such that the additive presupposition is met, and the prejacent sentence either goes against or supports an expectation set up in the context.

I now present a similar pair of examples with already, testing the “earlier than expected” meaning.

(48) a. Context: I host a party, and tell my guests to arrive at 6pm, although it’s convention to for guests to arrive later than the stated time. I’m in the bathroom when my co-host sees Bailey show up exactly at 6pm, and calls me to say:

Bailey is already here! (But let’s wait for the others.) earlier than expected

b. Context: I host a dinner at a hotel restaurant and tell my guests to arrive at 6:00pm, and it’s convention for guests to arrive on time. I’m in the dining room when the concierge sees Bailey show up in the lobby at 6:20pm, and calls me to say:
# Bailey is already here! We can get started then.

(compare) Bailey’s here! We can get started then.

## 4 The proposal: a scalar presupposition for *still* and *already*

So far, we have seen that existing accounts of *already* are problematic. Lübner’s prior falsity presupposition for *already* was not met in the felicitous examples brought up by Mittwoch (1993). Ippolito (2007), providing data to demonstrate that prior falsity is neither necessary nor sufficient, proposed positive posterior additivity as a remedy. However, I presented novel counterexamples to challenge the status of posterior additivity, in contrast with *still*, whose prior-additive presupposition is robust. Thus, neither initially-plausible additive presupposition—prior falsity nor posterior additivity—can capture the facts.

Moreover, both accounts fail to capture the counter-expectation inference presented in (48). In order to capture this inference, I propose that an *even*-style scalar presupposition as the sole presupposition of *already* and show that doing so allows for greater empirical coverage. I propose that, in addition to its additive presupposition, a scalar presupposition is also present in *still*.

In order to demonstrate that the link between *even* and *already* is not a peculiarity of English, I provide crosslinguistic data showing that it can be homophonous
with *even* in Turkish sentence-final/non-final *bile* ‘already/even’.

(49) a. Ayşe hapşır-di **bile**.
   Aisha sneeze-pst already
   ‘Aisha (has) already sneezed.’ (Taylan, 2002: p. 118)

b. Ayşe **bile** o kitabı oku-du.
   Aisha even that book-acc read-pst

I illustrate informally a standard semantics for *even* (Karttunen and Peters, 1979), using an example sentence in which the focus on ‘John’ induces a set of alternatives C, i.e. {‘John’, ‘Mary’, ‘Kim’}:

(50) a. Even John came.

b. $\exists x \neq \text{‘John’} \in C [x \text{ came}]$ additive presupposition
   *Someone other than John came.*

c. $\forall x \neq \text{‘John’} \in C [(\text{John came}) <_{\text{likely}} (x \text{ came})]$ scalar presupposition
   *For John to come is less likely than for anyone else to come.*

d. *John came.* assertion

Although the empirical gain once adding the scalar presupposition for *still* is less than that for *already*, I first present *still* with both a scalar and an additive presupposition, as this is a closer analogy to *even*. Instead of a focus-generated alternative set C, I assume that C is a domain restrictor on the set of times $D_i$, and *still* only makes use of the times before the reference time (in the example: $t_{\text{now}}$).
(51) Rough sketch of the proposal to come:

a. Ana is still in New York (at $t_{\text{now}}$).

b. $\exists t' < t_{\text{now}} \in C \ [\text{Ana was in New York at } t']$ additive presupposition
   $\approx$ Ana was in New York at an earlier time.

c. $\forall t' < t_{\text{now}} \in C \ [(\text{Ana is in New York at } t_{\text{now}}) <_{\text{likely}} (\text{Ana was in New York at } t')]$ scalar presupposition
   $\approx$ For Ana to be in New York now is less likely than for her to be in New York at an earlier time.

d. Ana is in New York (now). assertion

4.1 Still

I propose a composition account of still, diverging from Ippolito in that I do not posit covert event variables in the structure. Because of this change, the continuation inference of still must placed in the assertion alone. I adopt a pronominal view of deictic tense, in which $[\text{PRES}]$ is a pronoun referring to the reference time and introducing the presupposition that the reference time overlaps the utterance time (e.g. Kratzer 1998, Romero 2014). For AspP, I adopt with slight modifications the event semantics of Beck and von Stechow (2015), in which the event is existentially bound within aspect. I present below a derivation for a sentence with still.
(52) \([\text{Ana be in New York}]^{c,g,w} = \lambda e. e\) is an event of Ana being in New York in \(w\)

(53) \([\text{IMP}]^{c.g,w} = \lambda P_{(v,t)} \lambda t. \exists e[t \subseteq \tau(e) \wedge P(e) = 1]\) \[adapted from B&vS\]

(54) \([\text{AspP}]_{c,g} = [\text{IMP Ana be in New York}]^{c,g} = \lambda w \lambda t. \exists e[t \subseteq \tau(e) \wedge e\ is\ an\ event\ of\ Ana\ being\ in\ New\ York\ in\ w]\)

(55) \([\text{still}]^{c,g,w} = \lambda C_{(it)} \lambda P_{(s,it)} \lambda t :\)

- \(\exists t' \in C[t' < t \wedge P(w)(t') = 1]\) and \(\lambda C_{(it)} \lambda P_{(s,it)} \lambda t :\) additive presupposition
- \(\forall t' \in C[t' < t \rightarrow [\lambda w' P(w')(t) < \text{likely}_{f<}(w) \lambda w'' P(w'')(t')]]. \) scalar presupp.
- [to be revised]
- \(\exists t' \in C[t' < t \wedge P(w)([t',t]) = 1]\) assertion\(^{14}\)

Let us now compose \([\text{still}]^{c,g,w}\) with its domain restrictor \(C_2\) given as \(\{t_{\text{now}}, t_{\text{yesterday}}\}\).

\(^{14}[/t, t_j]\) is defined as the smallest time interval containing \(t_i\) and \(t_j\).
and AspP (54). Intensional Functional Application (von Fintel and Heim, 2011) applies at the node labeled (56).

(56) \[ \begin{align*}
[[\text{still } C_2 \text{ AspP}]]_{c,g,w}^{C_2} &= \lambda t : \forall t' \in C_2 [t' < t \land \exists e [t' \subseteq \tau (e) \land e \text{ is an event of Ana being in New York in } w]] \\
&\land \forall t' \in C_2 [t' < t \rightarrow [\lambda w' \exists e [t' \subseteq \tau (e) \land e \text{ is an event of Ana being in New York in } w'] <_{\text{likely}_{fc(w)}} [\lambda w'' \exists e [t' \subseteq \tau (e) \land e \text{ is an event of Ana being in New York in } w'']]].
\end{align*} \]

I now compose (56) with the tense pronoun \(\text{[PRES}_3]_{c,g,w}^{C_2}\) and give its paraphrase. The context \(c\) provides \(t_c\) as the utterance time. The assignment function \(g\) assigns the reference time \(t_{\text{ref}}\) to the numerical index 3. For the sake of this derivation, \(t_c = t_{\text{now}} = t_{\text{ref}}\). Let us collapse quantification over \(C_2\), as the only element of \(C_2\) before \(t_{\text{ref}}\) is \(t_{\text{yesterday}}\).

(57) \[ \text{[PRES}_3]_{c,g,w}^{C_2} \text{ is defined only if } g(3) \circ t_c \]
and if defined, \([\text{PRES}_3]_{c,g,w}^{C_2} = g(3) = t_{\text{ref}}.\]

(58) \[ \text{[PRES}_3 [[\text{still } C_2 \text{ AspP}]]_{c,g,w}^{C_2} \text{ is defined only if } \]
\[ \exists e [t_{\text{yesterday}} \subseteq \tau (e) \land e \text{ is an event of Ana being in New York in } w] \land \]
\[ [\lambda w' \exists e [t_{\text{ref}} \subseteq \tau (e) \land e \text{ is an event of Ana being in New York in } w'] <_{\text{likely}_{fc(w)}} [\lambda w'' \exists e [t_{\text{yesterday}} \subseteq \tau (e) \land e \text{ is an event of Ana being in New York in } w'']] \]
and \(t_{\text{ref}} \circ t_c\)
and if defined, $[\text{PRES}_3 \ [\text{[[still } C_2 \text{] } \text{AspP}]]]^{c.g.w} = 1$ if 
\[ \exists e[[t_{\text{yesterday}}, t_{\text{ref}}] \subseteq \tau(e) \land e \text{ is an event of Ana being in New York in } w]]. \]

(59) Ana is still in New York.

a. additive presupposition: There is an event of Ana being in New York whose runtime includes yesterday.

\[ \approx \text{Ana was in New York yesterday.} \]

b. scalar presupposition: For there to be an event [whose runtime includes now] of Ana being in New York is less likely than for there to be an event [whose runtime includes yesterday] of Ana being in New York.

\[ \approx \text{It is less likely for Ana to be in New York now than for her to be there yesterday.} \]

c. assertion: There is an event [whose runtime includes yesterday until now] of Ana being in New York.

\[ \text{Ana is in New York from yesterday to now.} \]

We have now run into a problem. Given the additive presupposition that Ana was in New York yesterday, the left hand side proposition $p_{\text{left}}$ in the scalar presupposition amounts to the proposition that Ana was in New York yesterday as well as now. This entails the right hand side proposition $p_{\text{right}}$ that Ana was in New York yesterday. Since $p_{\text{left}}$ entails $p_{\text{right}}$, $p_{\text{left}}$ can only be less likely or equally likely as $p_{\text{right}}$.

As such, the scalar presupposition is near-trivial and can only be falsified if the
two propositions it compares are equally likely, i.e. both true. But this would seem to entail the assertion.\textsuperscript{15}

4.1.1 Near-triviality and exhaustification

In order to fix this problem, we can exhaustify the alternatives in the scalar presupposition, creating two non-overlapping propositions:

- For her to be in New York now (i.e. yesterday and now) is less likely than for her to be in New York yesterday and not now.

Adding exhaustification will finally correctly predict (60) to be infelicitous:

(60) \textit{Context: At 8:00pm, I go to a large party with my brother and Allie, all of us immediately dispersing. My brother knows that I need to speak with Allie. After ten minutes (at 8:10pm), my brother sees Allie, who usually leaves parties much later. He texts me:}

#Allie is still at the party; go talk to her.

For this sentence, the contextual set of times $C$ includes (at least) the time when the party started ($t_{8pm}$) and the utterance time ($t_{8:10pm}$). It make incorrect predictions if we don’t exhaustify, as it would satisfy the presupposition paraphrased below:

\textsuperscript{15}Technically, the assertion contributes continuity from yesterday to now. However, the presupposition would indeed entail the assertion in an account which derives continuity from inside the presupposition.
For Allie to be at the party at 8:10pm (in addition to 8:00pm) is less likely than for her to be there at 8:00pm.

In the context, there could be small chance that Allie left ten minutes after the party started, which makes the left hand side $\lambda w P(w)(t_{8:10pm})$ proposition slightly less likely than the right hand side proposition $\lambda w' P(w')(t_{8pm})$, which is entailed by the context set.

How do we exhaustify $\lambda w P(w)(t_{8:10pm}) <_{likely} \lambda w' P(w')(t_{8pm})$ into $\lambda w P(w)(t_{8:10pm}) <_{likely} \lambda w' P(w')(t_{8pm}) \setminus \lambda w P(w)(t_{8:10pm})$? The simplest move to make is that whenever an argument $\phi$ of $<_{likely}$ entails the other argument $\psi$, we consider the proposition $\psi \setminus \phi$ instead of $\psi$. (See Crnič 2012 for a solution to a similar problem, but for which the exhaustification is embedded.) To mark this, let us introduce an exhaustivity operator into the presupposition on the greater (i.e. right hand) side of the $<_{likely}$ comparator, allowing us to revise (55) into our final denotation for still below.

(62) \[ [\text{still}]^{c,g,w} = \lambda t. \lambda \langle \langle \text{it} \rangle \rangle^{\langle \langle \text{s, it} \rangle \rangle^{\langle \langle t \rangle \rangle}}^{\langle \langle \text{C} \rangle \rangle} \lambda t : \]

\[
\exists t' \in C[t' < t \land P(w)(t') = 1] \quad \text{and} \quad \text{additive presupposition}
\]

\[
\forall t' \in C[t' < t \to [\lambda w' P(w')(t) <_{likely} \text{exh}_{\langle t, t' \rangle} \lambda w'' P(w''(t'))]]. \quad \text{scalar presupposition}
\]

\[
\exists t' \in C[t' < t \land P(w)([t', t]) = 1] \quad \text{assertion}
\]
4.2 **Already**

My implementation of *already* differs more crucially from Ippolito, as it replaces the additive presupposition with a scalar one. My *already* differs from my *still* in two ways: the relation on times is flipped, and the additive presupposition is removed. I illustrate a sample derivation below.

\[
\text{TP}_{(i)}
\]

\[
\text{PRES}_{5,(i)} \quad (65)_{(i,t)}
\]

\[
\text{already}_{\langle \langle i \rangle, \langle (s,i,t), i \rangle \rangle} \quad C_{4,(i,t)}
\]

\[
\text{AspP}_{(i,t)}
\]

\[
\text{IMP}_{\langle (s,i,t) \rangle} \quad \text{VP}_{\langle s,t \rangle}
\]

\[
\text{Ana be in New York}
\]

(63) \[\llbracket \text{AspP}\rrbracket_{c,g}^{c.g} = [\text{IMP Ana be in New York}]_{c,g}^{c.g} = \lambda w \lambda t. \exists e[t \subseteq \tau(e) \land e \text{ is an event of Ana being in New York in } w] \]

((54) repeated)

(64) \[\llbracket \text{already}\rrbracket_{c.g,w}^{c.g,w} = \lambda C_{(i,t)} \lambda P_{(s,i,t)} \lambda t : \]

\[
\forall t' \in C[t' > t \rightarrow [\lambda w' P(w')(t) <_{\text{likely}_{c}(w)} \text{exh}_{t,t'} \lambda w'' P(w''(t'))]] \text{. (scalar) presupposition}
\]

\[
P(w)(t) = 1 \quad \text{assertion}
\]
Let us now compose \([\text{already}]^{c,g,w}\) with its domain restrictor \(C_4\) given as \(\{t_{\text{now}}, t_{\text{tomorrow}}\}\), and AspP (63).

(65) \(\llbracket \text{already } C_4 \rrbracket \text{ AspP}^{c,g,w} = \lambda t : \forall t' \in C_4 [t' > t \rightarrow [\lambda w' \exists e [t \subseteq \tau(e) \land e \text{ is an event of Ana being in New York in } w']] <_{\text{likely}_{fc(w)}} \llbracket \text{exh}_{(t,t')} \lambda w'' \exists e [t' \subseteq \tau(e) \land e \text{ is an event of Ana being in New York in } w''] \rrbracket] \rrbracket\).

\(\exists e [t \subseteq \tau(e) \land e \text{ is an event of Ana being in New York in } w]\).\)

I now saturate (65) with the tense pronoun \(\llbracket \text{PRES}_5 \rrbracket^{c,g,w}\) and give its paraphrase.

The context \(c\) provides \(t_c\) as the utterance time. The assignment function \(g\) assigns the reference time \(t_{\text{ref}}\) to the numerical index 5. For the sake of this derivation, \(t_c = t_{\text{now}} = t_{\text{ref}}\). Let us also collapse quantification over \(C_4\), as the only element of \(C_4\) after \(t_{\text{ref}}\) is \(t_{\text{tomorrow}}\).

(66) \(\llbracket \text{PRES}_5 \rrbracket^{c,g,w}\) is defined only if \(g(5) \circ t_c\) and if defined, \(\llbracket \text{PRES}_5 \rrbracket^{c,g,w} = g(5) = t_{\text{ref}}\).

(67) \(\llbracket \text{PRES}_5 \llbracket [\text{already } C_4 \text{ AspP}] \rrbracket^{c,g,w}\) is defined only if

\(\left[\lambda w' \exists e [t_{\text{ref}} \subseteq \tau(e) \land e \text{ is an event of Ana being in New York in } w'] <_{\text{likely}_{fc(w)}} \llbracket \text{exh}_{(t,t')} \lambda w'' \exists e [t_{\text{tomorrow}} \subseteq \tau(e) \land e \text{ is an event of Ana being in New York in } w''] \rrbracket \rrbracket\) and \(t_{\text{ref}} \circ t_c\)

and if defined, \(\llbracket \text{PRES}_5 \llbracket [\text{already } C_4 \text{ AspP}] \rrbracket^{c,g,w} = 1\) if \(\exists e [t_{\text{ref}} \subseteq \tau(e) \land e \text{ is an event of Ana being in New York in } w]\).\)

(68) Ana is already in New York.
a. presupposition: For there to be an event [whose runtime includes now] of Ana being in New York is less likely than for there to be an event [whose runtime includes tomorrow] of Ana being in New York.

≈ It is less likely for Ana to be in New York now than for her to be there tomorrow.

b. assertion: There is an event [whose runtime includes now] of Ana being in New York.

≈ Ana is in New York now.

We can now demonstrate that this account has better empirical coverage than the two previous accounts. First, let us go through the counterexamples for Löbner. For (69), the scalar presupposition conveys that it is less likely that the baby is rich at birth than at later times in the context set, which is compatible with the example and predicts it felicitous.

(69) Of a baby receiving an inheritance at birth:

She is already rich.       [(21) repeated]

Furthermore, I account for Ippolito’s counterexamples to Löbner:

(70) Context: John is not married and I doubt he will ever get married.       [(23) repeated]

#If he were already married, he would be living in the suburbs now.

(71) John isn’t already married.       [(24) repeated]

#Men like him don’t ever get married.
In (70), the scalar presupposition of the antecedent conveys that it is less likely for John to be married now than at a future time, which should conflict with the context, in which John’s likelihood of marrying never increases. Similarly in (71), a continuation which conflicts with the same scalar presupposition is infelicitous.

This proposal, as it lacks future-additivity, can account for examples involving instantaneous states as well as perfective achievements. I demonstrate a derivation for the latter.

\[
\text{TP}_{\langle t \rangle}
\]

\[
\text{PAST}_{\langle t, (i) \rangle}
\]

\[
(76)_{\langle i, t \rangle}
\]

\[
\text{already}_{\langle \langle i \rangle, \langle \langle s, it \rangle, it \rangle \rangle}
\]

\[
\text{C}_{6}_{\langle i, t \rangle}
\]

\[
\text{AspP}_{\langle i, t \rangle}
\]

\[
\text{PFV}_{\langle \langle v, t \rangle, (i, t) \rangle}
\]

\[
\text{VP}_{\langle v, t \rangle}
\]

Don reach the summit

(72) \[\llbracket \text{Don reach the summit} \rrbracket^{c,g,w} = \lambda e. \text{e is an event of Don reaching the summit in w}\]

(73) \[\llbracket \text{PFV} \rrbracket^{c,g,w} = \lambda P_{\langle v, t \rangle} \lambda t. \exists e[\tau(e) \subseteq t \wedge P(e) = 1] \quad \text{[adapted from B&vS]}\]
\[(74) \quad \text{[AspP]}^c_g = \text{[PFV Don reach the summit]}^c_g = \lambda w \lambda t. \exists e[\tau(e) \subseteq t \land e \text{ is an event of Don reaching the summit in } w] \]

\[(75) \quad \text{[already]}^c_{g,w} = \lambda C_{(it)} \lambda P_{(s,it)} \lambda t : \qquad \text{[(64) repeated]} \]
\[
\forall t' \in C[t' > t \rightarrow [\lambda w' P(w')(t) <_{likely_{fc(w)}} \text{exh}_{(t,t')} \lambda w'' P(w''(t'))]]. \text{ (scalar)}
\]
\[
\text{presupposition}
\]
\[
P(w)(t) = 1
\]
\[\exists e[\tau(e) \subseteq t \land e \text{ is an event of Don reaching the summit in } w] \]

Let us now compose \([\text{already}]^c_{g,w} \) with its domain restrictor \(C_6\) given as \(\{t_{9am}, t_{10am}\}\), and AspP (63).

\[(76) \quad \text{[[already } C_6\text{] AspP]}^c_{g,w} = \lambda t : \forall t' \in C_6[t' > t \rightarrow [\lambda w' \exists e[\tau(e) \subseteq t \land e \text{ is an event of Don reaching the summit in } w'] <_{likely_{fc(w)}} \text{exh}_{(t,t')} \lambda w'' \exists e[\tau(e) \subseteq t' \land e \text{ is an event of Don reaching the summit in } w'']]]. \text{ [scalar]}
\]
\[
\exists e[\tau(e) \subseteq t \land e \text{ is an event of Don reaching the summit in } w]
\]

I now compose (76) with the tense pronoun \(\text{[PAST}_7\text{]}^c_{g,w}\) and give its paraphrase.

The context \(c\) provides \(t_c\) as the utterance time. The assignment function \(g\) assigns the reference time \(t_{ref}\) to the numerical index 7. For the sake of this derivation, \(t_c = t_{10am}\) and \(t_{ref} = t_{9am}\). Let us collapse quantification over \(C_6\), as the only element of \(C_6\) after \(t_{ref}\) is \(t_{10am}\).

\[(77) \quad \text{[PAST}_7\text{]}^c_{g,w} \text{ is defined only if } \quad g(7) < t_c
\]
\[
\text{and if defined,} \quad \text{[PAST}_7\text{]}^c_{g,w} = g(7) = t_{ref}.
\]

\[(78) \quad \text{[PAST}_7\text{ [[already } C_6\text{] AspP]}^c_{g,w} \text{ is defined only if }
\]
\[
[\lambda w' \exists e[\tau(e) \subseteq t_{9am} \land e \text{ is an event of Don reaching the summit in } w'] <_{likely_{fc(w)}}
\]

33
\[\text{exh}_{[t',t]} \cdot \lambda w'' \exists e[\tau(e) \subseteq t_{10am} \land e \text{ is an event of Don reaching the summit in } w''] \] and \( t_{ref} < t_c \)

and if defined, \([\text{PAST}_7 [[\text{already } C_6 \text{ AspP}]]^{c,g,w} = 1 \text{ if } \exists e[\tau(e) \subseteq t_{0am} \land e \text{ is an event of Don reaching the summit in } w]]\.\]

(79) Don already reached the summit.

a. presupposition: For there to be an event [whose runtime is included within 9am] of Don reaching the summit \textbf{is less likely than} for there to be an event [whose runtime is included within 10am] of Don reaching the summit.

\[ \approx \text{ It is less likely for Don to reach the summit at 9am than for him to reach the summit at 10am.} \]

b. assertion: There is an event whose runtime is included within 9am of Don reaching the summit.

\[ \approx \text{Don reached the summit at 9am.} \]

This is a plausible meaning for \textit{already} and does not force the reaching eventuality to be non-instantaneous.

Finally, let us justify keeping \textit{exh} as part of the scalar presupposition, using an example in which the prejacent is in the perfect.\(^{16}\)

(80) Mary has already arrived. \(\text{uttered at } t_{\text{now}}\)

Let us suppose that \(C\) is given as \(\{t_{\text{now}}, t_{\text{tonight}}\}\). (80) presupposes that [for Mary to

\(^{16}\)I assume a result state account of the perfect.
have arrived by now] is less likely than [for her to have arrived by tonight], for all contextually salient times $t'$ after now, i.e. tonight. However, [Mary has arrived by now] entails [Mary has arrived by tonight], making the likelihood comparison of these two propositions near-vacuous. The exhaustivity operator introduced in section 4.1.1 on the greater side of $\llikely<\llikely$ shall be kept, allowing us to derive the presupposition that [for Mary to have arrived by now] is less likely than [for Mary to have arrived by $t'$ but not by now] (i.e. for her to arrive between now and $t'$).

5 Conclusion

I have given a concrete analysis of aspectual still and already which differs from previous accounts in already’s lacking an additive and having a scalar presupposition. I argued against previous consensus that still and already both have just an additive presupposition, and proposed an account in which both an additive and a scalar presupposition is present in already, whereas only a scalar presupposition is present in already. I argued that such an account offers better coverage of the data, especially as it accounts for the widely-discussed counter-expectation inference. I also demonstrated that adding the scalar presupposition necessitates positing an exhaustivity operator.
References


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