3-1-2015

On the Scalar Semantics of the Focus-Associating Adverb you3 in Mandarin Chinese

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1 Introduction

This paper introduces a particle you3 in Taiwanese Mandarin Chinese in its focus-sensitive use that has so far gone overlooked. In this use, you3 may be superficially translated as ‘already’ or ‘as great as.’ I show that it belongs to the same category as English already and still, which operate on focus alternatives ordered with respect to time. Already and still are grading particles that compare the current stages of a sentence with prior or later stages. They are ‘aspectual particles’ in the sense of König (1977).

Yet you3 has several properties that set it apart from already. You3 is restricted to appear with quantity expressions only. You3 has two meanings, a dynamic meaning with the implication that the quantity is regarded as rather large at the reference time, and a second one that only requires that the quantity is large.

I argue that you3 presupposes a scale on which the alternatives align. This scale is a scale of entailment relation. For any two propositions, the one that entails the other ranks higher on this scale. You3 asserts the highest ranking alternative.

The structure of this work goes as follows. Section 2 is a review on the category of ‘aspectual adverbs’ that are associated with focus. Section 3 provides basic data of you3. Section 4 shows features of you3 that are unique and distinctive from already. Section 5 shows how alternatives are mapped on a two-scale paradigm. Section 6 provides the formalization. Section 7 concludes this work.

2 The category of ‘aspectual’ focus particles

This article presents new data on an understudied Mandarin particle you3, which may be superficially translated as ‘already’ or ‘as great as.’ You3 can be regarded as belonging to the group of already and still and their near counterparts in other languages. They all operate on eventualities or states that are contrasted with different ‘stages’ prior to or later than the current stage. These different stages indicate whether the states or the eventualities have started or will continue.

Take schon, the German near counterpart of already, for example. According to Lübner (1989, 1999), already contributes a presupposition that there is a negative stage prior to the positive current stage of the sentence. Thus, ‘the light is already on’ at t presupposes that it was not on before t. When already is related to a focus expression, as in ‘She already has [three] children’ at t, the sentence presupposes that she did not have three children before t. This analysis is adopted and elaborated by Krifka (Krifka 2000). Krifka proposes that the stages of an eventuality are focus alternatives. These stages can be seen as aligned on a scale that maps to the time scale monotonically. For example, ‘She already has [three] children’ evokes that the focus set contains propositions like ‘She has three/two/one children/child’, and each of these propositions are alternatives. These alternatives are ranked on a scale, which may be regarded informally here as the stages of the eventuality. The alternatives are mapped to a time scale according to their respective reference times. Let’s assume that there is an eventuality of the woman giving birth to children, and she gives birth to one child at a time. Then having one child would be earlier than having two children, which would be earlier than having three children. Krifka argues that already restricts the assertion to be the latest alternative, which is the alternative of having three children. In other

* The author would like to thank Elena Guerzoni for advising this work. I would also like to thank Barry Schein, Roumyana Pancheva, and Barbara Maria Tomasewicz for comments in a presentation in USC. Special thanks to Chris Kennedy, Hooi-Ling Soh and the audience in LSA 2014 for the feedbacks on a previous version of this work, and also to the audience at PLC 38.

words, focus *already* is a scalar focus particle. Yet Lõbner’s analyses is challenged by a second argument, starting with Mittwoch (1993) and later adopted in Ippolito (2007), which argues that rather than presupposing that there is (are) some previous negative stage(s), *already* presupposes that the event of the sentence, which contains a contextually salient event, should be obtained later\(^1\). A question then arises, is there a scalar particle in which the alternatives are ordered also with time, as proposed by Krifka (2000). I argue that *you\(^3\)* is indeed such a particle.

Another interesting question is with regards to how natural languages realize scales, and where the assertion is ranked with respect to other alternatives. Scalar particles may operate on different scales. Particles like *even* asserts the least likely alternative on a likelihood scale (Rooth 1992); *scalar only* presupposes a scale that asserts the lowest ranking alternative on an entailment scale by excluding higher ranking ones (Klendinst 2004); in Slavic languages, there is a group of particles that is regarded as the scalar opposite of *scalar only* (Tomaszewicz 2012). I show that *you\(^3\)* is a scalar particle that ranks the alternatives on a special entailment scale, which is mapped to a time scale, and asserts the latest alternative. The analysis of this particle is reminiscent of Krifka’s analysis on *already*, yet is different in several non-trivial ways.

### 3 Data

The particle *you\(^3\)* has several homomorphic meanings. It is best known as a possessive verb or an existential verb. In Taiwanese Mandarin, it also has a use as a perfect aspect marker. Here I assume that these different meanings of *you\(^3\)* may be subsumed under the analysis that they are all INFL. Other than these widely discussed meanings, there is a focus use of *you\(^3\)* in Taiwanese Mandarin that has been long overlooked. This use of *you\(^3\)* is prevalent in Taiwanese Mandarin, and perhaps some southeastern provinces in Mainland China. The focus *you\(^3\)* has a rather restricted distribution: it appears only before a sentence-final phrase that expresses time duration, distance, quantity, weight, height, or any quantitative expression. The environments in which *you\(^3\)* can appear is right before the sentence-final phrase. When *you\(^3\)* is present, the sentences imply that the quantity is rather large. When *you\(^3\)* is not present, there is no such implication, as shown in the (b) sentences.

**Time duration:**

1. a. Afu zhu-zai taipei shi you [san-nian]\(_F\)
   Afu live-at Taipei city you\(^3\) three-year
   ‘Afu has lived in Taipei City for as long as/already three years.’

   b. Afu zhu-zai taipei shi [san-nian]\(_F\)
   ‘Afu has lived in Taipei City for three years.’

**Distance:**

2. a. Afu li xiao-men you [wu kongchi]\(_F\)
   Afu away school-gate you\(^3\) five meters
   ‘The distance of Afu from the school gate is as far as/already five meters.’

   b. Afu li xiao-men [wu kongchi]\(_F\)
   ‘Afu is five meters away from the school gate.’

**Quantity:**

3. a. Afu sheng xiaohai sheng le you [san-ge]\(_F\)
   Afu bear children bear Perf you\(^3\) three-CL
   ‘Afu has given birth to as many as/ already three children.’

   b. Afu sheng xiaohai sheng le [san-ge]\(_F\)
   ‘Afu has given birth to three children.’

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\(^1\) Although Ippolito does not discuss the focus use of *already*, it seems that her observation should be extended to focus *already* as well. In other words, it is questionable whether focus *already* is a scalar particle that asserts the proposition on the higher end of the scale.
4 The puzzle: the correlation of quantity increasing and temporal precedence

4.1 Two meanings of you3

You3 as a focus association particle has two meanings. In the first meaning, the prejacent of you3 is felicitous only if the sentence is uttered in a scenario in which there is an event that the quantity increases with time. You3 provides the implication that at the reference time, the quantity has increased to a large amount. I call this the dynamic meaning of you3. In the second meaning, the sentence merely expresses that the quantity is large. I call this the stative meaning of you3. There is no comparison with other temporal stages. These two meanings can be disambiguated by the predicate types of the prejacent. If the sentence is an eventive predicate, you3 is always interpreted with the dynamic meaning. If you3 appears in a stative sentence, you3 is ambiguous between the dynamic meaning and the stative meaning.

4.2 You3 in telic event sentences

When you3 appears with telic event predicates, it always implies that the quantity is rather large at the reference time. Interestingly, it cannot appear in a scenario in which the quantity decreases with time. This is shown in the following three scenarios. In the first scenario, someone is closing a door. At the reference time t, the gap of the door is one meter wide. A speaker utters (4), but the sentence is infelicitous.

Scenario I

(4) #men guan-dao you yi gongchi kuan
door close-to you3 one meter wide

Intended: ‘The door has been half closed, and the gap is now as great as one meter wide.’

In a second scenario, Ahua is now on a weight loss program. She used to be two hundred and fifty pounds. However, now she is only two hundred and twenty pounds. Despite the fact that she is still overweight, sentence (9) is infelicitous.

Scenario II

(5) #Ahua xianzai bian you liangbai-ershi bang le
Ahua now become you3 two-hundred-twenty pound Perf

Intended: ‘Ahua now weighs as heavy as two hundred and twenty pounds.’
In a third scenario, Afu is walking continuously towards a school gate. At time t, he is five meters away from it. In this scenario, the speaker utters sentence (6). Again, the sentence is infelicitous.

Scenario III
(6) #Afu xianzai zou-dao li xiaomen you wu gongchi le. Afu now walk-to away school gate you3 five meter Perf  
Intended: ‘Afu is walking to a location that is five meters away from the school gate.’

In the above examples, the quantities all decrease over time. If the quantities increase over time, the sentences are felicitous, as shown by the following three opposite scenarios. In scenario IV, someone is opening a door, and now the gap of the door is one foot wide. In this case, (7) is felicitous.

Scenario IV
(7) men kai-dao you yi gongchi kuan door open-to you3 one meter wide  
‘The door is as open as one meters (, which is wide).’

In scenario V, Ahua is gaining weight. She used to be 100 pounds, but now her weight is 200 pounds. In this situation, the speaker utters sentence (8). Again, the sentence is felicitous.

Scenario V
(8) Ahua xianzai you liangbai bang le Ahua now you3 two-hundred pound Perf  
‘Ahua is now as heavy as two hundred pounds.’

In scenario VI, Afu is walking from the school gate to his home. As time goes by, Afu is walking further and further away from the school gate. The distance has now increased to five meters.

Scenario VI
(9) Afu xianzai zou-dao li xiaomen you wu gongchi le Afu now walk-to away school-gate you3 five meter Perf  
‘The distance of Afu from the school gate is now as far as five meters.’

The felicitous scenarios all share one same property: during the course of event development, the quantity is getting larger. Thus, although sentences (4) to (6) are identical to (7) to (9), only the latter three sentences are felicitous. So far, the felicitous scenarios shown here with eventive predicates all have the quantity in the prejacent proposition increases, not decrease, with respect to time. However, it does not requires that the event to decrease or increase continuously. If the quantity in the prejacent fluctuates with time, you3 still can be felicitous. For example, in a stock market trading scenario, the stock index fluctuates with time, and the sentence is felicitous.

(10) Gupiao xianzai dao-le you wuqien dian Stock-index now come-Perf you3 five-thousand points  
‘Now the stock market index has risen to as high as five thousand points.’

The market index may be three thousand points at a previous time $t_1$, and it rises to four thousand points at $t_2$, and it again drops to three thousand points at $t_3$. Between $t_3$ and the reference time $t$, the index has risen from three thousand points to five thousand points, and (10) is still felicitous. The felicitous sentences, (7), (8), (9) and (10), all imply that the quantities are rather large, as shown in the infelicitous (11).

(11) #men kai-dao you yi gongchi kuan; kuandu bushi hen kuan door open-to you3 one meter wide width not very very wide  
Intended: ‘The door is as open as two meters, which is not wide.’
In conclusion, when you3 appears with eventive predicates, or if it implies that the sentence is related to an event in which the quantity increases, there are two restrictions: the quantity cannot decrease with time, and the quantity is rather large.

4.3 You3 with stative predicates

Unlike the case with eventive predicates, you3 in stative predicates does not have the same restrictions on the change of quantity with respect to time. These sentences are ambiguous between the dynamic meaning (meaning one) and the stative meaning (meaning two). In the latter meaning, these sentences do not imply that the assertion is compared with any previous stages or time. You3 merely emphasizes that the quantity is rather large. An example is given in (12).

(12) Afu de weizhi li xiaomen you wu gongchi
Afu Poss location away school gate you3 five meter

Meaning one: The distance from the location of Afu to the school gate is as great as five meters.
Meaning two: The distance from the location of Afu to the school gate has been as great as five meters. (#Afu has been walking towards the school gate.)

Meaning two, however, has the same restriction as eventive predicates, in which the distance can only increase, but not decrease, with time.

5 A two scale paradigm

5.1 The dynamic meaning of you3 and a comparison with already

The puzzle of you3 with the dynamic meaning can be resolved by seeing the alternatives as aligned on a certain scale that maps to time on a time scale. This two scale paradigm is adopted in Krifka (2000) for already. It is based on the idea that already is a focus-associating particle when with a focus expression (Krifka 2000, based on Löbner 1989, 1999). An example is given in (13).

(13) John already weighs [80 kilograms]:
John already weighs [80 kilograms]: (Krifka 2000).

If a quantity phrase associated with already is uttered out of the blue, it has the implication that the quantity is regarded as large at the reference time. In this condition, already implies that there is an event that develops gradually, which is John’s weight-gaining event. At the reference time, the weight is 80kg, which is the largest as well as the latest alternative, as in Figure 1.

Figure 1: Alignment of possible alternatives (contextually given scale):

In Figure 1, each alternative is true of a time on the time scale. For example, ‘John weighs 40 kilogram’ is true of t1. As time goes by, the weight of John increases. In this scenario, the assertion is the one with the largest amount.

However, different from you3, already does not require that the quantity to be considered large, especially when more context is given. In a weight-loss scenario, (17) is felicitous even though the quantity decreases with time, as indicated by Krifka (2000).

I agree with Krifka’s observation that the quantity does not need to increase with time. A piece of evidence is that the focused phrase can co-occur with only, indicating that the quantity is
not large. This is illustrated by Figure 2. The speaker assumes that the stage where John is 80kg will be obtained later, not at the reference time.

(14) John already weighs only [80 kilograms],

Figure 2: Alignment of possible alternatives (contextually given scale):

In short, already may operate alternatives with the quantity either increasing or decreasing. Thus, the scale is a pragmatic scale in which the ordering is determined by the context or the nature of the predicate.

On the contrary, you3 cannot co-occur with only. The failure of you3 to appear in quantity-decreasing scenarios and with only indicates that the scale is not pragmatic. Rather, I claim that the scale is simply a scale of an entailment relation that holds only when the time is fixed. This is explained below.

For a given time t, a proposition like ‘Afu is (at least) 80kg’ at t entails ‘Afu is (at least) 70/60/50… kg’ at t. Thus, an entailment scale is sufficient to describe that the assertion has the largest number, as shown in Figure 3. The arrows indicate the entailment direction.

Figure 3: the first scenario of you3

Alignment of possible alternatives (an entailment scale):

However, as mentioned in (10), the quantity does not need to increase monotonically. It only requires that the latest alternative has the largest quantity. This is illustrated in Figure 4.

Figure 4: the scenario for (10)

Alignment of possible alternatives (an entailment scale):

In conclusion, while already allows its prejacent to be the highest ranking alternative on a pragmatic scale, you3 only requires that the assertion has the largest amount.

5.2 Stative meaning of you3
Stative *you3* is similar to dynamic *you3* in that it also introduces alternatives that are aligned on a scale of entailment relation. Yet the times that the alternatives are true at are the same time. Thus, stative *you3* can be simply regarded as having a set of alternatives ranked on a simple entailment scale, as illustrated in Figure 5. In order to obtain the meaning that the quantity in the prejacent is rather large, the alternatives consist those that the quantity is regarded as the norm or commonly accepted quantity.

**Figure 5: stative meaning of *you3***

Alignment of possible alternatives (an entailment scale at t):

```
40 ← 50 ← 60 ← 70 ← 80 kg...
```

In general, the dynamic meaning and the stative meaning both require that the alternatives are ordered with respect an entailment relation. In meaning one, the assertion entails all previous alternatives. In meaning two, the entailment relation is not time sensitive. It only requires that the assertion has the largest number.

### 6 Formalization

#### 6.1 Formalization of the dynamic meaning

The dynamic meaning of *you3* provides the sentence with the implication that the assertion entails other alternatives at the reference time. I assume that such meaning is propositional, not truth conditional. The propositions include two parts. First, it presupposes that the alternative entails other alternatives at the reference time. I call this entailment relation an ‘anchored entailment’ relation. Second, a sentence with *you3* does not require the alternatives to be realized in the reference world. Yet according to the speaker’s understanding of the normal course of the event development, if these alternatives are ever to be realized, they can only be realized earlier than the assertion. These two presuppositions are given below.

\[(15)\] Presupposition I: an anchored entailment relation relative to t

\[C=\text{a contextually restricted set of alternatives; } <w', t'> \text{ refers to indices} \]

\[\forall P \forall Q[\forall C \leftarrow (P \leftarrow Q) \rightarrow \forall (\forall t' > (P(w', t') = 1 \rightarrow Q(w', t')))]\]

The anchored entailment relation is defined as follows. For all alternatives in a contextually given set C, P anchor entails Q iff for all \(<w', t'>\) that P is true of, Q is also true of \(<w', t'>\). In other worlds, the anchored entailment relation holds when the time is fixed, and alternatives are true at the same time.

Furthermore, the alternatives do not need to be realized in the evaluation world. In (16), it is a scenario in which Afu gives birth to triplets, who are considered to be born all at once, not one by one. Thus, before the reference time, Afu does not need to have any child.

\[(16)\] Afu sheng-le you [san-ge] [xiaohai. Tamen shi sanbaotai

Afu bear-Perf you3 three-CL kid they are triplets

‘Afu has given birth to as many as three children. They are triplets.’

The formalization of this presupposition in (17) shows that if there are some alternatives Q that are also true in the reference world w, the time \(t''\) that Q is true of must not be later than the reference time t. The derivation is shown in (18). *You3* provides two presuppositions, the anchored entailment relation in (18a), and is the restriction that if any alternatives are true, they should be true at a time earlier or no later than the reference time.
(17) Presupposition II:
\[ \exists t'[Q(<w, t'>)=1 \rightarrow t' \leq t] \]

(18) Derivation:
For a contextually determined set \( C_2 \), the assertion \( P \), and alternatives \( Q \) in the set of \( C_2 \):
\[ [\text{you}]^{c.i.g}(C_2)(P(<w, t>)) \] is defined only if
\[ \forall \forall Q[[P \in C_2 \land Q \in C_2] \rightarrow [\forall (<w', t'>)[P(<w', t'>)=1 \rightarrow Q(<w', t'>)]]] \]
\[ \land \exists t'[Q(<w, t'>)=1 \rightarrow t' \leq t] \]

if defined, then \( P(<w, t>)=1 \) if
\[ \forall \forall Q[[P \in C_2 \land Q \in C_2] \rightarrow [\forall (<w', t'>)[P(<w', t'>)=1 \rightarrow Q(<w', t'>)]]] \land \exists t'[Q(<w, t'>)=1 \rightarrow t' \leq t] \]

I assume that \( \text{you}^3 \) takes sentential scope, as do other focus-associating particles. I also use the Roothian ‘\(^{-}\)’ operator that constrains the alternative set and also restricts that the assertion is an element within that set (Rooth 1992, among others). Due to space limitations, I do not provide the detailed lexical entry of each word. The lexical entry and an example are given in (19) and (20) respectively.

Lexical entry of \( \text{you}^3 \) with meaning one:
(19) \[ [\text{you}]^{c.i.g} = \lambda C_{<i,t>} \lambda P_{<i,t>} \forall \forall Q[[P \in C \land Q \in C] \rightarrow [\forall (<w', t'>)[P(<w', t'>)=1 \rightarrow Q(<w', t'>)]]] \land \exists t'[Q(<w, t'>)=1 \rightarrow t' \leq t]. P(<w, t>)=1 \]

Figure 6 The derivation for \( \text{Afu zhu-zai Taipei you}^3 \text{ san-nian} \)
‘\( \text{Afu has lived in Taipei for as long as three years.} \’

(20) Derivation for Figure 6:
Lexical entries:
\[ [-]^{c.i.g} = \lambda C_{<i,t>} \lambda P_{<i,t>} \forall \forall Q[[P \in C \land Q \in C] \rightarrow [\forall (<w', t'>)[P(<w', t'>)=1 \rightarrow Q(<w', t'>)]]] \land \exists t'[Q(<w, t'>)=1 \rightarrow t' \leq t]. P(<w, t>)=1 \]

\(^2\) The superscript ‘i’ in the lexical entry of \( [\text{you}]^{c.i.g} \) here stands for the ordered pair of time and world indices, \(<w, t>\).
This paper discusses and analyses an understudied focus particle you3 in Mandarin Chinese. I

6.2 Formalization of the stative meaning

The You3 with the stative meaning only requires one presupposition. There is a contextually given set of alternatives, in which the quantity of the assertion is always regarded as the largest. Other alternatives are all entailed by the assertion. The alternatives taken into consideration can be true of any other times.

Thus, the stative meaning of you3 does not need the second presupposition in the dynamic meaning. Yet in order to get the meaning that the quantity in the assertion is large, the contextually given set C is a set that only consists of alternatives that has the normal or standard quantities according to the speaker’s knowledge. The lexical entry for meaning two is given in (21).

\[
(21) \quad [[you]^c, i, g] = \lambda c <w, t>, \lambda p <c, i, g>, \forall p \forall q ([p \in c \land q \in c] \rightarrow [p \rightarrow q]). \quad P(<w, t>)=1
\]

The structure where you3 with the stative meaning appears is the same as that of Figure 5. (22a) is an example, and (22b) is its syntactic structure, where C5 is the set of alternatives. The simplified derivation of (22) is given in (23).

(22) a. Afu li xiaomen you [wu gongchi]:

\[
Afu \text{ away \ school-gate you3 five \ meters}
\]

‘The distance of Afu from the school gate is as great as five meters.’

b. \([[[you^c, i, g] \rightarrow c_5[The \ distance \ of \ Afu \ from \ the \ school \ gate \ is \ five \ meters]]^c, i, g]

(23) Derivation:

Lexical entries:

\[
[-]^c, i, g = \lambda c <c, i, g>, \lambda p <c, i, g>, \lambda s <c, i, g>, \forall p \forall q ([p \in c \land q \in c] \rightarrow [p \rightarrow q]). \quad P(<c, i, g>)=1
\]

\[
[[[you^c, i, g] \rightarrow c_5[The \ distance \ of \ Afu \ from \ the \ school \ gate \ is \ five \ meters]]^c, i, g]
\]

Is defined only if \(\forall p \forall q ([p \in c \land q \in c] \rightarrow [p \rightarrow q])\)

(If the distance of Afu from the school gate is five meters in w at t, then for all alternatives Q in C5, Q is always true.)

The stative meaning simply states that the assertion entails other alternatives. The alternatives compared with the assertion can be true of other worlds and other times as well.

7. Conclusion

This paper discusses and analyses an understudied focus particle you3 in Mandarin Chinese. I
show that this particle has two meanings, one is the dynamic meaning that is reminiscent of English *already* and German *schon* that operates on alternatives anchored in different times. Yet different from *already* and *schon*, the dynamic *you* is a scalar particle that operates on an entailment scale. This work also discuss a second meaning of *you*, the stative meaning. The stative *you* only requires that the assertion is the largest among a set that is the contextually given standard. Thus, the amount of the assertion is regarded large.

References


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