

Constraints on the Evaluation Times of Noun Phrases

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1 Introduction

For some time, noun phrases have been considered to be temporally independent from the rest of their sentences. Starting with Enç 1981 (and furthered by Enç 1985, 1986, 1987), it has become clear that noun phrases (henceforth: NPs) can be evaluated at times other than those designated by the sentential tense, which is expressed morphologically on the verb. Nouns are, after all, predicates, and predication is subject to temporal limits. The importance of the dialogue that Enç began was that most predicates of the noun phrase variety are not dependent on the tense of the sentence, but can take independent time variables.

For instance, in (1), foolishness occurs in the past, but the subject can be a president either in the past or at the time of the utterance:

- (1)
- a. The president was a fool.
 - b. *If no temporal independence:* The subject would refer only to someone who was a president at the time of being foolish.
 - c. *Actual interpretation:* The subject can refer to either a past or a present president.

Similarly, in (2) (from Enç 1981: 60), the main event of the sentence occurs in the future, but the subjects may be members of the club in the past, present, or future:

- (2)
- a. Every member of our investment club will buy a house.
 - b. *If no temporal independence:* The subject would refer only to those who are members at the time of buying a house.
 - c. *Actual interpretation:* The subject can refer to past, present, or future members.

In English, there are no overt markings on NPs to mark tense, as there are on verbs. However, there are a number of other languages with temporal morphology on NPs (e.g. Nordlinger and Sadler 2004, Tonhauser 2002, 2005, 2007, 2008). Adding to our own intuitions about sentences like (1) and (2), these languages provide very convincing evidence for Enç's original claim that NPs can be interpreted at a time independent from the rest of the sentence.

However, not all NPs are temporally independent. For instance, (3) is only true if the people in question were professors at the same time that they were in kindergarten. Thus, the NP *professors* is *temporally dependent*, rather than being temporally independent like the subjects of (1) and (2).

(3) # There were many professors in kindergarten in the 80s.

(Keshet 2008: 42)

There have been several additions to Enç's theory, mostly regarding when NPs can and cannot be temporally independent. Section 2 of this paper will discuss ways to predict temporal dependence. Adding on to Musan's (2009) theory, I suggest that nouns which denote stages rather than individuals can never be temporally independent. This distinction will explain the difference in acceptability between sentences like (4) and (5):

(4) The fugitive is doing time.

(adapted from Musan 1995)

(5) #The bachelor is kissing his wife.

In the remainder of the paper, I address what is, to my knowledge, a novel concept: the sets of times at which both temporally independent and temporally dependent NPs may be evaluated. Temporally independent NPs are more limited than has previously been claimed; they are not free to be interpreted at any given time, but must be evaluated at some time that is "familiar" to the utterance. This means that they may not be interpreted at any evaluation time that occurs after both the utterance time and the evaluation time of the main predicate.

Additionally, temporally dependent NPs have slightly more freedom in their evaluation times than has been previously reported. Temporally dependent NPs may be evaluated at either the evaluation time of the predicate or the utterance time, instead of only the former.

2 Temporal dependence and information status

2.1 Weak Cardinal DPs

Musan (1995, 1999) notes several syntactic predictors for temporally dependent NPs. For instance, certain types of determiner phrases invariably lead to temporal dependence of the NP (Musan 1999). To discuss these phrases, I must first mention two ways of classifying determiner phrases.

First, determiners can be classified as *weak* or *strong* (Milsark 1974):

(6) **Weak:** a, some, many, several, two, three¹, ...

(7) **Strong:** the, this, these, that, those, both, each, every, most, all, ...

The separation between weak and strong determiners is useful in the discussion of the temporal dependence of NPs, but it also describes the divide between DPs that can occur in existential there constructions and those that can't²:

(8) *Weak determiner phrases:*

a. There was a man on the balcony.

b. There were some/many/several/two men on the balcony.

(9) *Strong determiner phrases:*

a. *There was the/this/that man on the balcony.

b. *There were these/those/both/every/most men on the balcony.

Additionally, weak determiner phrases can have either *cardinal* or *partitive* readings. Cardinal readings refer to the cardinality, or total number, or individuals. For instance, in (10), the cardinal reading of *few ghosts* means a relatively small number of ghosts. Meanwhile, a partitive reading denotes a part of a larger group. In (10), the partitive reading of *few ghosts* refers to a small proportion of the larger number of ghosts. It can be somewhat difficult to determine which of the two ambiguous readings is meant, but Musan notes that partitive readings generally

¹ Some may not consider numbers to be determiners. However, as is pointed out in here, when numbers occur without any other determiner, they behave like weak determiners (Milsark 1974, Musan 1999). That is, they can occur in existential there constructions, and their cardinal readings are obligatorily temporally dependent.

² Note that strong determiner phrases can occur in existential there constructions, but only as part of a list reading:

(i) A: Who was at the party?

B: Well, there was the mayor, the town doctor, those teachers we met, ...

have stress on the determiner while cardinal readings tend to put stress on the noun (1999: 629).

- (10) a. Few ghosts swam in the ocean.
b. *Cardinal reading*: A small number of ghosts swam in the ocean.
c. *Partitive reading*: Few of the ghosts swam in the ocean.
(Musan 1999:629)

(11) **Cardinal**: the determiner characterizes the cardinality of individuals that satisfy the noun

(12) **Partitive**: the determiner picks out a (sub)set of individuals that satisfy the noun

Musan (1999) provides evidence that all *weak determiner phrases with cardinal readings* are obligatorily temporally dependent and are therefore evaluated at the same time as the main predicate of their clause. As an example, in (13) the DP *three students* has the weak determiner *three* and describes a group of students that has a cardinality of three. This NP is temporally dependent and thus the subjects must be students at the same time that they are in the room.

- (13) a. Three students are in that room.
b. *Temporal Evaluation*: The people must be students at the time that they are in the room.

2.2 Existential there constructions

Musan (1995, 1999) also points out that post-copular DPs in existential there constructions must be temporally dependent.³ For instance, for (14a) to be true, the *professors* must be professors at the same time that they were in kindergarten in the 80s.

- (14) a. # There were many professors in kindergarten in the 80s. *dependent*
b. Many professors were in kindergarten in the 80s. *independent*
(Keshet 2008: 42)

As discussed above, only weak determiner phrases can occur in existential there constructions. Musan reports that most of these weak DPs occurring in the post-copular of existential there constructions tend to receive cardinal readings, which

³ Musan (1999) also discusses a similar phenomenon in German scrambling.

would mean that we would expect them to be temporally dependent no matter what syntactic construction they are in.

The question then, is whether partitive DP can ever occur in the post-copular position of an existential there construction. In (15) and (16), DPs with weak determiners are forced into partitive readings by adding ‘*of the*.’ There is no way to interpret these phrases as being cardinal; they can only refer to a subset of a larger group. (15a) and (16a) show that these partitive DPs are temporally dependent when they are in the post-copular position of existential there constructions; each (a) sentence requires the post-copular DP to have the same evaluation time as the main predicate (in this case, the copula). Due to temporal dependence, (15a) is only true if the people in question are simultaneously *prisoners* and *free* and (16a) is only true if the people in question are both *sleepers* and *awake*. Both of these situations are, of course, contradictory. The fact that the post-copular phrases in (15a) and (16a) are temporally dependent provides evidence that existential there constructions do indeed require DPs following the copula to be temporally dependent, regardless of whether they are interpreted as cardinal or partitive.

- (15) a. #There are some of the prisoners free. *dependent*
b. Some of the prisoners are free. *independent*
- (16) a. #There are many of the sleepers awake. *dependent*
b. Many of the sleepers are awake. *independent*
- (Musan 1999: 639)

2.3 Information status

It has previously been noted that existential there constructions require that the post-copular DP be novel to the hearer of the sentence (Prince 1992, Ward and Birner 1995). Musan (1999) suggests that, additionally, all weak DPs with cardinal readings are *hearer-new* as well. This fits in logically with the distinction between cardinal and partitive readings: a DP that introduces *three cats* for the first time would have to be discussing the cardinality of the total group of relevant cats, while *three of the cats* would necessarily be discussing three cats out of a larger, previously salient group.

Musan goes on to claim that being hearer-new or hearer-established leads to nominal predicates being interpreted as either stages or individuals, respectively, and that it is this distinction which triggers temporal dependence or independence.

Predicates either describe long-term or short-term properties of an individual (Musan 1997). Predicates that describe long-term properties are said to describe the individual, while predicates that describe short-term properties are said to describe a temporal chunk, or *stage*, of the individual’s existence (Carlson

1977a,b). Musan claims that “being treated as hearer-established triggers quantification over individuals, while being treated as hearer-new triggers quantification over stages.” (1999: 656). She proposes that “...when the hearer is confronted with a noun phrase that introduces new discourse referents, she economically focuses only on the stages of the host-individuals that are at issue...Hence, noun phrases that introduce new discourse referents involve a restriction to stages...” (Musan 1999: 657). If an NP is hearer-new, all the knowledge the hearer has about the referent is its stage during the event at hand. Thus, NPs that refer to individuals are temporally independent, while those that refer to stages are temporally dependent.

2.4 Stage nouns

Musan claims that when predicates refer to stages rather than individuals, they are interpreted as temporally dependent. However, weak cardinal DPs and existential there constructions are not the only situations where we find predicates which refer to stages. I propose that some nouns exclusively refer to stages and are therefore always temporally dependent.

For instance, consider the following two sentences:

(17) The fugitive is doing time. (adapted from Musan 1995)

(18) # The bachelor is kissing his wife.

The main sentential tense for both (17) and (18) is the present. Both subject DPs have strong determiners and neither sentence involves an existential there construction. Based on the generalizations discussed thus far, these sentences should behave identically.

In (17), *the fugitive* could, in theory, be interpreted in either the past or the present, but, for the sentence to be non-contradictory, it must be interpreted in the past, as one cannot simultaneously be a *fugitive* (one who is on the run from the law) and *doing time*.

From what we know so far, *the bachelor* should be able to be interpreted in a similar fashion. While a present bachelor could not possibly have a wife who he could be kissing, a past bachelor could certainly have a present wife. However, somehow, (18) is not capable of having this interpretation, and is therefore contradictory. Even though *fugitive* can be interpreted in the past, it would seem that *bachelor* can only be interpreted in the present.

I propose that nouns like *bachelor* describe a stage of an individual, while nouns behaving like *fugitive* denote individual-level properties. All nouns fall into one of these two categories. Stage nouns tend to include stages of life that have a

clear endpoint, like *child*, *bachelor*, *sophomore*, or *high school student*. Individual nouns refer mostly to life-long properties (i.e. *man*, *brunette*, etc.) or profession-like descriptions (i.e. *fugitive*, *president*, *astronaut*, etc.).

This description of these two noun classes fits cleanly into Musan's theory. She argued that hearer-new NPs, like those in weak cardinal DPs or in existential there constructions, were interpreted as stages because the hearer only focuses on the relevant stage of the noun, despite the noun having the ability to describe a longer-term property. Stage nouns like *bachelor* bypass the step in which hearer-awareness is established. They exclusively describe stages, and never individuals. Thus, all NPs which are in some way associated with stage-hood, whether intrinsically or via a determiner or syntactic construction, are temporally dependent.

3 New constraints on evaluation times

The previous section has supplied us with the tools to diagnose whether an NP is temporally dependent or temporally independent. With this knowledge, we can progress to discussing the exact specifications of their evaluation times.

3.1 Temporally independent NPs: in need of an upper limit constraint

We will begin with temporally independent NPs, which, in theory, should be completely independent in their evaluation times. This means that they should be able to be interpreted at *any* evaluation time, no matter the evaluation time of the main predicate of the sentence.

However, this is not the case:

- (19) a. The president was a fool.
b. *Evaluation times*: The subject can refer to either a past or a present president, but not a future president.

As (19b) states, *president* in (19a) can be evaluated in the past or the present as compared to the utterance time. It cannot, however, refer to a future president.

Consider another example, in which the main predicate is evaluated at a future time:

- (20) a. Every member of our investment club will buy a house.
b. *Evaluation times*: The subject can refer to past, present, or future members, but not those who buy a house in the future and *then* become members.

The fact that the main predicate of (20) is evaluated in the future seems to allow the subject NP to be evaluated in the future as well. However, the NP is still limited in its potential evaluation times. It can be evaluated in the past, present, or future as compared to the utterance time, but it cannot be evaluated in the future as compared to the predicate's evaluation time.

Let us examine this systematically. In the case of (19), where the predicate's evaluation time was in the past, the subject NP could have an evaluation time that is before, during, or after the predicate's evaluation time. These evaluation times could also be before or during the utterance time. However, the NP could not be evaluated at a time that was after both the predicate time and the utterance time.

In (20), where the predicate's evaluation time was in the future, the subject NP could have an evaluation time that is before or during the predicate's evaluation time, and before, during, or after the utterance time. Once again, the subject NP could not be evaluated at a time that was after both the predicate time and the utterance time.

To complete the paradigm, let us consider a sentence where the predicate's evaluation time is in the present.

- (21) a. The president is a fool.
b. *Evaluation times*: The subject can refer to either a past or a present president, but not a future president.

In (21), *president* can be evaluated at a time that is before or during the predicate's evaluation time and the utterance time. As with (19) and (20), the NP cannot be evaluated at a time that is after the predicate time and the utterance time.

Other areas of tense-study have suggested the need for an *upper limit constraint*, which allows only times *familiar* to an individual or situation to be accessible. Generally, this means times up to the present, as only the present and the past are truly known. Based on the data outlined above, it seems that temporally independent NPs are subject to a type of upper limit constraint as well. I propose that temporally independent NPs may only be interpreted at times *familiar* to the utterance. Familiarity can be gained either from the utterance time or from the evaluation time of the main predicate. Potential evaluation times are considered familiar to the utterance if they are in the past or the present, *as compared to either the utterance time or the evaluation time of the main predicate*.

Since the utterance time is always the present, all times before and during the present will always be familiar to the sentence. Therefore, in sentences where the main predicate is evaluated in the past or the present, the available evaluation times for NPs will be times up to and containing the utterance time.

If the main predicate is evaluated in the future, the times familiar to utterance include future times *up to the time at which the predicate is evaluated*.

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The times considered familiar to the sentence are those that are in the past or present as compared to the main predicate's evaluation time. Thus, in such sentences, NPs can be evaluated in the future, but not at times further into the future than the time at which the predicate is evaluated.

(22) **Familiarity Constraint**

Temporally independent NPs must be evaluated at a time which is *familiar* to the utterance. Times are familiar to the utterance if they are equivalent to or prior to either the utterance time or the time at which the main predicate is evaluated.

3.2 Temporally dependent NPs

Past literature on temporally dependent NPs claims that they must be evaluated at the same time as the main predicate. For instance, consider (23) below.

(23) # The teenager is turning 100 years old today.

Like *bachelor*, *teenager* is a stage noun and is therefore temporally dependent. In (23), the subject must be a teenager in the present, which leads to a contradiction given the content of the rest of the sentence. However, in (24), the same predicate, *teenager*, does not have to be evaluated at the same time as the main predicate.

(24) The teenager received a toy at his 1st birthday party.

If *teenager* were to be evaluated at the same time as *received*, then the sentence would be as unacceptable as (23) is. It would be contradictory for the subject to be a teenager and one year old at the same time. Instead, *teenager* is evaluated in the present, at the utterance time.

Based on only (23) and (24), one might conclude that temporally dependent NPs are in fact dependent on the utterance time—in both examples, *teenager* is evaluated in the present. (25), however, disproves this theory.

(25) The bachelor was getting married.

In this sentence, the bachelor is in the process of forever losing the title of *bachelor*. There is no way that *bachelor* could logically be evaluated at the utterance time, after the marriage ceremony has been completed. In (25), *bachelor* must be evaluated at the same time as the main predicate, in line with the previous theories of temporally dependent NPs.

I propose that temporally dependent NPs may be evaluated at the time of the utterance or the main predicate. In (23)-(25), one or both of these options was always logically excluded, however, both were still available evaluation times. Consider (26), in which neither evaluation time is logically excluded:

(26) The teenager ate a banana.

In (26), the subject can either be a teenager at the time of the banana-eating or at the utterance time (and have eaten a banana at some previous point in their life). The former interpretation is possible even if the subject is now 90 years old.

It is with this data in mind that I posit the following constraint:

(27) **Accessibility Constraint**

Temporally dependent NPs must be evaluated at a time which is already accessible to the clause, namely, the utterance time or the time at which the main predicate is evaluated.

I propose that temporally dependent NPs may be evaluated at any time which the utterance already has access to. The utterance time is accessible, as is the time that is being used to evaluate the main predicate.

As in the familiarity constraint posited above for temporally independent NPs, the evaluation time of the main predicate and the utterance time are equally important in defining the potential evaluation times of noun phrases.

The accessibility constraint applies not only to nouns that inherently describe stages, but also to NPs that are coerced into temporal dependence via syntactic constructions.

(28) There were three of our students in that room.

Students can clearly be evaluated at the time at which they were in the room. Furthermore, as the accessibility constraint tells us, *students* can also be evaluated at the time of the utterance; for instance, if two high school teachers were discussing a time they went to a day care fourteen years ago, they could easily utter (28).

4 Conclusion

There has been much discussion in the past forty years about the temporal (in)dependence of noun phrases. It was determined that some noun phrases were in some way dependent on the other evaluation times used in the utterance, while other NPs were free from this constraint.

Constraints on the Evaluation Times of Noun Phrases

Musan (1995, 1997, 1999) highlighted a number of syntactic environments which could force a noun phrase to be temporally dependent, including weak cardinal determiner phrases and existential there constructions. She concluded that these constructions were used when the NP was new to the hearer, and that hearer-new NPs were interpreted as referring to temporal chunks, or stages, of an individual, rather than the whole temporal existence of the individual. She posited that these temporal chunks were then evaluated at the same time as the rest of the sentence.

In this paper, I provided evidence that some nouns inherently describe stages, and are therefore always temporally dependent.

Additionally, I showed evidence that temporally independent NPs can be evaluated at fewer times than was previously thought and that temporally dependent NPs can be evaluated at more times than was previously thought. Temporally independent NPs are subject to a familiarity constraint and can only be evaluated at or before the utterance time or the predication time, whichever is later of the two. Temporally dependent nouns are subject to an accessibility constraint and may be evaluated at either the utterance time or the predication time.

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