

# Temporal adverbial superlatives in Dutch

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This paper investigates adverbial superlative expressions in Dutch that have a temporal interpretation, i.e. that contain the forms *eerst* ‘first’, *laatst* ‘latest’, and *vroegst* ‘earliest’. I focus on possessive superlatives and superlatives embedded under the preposition *voor*. Although both constructions contain bare superlatives and are interpreted temporally, they represent semantically and pragmatically different readings, and attach to the sentence in structurally different ways. I present a semantic analysis of both types of superlatives, and I show what this entails for how time adverbials interact with superlatives.

**Keywords:** superlatives, Dutch, adverbial superlatives, time adverbials

## 1. Introduction

The landscape of Dutch superlative expressions is highly varied in terms of possible forms and interpretations. In addition to the regular superlative construction (1a), superlatives can appear without an overt nominal complement (1b), so-called **bare** superlatives (Matushansky, 2008). Bare superlatives in Dutch come with a set of highly intricate facts about the interplay between the grammatical gender of the definite determiner ((1b) vs. (1c)) and the interpretation of the superlative construction (see Tellings, 2019a). Then there are superlative constructions that are interpreted **adverbially**, (1d), including ones that are embedded inside a PP, such as the **possessive** superlative in (1e).

- (1) a. Dit is de hoogste stoel.  
this is the highest-E chair  
‘This is the highest chair’
- b. Deze stoel is het hoogst(e).  
this chair is the.NEUT highest-(E)  
‘This chair is the highest (thing)’
- c. Deze stoel is de hoogste.  
this chair is the.NONNEUT highest-E  
‘This chair is the highest (chair)’
- d. Marie zong het mooist.  
Mary sang the beautiful-est  
‘Mary sang the most beautifully’
- e. Marie zong op d’r mooist.  
Mary sang at her beautiful-est  
‘Mary sang as beautiful as she can’

These types of superlatives exist to various extents in other languages, too (see e.g. Scheible, 2009 and Tabatowski, 2019 for English, and Penka, 2010 for German), but in this paper I will focus on Dutch.

In this paper I will analyze an understudied class of adverbial superlatives: ones that have a temporal interpretation. These are superlatives built from the adjectives *vroeg* ‘early’, *laat* ‘late’, and

the superlative/ordinal number *eerst* ‘first’.<sup>1</sup> I will consider two constructions in particular, illustrated in (2).

- (2) a. Marie wordt **op z'n vroegst** geopereerd in oktober.                                      possessive superlative  
 Mary is at his earliest operated.on in October  
 ‘Mary will have an operation in October at the earliest’
- b. Linda was **voor het laatst** in Amsterdam in 2003.                                      *voor*-superlative  
 Linda was for the latest in Amsterdam in 2003  
 ‘The last time Linda was in Amsterdam was in 2003’

The reason for concentrating on these is that they are not available as general superlative constructions, but mostly restricted to temporal uses only. Specifically, the *voor*-superlative is restricted to temporal adjectives *vroeg* and *laat*. As for the possessive superlative, although it is also a general way to make adverbial superlatives (see (1e)), the variant in (2a) is special in that there is an agreement mismatch between the subject and the possessive pronoun. This variant only exists for a small class of adjectives, among them *vroeg* and *laat*.

The analysis of some non-standard adverbial superlative constructions is only part of the motivation for studying temporal superlatives. In addition, although both constructions convey something about the timing of events, the various constructions represent very different readings, both in terms of at-issue content, and implicatures. Finally, the constructions interact with time adverbials in different ways.

The empirical properties of the superlative constructions will be discussed in more detail in section 2, followed by a semantic analysis in section 3. In section 4, I discuss what the semantic analysis tells us about the interaction between superlatives and time adverbials. Section 5 concludes.

## 2. *The two constructions in more detail*

Before I proceed to the two constructions in (2), I note that the standard adverbial superlative as in (1d) can also be used with temporal adjectives. This construction, illustrated in (3) below, displays all the properties that are associated with adverbial superlatives as described in earlier literature, and can therefore readily be analyzed with existing accounts from that literature (Penka, 2010; Coppock and Bogal-Allbritten, 2018). Therefore, I will only mention standard temporal adverbial superlatives in passing in this paper. However, they serve as a good ‘baseline’ to see that the two constructions in (2) are very distinct from the standard ones, and thus worth further study.

- (3) a. MARIE las dit boek **het eerst/laatst**.                                      standard adverbial sup.  
 Mary read this book the first/latest  
 ‘Mary was the first/last to read this book (before/after other people)’
- b. Marie las DIT boek **het eerst/laatst**.                                      standard adverbial sup.  
 Mary read this book the first/latest  
 ‘Mary read this book first/last (before/after the other books)’

The examples in (3) show, first, that the standard temporal adverbial superlatives have a reading that involves comparison of individual entities such as persons or books (semantic type *e*).<sup>2</sup> Second, as

<sup>1</sup>*Eerst* can be seen as the ordinal form of the numeral *een* ‘one’, or as the superlative form of the morpheme *eer* ‘early’. *Eer* is not used as a free morpheme (anymore), but appears as a bound morpheme in a number of combinations, including the comparative *eerder* ‘earlier’. See Barbiers (2007) for more discussion. The semantic differences between ordinals and superlatives will be discussed in section 3.2 below.

<sup>2</sup>A construction with a similar interpretation has a bare superlative embedded in a phrase with *als* ‘as’:

has been described for other superlatives, they display focus-sensitive behavior in the sense that the position of focus determines which entities are getting compared (Heim, 1999, Romero, 2013:87, called the *contrast set* in Coppock and Bogal-Allbritten, 2018).

## 2.1 Possessive superlative

The possessive superlative comes in two types, that I will neutrally refer to as Type A and Type B. They were exemplified in (1e) and (2a) above, but I give new examples here for convenience.

- (4) a. De kinderen renden **op hun hardst** naar huis. [Type A]  
 the children ran at their fastest to house  
 ‘The children ran home as fast as they could’
- b. Linda komt **op z’n vroegst** om 5 uur thuis. [Type B]  
 Linda comes at his earliest at 5 hour home  
 ‘Linda will be home at 5 o’clock at the earliest’

Terminology: I will use ‘superlative phrase’ to refer to the PP headed by *op* ‘at’, boldfaced in (4).

At the surface the two superlative phrases look very similar, yet I will discuss four ways in which they are different.

First, the two types differ morphosyntactically. Type A has gender and number agreement between the possessive form and the subject DP, as can be seen in (4a) and (1e) (e.g., agreement between *Marie* and *d’r*).<sup>3</sup> Type B always has the singular masculine/neuter form *z’n* ‘his’, even with feminine or plural subjects, as in (4b)/(2a).

Second, the types differ in which adjectives/adverbs they can be based on. Type A is a general, productive type of possessive superlative, whereas Type B possessive superlatives are only possible with a small set of adjectives, including *op z’n hoogst* ‘at most’, and *op z’n minst* ‘at least’, and temporal variants built from the adjectives *vroeg* ‘early’ and *laat* ‘late’ (*\*op z’n eerst* doesn’t exist).<sup>4</sup> See the Appendix for some corpus findings on which adjectives are used most with Type A and B.

Third, Type A and B superlative phrases behave differently syntactically. Type A superlative phrases behave like a degree phrase:

- (5) Linda praat {heel hard / op haar hardst / net zo hard als Jan / ...}.  
 Linda speaks {very loud / at her loudest / EQ so loud as John / ...}

Temporal Type B superlatives obligatorily combine with a time adverbial (e.g., ‘om 5 uur’ cannot be left out in (4b)). The combination of the superlative phrase and the time adverbial behaves the same way as (simple) time adverbials:

- (6) Linda komt {om 5 uur / op z’n vroegst om 5 uur / morgen / ...} thuis.  
 Linda comes {at 5 hour / at his earliest at 5 hour / tomorrow / ...} home

Fourth, there is a difference in meaning. A precise characterization of both types of possessive superlatives will follow in section 3.1, but pre-theoretically we can say the following. Temporal Type

- 
- (i) Peter kwam **als laatste** aan.  
 Peter came as last-E PRF  
 ‘Peter was the last person to arrive’

I will not analyze this construction further in this paper.

<sup>3</sup>Because a Type A superlative always associates with the predicate subject, it was called a ‘reflexive’ PP superlative by Corver and Matushansky (2006). What I call Type B is called a ‘pronominal’ PP-superlative by them.

<sup>4</sup>In Belgian varieties the variants *ten vroegste/ten laatste* are used. I will not analyze them in this paper. See [https://taaladvies.net/taal/advies/vraag/1078/ten\\_vroegste\\_op\\_zijn\\_vroegst/](https://taaladvies.net/taal/advies/vraag/1078/ten_vroegste_op_zijn_vroegst/).

B possessive superlatives convey that the time expressed by the (obligatorily present) time adverbial is the latest/earliest of a set of times of alternative events. Sometimes these alternative events are modal alternatives, as in (2a) and (4b): the latter compares the possible times of Linda's arrival, and states that 5 o'clock is the earliest such time. Others, like (7), taken from the OpenSONAR corpus,<sup>5</sup> do not involve modality, but have a plural subject. (7) states that of the various composers, around 1600 is the latest birth date.

- (7) Twaalf koren zingen muziek van componisten die op z'n laatst rond 1600 geboren  
 twelve choirs sing music of composers that at his latest around 1600 born  
 zijn.  
 are  
 'Twelve choirs sing music of composers that were born around 1600 at the latest'

In section 3.1 I will come back to how to unify these two readings.

In contrast, Type A superlatives say something about the subject of the sentence or predicate. A Type A superlative phrase [*op* poss Adv-est] refers to the maximal degree of Adv-ness with which the subject can perform the action described in the VP that the superlative phrase modifies. For example, (4a) conveys that the children ran home at the fastest speed they are capable of. The meaning of the Type A superlative phrase can be roughly paraphrased as 'as Adv as the subject could'.

## 2.2 Voor-superlative

The *voor*-superlative is only used with temporal adjectives, as in (8a), repeated from (2b). The construction is unavailable with any other adjectives, as in (8b):

- (8) a. Linda was voor het laatst in Amsterdam in 2003.  
 Linda was for the latest in Amsterdam in 2003  
 'The last time Linda was in Amsterdam was in 2003'
- b. \*Marie zingt voor het mooist.  
 Mary sings for the nicest

The *voor*-superlative has a reading different from the individual comparison reading of the standard superlative, and the readings for the possessive temporal superlative described above. (8a) asserts that Linda's most recent visit to Amsterdam was in 2003, i.e. she visited Amsterdam in 2003, and has not visited Amsterdam since. This is different from the individual comparison reading for standard temporal adverbial superlatives, because it only involves a single individual (Linda), but multiple events of her visiting Amsterdam.<sup>6</sup>

Example (8a) contains a time adverbial, but this is optional. *Voor*-superlatives can also appear without an adverbial:

- (9) Peter heeft voor het eerst een boek gelezen.  
 Peter has for the first a book read  
 'Peter read a book for the first time'

Example (9) conveys that Peter read a book, and has never read a book before.

<sup>5</sup>Available at <https://portal.clarin.nl/node/4195>.

<sup>6</sup>*Voor*-superlatives often seem to implicate the existence of multiple events (e.g. that Linda has been in Amsterdam several times). However, upon closer inspection this does not seem to hold universally. For example, 'John baked a cake for the first time' and its Dutch counterpart do not suggest multiple cake-baking events. When present, the impression of multiple events seems to be provided by context or focus alternatives, and not by the superlative construction itself.

When a time adverbial is present, it need not be adjacent to the superlative, but can be placed in any position that is available for adverbs (the time adverbial in possessive Type B superlatives is more constrained):

(10) ⟨in 2003⟩<sup>7</sup> Linda was ⟨in 2003⟩ voor het laatst ⟨in 2003⟩ in Amsterdam ⟨in 2003⟩.

Finally, I note that the bare *voor*-superlative as studied here is related to a variant with an overt noun *keer* ‘time’. This construction, similar to English ‘for the *n*th time’ counts events, and is available for all ordinal numerals:

(11) Linda was vandaag voor de {eerste / tweede / ... / laatste} keer in Amsterdam.  
 Linda was today for the {first / second / ... / latest} time in Amsterdam  
 ‘Linda was in Amsterdam for the first / second / ... / last time today’

The bare variant, however, only exists with *eerst* and *laatst*, and not with the ordinal numerals.

### 3. Analysis

In this section I will connect the empirical observations from section 2 with insights from the formal semantic analysis of superlatives in the literature. As before, my focus will be on the possessive and *voor*-type superlatives, but I start with briefly outlining how the standard adverbial temporal superlative from (3) can be handled with existing accounts.

Following von Stechow (2009) and Penka (2010), the adjectives *vroeg* ‘early’ and *laat* ‘late’ have the following denotations (*i* is the semantic type of time intervals):

(12)  $\llbracket \text{late} \rrbracket = \lambda d_i. \lambda t_i. t \geq d$  and  $\llbracket \text{early} \rrbracket = \lambda d_i. \lambda t_i. t < d$  (Penka / von Stechow)

Coppock and Bogal-Allbritten (2018) provide a uniform account of superlatives that also accounts for adverbial superlatives. I take (3a) as an example, for which the contrast set *C* (i.e., the set of entities that are being compared) consists of people who read this book. In informal prose, under their account, (3a) presupposes that Marie is in *C*, and read this book. It asserts that Marie read the book early/late to a degree *d*, and nobody else in the contrast set read this book early/late to the degree *d*. See Coppock and Bogal-Allbritten (2018:§4.4) for formal details of the derivation, or Penka (2010:2) for a Heim-style derivation of a similar sentence in German.

#### 3.1 Possessive superlatives

In addition to the at-issue meaning described above, temporal possessive superlatives (Type B) carry an implicature. Example (4b) implicates that the speaker doesn’t know at what time Linda comes home, a so-called *ignorance implicature* (likewise for (2a)). Example (7) does not implicate speaker ignorance, but carries an implicature that there is variation in the times the composers were born. This is known as a *variation implicature*.

These two implicatures have been studied in the literature on modified numerals (expressions such as *at least*+numeral and *at most*+numeral; see e.g. Coppock and Brochhagen, 2013 for references). The examples in (13), from Coppock (2016) and Nouwen (2010), illustrate the same ignorance and variation implicatures as in (4b) and (7), respectively:

<sup>7</sup>Modulo V2 word order.

- (13) a. Fred has read at most 15 Shakespeare plays. [ignorance]  
 b. Computers of this kind have at most 2GB of memory. [variation]

Two theoretical points have been made in relation to these observations. First, it has been noted that ignorance and variation implicatures are not restricted to modified numerals, but also attested with other superlative expressions. This led to attempts to uniformly derive these implicatures from the semantics of the superlative construction (Penka, 2010; Solt, 2011; Coppock, 2016). My observation about the implicatures of Type B possessive superlatives further extends the parallel to the Dutch temporal possessive superlatives.

Second, the ignorance and variation implicatures are taken to be part of a “family of implications” by some scholars, because they are both related to the speaker being unable or unwilling to specify which of a set of alternatives holds true (observed for *wh-ever* constructions in Condoravdi, 2015:239, extended to superlatives in Coppock, 2016:479; cf. the notion of anti-specificity in Nouwen, 2015). Therefore, a uniform account that generates ignorance and variation implicatures is desired.

Penka (2010) shows that under a normal construal using a Heim (1999)-style semantics for  $[-est]$ , a sentence such as (2a) leads to presupposition failure because it is presupposed that there are several events of Mary getting an operation. Focusing on superlatives with an ignorance implicature, Penka proposes that a covert modal expression is inserted into the structure, so that (2a) presupposes that there are several *possible* operation events. Coppock (2016) argues against this, in part because it does not account for the variation implicature in (7)/(13b), since that does not have a modal character. In other words, Penka’s account does not have the desired uniform generation of ignorance and variation implicatures.

Instead, Coppock proposes that both types of implicature come from the introduction of alternatives in the framework of Inquisitive Semantics (Ciardelli et al., 2018). The idea is that the presence of a non-singleton set of alternatives (e.g., different possible times, different birth dates) raises an issue into the discourse that is the source of the implicature (see Coppock and Brochhagen, 2013 for details of how this works for ignorance implicatures). The alternatives are introduced by the preposition ‘at’ in a phrase like ‘one year at the longest’, which has the following structure:

- (14)  (modified from Coppock, 2016:484)

In this analysis, the possessive superlative phrase ‘one year at the longest’ denotes a set of degrees (time spans) whose longest member is one year. Syntactically, the PP then combines with the rest of the sentence in the same way as the simple time adverbial ‘one year’, which denotes a singleton set (Coppock, 2016:484; see there for formal details).<sup>8</sup>

This account can be extended to the Dutch Type B possessive superlatives we have looked at, as they also have either an ignorance or variation implicature. There is a problem, however, with compositionality. The alternative-introducing ability is encoded in the preposition ‘at’ in Coppock’s (2016) analysis. This is problematic given that both Type A and Type B possessive superlatives in Dutch have the preposition *op* ‘at’, but only Type B has these implicatures. Recall from section 2.1 what reading Type A possessive superlatives have: example (4a) states that the children ran home at the fastest speed they were capable of. This is specific: it does not implicate ignorance (that the

<sup>8</sup>This is in line with the claim in Broekhuis (2013:211) that the Dutch Type B possessive superlative “modifies” the temporal expression.

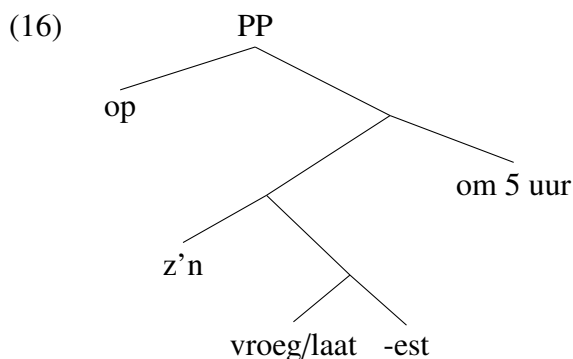
speaker does not know how fast the children ran), nor variation, i.e. there is no anti-specificity in Nouwen's (2015) sense.<sup>9</sup>

The Dutch data therefore suggest that the source of the ignorance or variation implicature does not reside in the preposition *op* 'at', contra Coppock, but rather in the determiner, which is not semantically interpreted in (14). This observation is also relevant for the English contrast between superlative modifiers with a possessive pronoun and with a definite determiner, illustrated in the following examples from Tabatowski (2019):

- (15) a. The car was going 60 mph at **the** fastest. (Tabatowski, 2019:213)  
 b. The car was going 60 mph at **its** fastest.

Here, (15a) has the now familiar implicatures of Dutch Type B superlatives, and is covered by the analysis in (14). In contrast, the possessive variant in (15b) has a reading that conveys that along the route the car took, the highest speed it reached was 60 mph.<sup>10</sup> So, also in English, the determiner position (definite determiner vs. possessive pronoun) is crucial for the semantic composition, and not the preposition.

Hence I claim that Coppock's (2016) account can be maintained, with the following adjustment. The alternative-introducing capacity is encoded in the Dutch possessive *z'n* (and the English definite determiner), while the preposition is present for syntactic purposes because DPs do not normally occur in adverbial position. The structure is thus as follows:



The possessive *z'n* plays the role of Coppock's 'at' operator, and builds a set of times of which 5 o'clock is the earliest/latest. This set of alternatives is responsible for the attested implicatures of Type B possessive superlatives.

### 3.2 Voor-superlatives

I assume that the bare *voor*-superlatives as discussed in section 2.2 are related to their non-bare counterparts *voor de eerste/laatste keer* as given in (11), as they are interpreted in the same way.

It is plausible that of all the ordinal numerals in the non-bare variant, *eerst* and *laatst* are the most frequent, and have therefore diachronically developed into bare superlatives. These forms may have been coined in parallel with other uses of bare *het eerst/laatst* (as standard adverbial superlatives, (3)), and other bare *het*-superlatives, as in (1b). Bare superlatives are often assumed to contain a

<sup>9</sup>I do not provide an analysis of the structure and semantics of Type A possessive superlatives here. Because they are non-temporal, they fall outside the scope of this paper. Deriving the details of the modal reading of Type A superlatives is an important step in future research, though. I refer the reader to Corver and Matushansky (2006) for some further observations about these superlatives.

<sup>10</sup>Note that English possessive superlative modifiers cannot be equated with Dutch Type A, because (15b) combines with a degree phrase, unlike Dutch Type A. Informal polling with native speakers I did suggests that the reading of (15b) is unavailable for Dutch Type A superlatives, and thus constitutes a *third* reading. However, more rigorous empirical work is required to verify this claim.

covert noun phrase argument of various sorts, such as  $\emptyset_{\text{stage}}$  (Corver and Matushansky, 2006) or THING (Tellings, 2019a). Likewise, I assume that the bare *voor*-superlatives contain a covert version of *keer* ‘time’. I will now focus on the semantics of the construction, and leave the further details of this diachronic process for future research.

In the literature on event semantics, modifiers such as ‘three times’ are discussed as used in ‘John called Mary three times’. The word ‘time’ has been analyzed as a classifier (Landman, 2006; Rothstein, 2017), similar to nominal classifiers with mass nouns (‘cup’ as in ‘three cups of coffee’). Moltmann (1997) provides a formalization in which ‘time’ “specifies events as consisting of temporally separated subevents” (p. 230), and ‘*n* times’ functions as an event quantifier (Moltmann, 1997:§7.2.3).

Modifiers ‘for the *n*th time’ have received little attention (Von Stechow and Iatridou, 2019:12 briefly mention them in relation to the adverb ‘since’). I assume that these phrases pick out a particular occurrence from a sequence of eventualities that occurred several times (the intuitive parallel is as in (17b)).

- (17) a. Mary called John three times.  $\leftrightarrow$  three cups of coffee  
 b. Mary called John for the third time.  $\leftrightarrow$  the third cup of coffee

Ordinals and superlatives behave semantically alike in many ways, but Bylinina et al. (2015) show that there is one difference: superlatives have an “upstairs *de dicto* reading”, while ordinals do not (see their §3 for details). Because this particular reading is accounted for by a movement analysis of superlatives, the authors propose that ordinals are always interpreted *in situ*. In their account, an ordinal ‘*n*th NP’ presupposes that there are at least *n* objects satisfying [[NP]] on which an ordering can be put, and then refers to the *n*th object in this ordering (I simplify over several important details here; see Bylinina et al., 2015:17).

Their observations about the upstairs *de dicto* reading also apply to the Dutch forms *eerst* and *laatst*. Therefore I assume that the account applies to Dutch *voor*-superlatives, with the innovation here that it applies to counting events, mediated by the (overt or covert) classifier *keer* ‘time’. To illustrate for (8a), this sentence presupposes that Linda visited Amsterdam at least once, and picks out Linda’s visit to Amsterdam that is latest in the induced temporal ordering.

#### 4. Relation between superlatives and time adverbials

In this section I will discuss how some of the syntactic properties of superlatives relating to time adverbials come out of the semantic analyses I proposed.

First, Type B temporal possessive superlatives obligatorily combine with a time adverbial. This follows directly from the proposed account, because the time adverbial serves as an argument of [[-est]]. The argument status of the adverbial explains its obligatoriness.

For *voor*-superlatives, a time adverbial is optionally present (recall (9)). Note that unlike the possessive superlatives discussed above, for this construction, the argument is a covert noun that fulfills the role of a classifier ‘time’, as argued in the previous section. In this case, the time adverbial is thus an adjunct, which is predicted to be optional.

When a *voor*-superlative does combine with a time adverbial, it may do so in two different ways. First, let’s consider the time adverbial as used in (2b). At first sight, the time adverbials in (2a) appear to play the same role as in (2b): *in oktober* ‘in October’ locates the time of the earliest possible operation, and *in 2003* locates Linda’s last visit to Amsterdam. However, there are a number of reasons to believe that this parallel is only apparent.

First, we have seen that in *voor*-superlatives the adverbial has a positional freedom that matches other VP-adverbs in Dutch, (10). Second, under the assumption that both the superlative phrase and the time adverbial are modifiers of the VP and combine conjunctively, one predicts that the sentence with both modifiers entails the corresponding sentence without the superlative. (2a) does not entail



that Mary had an operation in October (this is only said to be the earliest *possible* time), but (2b) does entail that Linda was in Amsterdam in 2003. Hence I assume that in (2b), ‘in 2003’ is a regular time adverbial that locates the eventuality described by the VP in time. Because there is also a superlative modifying the VP, the same time also specifies the last visit.

Finally, this conjunctive combination of two modifiers is supported by the observation that the superlative can be added as a parenthetical (marked prosodically or lexically):

- (18) Ik was vrijdag – voor het eerst overigens – in Amsterdam.  
 I was Friday – for the first by the way – in Amsterdam  
 ‘I was in Amsterdam on Friday, which was for the first time by the way’

The second way in which a *voor*-superlative and a time adverbial can combine is as a means to restrict the domain of the superlative:

- (19) Jan is voor het eerst {dit jaar, sinds 2018, in drie weken} thuis.  
 John is for the first {this year since 2018 in three weeks} home  
 ‘John is home for the first time {this year, since 2018, in three weeks}’

These sentences do not express that John is home for the first time ever, but for the first time in the interval expressed by the time adverbial. This is again supported by an entailment test: for example, (19) does not entail *Jan is sinds 2018 thuis* ‘John has been home since 2018’.

## 5. Conclusion

The various superlative constructions surveyed in this paper illustrate the great variety of semantic and structural configurations in this domain. The empirical observations show that temporal superlatives are central to the study of adverbial superlatives, and the proposed account offers insights in how superlatives behave with respect to time adverbials.

In future work, the connection with time adverbials can be extended into the study of superlatives in (temporal) questions: *wanneer* ‘when’ can ask for one or multiple events, but the combination *wanneer ... voor het eerst/laatst* ‘when ... for the first/last time’ always asks about a specific event. This is relevant for tense distribution in questions (Tellings, 2019b).

I focused on Dutch, but pointed out some striking cross-linguistic differences, which constitute another line of further investigation. In particular, more empirical and theoretical work on the cross-linguistic variation between Dutch Type A / B possessive superlatives, and English definite/possessive superlative modifiers (given in (15)) is needed.

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## Appendix

Table 1 gives the result of a search in the OpenSONAR corpus for possessive adverbial superlatives with various possessive pronouns (manually corrected, I removed the common idiomatic combination *op z’n zachtst gezegd* ‘to put it mildly’ from the count). It shows that the superlatives *best* ‘best’, *vroegst* ‘earliest’, *mooist* ‘nicest’ and *hoogst* ‘highest’ are most common, and account for more than 75% of all cases.

The OpenSONAR search query I used was:

```
[word="op"][pos_head="vnw"&pos_vwtype="bez"][pos_head="adj"&pos_graad="sup"&pos_buiging="zonder"]
```

	mijn/m'n (mine)	je (your)	zijn/z'n (his)	haar/d'r (her)	hun (their)	Total	
op POSS best	205	35	1320	142	191	1893	55.1%
op POSS vroegst	0	0	403	2	0	405	11.8%
op POSS mooist	1	3	161	39	60	264	7.7%
op POSS hoogst	0	0	129	1	1	131	3.8%
all other adjectives	27	7	576	71	59	740	21.6%
	233	45	2589	255	311	3433	

Table 1. Adverbially used possessive superlatives in OpenSONAR

Note that the masculine form *zijn/z'n* can either indicate Type B, or a Type A superlative agreeing with a masculine subject. The other pronouns indicate Type A. Notably, there were only 17 instances of *op z'n laatst*, perhaps because of lexical competition with the adverb *uiterlijk*, which has a similar meaning.