

## Why are most babies born on a Tuesday?

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At the 30<sup>th</sup> of March 2004, *de Volkskrant*, a Dutch newspaper, raises the following question:

- (1) Hoe kan het toch dat de meeste kinderen op dinsdag worden geboren?  
how can it PART that the most children on Tuesday are born  
“How can it be that most children are born on a Tuesday?”

This seems to be a statistic fact in the Netherlands, and not only there: 601 children are born on a Tuesday, versus only 452 for example on a Sunday. The puzzle I am interested in, however, is not the puzzle raised by the newspaper (which can indeed be solved fairly easily) but the puzzle raised by the meaning of *de meeste* ‘most’ in examples such as (1).

*De meeste* ‘most’ in Dutch can be defined as follows, within a relational view on the semantics of determiners (cf. Zwarts 1983):

- (2)  $\| \textit{de meeste AB} \| = 1$  iff  $|A \cap B| > |A - B|$

In other words, a sentence such as in (3) is true if and only if in the domain of discourse the number of black cats exceeds the number of cats that are not black.

- (3) De meeste katten zijn zwart.  
the most cats are black  
“Most cats are black.”

The definition in (2) can also be applied to Krifka’s (1990) famous sentence:

- (4) Most ships pass through the lock at night.

Independent of how we determine the domain of quantification, the set A, sentence (4) is true if and only if more than half of the ships that are a member of set A pass through the lock at night (set B). What can vary and thus what can lead to different interpretations of sentence (4) is the determination of set A. But whether A is the set of ships in general, or the set of ships that pass through the lock (in which case one ship that passes through the lock twice counts as two ships), or the set of ships at night, more than half of the ships that are in the domain of quantification must pass through the lock at night in order for the sentence to become true. So, in all cases the interpretation in (4) is in accordance with the definition of *de meeste* ‘most’ in (2). That is, the interpretations of both (3) and (4) are straightforwardly captured by the meaning of *de meeste* ‘most’ in (2).

Strikingly, *de meeste* ‘most’ in sentence (1) gets a completely different meaning. If the meaning of the determiner defined by (2) would hold in (1), then the number of babies born on Tuesdays would have to exceed the number of babies born in the rest of the week. In other words, more than 50% of the babies would have to be born on a Tuesday for (1) to be true. This is clearly not the reading obtained for (1). A similar example that I once heard on the news is the following:

- (5) De meeste mensen hebben op het CDA gestemd.  
the most people have on the CDA voted  
“Most people voted for the CDA [a Dutch political party, HdH].”

Again, (5) was not uttered in a context where more than half of the votes were for the CDA. Rather, the CDA received *the* most votes, compared to the other political parties. This reading is readily

obtained in Dutch when *de meeste* ‘most’ occurs in object position, as in (6); in English this reading of *de meeste* is expressed by ‘the most’ then:

- (6) Wie heeft de meeste katten?  
who has the most cats  
“Who has the most cats?”

In subject position, the reading is less common though. Most subjects with *most* get the standardly predicted reading ‘more than 50%’, like in (7):

- (7) Most babies are born healthy.

In Dutch, *de meeste* usually behaves and is interpreted as a strong quantifier, like *most* in English, but on the reading that it gets in (1), (5), and (6), it can occur in a context where only weak quantifiers are allowed, such as in an existential sentence and in combination with quantitative *er* in Dutch (de Hoop 1995):

- (8) Er worden drie/de meeste/\*beide/\*alle moorden bij volle maan gepleegd.  
“There are three/the most/\*both/\*all murders when the moon is full.”
- (9) Ik heb er drie/de meeste/\*beide/\*alle.  
“I’ve got three/the most/\*both/\*all (of them).”

So, *de meeste* ‘most’ can only get the special reading in (8) and (9), and not the common ‘more than half’ reading. Both (8) and (9) are translated in English with *the most*, by the way, like when *most* gets the special reading in object position, as in (6) above. However, I believe *most* (and not only *the most*) in English can get this special reading as well, as in *Find out the day most newborns arrive!* When the answer turns out to be Tuesday, this does not mean that more than half of the babies must be born on a Tuesday.

The puzzle that I would like Manfred to solve, is the puzzle of this ‘other’ reading of *de meeste* ‘most’ in Dutch, a reading which seems at first sight utterly non-logical to me, but which is nevertheless rather frequent. How can this meaning of *de meeste* be defined, can it still be treated as a quantifier (determiner), or is it something completely different? In fact, Hoeksema (1983) already argued against the definition in (2) for *de meeste* ‘most’, since this definition does not account for the superlative nature of the expression. In de Hoop (1995) I also mentioned the superlative semantics as a possible key to understanding the particular reading of *de meeste* that could be translated as *the most*. Hoeksema (1983) proposes a definition of *de meeste* ‘most’ as a superlative expression. He argues that his definition is only equivalent to the definition in (2) when the set of contextually relevant sets that have to be compared consists of exactly two complementary sets. He claims that in contexts where there are indeed only two such sets, the definition in (2) coincidentally gives the right result as well. However, I do not believe Hoeksema’s definition can really solve the puzzle. In sentence (3), on the one hand, there are more than two contextually relevant sets of cats, since cats come in more colours than just ‘black’ and ‘not black’. Yet, the optimal reading of (3) is the reading in which more than half of the cats are black. In (6), on the other hand, we can easily make up a context in which there are only two relevant sets of cats, the cats that I have and the cats that I do not have. Yet, in the absence of such a context the other reading is clearly the preferred one. So, even if we agree upon one definition that can account for both readings, the optimal interpretation of *de meeste* ‘most’ in the different contexts remains a puzzle. And why would only one reading be allowed in certain (weak) contexts, namely in (8) and (9), and not the other one, if they would basically be the same? Therefore, I would like to know under what conditions the two different readings of *de meeste* ‘most’ come out as optimal. More specifically, how are the relevant sets of comparison to be determined?

Finally then, why *do* most babies arrive on a Tuesday? Also in the States, Tuesday welcomes 16 percent more babies than any other day of the week. This is due to the fact that doctors do not

schedule c-sections and inductions on weekends. Usually, these are postponed until after the weekend. Giving birth takes time, however, and that explains the popularity of the Tuesday (rather than the Monday) for newborns.

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