



LUND UNIVERSITY

SEE YOU NEXT TUESDAY: A STUDY OF TEMPORAL DEICTIC MODIFIERS *NEXT* AND *LAST*

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Abstract

This essay examines the interpretation of deictic modifiers *next* and *last* in combination with propositionally termed *days* and *months*. The investigation aimed to show in what instances these expressions can be interpreted as ambiguous, and what influence temporal distance has on this. The experiment was done by producing a number of items with varying temporal distance between imagined coding time and the first possible answer alternative. The conclusion that can be drawn, much in line with Levinson's (1983) theory, is that the deictic modifiers *next* and *last* are interpreted as most ambiguous by the participants when there is a medium temporal distance between coding time and answer alternatives (3-4 days or 5-7 months), and least ambiguous when it is the shortest possible temporal distance between coding time and answer alternatives (1 day or 1 month).

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1 Introduction

Deixis is the phenomenon of lexical and grammatical features in a language that relates utterances to the spatio-temporal circumstances of the act of utterance. Deictic elements are usually divided into three categories: *person*, expressed through first and second person pronouns; *time*, expressed through tense and time adverbials; and *space*, expressed through demonstratives, place adverbials and motion verbs (Huang, 2014, p. 169). “*I am glad that you are here*”, for example contains three deictic elements, here italicized. These elements are dependent on context to convey meaning, and while their semantic meaning is fixed, their denotational meaning varies depending on when, where and by whom they are uttered. John Lyons (1977) describes deixis as best understood in a so called canonical situation of utterance: “this involves one-one, [...], signalling in the phonic medium along the vocal-auditory channel, with all the participants present in the same actual situation able to see one another [...]” (p. 637), i.e. face-to-face interaction. The canonical situation of utterance is often considered to be egocentric, as the speaker views themselves as in the center of the deictic context. This means that in a conversation, the deictic spatio-temporal center moves from one participant to another, depending on who is speaking in each moment (Lyons, 1977, p. 638). Face-to-face interactions are certainly not the only communicational instances where deictic elements are used and relevant, but this distinction gives light to how important context is when it comes to deixis.

Communicative interactions should, according to the Gricean maxims (after Herbert, P. Grice), follow a set of principles. Or, it is rather the fact that the hearer in a conversation seems to assume, unless there is evidence to the contrary, that the speaker is following these principles in communicating, otherwise also called conversational cooperation. The principals, or maxims, in question are:

(1) 1. *The Maxim of Quality*

Do not say what you believe is false, nor that for which you lack evidence

2. *The Maxim of Quantity*

Make your contribution as informative as required, no more, no less.

3. *The Maxim of Relevance*

Make your contributions relevant

4. *The Maxim of Manner*

Avoid ambiguity and obscurity. Be perspicuous, brief and orderly.

These maxims allow the hearer to arrive at implicatures and is the baseline for conversation as long as there are no evidence of deviation (Saeed, 2016, p. 211). Deixis is a part of natural language by which communication is facilitated and made more efficient. The Gricean maxims that are most relevant in relation to deixis are those of *quantity* and *manner*. Consider, for example, the difference in a conversation when using the following terms:

- (2) a. *The recipient of this act of utterance* looks very pretty in that dress
 b. *You* look very pretty in that dress

Instead of constantly having to specify the participants of the conversation, the speakers of the language have agreed on some specific elements that can express the same thing more efficiently, allowing the speaker to package the information accordingly and in agreement with the maxim of quantity. Despite this, not all deictic elements are as unambiguous as would have been expected, contrasting to the Gricean maxim of manner. Ambiguity is, according to Kennedy (2011), a subtype of uncertainty “which manifests itself as variation in truth conditions: one and the same utterance token can be judged true of one situation and false of another, or the other way around, depending on how it is interpreted” (as cited in Winkler, 2015, p. 1). Ambiguous deictic expressions contradict the meaning of deixis as a means of making natural language more efficient, and while there are some different theories and views on the usage of such expressions, not a lot of research has been done on the subject.

The aim with this essay is not to create fixed rules of the usage of temporal deictic expressions, but rather to account for how they are being interpreted, and if there are any tendencies to be found when it comes to for example temporal distance and the “size” of units of time. In focus are two temporal deictic modifiers with possible ambiguous meanings, namely *next* and *last*. My intention is to investigate the interpretation of deixis by conducting an experiment, of which the results are presented and discussed in this essay, and from which one can draw some general conclusions of deictic usage. Thus, the research questions of this essay are:

- How are the temporal deictic modifiers *next* and *last* interpreted and in what instances can they be seen as ambiguous?
- How do the interpretations and/or possible ambiguity relate to temporal distance?

The essay will be structured as follows: section 2 will give a background of the study of deixis, as well as a deeper familiarity with temporal deixis and its possible ambiguity. In section 3, I will describe the process of creating and conducting the experiment, while section 4 will present the results of said experiment followed by a discussion of the results in section 5. Lastly, section 6 will present the possible conclusions that can be drawn from the experiment.

2 Background

2.1 The basis of deixis

Whether the linguistic phenomenon of deixis belongs to the field of semantics or pragmatics is widely discussed. Levinson (1983) describes how on one hand, deixis is such a fundamental part of natural language and so deeply grammaticalized, that it could be seen as an essential part of semantics. On the other hand, it directly concerns the relation between structures of language and the contexts in which they are being used, placing in within the field of pragmatics. It all boils down to a question of theory (p. 55). Levinson (1983) continues to present two comprehensive approaches when it comes to the study of deixis; the *philosophical* approach and the *descriptive* approach. While the philosophical approach concerns how truth-conditional semantics relates to natural language expressions, in this instance deixis, the descriptive pragmatic approach is what is of interest in this essay. Levinson describes how this is where the categories of person, time and space appear. These three categories are generally accepted by most linguists, but some add additional categories to their theories, e.g. *discourse* deixis or *social* deixis (see for example Fillmore, 1975; Lyons, 1968). Person deixis is as mentioned before expressed through pronouns and concerns the encoding of roles of participants in a speech event. Space or place deixis is expressed through demonstratives or adverbials and concerns the encoding of locations in relation to the location of the participants in a speech event. Time deixis treats the notion of temporal points and spans in relation to the time at which an utterance was communicated. (Levinson, 1983, p. 62).

Within the use of deictic expressions, a further distinction can be drawn between *gestural* and *symbolic* use. Gestural use is the fundamental one, keeping in mind Lyons description of the canonical situation of utterance, where the deictic expressions can be interpreted only when accompanied by some kind of physical demonstration. In contrast, interpretation of the symbolic use simply demands knowledge about the spatio-temporal parameters of the situation

of utterance (1977, p. 172). Levinson also mentions this and exemplifies it in sentences such as:

(3) *This* one is genuine, but *this* one is fake.

(4) *This city* is really beautiful.

where the demonstrative pronoun *this* in (3) demands some kind of gesture to be understood, while it in (4) can be understood as long as the general location of the participants is known (1983, p. 65).

2.2 Earlier research

While deictic elements are fundamental parts of natural language and there is extensive literature to be found about the field, not a lot of research has been done on complex temporal deictic expressions. Of course, the deictic field has not been left untouched, but most of the research that has been done, often within the arena of linguistic anthropology or cognitive psychology, has focused on deixis as part of the language acquisition of children (e.g., Tanz, 1980; Internicola & Weist, 2003; Iossifova & Marmolejo-Ramos, 2013). The linguistic phenomena has been studied not only under the term “deixis”, but other names as well. These are for example *indexical signs* (see Pierce, 1991), *shifters* (see Jespersen, 1958[1922]; Jakobson, 1990) and *presupposing referential indexes* (see Silverstein, 1995).

Regarding acquisition of temporal expressions of children, both psychologists and anthropologists have found this an interesting subject. Tillman et. al write in their article *Today is tomorrow's yesterday: Children's acquisition of deictic time words* (2017) about the development in children's language when it comes to deictic temporal expressions. Here, they find that while children as young as two or three produce time words like “yesterday”, they do not use them as adults do until much later, and that although the children exhibit knowledge about deictic order, they struggle with the concept of remoteness, i.e. how far away an event is in time (used in this essay pretty much co-extensively with “temporal distance”). Similar to Tillman et. al's article, Ioana Stoiescu writes in her article *Temporal deixis in early child Romanian* (2012) about how Romanian speaking children become operative in a basic system of temporal deixis even before reaching the age of 3.

Other research that has been done in relation to temporal deixis is for example Casasanto & Jasmin's article about English speaker's gestures when describing time (2012), and various texts examining the usage of deictic time expressions in classic literature (e.g. D'Alessio, 2004; Bakker, 1999).

2.3 Temporal deictic expressions and ambiguity

Going further into the category of temporal deixis, Fillmore (1975) notes that the first thing that needs to be known is that time is one-dimensional and unidirectional. One can then think of time as moving past the world, or as the world moving forward in time. Regardless of one's standpoint in this question, the fundamentals are that if two events take place at different times, one will happen earlier, and the other will happen later (p. 247). On the timeline axis, one can place moments, short periods, and longer periods. Recurring events with the same duration, provided by nature, can be used to provide measuring units such as days, lunar months and years. These cycles can both be used in a non-calendrical way, i.e. purely as units of measure, or in a calendrical way with a fixed starting point (Fillmore, 1975, pp. 249-250). A year, for example, can be referred to in the non-calendrical way as the time period between the 14th of July, 2017, and the 14th of July, 2018. In its calendrical sense on the other hand, a year refers to the period of time between the 1st of January and the 31st of December of the given year.

In addition to the naturally occurring units of time, humans are able to construct smaller units consisting of sequences of the natural units, as seen in weeks, hours, minutes and so on. Furthermore, there are a number of more loosely defined temporal units in most languages such as "summer", "morning" and "night". Some of the recurring sequences include named members, or *positional terms*, and of these, a few also have designated first members. This applies to for example the days of the week (although not everyone agree on what day is first), and the months of the year (Fillmore, 1975, pp. 250-251). In addition to all these temporal cycles, a constant referent point is needed to locate events in "absolute time", an *origo*. It is with these circles, calendrical and non-calendrical, and to absolute time, that time deixis interacts (Levinson, 1983, p. 73).

Time deixis interrelates with natural and human-made instances of time; units, cycles, origos, but most importantly it functions in relation to a subjective changing reference point, namely that of the coding time or moment of a speech act (Fillmore, 1975, 253). On the one-dimensional timeline, users of language do not only place an absolute origo to relate all events to (e.g. the

birth of Christ), but also a relative zero-point or origo that is the current utterance-act, to which everything else is contrasted (Agha, 2007, p. 39). Within temporal deixis, one can distinguish between *coding time* (also the relative origo), that is when the message was uttered/written, and *receiving time*, when the message is heard/read/recognized by another participant. These are in most instances, but not always, equal (Levinson, 1983, p. 62). Furthermore, Modern English has a two-place system in regard to temporal remoteness: *proximal*, near the reference point, or *distal*, removed from reference point. Although this seems like a restricting system, there are many different ways of expressing remoteness, and the proximal and distal areas are relative to the context (McIntyre, n.d).

Levinson (1983) provides a theory of the usage of complex time adverbials where a deictic modifier has been combined with a non-deictic name or measure word, such as *next year*, *this Monday*, or *last week*. In this, he describes how *next* in combination with calendrical name 'X' results in ambiguity as it can refer both to the X that first follows coding time, or the X of the time cycle that succeeds the cycle in which coding time is included (pp. 75-76). *Next Friday* could then, according to Levinson, both mean the Friday of the same week as the coding time, or the Friday of the week following the week that includes coding time. He continues on to say that even though this ambiguity exists, there are some general rules which he thinks can be applied to this example. Taking *next Friday* again, Levinson means that since *today* and *tomorrow* pre-empt calendrical names, the complex time adverbial is only ambiguous on Monday, Tuesday and Wednesday (given that the week starts on Monday) (1983, p. 76). As he does not mention the remaining days of the week, one would have to suppose that he sees no ambiguity there. The same theory of ambiguity should be possible to apply to *last*. *Last Thursday* would then have uncertain reference on Sunday and Saturday of the week that includes coding time, as *yesterday* and *today* would pre-empt calendrical names Friday and Thursday. Again, Levinson's theory does not include the rest of the days of that week.

While Levinson's theory is well formulated and reasonable in itself, the question is if it is applicable to real life. In the following sections, I will account for the formation and result of an experiment meant to investigate how speakers of English interpret these expressions. As Levinson's theory is limited to possible ambiguity concerning *next* in combination with days of the week, I will merely use it as a steppingstone to be able to discuss also the other combinations of deictic modifiers and non-deictic time expressions that are mentioned above.

3 Method and material

As method for this essay I have, as stated above, conducted an experiment. Since I aim to investigate the interpretations of ‘next’ and ‘last’, I constructed the questionnaire to give the informants different options on how they understand these temporal expressions.

The experiment consists of four different parts, as well as filler questions. One part deals with *next* in combination with *days*, another with *next* in combination with *months*. Similarly, a third part combines *last* with *days*, and a fourth combines *last* with *months*. The reason for using days and months in this investigation is that they are natural parts of ‘bigger’ cycles that are also calendrical units, days are parts of weeks and months are parts of years, and that these cycles consist of positional terms with designated first members. Had I chosen to use for example weeks as examples the division would not have been as clear, as one week can be part of two different months. This means that this essay involves time expressions on two levels, both as “units”, i.e. *days* and *months*, and as “cycles”, i.e. *weeks* and *years*.

Each part of the experiment consists of nine items, which are all multiplied into three manipulations, A, B and C. The total number of manipulations in the questionnaire is 105 ($9*4*3=108$, minus one item that was faulty), plus 18 filler questions. The different manipulations were then separated to be given to only one of the three groups of informants that answered the questionnaires.

This looks like the following:

	<i>Group 1</i>	<i>Group 2</i>	<i>Group 3</i>
<i>Item 1</i>	<i>A</i>	<i>B</i>	<i>C</i>
<i>Item 2</i>	<i>B</i>	<i>C</i>	<i>A</i>
<i>Item 3</i>	<i>C</i>	<i>A</i>	<i>B</i>
<i>Item 4</i>	<i>A</i>	<i>B</i>	<i>C</i>
<i>Item 5</i>	<i>B</i>	<i>C</i>	<i>A</i>
<i>Item 6</i>	<i>C</i>	<i>A</i>	<i>B</i>
<i>Item 7</i>	<i>A</i>	<i>B</i>	<i>C</i>
<i>Item 8</i>	<i>B</i>	<i>C</i>	<i>A</i>
<i>Item 9</i>	<i>C</i>	<i>A</i>	<i>B</i>

Table 1. Example of the distribution of questions per group

This goes on for all items included in the survey. Looking at the following Item 1 in (5), this then means that Group 1 answered manipulation A), Group 2 answered manipulation B), and Group 3 answered manipulation C):

(5) Item 1:

A) You are hanging out with a friend on a Friday in week 1. When you part, your friend says, “let’s get together next Thursday”. When are you supposed to meet again?

1. The Thursday in week 2
2. The Thursday in week 3

B) You are hanging out with a friend on a Monday, in week 1. When you part, your friend says, “let’s get together next Thursday”. When are you supposed to meet again?

1. The Thursday in week 1
2. The Thursday in week 2
3. The Thursday in week 3

C) You are hanging out with a friend on a Wednesday, in week 1. When you part, your friend says, “let’s get together next Thursday”. When are you supposed to meet again?

1. The Thursday in week 1
2. The Thursday in week 2
3. The Thursday in week 3

Each item is constructed in a way where manipulation A) has the longest temporal distance from a possible answer, manipulation B) has a medium temporal distance, and C) has the shortest temporal distance to a possible answer. This is seen in (5) above, where the temporal distance to the closest possible ‘next Thursday’ is six days in A), three days in B) and only one day in C). This is also the reason for the distribution of questions between the groups. To each question there were two or three alternatives from which to choose an answer, depending on what was reasonable in each scenario. The participants were also allowed to choose as many of the alternatives as they saw fit in the situation. The group division will not be relevant when presenting and discussing the results in later sections, as all groups of participants got a mix of manipulations of the items. Rather, it is the manipulations themselves (A, B and C) that are of

interest as they introduce the variety of temporal distance to the possible answers. All items and manipulations can be found in the appendix.

There are a few different kinds of temporal distances that are being examined in this experiment. Firstly, there is the temporal distance between the item and the different answer alternatives. Related to this, the items are divided into manipulations with different temporal distance to the possible answers, e.g. “next Wednesday” said on a: A) Thursday, B) Saturday or C) Tuesday. Secondly, the difference sizes of the temporal cycles result in varying concepts of remoteness. Days are parts of weeks and therefore in the foreseeable future or recent past time, while months are bigger units and parts of years and therefore more distant. Lastly, the mentioned temporal cycles have to be taken into account, as both the item and an answer alternative can belong to the same cycle.

Due to nine being more than seven, there is some repetition when it comes to the questions about the days of the week. Similarly, as 12 is more than seven, not all months are included in the questions about the months of the year. Here, instead, I have chosen months in the beginning, middle, and end of the calendar year.

In addition to the questions regarding *next* or *last* + days or months, I also included filler questions in the questionnaire. As these were not meant to be analyzed, only one version per item was created and all groups answered the same filler questions. The filler questions were formulated as to not give away the purpose of the investigation to the informants. To do this they also included temporal references, more specifically *this* + temporal noun, as seen here:

(6) Filler question 1:

Lisa is talking to her brother John on the phone, on Sunday in week 4, when he says, “This week is going to be stressful”. Which week is he talking about?

1. Week 4
2. Week 5

As informants for this essay I have decided to use Swedish A-level students of English. This decision was based on their having roughly the same level of knowledge of the English language and being easily accessible for this kind of experiment. Even though Swedish and English are similar languages in many regards and most Swedes learn English early in school, some things might differ and therefore I picked a group with an advanced knowledge of English,

hopefully resulting in a more representative outcome. In the questionnaire was also a question about native language/s, mainly to be able to notice if there were any participants with English as a native language. As the experiment is done on a small scale this would probably not have been more noticeable than other individual variations but could still be worth noting.

The questionnaires were handed out in physical form, and I was present while they were filled out to be able to answer any questions that might appear. In total, the questionnaires consisted of 54 questions, of which 36 are relevant for the analysis and 18 are filler questions. One of the relevant questions, question 6 (item 26) is excluded from the analysis due to a simple mix up of the days when constructing it, which means that it does not follow the same pattern as the others. This leaves 35 questions to be analyzed. Handing out the questionnaires resulted in 17 fully completed forms, and two semi-completed ones. I will from here on only analyze the fully completed forms. 35 items answered by 17 participants gives a total of 595 answers, resulting in each list of manipulations (A, B or C) getting approximately 198 answers. Since the participants were allowed to choose more than one alternative, these numbers might vary.

The 17 answered questionnaires consisted of six questionnaires each from two of the groups, and five from the third group. Out of the 17 participants, 12 people stated that Swedish is their native language, and three of them also had a second native language: Finnish, Italian or Somali. Of the remaining five informants, one person filled out Russian as their native language, while the rest left this question blank. This means that no conclusion can be drawn regarding if English native speakers would interpret the items differently, as this can still be a possibility in the remaining four participants.

While this study is based on results from only 17 participants from the same group (English students at Lund University), I do believe it can be seen as representative for how ambiguous complex time adverbials are interpreted by English speakers, as it is quite extensive in terms of examined items. In the following section, the results of the survey will be discussed. The question items will not be analyzed individually due to the large amount, but rather summarized with a few example items brought forward.

4 Results

In this section the results of the experiment will be presented. It will be divided into four subsections. In the first one, I will give an account of the manipulations belonging to version A of the items, i.e. manipulations with the *longest* temporal distance to the possible answers. In the second subsection, an account will be given of manipulations belonging to version B of the item, with a *medium* temporal distance to the answer alternatives, and in the third subsection I will do the same with the manipulations belonging to version C of the items, with the *shortest* temporal distance to the answer alternatives. Finally, in the fourth subsection, a comparison will be made between the participants answers in relation to the two deictic modifiers *next* and *last*.

As mentioned above in the method-section, each question included two or three alternative answers. As two groups consisted of six people, and the third group consisted of five people, each list of manipulations, A, B or C, should get around 198 answers ($35/3*5 + 2*(35/3*6)$). Since the participants were allowed to choose more than one alternative, these numbers might vary. Out of the 105 manipulations, 31 of them resulted in unanimous agreement amongst the five or six participants that answered them, as all of them chose the same alternative. The majority, 19, of these were manipulations of kind C, with the shortest distance to a possible answer. The answers to the remaining 74 manipulations varied. All items and manipulations can be found in the appendix.

4.1 Version A of the manipulations

Version A of the manipulations are formulated as to give a maximum distance between the imagined coding time and the possible answer alternatives. The first answer alternative to each question is then either 6 days away, or 11 months away. An example of such a manipulation is shown here:

(7) Item 8, manipulation A:

Caroline is chatting with a friend on a Saturday in week 49. She asks him, “Do you want to go see the new Marvel movie next Friday?” When is she suggesting that they go see the movie?

1. The Friday in week 50
2. The Friday in week 51

Figure 1 below show the distribution of answers given by the participants to the manipulations belonging to version A:

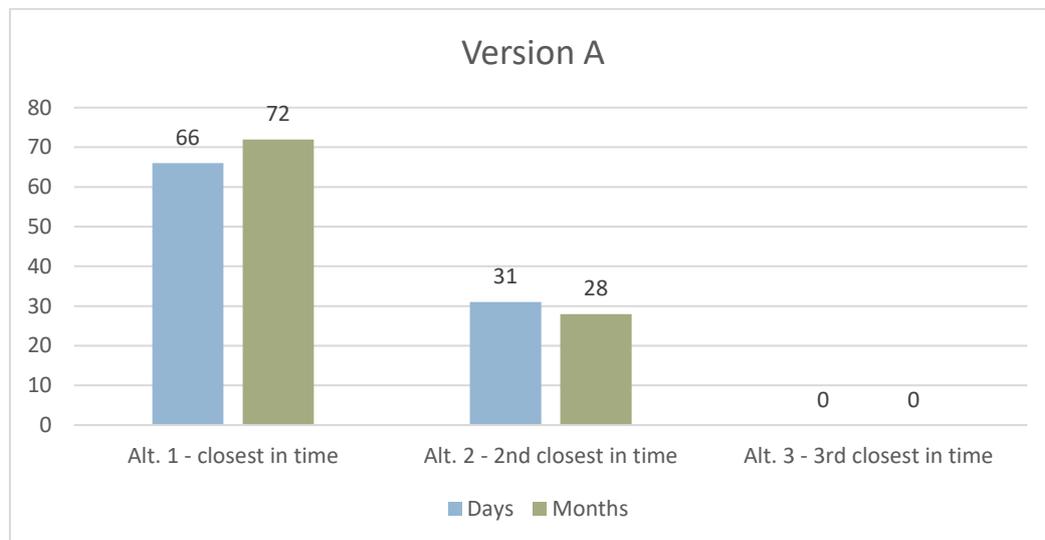


Figure 1: *The participant's answers to version A of the manipulations*

In the figure above, we can see that it is the answer that is closest in time to that of coding time that is most popular among the participants in the study. This both when it comes to days and months in combination with the deictic modifiers next and last. Alternative 2, representing alternatives with a temporal distance of 13 days or 23 months, was chosen a total of 59 times. Alternative 3, with a temporal distance of 20 days or 35 months, was only included in four questions (see items 1, 7, 9 and 19) and got no votes from the participants. Of the 35 manipulations belonging to this section, five of them included answer alternatives within the same temporal cycle as coding time, i.e. in the same week or year as the utterance itself. These manipulations got six votes in total. In the A-manipulations, there were three instances of participants choosing more than one answer alternative.

4.2 Version B of the manipulations

Version B of the manipulations are formulated as to give a medium distance between the imagined coding time and the possible answer alternatives, which means that the first answer alternative is either 3-4 days away, or 5-7 months away. An example can be seen below in (8):

(8) Item 13, manipulation B

Erik and his sons are having lunch in May 2001. The oldest son tells him, “By next November I will have enough money for an apartment of my own”. When will he have saved enough money?

1. November 2001
2. November 2002
3. November 2003

Counting the votes from the participants who answered the B-manipulations, the result is as shown in figure 2:



Figure 2: *The participant's answers to version B of the manipulations*

In this figure we see that the participants strongly favored alternative 2 in the manipulations about days of the week, where the distance then is between 10-11 days. Regarding the months on the other hand, the figure above shows that there was a close call between alternative 1 and 2, where the distance between the imagined coding that and the possible answer alternatives is 5-7 months or 17-19 months. The B-manipulations had a third answer alternative in all but ten questions, but these only got four votes in total. 20 of the 35 manipulations in this section had answer alternatives within the same temporal cycle as the utterance. These got a total of 21 votes from the participants. This part of the questionnaire resulted in ten instances of participants choosing more than one answer alternative.

4.3 Version C of the manipulations

The manipulations in this subsection are of version C, i.e. with the shortest possible distance between the imagined coding time and the answer alternatives. The distance between the utterance and the first answer alternative is then one day, or one month. A manipulation of this kind looks like the example below:

(9) Item 28, manipulation C

In January 2011, Bill and Martin are arguing about when they bought a painting that hangs in their living room. Bills says, “I got it for you last Christmas, don’t you remember?” When did Bill, allegedly, buy the painting?

1. December 2010
2. December 2009
3. December 2008

To these manipulations, the participants voted as shown below in figure 3:

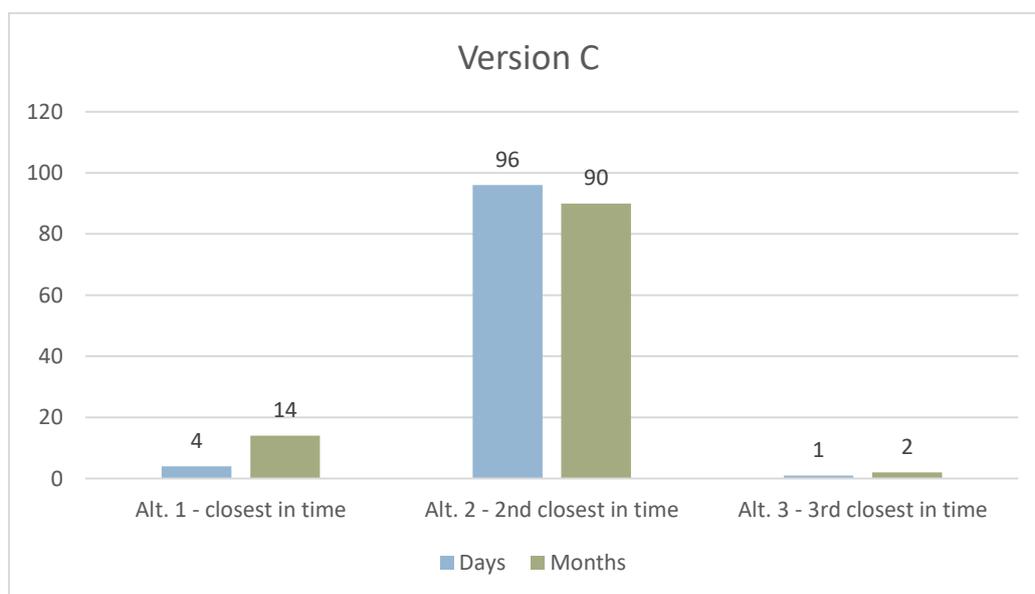


Figure 3: *The participant’s answers to version C of the manipulations*

Figure 3 shows that the participants strongly agree with each other that alternative 2 is most fitting in the majority of the situations presented in the manipulations. Alternative 2 here has a temporal distance to the coding time of either 8 days or 13 months. Alternative 1 got 18 votes in total, 14 of them belonging to the manipulations regarding months in combination with the deictic modifiers *next* or *last*. Almost all C-manipulations included a third alternative, which was chosen three times.

As many as 32 of the 35 manipulations belonging to version C included answer alternatives within the same temporal cycle as the imagined moment of utterance. These alternatives were chosen 13 times by the participants. The C-manipulations resulted in five instances of participants choosing more than one answer alternative.

4.4 *Next versus Last*

In this fourth subsection, the results will be presented in relation to whether they were constructed with the deictic modifier *next*, or the deictic modifier *last*.

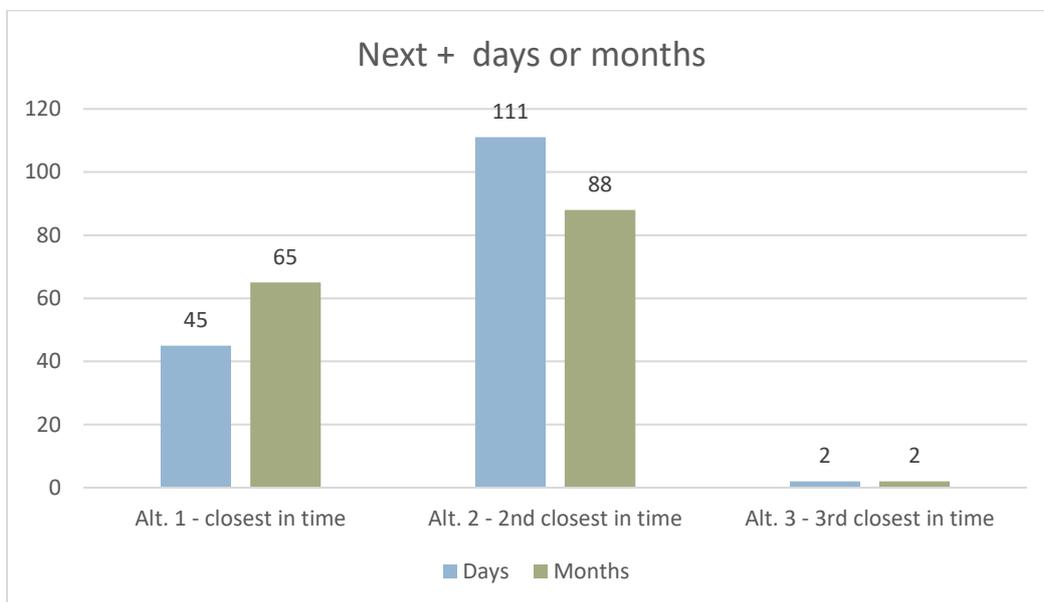


Figure 4: *The participant's answer to expressions combining next with days or months*

In the figure above, one can see that the most popular answer alternative when it comes to the items containing deictic modifier *next* in combination with named days or months, is alternative 2. This figure includes the answers from all such manipulations, belonging to versions A, B and C. The manipulations including months result in more variation as the difference between alternative 1 and 2 is only 23 votes, in comparison with the manipulations including days where the difference is 66 votes.

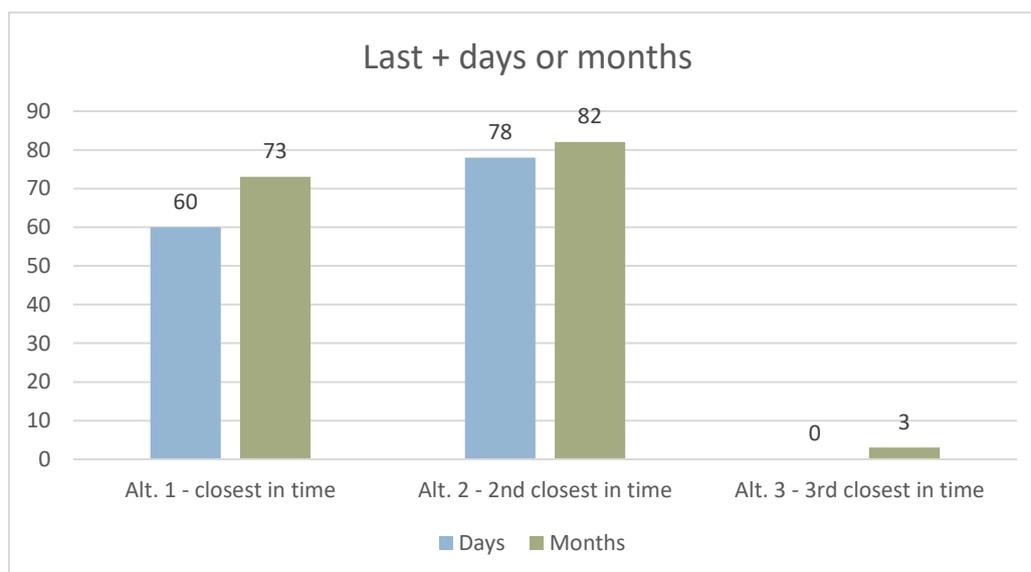


Figure 5: *The participant's answer to expressions combining last with days or months*

In figure 5, the difference between the stacks is not as noticeable as in figure 4. Here, the difference between alternative 1 and 2 is 18 when it comes to manipulations of days, and 9 regarding manipulations including months. Both favor alternative 2.

5 Discussion

Looking at the diagrams in section 4 above shows some clear tendencies when it comes to the interpretations of the deictic time expressions presented in this essay. While “next” and “last” are highly ambiguous in some instances when combined with named days and months, in others they are not. This difference seem to depend greatly on the temporal distance between the utterance and the alternative answers. Comparing the figures in the section above, we can see that the B-manipulations causes the most variety in answers from the participants of the study. The manipulations belonging to version A result in most votes on alternative 1, the alternative closest in time to the coding time presented in the item. Since the overwhelming majority of these manipulations do not include alternatives in the same temporal cycle as coding time, this agrees with Levinson’s theory that is presented in the background. He says that ambiguity arises if there is a possibility of “Next X” to be within the same temporal cycle as coding time (and if not pre-empted by time adverbials). However, there are a total of 59 votes for alternative 2, showing that these items can still be considered ambiguous.

Moving on the version B of the manipulations, these are as mentioned interpreted as most equivocal given the answers by the participants. A medium distance between coding time and answer alternatives result in many of the manipulations having alternatives within the same temporal cycle. This, according to Levinson, should introduce ambiguity, and indeed seems to have done so here. While the manipulations including days result in a 30-vote majority for alternative 2, the manipulations including months only result in a one-vote difference between the two first alternatives (as seen in figure 2). Since months are bigger temporal units than days and therefore being in a more remote future or past time, this might be the reason for this outcome.

Manipulations belonging to version C of the items result in the least ambiguity compared to version A and B. Once again returning to the theory presented by Levinson, this can be explained by the short distance between imagined coding time and the first possible answer alternative. Since the distance here is merely one day or one month, these should be pre-empted by “tomorrow”, “yesterday”, “next month” or “last month”, and indeed the participants seem to agree with this. What can be noted is that alternative 1 in the manipulations including months have gotten more votes than those including days, perhaps because of the fact that no predetermined names exist for “next month” or “last month” corresponding to “tomorrow” or “yesterday”.

When it comes to the participant’s possibility to choose more than one answer alternative to the questions, this further establish the result presented above. While the A-manipulations result in three instances of multi-choice, and the C-manipulations result in five instances, the B-manipulations give a total of ten instances where participants have chosen more than one answer alternative. This shows once again that the medium distance results in the most ambiguity, not only when analyzed independently but also when interpreted by the participating informants.

When it comes to the comparison between next and last that is presented in section 4.4, we can see that the participants consider the manipulations consisting of modifier *last* in combination of days or months to be more ambiguous than those including modifier *next*. In figures 4 and 5, we can also see that manipulations of *months* can be interpreted as more ambiguous than those of *days*.

The usage of the complex temporal deictic expressions that are examined in this essay are clearly going against the Gricean maxims that are presented in the introduction. To repeat, only 31 of the 105 manipulations resulted in unanimous agreement among the participants that

answered them, leaving 74 manipulations that can be seen as ambiguous. Of the 31 unanimous manipulations, 19 were of version C and the preferred answer alternative was alternative 2, which generally represents the week/month directly after or before the week/month that includes coding time. Using the deictic modifiers *next* and *last* in scenarios as those represented in the questionnaire used for this experiment should, like deictic expressions in general, honor the maxim of quantity but result in the exact opposite as not enough information is communicated. Furthermore, these expressions also violate the maxim of manner as they are equivocal.

What is shown in the result of this experiment might have something to do with what is mentioned in the background section of earlier research. There, Tillman et. al concludes that children have a harder time understanding remoteness, or temporal distance, than learning simple time deictic expressions. Although merely speculating, this might be the truth even for adults. What seems to be the problem, or rather, what people seem to disagree about are the instances where they themselves are allowed to decide the temporal distance, as is the case when encountering expressions like “Next Friday” or “Last June”. Perhaps it is the absence of rules that result in confusion and ambiguousness.

6 Conclusion

In this essay I have tried to find the general tendencies of interpretation when it comes to possibly ambiguous temporal deictic expressions consisting of modifiers *next* and *last* in combination with named *days* and *months*. Returning to the research questions of this essay, the conclusion is that the temporal deictic modifiers examined in this essay can be seen as equivocal in a great number of situations. The results presented in the diagrams in section 4 do not differ immensely, showing that version B of the manipulations, with a medium distance to a first possible answer (3-4 days, 5-7 months), result in the most variation in the answers. Version C of the manipulations result in the least ambiguity among the participants. Figures 4 and 5 also show that larger units of time, in this case *months*, result in slightly more ambiguity than smaller ones. Perhaps it is the comparison with *days* in this essay that generates this result, as the remoteness of the two temporal expressions are directly comparable.

What can also be concluded from this experiment is that the readings agree to some extent with Levinson's theory that is presented in the background section, where he has clear distinctions between which expressions that could be ambiguous, and which could not. What this experiment has shown is that the majority of the items investigated can be seen as ambiguous, even in some cases when they according to Levinson should be definite. However, much agreeance to the theory can be found when observing the C-manipulations, where the temporal distance between item and answer alternative is only one day or one month. According to Levinson, the deictic "tomorrow" should pre-empt propositional terms, and I have widened this to include "yesterday" as well as "next month" and "last month". Here his theory stands, as a clear minority of the participants saw these particular alternatives fitting. What could be worth noting here, and is also mentioned in the discussion, that "last month" and "next month" do not pre-empt the propositionally termed months as efficiently as the deictic "tomorrow" and "yesterday" do, which may be the reason for these alternatives to have a few more votes. Additionally, the participants do not care for alternatives that are too remote, as can be seen in figures 1, 2 and 3 where alternative 3 only has seven votes in total.

As this study is fairly short, and I have only scratched the surface of the importance temporal distance or remoteness have in expressions like these, further research in this field would be of great interest. There are of course many more temporal cycles and/or units that can be part of this kind of experiment to discover some general tendencies about deixis-usage and interpretation.

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Appendix

NEXT

Days

Item 1

A) You are hanging out with a friend on a Friday, in week 1. When you part, your friend says, “let’s get together next Thursday”. When are you supposed to meet again?

3. The Thursday in week 2
4. The Thursday in week 3

B) You are hanging out with a friend on a Monday, in week 1. When you part, your friend says, “let’s get together next Thursday”. When are you supposed to meet again?

4. The Thursday in week 1
5. The Thursday in week 2
6. The Thursday in week 3

C) You are hanging out with a friend on a Wednesday, in week 1. When you part, your friend says, “let’s get together next Thursday”. When are you supposed to meet again?

4. The Thursday in week 1
5. The Thursday in week 2
6. The Thursday in week 3

Item 2

A) It is in the beginning of summer, on a Sunday in week 24. You’re talking to a friend on the phone and ask if she has any plans for the summer holiday. She says, “Oh, yeah! Next Saturday I’m going to a concert, and in July I’m traveling with my family”.
When is she going to a concert?

1. The Saturday in week 25
2. The Saturday in week 26

B) It is in the beginning of summer, on a Tuesday in week 24. You’re talking to a friend on the phone and ask if she has any plans for the summer holiday. She says, “Oh, yeah! Next Saturday I’m going to a concert, and in July I’m traveling with my family”.
When is she going to a concert?

1. The Saturday in week 24
2. The Saturday in week 25
3. The Saturday in week 26

C) It is in the beginning of summer, on a Friday in week 24. You’re talking to a friend on the phone and ask if she has any plans for the summer holiday. She says, “Oh, yeah! Next Saturday I’m going to a concert, and in July I’m traveling with my family”.
When is she going to a concert?

1. The Saturday in week 24

2. The Saturday in week 25
3. The Saturday in week 26

Item 3

A) Linda and Julia are planning a trip to visit Linda's parents in the countryside. Linda sends Julia a text on Thursday in week 15 that says, "Dad just called, and he agreed that next Wednesday would be perfect". When are they visiting Linda's parents?

1. The Wednesday in week 16
2. The Wednesday in week 17

B) Linda and Julia are planning a trip to visit Linda's parents in the countryside. Linda sends Julia a text on Sunday in week 14 that says, "Dad just called, and he agreed that next Wednesday would be perfect". When are they visiting Linda's parents?

1. The Wednesday in week 15
2. The Wednesday in week 16
3. The Wednesday in week 17

C) Linda and Julia are planning a trip to visit Linda's parents in the countryside. Linda sends Julia a text on Tuesday in week 15 that says, "Dad just called, and he agreed that next Wednesday would be perfect". When are they visiting Linda's parents?

1. The Wednesday in week 15
2. The Wednesday in week 16
3. The Wednesday in week 17

Item 4

A) Maria is talking to her boss at work on a Friday in week 40. She says, "next Thursday I will have to leave work early to go pick up my sister from the airport". When is she leaving work early?

1. The Thursday in week 41
2. The Thursday in week 42

B) Maria is talking to her boss at work on a Monday in week 40 She says, "next Thursday I will have to leave work early to go pick up my sister from the airport". When is she leaving work early?

1. The Thursday in week 40
2. The Thursday in week 41
3. The Thursday in week 42

C) Maria is talking to her boss at work on a Wednesday in week 40. She says, "next Thursday I will have to leave work early to go pick up my sister from the airport". When is she leaving work early?

1. The Thursday in week 40
2. The Thursday in week 41
3. The Thursday in week 42

Item 5

A) You are in a lecture on a Wednesday in week 17. The professor hands out a group assignment and says that you should have decided the group by next Tuesday. When should you have decided the groups?

1. The Tuesday in week 18
2. The Tuesday in week 19

B) You are in a lecture on a Friday in week 17. The professor hands out a group assignment and says that you should have decided the group by next Tuesday. When should you have decided the groups?

1. The Tuesday in week 18
2. The Tuesday in week 19
3. The Tuesday in week 20

C) You are in a lecture on a Monday in week 17. The professor hands out a group assignment and says that you should have decided who to work with by next Tuesday. When should you have decided the groups?

1. The Tuesday in week 17
2. The Tuesday in week 18
3. The Tuesday in week 19

Item 6

A) An owner of a shop hangs out a sign on a Tuesday, in week 31, that says, "Closed due to family matters. Will open again next Monday". When will the shop open again?

1. The Monday in week 32
2. The Monday in week 33

B) An owner of a shop hangs out a sign on a Thursday, in week 31, that says, "Closed due to family matters. Will open again next Monday". When will the shop open again?

1. The Monday in week 32
2. The Monday in week 33
3. The Monday in week 34

C) An owner of a shop hangs out a sign on a Sunday, in week 31, that says, "Closed due to family matters. Will open again next Monday". When will the shop open again?

1. The Monday in week 32
2. The Monday in week 33
3. The Monday in week 34

Item 7

A) Bob is borrowing a lawn mower from his neighbor on a Monday in week 23. The neighbor tells him, "please return it by next Sunday". When should Bob return the lawn mower?

1. The Sunday in week 23
2. The Sunday in week 24
3. The Sunday in week 25

B) Bob is borrowing a lawn mower from his neighbor on a Wednesday in week 23. The neighbor tells him, “please return it by next Sunday”. When should Bob return the lawn mower?

1. The Sunday in week 23
2. The Sunday in week 24
3. The Sunday in week 25

C) Bob is borrowing a lawn mower from his neighbor on a Saturday in week 23. The neighbor tells him, “please return it by next Sunday”. When should Bob return the lawn mower?

1. The Sunday in week 23
2. The Sunday in week 24
3. The Sunday in week 25

Item 8

A) Caroline is chatting with a friend on a Saturday in week 49. She asks him, “Do you want to go see the new Marvel movie next Friday?” When is she suggesting that they go see the movie?

3. The Friday in week 50
4. The Friday in week 51

B) Caroline is chatting with a friend on a Tuesday in week 49. She asks him, “Do you want to go see the new Marvel movie next Friday?” When is she suggesting that they go see the movie?

1. The Friday in week 49
2. The Friday in week 50
3. The Friday in week 51

C) Caroline is chatting with a friend on a Thursday in week 49. She asks him, “Do you want to go see the new Marvel movie next Friday?” When is she suggesting that they go see the movie?

1. The Friday in week 49
2. The Friday in week 50
3. The Friday in week 51

Item 9

A) John calls his mother on a Monday in week 28 to ask her when she wants to come over for dinner. She tells him, “Oh I would love to, next Sunday would work for me!” When is she coming over for dinner?

1. The Sunday in week 28
2. The Sunday in week 29
3. The Sunday in week 30

B) John calls up his mother on the phone on a Thursday in week 28, to ask her when she wants to come over for dinner. She tells him, “Oh I would love to, next Sunday would work for me!” When is she coming over for dinner?

1. The Sunday in week 28
2. The Sunday in week 29
3. The Sunday in week 30

C) John calls up his mother on the phone on a Saturday in week 28, to ask her when she wants to come over for dinner. She tells him, “Oh I would love to, next Sunday would work for me!” When is she coming over for dinner?

1. The Sunday in week 28
2. The Sunday in week 29
3. The Sunday in week 30

Months

Item 10

A) You are visiting your aunt in August in 2018. She tells you, “I’m going to Madeira next July”. When is she going to Madeira?

1. July 2019
2. July 2020

B) You are visiting your aunt during Christmas in 2018. She tells you, “I’m going to Madeira next July”. When is she going to Madeira?

2. July 2019
3. July 2020

C) You are visiting your aunt in June in 2018. She tells you, “I’m going to Madeira next July”. When is she going to Madeira?

1. July 2018
2. July 2019
3. July 2020

Item 11

A) In February 2004, Martha’s mother is telling Martha about her retirement plans. She says, “Next January, I’ll be on a beach in Spain”. When will Martha’s mom go to Spain?

1. January 2005
2. January 2006

B) In September 2004, Martha’s mother is telling Martha about her retirement plans. She says, “Next January, I’ll be on a beach in Spain”. When will Martha’s mom go to Spain?

1. January 2005
2. January 2006

C) In December 2003, Martha’s mother is telling Martha about her retirement plans. She says, “Next January, I’ll be on a beach in Spain”. When will Martha’s mom go to Spain?

1. January 2004
2. January 2005
3. January 2006

Item 12

A) You see a post on a bulletin board that says, “The students of Lund University are calling on the University to reduce its emission to help stop the climate change. By next February, we hope that the University will have cut its emission by 15 %.”. This was posted in March 2019, when should Lund’s University have reached this goal?

1. February 2020
2. February 2021

B) You see a post on a bulletin board that says, “The students of Lund University are calling on the University to reduce its emission to help stop the climate change. By next February, we hope that the University will have cut its emission by 15 %.”. This was posted in July 2019, when should Lund’s University have reached this goal?

1. February 2020
2. February 2021

C) You see a post on a bulletin board that says, “The students of Lund University are calling on the University to reduce its emission to help stop the climate change. By next February, we hope that the University will have cut its emission by 15 %.”. This was posted in January 2019, when should Lund’s University have reached this goal?

1. February 2019
2. February 2020
3. February 2021

Item 13

A) Erik and his sons are having lunch in December 2001. The oldest son tells him, “By next November I will have enough money for an apartment of my own”. When will he have saved enough money?

1. November 2002
2. November 2003

B) Erik and his sons are having lunch in May 2001. The oldest son tells him, “By next November I will have enough money for an apartment of my own”. When will he have saved enough money?

4. November 2001
5. November 2002
6. November 2003

C) Erik and his sons are having lunch in October 2001. The oldest son tells him, “By next November I will have enough money for an apartment of my own”. When will he have saved enough money for an apartment?

1. November 2001

2. November 2002
3. November 2003

Item 14

A) The usher puts up a sign on the front door of the City Theatre, in September 1995, that says, “Closed due to renovations. Will open again next August”. When will the theatre open again?

1. August 1996
2. August 1997

B) The usher puts up a sign on the front door of the City Theatre, in February 1995, that says, “Closed due to renovations. Will open again next August”. When will the theatre open again?

1. August 1995
2. August 1996
3. August 1997

C) The usher puts up a sign on the front door of the City Theatre, in July 1995, that says, “Closed due to renovations. Will open again next August”. When will the theatre open again?

1. August 1995
2. August 1996
3. August 1997

Item 15

A) Jules and Carl are planning to go backpacking in South America. They talk about it in January 2009, and Carl says, “I think we should book a flight next December, I’ll be able to get some extra days off work then”. When does Carl think that they should go on the trip?

1. December 2009
2. December 2010

B) Jules and Carl are planning to go backpacking in South America. They talk about it in June 2009, and Carl says, “I think we should book a flight next December, I’ll be able to get some extra days off work then”. When does Carl think that they should go on the trip?

1. December 2009
2. December 2010

C) Jules and Carl are planning to go backpacking in South America. They talk about it in November 2009, and Carl says, “I think we should book a flight next December, I’ll be able to get some extra days off work then”. When does Carl think that they should go on the trip?

1. December 2009
2. December 2010

Item 16

A) Karen and Elisabeth are having lunch and talking about Karen’s new beach house, in June 2013. Karen says, “It’s a bit run down, and we are renovating almost all of the rooms. But it seems like it will be done by next May”. When will the beach house be done?

1. May 2014
2. May 2015

B) Karen and Elisabeth are having lunch and talking about Karen's new beach house, in January 2013. Karen says, "It's a bit run down, and we are renovating almost all of the rooms. But it seems like it will be done by next May". When will the beach house be done?

1. May 2013
2. May 2014
3. May 2015

C) Karen and Elisabeth are having lunch and talking about Karen's new beach house, in April 2013. Karen says, "It's a bit run down, and we are renovating almost all of the rooms. But it seems like it will be done by next May". When will the beach house be done?

1. May 2013
2. May 2014
3. May 2015

Item 17

A) A bartender at the local pub is talking to a couple of customers in November 1998, and says, "Enjoy it while you can. Next October this place will turn into a barber shop". When will the pub close?

1. October 1999
2. October 2000

B) A bartender at the local pub is talking to a couple of customers in May 1998, and says, "Enjoy it while you can. Next October this place will turn into a barber shop". When will the pub close?

1. October 1998
2. October 1999
3. October 2000

C) A bartender at the local pub is talking to a couple of customers in September 1998, and says, "Enjoy it while you can. Next October this place will turn into a barber shop". When will the pub close?

1. October 1998
2. October 1999
3. October 2000

Item 18

A) In April 2007, Emma is complaining to her dad about being too young to drive a car. He tries to comfort her, saying "Time flies, next March you will have your driver's license!". When will Emma be able to get her driver's license?

1. March 2008
2. March 2009

B) In September 2006, Emma is complaining to her dad about being too young to drive a car. He tries to comfort her, saying “Time flies, next March you will have your driver’s license!”. When will Emma be able to get her driver’s license?

1. March 2007
2. March 2008
3. March 2009

C) In February 2007, Emma is complaining to her dad about being too young to drive a car. He tries to comfort her, saying “Time flies, next March you will have your driver’s license!”. When will Emma be able to get her driver’s license?

1. March 2007
2. March 2008
3. March 2009

LAST

Days

Item 19

A) Nathalie arrives at her brother’s apartment on a Sunday in week 3 only to discover that he is not at home. She calls him up, and he says, “I’m at a football game. I told you about it last Monday, remember?” When did he tell Nathalie about the football game?

1. The Monday in week 3
2. The Monday in week 2
3. The Monday in week 1

B) Nathalie arrives at her brother’s apartment on a Thursday in week 3 only to discover that he is not at home. She calls him up, and he says, “I’m at a football game, I told you about it last Monday, remember?” When did he tell Nathalie about the football game?

1. The Monday in week 3
2. The Monday in week 2
3. The Monday in week 1

C) Nathalie arrives at her brother’s apartment on a Tuesday in week 3 only to discover that he is not at home. She calls him up, and he says, “I’m at a football game, I told you about it last Monday, remember?” When did he tell Nathalie about the football game?

1. The Monday in week 3
2. The Monday in week 2
3. The Monday in week 1

Item 20

A) Sarah is on the beach on a Monday in week 30 when her mother calls to invite her over. Sarah answers, “I am sorry, but I can’t come. I promised Nathan last Tuesday that I would babysit tonight”. When did Sarah tell Nathan that she could babysit?

1. The Tuesday in week 29
2. The Tuesday in week 28

B) Sarah is on the beach on a Friday in week 30 when her mother calls to invite her over. Sarah answers, “I am sorry, but I can’t come. I promised Nathan last Tuesday that I would babysit tonight”. When did Sarah tell Nathan that she could babysit?

1. The Tuesday in week 30
2. The Tuesday in week 29
3. The Tuesday in week 28

C) Sarah is on the beach on a Wednesday in week 30 when her mother calls to invite her over. Sarah answers, “I am sorry, but I can’t come. I promised Nathan last Tuesday that I would babysit tonight”. When did Sarah tell Nathan that she could babysit?

1. The Tuesday in week 30
2. The Tuesday in week 29
3. The Tuesday in week 28

Item 21

A) Anna’s sister calls her up on a Tuesday in week 22 to ask if Anna has seen her favorite shirt. Anna says, “Yes, I’m wearing it. You told me last Wednesday that I could borrow it for my meeting today”. When did Anna’s sister tell Anna that she could borrow the shirt?

1. The Wednesday in week 21
2. The Wednesday in week 20

B) Anna’s sister calls her up on a Saturday in week 22 to ask if Anna has seen her favorite shirt. Anna says, “Yes, I’m wearing it. You told me last Wednesday that I could borrow it for my meeting today”. When did Anna’s sister tell Anna that she could borrow the shirt?

1. The Wednesday in week 21
2. The Wednesday in week 20

C) Anna’s sister calls her up on a Thursday in week 22 to ask if Anna has seen her favorite shirt. Anna says, “Yes, I’m wearing it. You told me last Wednesday that I could borrow it for my meeting today”. When did Anna’s sister tell Anna that she could borrow the shirt?

1. The Wednesday in week 22
2. The Wednesday in week 21
3. The Wednesday in week 20

Item 22

A) Jonathan has been selling some furniture online. On a Wednesday, in week 11, he gets a text that says, “Is the couch that you posted last Thursday still for sale?”. When did he post the ad for the couch?

1. The Thursday in week 10
2. The Thursday in week 9

B) Jonathan has been selling some furniture online. On a Monday, in week 11, he gets a text that says, “Is the couch that you posted last Thursday still for sale?”. When did he post the ad for the couch?

1. The Thursday in week 10
2. The Thursday in week 9

C) Jonathan has been selling some furniture online. On a Friday, in week 11, he gets a text that says, “Is the couch that you posted last Thursday still for sale?”. When did he post the ad for the couch?

1. The Thursday in week 11
2. The Thursday in week 10
3. The Thursday in week 9

Item 23

A) Catherine is hanging out with a friend on a Thursday in week 44. She reaches for her phone and says, “I just realized that I forgot about my uncle’s birthday last Friday, I have to give him a call”. When was Catherine’s uncle’s birthday?

1. The Friday in week 43
2. The Friday in week 42

B) Catherine is hanging out with a friend on a Tuesday in week 44. She reaches for her phone and says, “I just realized that I forgot about my uncle’s birthday last Friday, I have to give him a call”. When was Catherine’s uncle’s birthday?

1. The Friday in week 43
2. The Friday in week 42

C) Catherine is hanging out with a friend on a Saturday in week 44. She reaches for her phone and says, “I just realized that I forgot about my uncle’s birthday last Friday, I have to give him a call”. When was her uncle’s birthday?

1. The Friday in week 44
2. The Friday in week 43
3. The Friday in week 42

Item 24

A) Two classmates, Jonas and Annie, bump into each other in the library on a Monday in week 38. Jonas asks Annie how she’s doing on the literature task, to which she replies, “That task was due last Tuesday, did you not hand it in?”. When was the literature task due?

1. The Tuesday in week 37
2. The Tuesday in week 36

B) Two classmates, Jonas and Annie, bump into each other in the library on a Thursday in week 38. Jonas asks Annie how she’s doing on the literature task, to which she replies, “That task was due last Tuesday, did you not hand it in?”. When was the literature task due?

1. The Tuesday in week 38
2. The Tuesday in week 37

3. The Tuesday in week 36

C) Two classmates, Jonas and Annie, bump into each other in the library on a Wednesday in week 38. Jonas asks Annie how she's doing on the literature task, to which she replies, "That task was due last Tuesday, did you not hand it in?". When was the literature task due?

1. The Tuesday in week 38
2. The Tuesday in week 37
3. The Tuesday in week 36

Item 25

A) A man asks his wife what they should have for dinner, on a Friday in week 50. She tells him, "Can't you make that curry you did last Saturday, it was amazing?". When did he make the curry?

1. The Saturday in week 49
2. The Saturday in week 48

B) A man asks his wife what they should have for dinner, on a Tuesday in week 50. She tells him, "Can't you make that curry you did last Saturday, it was amazing?". When did he make the curry?

1. The Saturday in week 49
2. The Saturday in week 48

C) A man asks his wife what they should have for dinner, on a Sunday in week 50. She tells him, "Can't you make that curry you did last Saturday, it was amazing?". When did he make the curry?

1. The Saturday in week 50
2. The Saturday in week 49
3. The Saturday in week 48

Item 26 (Excluded from the results)

A) Ruth calls up a restaurant on a Sunday in week 17, and asks, "I visited you last Saturday and think that I forgot my scarf there, has it been found?". When did Ruth visit the restaurant?

1. The Sunday in week 16
2. The Sunday in week 15

B) Ruth calls up a restaurant on a Wednesday in week 17, and asks, "I visited you last Saturday and think that I forgot my scarf there, has it been found?". When did Ruth visit the restaurant?

1. The Sunday in week 16
2. The Sunday in week 15

C) Ruth calls up a restaurant on a Monday in week 17, and asks, "I visited you last Saturday and think that I forgot my scarf there, has it been found?". When did Ruth visit the restaurant?

1. The Sunday in week 16
2. The Sunday in week 15

3. The Sunday in week 14

Item 27

A) You are talking to a friend about his apartment, on a Tuesday in week 30. He says, “The landlord came by last Wednesday to check out the leak in the kitchen, but he hasn’t been back since to fix it”. When was the landlord in the apartment?

1. The Wednesday in week 29
2. The Wednesday in week 28

B) You are talking to a friend about his apartment, on a Sunday in week 30. He says, “The landlord came by last Wednesday to check out the leak in the kitchen, but he hasn’t been back since to fix it”. When was the landlord in the apartment?

1. The Wednesday in week 30
2. The Wednesday in week 29
3. The Wednesday in week 28

C) You are talking to a friend about his apartment, on a Thursday in week 30. He says, “The landlord came by last Wednesday to check out the leak in the kitchen, but he hasn’t been back since to fix it”. When was the landlord in the apartment?

1. The Wednesday in week 30
2. The Wednesday in week 29
3. The Wednesday in week 28

Months**Item 28**

A) In November 2011, Bill and Martin are arguing about when they bought a painting that hangs in their living room. Bills says, “I got it for you last Christmas, don’t you remember?” When did Bill, allegedly, buy the painting?

1. December 2010
2. December 2009

B) In June 2011, Bill and Martin are arguing about when they bought a painting that hangs in their living room. Bills says, “I got it for you last Christmas, don’t you remember?” When did Bill, allegedly, buy the painting?

1. December 2010
2. December 2009

C) In January 2011, Bill and Martin are arguing about when they bought a painting that hangs in their living room. Bills says, “I got it for you last Christmas, don’t you remember?” When did Bill, allegedly, buy the painting?

4. December 2010
5. December 2009
6. December 2008

Item 29

A) You are visiting a friend in their house in September 2000. When you tell them that it is a lovely house, they answer, “Thank you, we moved in here last October and we really love it!”. When did they move in to the house?

1. October 1999
2. October 1998

B) You are visiting a friend in their house in February 2000. When you tell them that it is a lovely house, they answer, “Thank you, we moved in here last October and we really love it!”. When did they move in to the house?

1. October 1999
2. October 1998

C) You are visiting a friend in their house in November 2000. When you tell them that it is a lovely house, they answer, “Thank you, we moved in here last October and we really love it!”. When did they move in to the house?

1. October 2000
2. October 1999
3. October 1998

Item 30

A) Robert is meeting his cousin’s boyfriend for the first time, in October 1992. He asks his cousin, Rebecca, how long they have been dating. She answers, “I first met him last November”. When did Rebecca and her boyfriend start dating?

1. November 1991
2. November 1990

B) Robert is meeting his cousin’s boyfriend for the first time, in May 1992. He asks his cousin, Rebecca, how long they have been dating. She answers, “I first met him last November”. When did Rebecca and her boyfriend start dating?

1. November 1991
2. November 1990

C) Robert is meeting his cousin’s boyfriend for the first time, in December 1992. He asks his cousin, Rebecca, how long they have been dating. She answers, “I first met him last November”. When did Rebecca and her boyfriend start dating?

1. November 1992
2. November 1991
3. November 1990

Item 31

A) In June 2017, Christian is throwing a surprise birthday party for his best friend Adam. The party is a success, and Adam calls Christian the next day to thank him. Christian answers, “I started planning it last July, I thought that you deserved a big celebration”. When did Christian start planning the party?

1. July 2016
2. July 2015

B) In January 2017, Christian is throwing a surprise birthday party for his best friend Adam. The party is a success, and Adam calls Christian the next day to thank him. Christian answers, "I started planning it last July, I thought that you deserved a big celebration". When did Christian start planning the party?

1. July 2016
2. July 2015

C) In August 2017, Christian is throwing a surprise birthday party for his best friend Adam. The party is a success, and Adam calls Christian the next day to thank him. Christian answers, "I started planning it last July, I thought that you deserved a big celebration". When did Christian start planning the party?

1. July 2017
2. July 2016
3. July 2015

Item 32

A) Stella is walking down the street, in May 2011, when someone calls her name. She turns around and sees an old friend, who says, "I haven't seen you in ages, not since that dinner last June". When did they last see each other?

1. June 2010
2. June 2009

B) Stella is walking down the street, in December 2011, when someone calls her name. She turns around and sees an old friend, who says, "I haven't seen you in ages, not since that dinner last June". When did they last see each other?

1. June 2011
2. June 2010
3. June 2009

C) Stella is walking down the street, in July 2011, when someone calls her name. She turns around and sees an old friend, who says, "I haven't seen you in ages, not since that dinner last June". When did they last see each other?

1. June 2011
2. June 2010
3. June 2009

Item 33

A) Alan is visiting a friend in April 2006, admiring their garden. He asks his friend about a small tree that stands in a corner of the garden, and the friend answers, "Yeah, that's our apple tree. We just planted it last May, so we don't expect it to bear fruit yet". When did the friend plant the tree?

1. May 2005

2. May 2004

B) Alan is visiting a friend in October 2006, admiring their garden. He asks his friend about a small tree that stands in a corner of the garden, and the friend answers, “Yeah, that’s our apple tree. We just planted it last May, so we don’t expect it to bear fruit yet”. When did the friend plant the tree?

1. May 2006
2. May 2005
3. May 2004

C) Alan is visiting a friend in June 2006, admiring their garden. He asks his friend about a small tree that stands in a corner of the garden, and the friend answers, “Yeah, that’s our apple tree. We just planted it last May, so we don’t expect it to bear fruit yet”. When did the friend plant the tree?

1. May 2006
2. May 2005
3. May 2004

Item 34

A) You meet up with a friend for a coffee in February 1989. You compliment his shirt, to which he answers, “Thanks, I bought it last March, but I haven’t used it much since”. When did he buy the shirt?

1. March 1988
2. March 1987

B) You meet up with a friend for a coffee in August 1989. You compliment his shirt, to which he answers, “Thanks, I bought it last March, but I haven’t used it much since”. When did he buy the shirt?

1. March 1989
2. March 1988
3. March 1987

C) You meet up with a friend for a coffee in April 1989. You compliment his shirt, to which he answers, “Thanks, I bought it last March, but I haven’t used it much since”. When did he buy the shirt?

1. March 1989
2. March 1988
3. March 1987

Item 35

A) In January 2019, Doris is trying to remember where she last saw her birth certificate. She thinks, “I haven’t seen it since last February, when I needed it for my passport”. When did she last see it?

1. February 2018
2. February 2017

B) In September 2019, Doris is trying to remember where she last saw her birth certificate. She thinks, “I haven’t seen it since last February, when I needed it for my passport”. When did she last see it?

1. February 2019
2. February 2018
3. February 2017

C) In March 2019, Doris is trying to remember where she last saw her birth certificate. She thinks, “I haven’t seen it since last February, when I needed it for my passport”. When did she last see it?

1. February 2019
2. February 2018
3. February 2017

Item 36

A) In December 2013, David is trying to convince his uncle to come spend some time with the family during their vacation. The uncle says, “That might actually be a good idea, I haven’t seen most you since last January”. When did they last see each other?

1. January 2013
2. January 2012

B) In July 2013, David is trying to convince his uncle to come spend some time with the family during their vacation. The uncle says, “That might actually be a good idea, I haven’t seen most you since last January”. When did they last see each other?

1. January 2013
2. January 2012
3. January 2011

C) In February 2013, David is trying to convince his uncle to come spend some time with the family during their vacation. The uncle says, “That might actually be a good idea, I haven’t seen most you since last January”. When did they last see each other?

1. January 2013
2. January 2012
3. January 2011

FILLERS

Item 37

Lisa is talking to her brother John on the phone, on Sunday in week 4, when he says, “This week is going to be stressful”. Which week is he talking about?

1. Week 4
2. Week 5

Item 38

You are celebrating New Year's with a couple of friends, in 2002. One of them holds a toast during dinner, claiming that "this year will be the best one ever!" Which year is your friend referring to?

1. Year 2003
2. Year 2004

Item 39

Nate is chatting with a friend, on a Friday in week 13. The friend writes, "This week has been the best one in a really long time". What week is the friend referring to?

1. Week 12
2. Week 13

Item 40

Ben has received a letter from his aunt, written on the 12th of April. She writes, "This month is crammed, I have no time to relax". Which month is she talking about?

1. April
2. May

Item 41

Nadia and her father are going to a furniture store to buy a new couch for Nadia's apartment, on a Friday in week 43. The salesclerk informs them that the couch can be delivered already this week. Which week can the couch be delivered?

1. Week 43
2. Week 44

Item 42

Philip has an assignment due in school but has not been able to do it because he has been ill. On the 22nd of September, he goes to ask his teacher if he can send it on a later date. The teacher says, "That's fine, as long as you submit it this month". Which month should Philip submit his assignment?

1. September
2. October

Item 43

In September 2005, Abby is telling her friend Louise about the time her house got broken into. Louise asks her if it happened a long time ago, to which she answers, "Oh no, it was this year". Which year did Abby's home get broken into?

1. 2005
2. 2004

Item 44

Ron is talking to his boss about the new hire that he is supposed to train, on the 19th of October. His boss says, “She’ll start this month, so that she is prepared when the Christmas shopping starts”. When does the new hire start working?

1. October
2. November

Item 45

Your dad has left a voice mail on your phone on a Tuesday in week 33, in which he says, “You’re very welcome to come by for dinner some day this week, we haven’t seen you in a while”. When are you welcome for dinner?

1. Week 33
2. Week 34

Item 46

Elise is reading a book on a Monday in week 16 when her sister walks in. She asks Elise if the book is any good and if she can borrow it when Elise is done reading it, to which Elise answers, “It’s from the library and due back this week, but if I finish it in time then of course you can have it!”. When is Elise supposed to return the book?

1. Week 16
2. Week 17

Item 47

In February 2016, Malin is writing a blog post about her life. In the blog post she writes, “This year has been a real challenge for me, but things are really starting to turn around now”. What year is she referring to?

1. 2016
2. 2015

Item 48

Susie and Matthias are outside their house talking about what plants they want in their garden, on the 12th of April. Matthias says, “We should really plant the apple tree this month, so that the soil has not dried up too much”. In what month should they plant the tree?

1. April
2. May

Item 49

On a Wednesday in week 34, Marcus sends a text to his partner that says, “I know that I have been working very late this week, but it will get better from now on!”. Which week is Marcus referring to?

1. Week 33
2. Week 34

Item 50

The owner of a nail salon puts up a sign on the door, on the 29th of August. The sign says, “Bring a friend and get 20 % off. This month only”. During which month can customers get this offer?

1. August
2. September

Item 51

Molly is studying to get her driver’s license, in February 2018. She is talking to a friend about getting a car when she has passed the test, but says, “I won’t be able to afford it this year probably”. Which year is Molly talking about?

1. 2018
2. 2019

Item 52

A friend of Lucas is moving abroad and wants some help moving most of her furniture to a storehouse. She calls Lucas up on a Saturday in week 41, and says, “There’s no hurry, but if you have time to help sometime this week then that would be great”. When does she want Lucas’s help?

1. Week 41
2. Week 42

Item 53

Monica is redecorating her living room. She is talking to a friend on the phone in a Tuesday in week 49, and says, “I ordered a new dining table, and it is supposed to arrive this week”. In what week is the table supposed to arrive?

1. Week 49
2. Week 50

Item 54

On the 9th of March, you are talking to a co-worker about your hectic schedule. He says, “Yeah mine’s been crazy too, but this month will be a bit calmer”. What month is he referring to?

1. March
2. April