



## Topic situations: Coherence by inclusion

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### ABSTRACT

Topic situations have been studied in the linguistic literature but for the most part have not been studied psycholinguistically. Five experiments tested predictions of the hypothesis that a sentence-initial prepositional phrase (PP) in English introduces a Topic Situation, which by default restricts the interpretation of the following discourse. Participants in judgment experiments interpreted later discourse events as being more likely to take place in the location specified by a PP when that PP had appeared sentence-initially compared to other sentence positions, and they rated such sentences as less natural when the discourse event was implausible in the specified location. Participants in two additional experiments made naturalness judgments of sentences containing an initial PP that introduced a situation that has a usual range of durations. Sentences with a final temporal phrase that fell outside this range were judged to be unnatural, suggesting that this temporal phrase was (implausibly) interpreted as being included in the Topic Situation introduced by the PP. We suggest that these findings can advance understanding of discourse phenomena such as presupposition and domain restriction.

### Introduction

Psycholinguists are familiar with how syntax, morphology, or prosody can be used to mark a phrase as the topic of a sentence or discourse – the entity or eventuality that it is about. Marking a phrase as topic has demonstrable effects on the interpretation and processing of utterances (Reinhart, 1982; Repp, 2017; Ward & Birner, 2004, among many others). For example, other factors being equal, a topic is the preferred antecedent of a personal pronoun (Clifton & Ferreira, 1987; Colonna, Schimke, & Hemforth, 2012).

In the present report, we explore a distinct and less familiar notion, *Topic Situation*. The basic idea is that an utterance is true of the situation that it is about, an observation that dates at least to Austin (1950) (cited in Kratzer, 2017). What situation an utterance is about can be determined by a multitude of factors. We propose one specific vehicle for introducing a Topic Situation: a sentence-initial temporal or locative prepositional phrase (PP) functions to introduce a Topic Situation and give it specific content: the remainder of the sentence is interpreted as a sub-situation of that Topic Situation. We further claim that following discourse material is by default also taken to be part of the Topic Situation. We advance the Topic Situation Hypothesis in (1):

- (1) Topic Situation Hypothesis: Initial temporal and locative PPs introduce Topic Situations. By default, following material is included in the Topic Situation until a new Topic Situation, or incompatible information, is encountered.

In linguistics, Topic Situations are discussed in several guises. Austinian Topic Situations (Austin, 1950) are familiar in situation semantics, where sentences are true of partial worlds, not entire worlds, and people hold attitudes toward partial worlds (Barwise and Perry, 1983; Kratzer, 1989, 2017). Topic situations identify what an assertion is true of. Although the present paper is limited to examining the nature of Topic Situations in English, we conjecture that languages generally have ways of indicating what situation a discourse is to be interpreted in. A particularly convincing instance of how languages do this appears in McKenzie's (2015) discussion of non-canonical switch reference in a variety of Native American languages. In cases of *canonical* switch reference, a language will use one morpheme to mark a clause whose subject co-refers to the subject (presumably, the topic) of a previous clause, but a different morpheme when the referent changes. In *non-canonical* switch reference, the switch reference morpheme is used to indicate that a change of Topic Situation occurs between the two clauses (in McKenzie's, 2015, terms, 'to signal an

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episodic shift'), even if the subjects of the clauses refer to the same entity.<sup>1</sup>

Although it is not usually discussed under the name of 'Topic Situation', the closely related notion of 'frame-setting adverbial' has been prominent for some time (Chafe, 1976, who speaks of 'the frame within which a sentence holds'). Like a Topic Situation, a frame setting adverbial limits the domain of an assertion. Maienborn (2001) showed that German adverbials can have three different interpretations, depending on their syntactic position, similar to our proposal about how syntactic position of an English PP can affect whether it introduces a Topic Situation (we do not, however, claim that the syntactic devices used by English and German are identical; that would require detailed syntactic analysis). In final position a German adverbial may be external, situating the entire eventuality (e.g., *Eva signed the contract in Argentina*, Maienborn's [1a]), or internal, expressing the location for only one of the eventuality's parts (*Eva signed on the last page*, Maienborn's [1b]). However when they appear in initial position (Maienborn's [1c] *In Argentina, Eva is still very popular*), adverbials are not event-related but "set a frame for the proposition expressed by the rest of the sentence" (Maienborn, 2001, p192).<sup>2</sup>

In the psycholinguistic literature, Bestgen and Vonk (1995, 2000) and Bestgen and Costermans (1994) showed that a sentence introducing a topic shift (in their materials, a shift in the situation that a discourse is about) takes longer to read than one instantiating strong continuity with the current topic. However, this cost is eliminated if the topic shift sentence begins with an initial temporal adverbial (e.g., *Around 2 o'clock*). These results were taken as evidence for the segmentation function of initial temporal phrases. In recent work, Bestgen and Piérard (2014) have shown a similar effect that provides direct support for our Topic Situation hypothesis. Participants in their study read a French discourse containing a target sentence whose subject was a specific particular location (e.g., *Geneva*). When the discourse had begun with a locative PP that was congruent with this location (e.g., *In Switzerland*), the target sentence was read faster than when the discourse began with an incongruent PP (*In Finland*). However, this effect was limited to the circumstances when the PP occurred in sentence-initial position. When it occurred at the end of the first sentence in the discourse, its content had no effect on time to read the target sentence.

Schwarz (in press) has presented evidence from a visual world eye-tracking study about the speed with which a sentence-initial PP apparently constrains the Topic Situation. His experimental participants looked at a 2 × 2 array of colored geometrical objects while they were verifying discourses like (2).

- (2) a. On the top, there is a yellow triangle. The circle is black.  
b. There is a yellow triangle on the top. The circle is black.

His participants looked away from a circle in the bottom row (and

<sup>1</sup> McKenzie (2015) gives the following example from Kiowa (citing Watkins, 1993): *Kathryn gâ = gôt gâu Esther = âl gâ = gôt* "Kathryn wrote a letter and Esther wrote one too." The 'same subject' morpheme *gâu* is normally used to indicate that the following subject has the same reference as the subject or topic of a preceding utterance (while the 'switch reference' morpheme *nâu* indicates that the identity of the subject is different). But in this example, the referents of the subjects of the two clauses differ but the 'same subject' morpheme is used to indicate that the conjoined clauses refer to the same writing situation. The same sentence with the 'different subject' morpheme *nâu* indicates that the conjoined clauses refer to different situations.

<sup>2</sup> Maienborn (2001, p 197) also discusses the fact that locative frame-setting adverbials e.g. (i) may have a non-locative interpretation, like 'At some time when Britta was in Bolivia, she was blond' (her example 14). She notes that this is equally true of internal adverbials like (ii). Maienborn also notes that (iii) is not a contradiction. In cases where a frame-setting locative is interpreted temporally, there is no contradiction if the associated event took place in a location other than that specified by the frame setting adverbial.

- (i) In Bolivia, Britta was blond.  
(ii) Britta was blond in Bolivia  
(iii) In Italy, Lothar bought his suits in France.

toward a circle in the top row) more quickly after the onset of the second sentence noun (*circle*) in (2a) than in (2b), suggesting that the sentence-initial PP restricted the Topic Situation to the top row.

We view the Topic Situation hypothesis as contributing to the solution of a very general problem, how comprehenders fill in under-specified information, information that is left implicit in an utterance. We propose that the Topic Situation provides implicit restrictors on material that follows it in a discourse. In the first three experiments reported below, we investigate whether the location specified in a sentence initial PP – which by hypothesis provides the Topic Situation – implicitly restricts properties of the events described later in a discourse, in particular, the location in which it takes place. We compare the effect of a sentence-initial PP with the effect of the same PP occurring in a different syntactic position, where it is not expected to provide a Topic Situation (although it can support a content-based inference about the situation in which events later in the discourse take place).

## Experiment 1

In Experiment 1, we obtained interpretations of the second sentence of a two-sentence discourse by asking about the location of the eventuality asserted in that sentence. The first sentence included a locative PP which appeared in one of three positions: in sentence-initial position, modifying the subject, or in sentence-final adverbial position. The Topic Situation hypothesis predicts that a sentence-initial PP introduces a Topic Situation, and that the Topic Situation is by default extended to include subsequent discourse material. If so, then initial PP discourses should show more PP-restricted interpretations of the second sentence subject than do non-initial PP discourses, either subject-modifying or VP-modifying ones.

Experiment 1 obtained likelihood judgments for discourses like that illustrated in (3). We expected to find higher judgments of the likelihood that the event in the second sentence took place in the same location as the first for the sentence-initial PP condition than the other two conditions. The subject-modifying PP condition (3b) places the subject in the location described by the PP (and inferentially, places the activity there too). The truth conditions of the verb modification condition (3c) are essentially the same as those of the sentence PP condition (3a), but the pragmatics are different. Specifically, (3a) introduces a Topic Situation while neither (3b) nor (3c) does. We thus predict that likelihood-of-same-location judgments for (3b) and (3c) will be lower than for (3a).

- (3) a. At the Farmer's Market, the lettuce lady was talking about new discount cards. The musicians were playing loudly.  
b. The lettuce lady at the Farmer's Market was talking about new discount cards. The musicians were playing loudly.  
c. The lettuce lady was talking at the Farmer's Market about new discount cards. The musicians were playing loudly.  
QUESTION: How likely is it that the musicians were at the Farmer's Market?

## Method

### Materials

Fifteen items modeled on (3) were prepared (all items appear in Appendix A). Each item appeared in three forms: Sentence PP (3a), Subject PP (3b), and Verb PP (3c). These items were combined with 10 filler items, each of which contained a PP (half sentence-initial, half subject-modifying), but differed from the experimental items in that other aspects of the second sentence were questioned (e.g., the likelihood that the second-sentence subject performed the action attributed to the first-sentence subject).

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