

The role of coherence markers in persuasion: the forewarning effect?

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Abstract: Many studies have been conducted to investigate the cognitive effects of coherence marking (Sanders & Spooren, 2001). Although there are indications for the argumentative role these markers possibly play (Anscombe & Ducrot, 1983), this has not yet been empirically confirmed. This paper reports on two experiments investigating these persuasive effects of coherence marking.

1. Introduction

In recent years, it has repeatedly been shown that the linguistic marking of text coherence affects text comprehension. Example 1 shows two sentences without marking of text coherence. The reader has to link these two sentences in his or her mental representation. In the second example, the writer explicitly links the sentences by using the connective *because*, indicating that the information in the second segment is the argument for the claim in the first segment. The relation is exactly the same, but in example 2 it is made explicit.

1. My boyfriend will do the dishes tonight. My favorite show is on TV.
2. My boyfriend will do the dishes tonight, because my favorite show is on TV.

In general, readers seem to benefit from the presence of connectives (*because, so*) and lexical cue phrases (*For that reason, this is caused by*) that make coherence relations explicit. There is much empirical support (see Sanders & Spooren, 2001 for a recent overview) for the position that these markers play a facilitating role *during* the reading process, i.e. they lead to faster processing of directly following text segments. Furthermore, explicit coherence markers also affect the text representation afterwards. Still, there is also evidence suggesting that the effect of coherence markers interacts with prior knowledge: readers who have less knowledge about the text topic benefit from linguistic marking of the structure, whereas readers who have much prior knowledge even perform better when they read a text without linguistic markers (McNamara, Kintsch, Songer, & Kintsch, 1996).

In this paper, a new approach to the effect of coherence markers will be presented. The first new aspect of our approach concerns different types of effects. Although empirical research on coherence marking has provided us with ample knowledge on the effects on text comprehension, other effects have received less attention. In this paper, we will not only discuss the comprehension effects that coherence markers can have, but also the effects on appreciation (what is the reader's opinion on the text quality?) and persuasion (does the text change the reader's opinion about the text topic?).

A second new aspect of our approach is the fact that we use different text types or genres. Most of the previous research on coherence marking is based on informative texts. In this paper, we will also investigate effects of coherence markers in persuasive texts, since very little is known about the effect that markers of coherence have in the persuasive genre.

The third aspect of our approach is prior knowledge. As McNamara et al., we examine all these effects and text types for two groups of readers: readers with and readers without prior knowledge. Combining all these factors is crucial to develop the knowledge we may have on the basis of earlier research on marking of coherence. This paper will focus on the

effects that markers of coherence have in the persuasive genre, since very little is known about this influence.

2. Experiment 1: the effects of coherence markers on persuasion

We conducted the first experiment in order to explore the effects of marking of coherence on persuasion. The three independent variables were prior knowledge, marking of coherence, and text type (a more neutral text, supposed to be informative, and an argumentative text, considered to be persuasive). Two topics were used for the texts: organ donation and genetic manipulation. Three dependent variables were measured: comprehension, appreciation and finally persuasion. In this paper, the focus will be on the persuasive effects.

2.1 Hypotheses

Since there are not many empirical indications for the persuasive influence of coherence marking, it is difficult to formulate expectations. Brown and Stayman (1992) found that if an advertisement was evaluated negatively, the persuasive strength also diminished. This could very well apply to persuasive texts as well. The implicit versions are harder to read, since more mental effort is needed. This can lead to a negative evaluation, and thus, to a decrease in persuasive power. The explicit versions are expected to be evaluated more positively and therefore more convincing and more persuasive than the implicit ones. However, there has been no empirical evidence for this expectation.

The contrary is yet another plausible option. When readers become aware of an attempt to influence them, they build resistance to the text and become more difficult to persuade (see literature on fore-warning: Chen, Reardon, Rea, & Moore, 1992; Romero, Agnew, & Insko, 1996). In this situation, the implicit versions are expected to be more persuasive than the explicit ones, because the reader is less aware of the attempt to influence his or her opinions.

The third possible expectation is an interaction-effect of persuasion and prior knowledge: readers with prior knowledge would be more easily persuaded by the implicit text, because argumentation is less overt. Readers without this prior knowledge would be more easily persuaded by the explicit text, the one that was most positively evaluated. Their attitude is not as much based on knowledge (as is the case for the high-knowledge readers) and therefore, they do not experience the same resistance as the readers with prior knowledge do.

2.2 Subjects and materials

Forty Biology students participated in the experiment, forming the high-knowledge group, and forty History students participated, forming the low-knowledge group. These groups were expected to differ with respect to the amount of prior knowledge they would have concerning the two topics of the experimental texts: organ donation and genetic manipulation. This assumption was controlled for by asking 4 prior knowledge control questions, prior to the experiment. A t-test showed that both groups differ significantly on prior knowledge ($t(78) = -10.59$, $p < 0.001$). Biologists score higher than History students.

For each topic, an implicit version was constructed, to which several markers of coherence were added in order to make the explicit version. We manipulated headings, organizers, connectives, lexical cue phrases and referential coherence. The following passage (box 1) is taken from the persuasive text on organ donation. The markers of coherence that were omitted in the implicit condition are underlined. In some cases, the markers were not omitted but replaced by the word between brackets.

“Tim is only 16, but his heart seems worn out. This is caused by the fact that he had leukaemia and the chemotherapy seriously damaged his heart. Tim has been on the waiting list since 1996. (...) These are only examples. At this moment, there’s a long waiting list for donor organs. You can do something about the long waiting list by giving permission for your organs to be donated after death. If you find this a difficult decision to make, the information in this brochure can help you.”

Box 1. *Example of a text passage from experiment 1*

As for the operationalization of persuasion, this can be measured at different levels: beliefs, attitudes and intentions (Fishbein & Ajzen, 1975). In this experiment, persuasion was measured at all three levels, but attitude change was the central focus of attention. The three levels of persuasion are operationalized by means of propositions, which the subject could agree or disagree with on a 7 point Lickert scale. An example of a belief on genetic manipulation is: ‘genetic manipulation decreases natural variance in plants’. A possible attitude is ‘genetic manipulation is bad’. From the attitude follows the intention ‘I intend to eat only biological foods’. Only the attitude *after* reading the text is measured, not the initial attitude. Previous research shows that asking people what their opinion is on a certain topic makes it very difficult to subsequently change their opinions (Hoeken, 1994) . Therefore, we have chosen a post-text design only, where the average scores on attitude per text version will be compared. Since subjects were assigned randomly to one of the conditions, the average initial attitude per condition should be equal. If we find post-text differences, they must be due to the manipulations in the text.

2.3 Method and design

The experimental factor prior knowledge is a between-subjects factor with values high and low. The experimental factor text version is a within-subjects factor with the values implicit and explicit. Furthermore, there are two conditions: informative and persuasive, and two text topics: genetic manipulation and organ donation. In total, we used 8 different texts in this experiment: 2 topics * 2 versions * 2 genres. These factors were integrated in a Latin Square Design: every subject read 2 texts, one of which implicit and the other explicit, one of which persuasive and the other informative, one of which on genetic manipulation and the other on organ donation. The experiment took about 40 minutes. Subjects were instructed not to turn back the pages they had already read. Each package contained: the prior knowledge questions, the instruction to the text, the text itself, the persuasion statements and Likert scales, and finally the genre-control question: were subjects able to distinguish between the informative and the persuasive intent?

2.4 Results

In this experiment, the results on persuasion were surprising. No effects of coherence marking on attitude occurred after reading the persuasive texts. All versions were as convincing as any other. However, effects on persuasion were actually found in the neutral texts that were supposed to be informative. These informative texts contained almost exactly the same information as the persuasive texts did, but this was presented in a more balanced way: for example, there were as many advantages present as disadvantages. No change was intended in the reader’s behavior, contrary to the persuasive texts. The results on persuasion in the informative texts (which presents us with a fascinating paradox) show that readers without prior knowledge were more convinced after the reading the explicit version. Readers with this knowledge were more persuaded after reading the implicit version. A second experiment was needed in order to find an explanation for these effects.

3. Experiment 2: an explanation for the effects of coherence markers on persuasion

For the second experiment, the focus of this paper, we developed a hypothesis for the absence of effects of coherence markers in persuasive texts, since we do not believe that these markers do not influence persuasion at all.

The first reason why we expect an effect of coherence marking on persuasion is based on the theories by Anscombe and Ducrot (1983). They define *mots du discours* as words that have no or little informative value, but mark the attitude of the speaker. Examples are *mais, même, décidément, je trouve que*. As to the French connective *mais*, Anscombe and Ducrot state that its presence does not mark the opposition between two propositions, but between the two conclusions that can be drawn from the propositions. Therefore, *mais* has an argumentative function in discourse, and can be defined as a 'linguistic argumentative operator'.

A second reason why we consider it to be unlikely that markers of coherence have *no* influence on persuasion, are the results from experiment 1: the markers did have an effect in the informative genre, so they have the possibility to influence attitudes.

3.1 The fore-warning effect

How, then, can we then explain the absence of effects in the persuasive texts in experiment 1? The notion of fore-warning is important in this respect. Forewarning has been studied for over 40 years now (McGuire & Papageorgis, 1962; Petty & Cacioppo, 1979) and is generally presented as a factor that causes resistance to persuasion. Forewarned subjects are aware of the fact that someone is trying to persuade them. They will produce more counter argumentation and will strengthen their own position and attitude. Therefore, a warned subject will be more difficult to persuade. Although the concept of forewarning is overall recognized and accepted, we know very little about the text characteristics that may provoke such a reaction.

It is plausible that the forewarning effect occurred in the persuasive texts in experiment 1: the reader must have been aware of the fact that we were attempting to change their opinions. Adding markers of coherence did not make a significant contribution: it was simply added to the large pile of other characteristics signaling the persuasive appeal to the reader. This would explain the absence of effects on attitude.

3.2 Hypotheses

The theory on forewarning also provides a framework for explaining the effects on persuasion that we found in the informative texts (cf. the interaction effect). The forewarning hypothesis about markers of coherence in persuasive texts would predict that the explicit versions make the persuasive appeal clearer to the reader who has knowledge about the topic and thus cause forewarning. Therefore, the versions without marking of coherence are expected to be more persuasive to high knowledge readers. For low-knowledge readers, the marked versions are expected to be more persuasive. Although these markers may very well cause fore-warning, they still have more persuasive effect than the implicit versions, because these are simply too hard to understand.

However, there is one important marginal comment to be made: not all markers of coherence are expected to have a fore-warning effect. In experiment 1, all markers were manipulated collectively. But in the light of the fore-warning hypothesis, we have to distinguish subjective markers from objective markers (Pander Maat & Sanders, 2001). Objective markers (e.g. *as a result*) express a relation in external reality (for instance a causal relation). These relations are objectively verifiable. Subjective markers (e.g. *so*) express relations in which the speaker is implicitly involved. In other words, the speaker personally takes responsibility for the (causal) relation that is expressed. The following examples show this difference between subjective and objective markers.

3. In the T.V.-series “Lost”, 48 people are stranded on an unknown island, *because* their plane crashed.
4. “Lost” is the best T.V.-series from the last decade, *because* almost every episode contains a cliff-hanger.

In the first example, *because* expresses a causal relation that exists in reality. There is a causal connection between a plane crash and stranding on an island (at least in movies). In the second example, *because* is used as a subjective marker. Apparently, the speaker considers the presence of cliff-hangers as an indication for the quality of a T.V. show. This relation is not verifiable in external reality, but the speaker takes responsibility for this causal claim-argument relation.

It is unlikely that objective markers of coherence cause forewarning, but the subjective ones make the attempt to influence the reader more visible and can therefore cause forewarning. This results in the following hypothesis: the forewarning effect occurs if the objective version is more persuasive than the subjective version, and if people recognize more easily the attempt to influence them in the subjective version. They are also expected to find the subjective text pushy and evasive. The following box represents all hypotheses.

Hypothesis 1: The text versions with subjective markers will cause more fore-warning than the objective version or the implicit version. Therefore,

- a) the objective and implicit versions will be more persuasive than the subjective version.
- b) subjects will more frequently detect the persuasive intention in the subjective and explicit versions than in the implicit and objective versions.

Hypothesis 2: the subjective markers- version is judged to be more pushy than the objective or the implicit version.

Box 2. *Hypotheses in experiment 2.*

3.3 Subjects, materials, design and procedure

Experiment 2 closely resembles experiment 1. The same texts from experiment 1 were used, both in informative and in persuasive versions. However, in the persuasive versions less clues were included that made the persuasive intent of the writer visible. For the persuasive texts, we used an implicit, an explicit, an objective and a subjective version.

Again, just as in experiment 1, persuasion effects were measured at the attitude, belief and intention level. The design and procedure were the same as in experiment 1, with the exception that 4 coherence conditions were used: 2 text genres (informative and persuasive) * 2 topics (organ donation vs. genetic manipulation) * 4 coherence conditions (implicit, explicit, subjective and objective).

Some items were added to the questionnaire, as control questions for the fore-warning effect. Of course, the existing question on perceived intent would function as a fore-warning indicator: the subjective markers should make the persuasive intent clearer to the subject (hypothesis 1b). Moreover, subjects were asked to rate the text’s ‘pushiness’ (hypothesis 2) on a 7 point Likert scale.

102 medical students participated in the high knowledge group, 89 law or history students participated in the low knowledge group. Their average age was 20.24 (sd 3.58). They were all in their first two years of university. 30% was male, 70% female. Since the text topics were organ donation and genetic manipulation, we expected the medical students to have more prior knowledge at their disposal than law students. This expectation was

confirmed: $t(190) = -47.677, P < 0.0001$. Students without prior knowledge received an average score of 0.29 on the comprehension score, students with prior knowledge received on average 3.55 (on a scale from 0 to 5).

3.4 Results

In this paragraph, the results from the experiment are presented in order to test the forewarning hypothesis for coherence marking. Dependent variables are persuasion (measured at belief, attitude and intention level, for genetic manipulation questions Cronbach's $\alpha = 0.72$, for organ donation $\alpha = 0.52$), and two aspects of evaluation: pushiness and detection of persuasive intent.

3.4.1 Hypothesis 1a: effects of coherence marking on persuasion

The first question was whether or not the subjective and the objective version differed with respect to their persuasive effects (a between-subjects variable). A t-test with persuasion as a dependent variable showed a significant difference between objective and subjective markers ($t(122) = -1.651, p = 0.05$). In table 3.1, the mean scores for both conditions are represented. The version with the objective markers was more persuasive than the version with the subjective markers.

	Score on persuasion
Objective markers	3.99 (.83)*
Subjective markers	4.24 (.78)*

* significant at $p < 0.05$

Table 3.1 *Effects of subjective/objective marking on persuasion. Scores indicate a mean on a 7 point scale (1 = agree completely, 7 not agree at all)*

The next question concerns the two other conditions, one with no markers and the other one with all markers combined, both the subjective and the objective markers. How do their effects on persuasion relate to the ones for objective and subjective marking separately? A one way ANOVA with coherence marking as grouping variable and persuasion as the dependent variable does not yield an overall effect. But a LSD post hoc test confirms the results from the t-test (see table 3.2).

	Score on persuasion
No markers	4.10 (.67)
Objective markers	3.99 (.83)*
Subjective markers	4.24 (.78)*
All markers (obj. and subj.)	4.07 (.75)

* significant at $p < 0.05$ is post hoc LSD

Table 3.2 *Effects of marking of coherence on persuasion. Scores indicate a mean on a 7 point scale (1 = agree completely, 7 not agree at all)*

Only the two extreme scores differ enough to contribute to a significant result, meaning that the objective version was more persuasive than the subjective version, but that the other versions did not make a difference.

3.4.2 Hypothesis 1b: effects of coherence marking on detection of persuasive intent

A control question was part of this experiment, to further test the fore-warning hypothesis. We have established so far that the objective version was indeed more persuasive than the subjective one. However, whether or not this is due to the fact that a subjective version makes

the attempt to persuade more visible to the reader remains to be checked. Therefore, a question regarding the perceived intent of the writer was supposed to measure this perceived intent:

Do you think the writer wanted to								persuade the reader
inform the reader	1	2	3	4	5	6	7	

Box 3.3 *Example of a question on perceived intent*

A one way ANOVA with coherence version as grouping variable shows a significant effect on these answers: $F(3,250)= 5.304$, $p=0.001$. Tukey's post-hoc analysis shows the following effect, represented in table 3.4.

	Score on perceived intent
No markers	6.22 (1.02)
Objective markers	5.49 (1.64)*
Subjective version	6.30 (1.22)
Explicit version	6.21 (1.20)

* differs significantly from the other versions at $p<0.05$

Table 3.4 *Effects of marking of coherence on perceived intent. Scores are mean scores on a 7 point scale (1 = inform, 7 = persuade).*

It was clearer for subjects that the intent was to persuade when they read the version with all markers, the version with subjective markers or the version without markers, than when they read the objective version.

In order for these effects to reflect the fore-warning mechanism, the perceived intent of the writer has to influence the persuasive effect. This influence was tested by means of a linear regression analysis, with the perceived intent as the predicting variable, and the persuasiveness as the predicted variable. This regression analysis shows that the perceived intent influences the persuasiveness of a text ($R=0.125$, $p<0.05$). A second way of testing this influence is to include perceived intent as a covariate in the ANOVA. The effects should then diminish or even disappear. The latter is the case: with perceived intent as a covariate, the effect disappears ($F(3,248)=0.802$, $p=0.5$). In other words, the perception of the intent of the writer is crucial for the persuasive power of a text: if readers notice the attempt to influence them, the persuasive effect of a text becomes smaller.

3.4.3 Effects of marking of coherence on experienced pushiness

A second control question was part of this experiment, in order to test whether the results on persuasion could be accounted for with the face-threatening hypothesis (see chapter 6). The subjects were asked to rate the text's 'pushiness' on a 7 point scale from 1 (not pushy at all) to 7 (very pushy). However, when analyzing this particular item in the questionnaire, it became clear that these effects are not identical for both topics, neither for both knowledge groups. Therefore, in table 7.4, the results from a two one way ANOVA's are represented ($F(3,44)= 2.105$, $p=0.55$ and $F(3,78)=5.15$, $p=0.03$).

	Score on pushiness + pk, od	- pk, gm
No markers	4.55 (1.22)*	5.68 (1.17)*
Objective markers	5.22 (0.83)	4.94 (0.80)
Subjective markers	5.31 (1.31)	4.29 (1.70)*
All markers	5.67 (1.11)*	4.56 (0.98)*

* significant at $p < 0.05$

Table 7.6 *Effects of marking of coherence on pushiness. Scores are mean scores on a 7 point scale (1 = not pushy, 7 = very pushy), groups are +pk (with prior knowledge) and -pk (without prior knowledge) and topics are od (organ donation) and gm (genetic manipulation)..*

These results are not in line with the earlier presented results in this chapter. Clearly, by asking readers to rate a text's pushiness, many factors play a role and this is not the appropriate question to measure fore-warning (see the discussion).

4. Conclusion and discussion

The fore-warning hypothesis was confirmed. The text version with subjective markers was less convincing than the version with the objective markers. The same effect was observed with the control question on the writer's intention: the intention of the writer of the objective version was perceived to be less persuasive than the one of the writer of the subjective version. The perceived intent was a successful predictor of the persuasive effects of a text. This confirms the hypothesis that when people notice the attempt to influence or even manipulate them, the persuasive power decreases.

The subjective and the objective version were not only compared to each other, but also to the implicit version (where markers were absent) and to the explicit version (where all different types of markers were present). We expected the persuasive power for the implicit version to be higher than for all the other versions, since there were the least indications of the persuasive intent of the writer. Only the intention in the objective version was judged to be less persuasive, and more informative, than the other versions. This same pattern occurred in the direct results on persuasion: only the difference between objective and subjective versions was significant. The implicit and explicit versions yielded results in between, but they did not differ significantly from the other versions. These findings indicate that it is very important to distinguish between both types of markers, i.e. subjective and objective ones. When combining the two in the explicit condition, results indicate that the effects cancel each other out. What is surprising is that the implicit version was not the most convincing one, as expected. Apparently, markers do have a positive effect on persuasion, but only if they do not mark the argumentative direction too clearly.

The result on pushiness is not as expected. There is a straightforward explanation for this. This construct was only measured with one item. Therefore, I do not know whether this item actually measured what I intended to measure. Pushiness is probably determined by a lot more factors than coherence marking, and there is a possible interference of topic and individual preferences for certain text styles or others. This result does not mean that fore-warning does not occur; I think that the previous results are much more convincing than this one. This result does not mean either that there are no effects on pushiness. There were simply no effects on pushiness in this particular operationalization.

A question that remains is the difference between different typographical characters of markers. Do all markers, that is, connectives, headings and lexical cue phrases contribute to the fore-warning effect? Or were for instance only the headings responsible for the effects that

I found in this experiment? An on-line experiment can provide more insight in this matter. I expect markers that cause fore-warning – and therefore resistance to persuasion- might increase reading times. A reader who comes across a marker that signals the persuasive intent of the writer, may be warned that an attempt to change his/her opinion is made, and therefore he or she may spend more time checking this argumentative relation against prior beliefs. This could take more time than just accepting the statement as true. An important aspect that has to be taken into account is the nature of these prior beliefs, since the reading times could be strongly influenced by these beliefs.

Although fore-warning is a well-known and well-accepted phenomenon in psychology, there has not been much linguistic research on the actual text characteristics that might cause such a reaction of resistance. In that perspective, this experiment is an important step forward. In marketing contexts as well as in public information contexts, causing the least resistance possible is a vital question. With this experiment, a beginning is made to detect specific influences of text characteristics on persuasion. Only two different texts were used, and the results have yet to be confirmed for other texts and other readers. However, subjective markers of coherence seem to cause a fore-warning effect, whereas objective markers do not seem to cause this effect. In my view, this is an important step forward, both theoretically and empirically. The practical implication of these results would be, that there is no need to omit markers completely from a text. On the contrary, the most convincing version was the one with the objective markers, not the one without any markers. But the results show, that choosing these markers carefully can influence the persuasive power of a text.

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