Cognitive constraints on causal ordering strategies in English

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Abstract

One of the main concerns for the discourse analyst when having to account for the surface structure of texts is to provide motivations for the different ordering variants that discourse structure relations can exhibit. This paper studies the principles behind the selection of one of the two possible positional variants of the cause-effect relationship in English, i. e., the occurrence of causal clauses either before or after their main clause. The alternative occurrences were investigated in a cross-genre study gathering data from three genres: learned/ scientific writing, journalistic essays, and short stories. These data were analyzed for evidence of two communicative constraints: the Thematic development constraint and the management of Given / New Information. The analysis revealed that these constraints play a crucial role in the ordering of these causal alternatives; moreover, the positioning of the two alternatives was found to be also an indication of the different discourse functions played by both options in English. Initial causal clauses present information which the speaker wants to present as <u>background</u> to the hearer in order to increase his ability to comprehend the material presented in the main clause; final causal clauses, by contrast, fulfill a much more local function: they present information which the speaker wants the hearer to interpret as the direct cause or the justification for the information presented in the main clause.

1. Introduction

The circumstances under which written texts are produced have been shown to have a direct bearing on the syntactic forms of sentences within discourse (Thompson 1985:56, Ong 1982, Altenberg 1984). In this medium, the writer does not have resources like prosodic (intonation, rythm), or paralinguistic features (gestures) available and, therefore, has to accomodate his utterances to the specific conventions that the grammar of his language imposes on his writing.

In what follows, we will show how these conventions, more specifically, the two ordering strategies which causal sequences can exhibit, are not random, but derive from pragmatic processing principles which are a function of our cognitive architechture. Moreover, as will be demonstrated in the rest of the paper, the operation of these cognitive constraints will be shown to be a reflection of the different discourse functions performed by the two types of causal alternatives.

2. Unraveling the issues

The problem which this paper addresses can be stated as following: given a specific discourse structure relation, such as cause-effect, one of the syntactic ways to realize this relation is by creating a clause-complex where one of the members expressing the cause can precede or follow the effect, as illustrated in example 1:

Example 1:   Mary died, because she did not know the way

Because she did not know the way, Mary died.

From the point of view of sentences in isolation, these two complex-clauses appear to be alternative positional variants of the same underlying discourse relation. Given this apparent moveability, two issues have to be addressed:

1.- Which are the motivating factors which determine whether a causal clause will be placed before or after its main clause? In this sense, the data collected for this study were analyzed for evidence of two communicative constraints which govern information processing: the Thematic development constraint and the management of Given / New information. The analysis revealed that both constraints play a crucial role in the ordering of these causal alternatives.

2.- The results obtained in this first approach to the problem shed some light on our initial hypothesis: that initial and final causal clauses are neither equal nor interchangeable in communication, and that they perform two different discourse functions.

In the following sections we present the data of our analysis, study the pragmatic constraints which explain the data occurrences and present our hypothesis with respect to the different jobs performed by the two type of clauses.

3. Analysis and Results

The texts examined for this cross-genre study included narratives (short stories), learned/ scientific writing, and journalistic essays:

- the narratives included two novels:

1.- The Great Gatsby (=GG) by Scott Fitgerald

2.- Benito Cereno (=BC) by Herman Melville

- the scientific texts included:

1.- chapter 11 from <u>Language Testing</u> by Brown, H.D. (1987). London: Prentice Hall

2.- chapters 5, 6 and 7 from Discourse Analysis by Brown & Yule (1987). Cambridge: C.U.P

3. - Sixteen scholarly articles from the field of language teaching and theoretical linguistics. ·

- the journalistic texts included

1. -selected articles from the New Republic, November 11, 1991.

The total number of occurrences of causal sequences were first tabulated for each of these sources, and the data were examined for evidence of a random distribution. We counted as "causal clauses" all occurrences of main + subordinate clause where the subordinating conjunction were "since", "because", "as", and "for", and all occurrences of subordinate + main clause where the subordinating conjunction was "since", "because", and "as". From Table 1, we can see that the frequency of distribution for these occurrences reveals a large disparity between sample frequencies: adding the two columns together, we have a total of 194 causal clauses, of which 25 per cent are initial, whereas 75 per cent are final. In short, in these samples final causal clauses occurred with far greater frequency than initial ones.

Table 1.

Frequency distribution of Initial vs Final causal clauses

in the different genres of this study

Genre type	Initial	(%) Total	Final	(%) Total
Narrative Total= 52	4	7.6	48	92.3
Journalistic Total = 22	2	9	20	90.9
Scientific total = 120	42	35	78	65
TOTAL DATA	48	25	146	75

To further explore this apparent disparity in the distribution, similar distributions from Altenberg (1984) were examined. In his study, a similar disparity was evident, as illustrated in Table 2, which shows the favoured positions in data collected from written and spoken samples (from two large corpora).

Table 2.
Frequency distribution of Initial vs. Final causal adverbials in Altenberg (1984)

Types	LLC		LOB	
	Initial	Final	Initial	Final
Right-branching	6	363	11	86
Left-tending	8	13	30	39
TOTAL	14	376	41	107

LLC: London-Lund Corpus of Spoken English (one 100, 000 word sample); LOB: Lancaster-Oslo/Bergen Corpus of British English (one 100, 000 word sample).

Table 3 shows causal occurrences for both data sources: Altenberg's (1984), and the genre samples for this study. In both sources, the occurrence of final causal clauses was far more frequent than the occurrence of initial ones, in spite of the different genres samples collected for both studies. Moreover, when the occurrences for this study's specific genre types (all belonging to the written medium) were compared to those of the written samples of the LOB corpus analysed by Altenberg, a striking consistency in disparity became evident: 24 per cent of frequency distribution of initial clausal clauses and 76 per cent, respectively, in the written samples analysed by Altenberg (1984), compared to 25 per cent for initial and 75 per cent for final clausal clauses in the texts collected for this study.

Table 3.
Distributions for two data sources

Data Source	Initial	(%)	Final	(%)
Altenberg	37	7.6	445	92.3
TOTAL				
written (LOB)	29	24	91	76
spoken (LLC)	8	2	354	98
This study	48	25	146	75
TOTAL				
Narrative texts	4	8	48	92
Scientific texts	42	35	78	65
Journalistic text	2	9	20	90.9

LLC: London-Lund Corpus of Spoken English (one 100, 000 word sample); LOB: Lancaster-Oslo/Bergen Corpus of British English (one 100, 000 word sample).
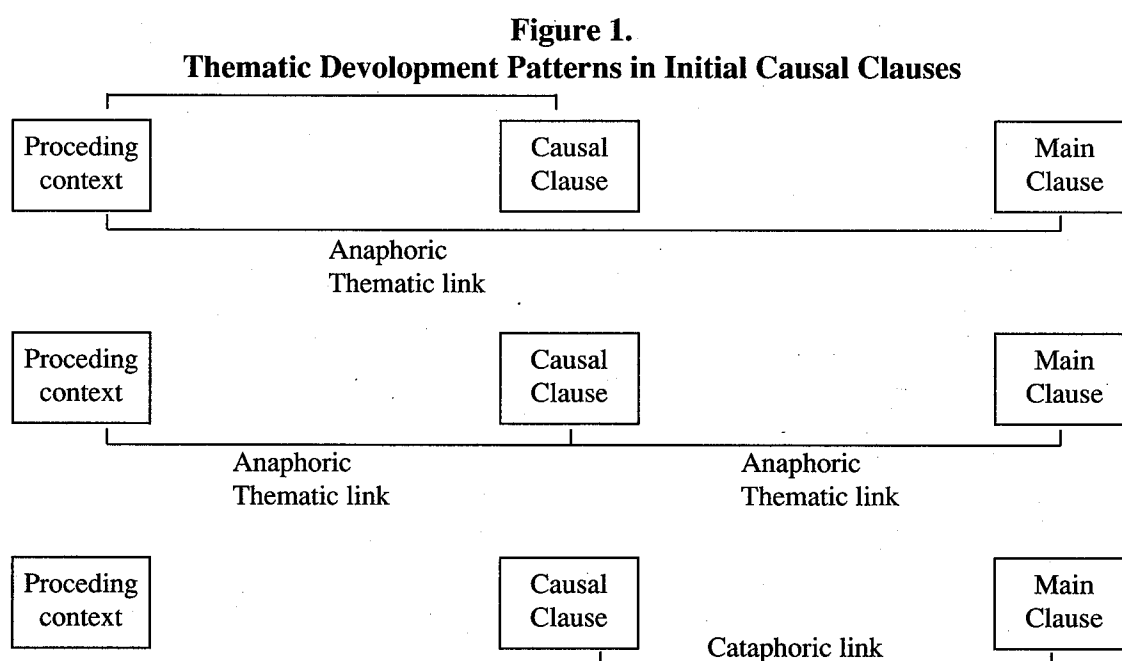
This fact suggests that, in terms of frequency, it would be reasonable to consider the final causal clause as "unmarked", and initial causal clauses as "marked". Moreover, the consistency in disparity in the frequency of initial and final causal clauses between Altenberg's study and this one suggests that they are not randomly distributed in discourse. Rather, it seems likely that these two positions are not interchangeable in communication and that they are subject to some identifiable communicative constraints.

In order to test this hypothesis, we tested two communicative constraints on both causal ordering: the first communicative constraint was the Thematic development in discourse. This principle predicts the tendency for writers to present information which is presupposed or taken for granted initially as the 'ground' or reference point for the assertion made in the main clause, while preserving some thematic link with respect to the preceding context. In example 2 the initial since-clause (since language teaching itself was not a distinct discipline) is information which the writer presents as taken for granted or reference point for the assertion made in the main clause.

Example 2:

> The first of those periods, the "prescientific" period, prior to the early 1950s, had no language testing research as such to turn to. Since language teaching itself was not a distinct discipline, language testing followed whatever general principles of testing were available in the humanities or social sciences. (Brown 1987 : 227)

Following Thompson (1985) and Ramsay (1987) we decided to investigate the role of thematic development patterns to check whether this principle played a role in the positioning of the two causal alternatives. The results confirmed the initial hypothesis: from the total number of occurrences of initial causal clause + main clause, 95 per cent showed some degree of thematic continuity with their preceding context. The patterns encountered in the data were varied, but all of them were governed by this principle. Figure 1 illustrates the three patterns encountered.

Figure 1.
Thematic Devolopment Patterns in Initial Causal Clauses

| Proceding context | | Causal Clause | | Main Clause |

Anaphoric
Thematic link

| Proceding context | | Causal Clause | | Main Clause |

Anaphoric   Anaphoric
Thematic link   Thematic link

| Proceding context | | Causal Clause | | Main Clause |

Cataphoric link

By contrast, the analysis of final causal clauses showed strikingly opposite results. From the total number of occurrences, 99 per cent showed no thematic continuity with the context preceding their main clause. Example 3 below illustrates this: the final causal clause exhibits no thematic link to what has been said before. It simply states the reason why reading skills are normally relegated to a minor role, thus performing a local semantic function.

Example 3:

> Nicholas Beattie distinguishes different types of reading and asks that we adopt procedures to suit the type which is our objective at any given time. He regrets the tendency to relegate reading skills to a minor role <u>because oral work is currently so fashionable</u>. (Hornsey 1975:251)

When some thematic continuity was established with the preceding context, it was always restricted to the preceding main clause, as in examples 4 and 5:

Example 4:

> There is nothing more psychologically rewarding than linking oneself to the glories of the past, if only <u>because the past is more articulated than the present, not to mention the future</u>. (New Republic, p.32)

Example 5:

> The notion of communicative purpose plays an important role in the dynamics of communication, for it determines the goal toward which the information is to develop within a sentence, and also the distribution of the degrees of CD over the sentence elements. Communicative purpose is multifaceted, <u>because it can be viewed from at least three angles</u>. (Firbas 19: 39)

In example 4, nothing in the preceding context prepares us for considering the past more articulated than the present. In fact, until we read that final causal clause we have no idea why there is nothing more rewarding than the glories of the past. Similarly, in example 5, nothing in the preceding context about the notion of communicative purpose predicts the fact that it is multifaceted. Once the writer has stated this fact, it offers the reader an explanation.

The second communicative constraint examined was the management of <u>Given / New information</u>. This constraint has been widely discussed from a variety of theoretical, psycholinguistic, and pragmatic perspectives. Dik (1978) and Halliday (1985), for example, address the given-new distinction in terms of linguistic theory, while Haviland and Clark (1974) and Clark and Clark (1977) approach it from a psycholinguistic point of view, and Prince (1981) and Brown and Yule (1983) adopt a pragmatic approach. Regardless of the approach taken, this principle states that in order to make a message maximally effective in transferring meaning it must progress from

information which is presumed or given to information which is new to the hearer. This tendency seems to facilitate discourse or narrative cohesion by activating in the hearer some previously known information as a kind of address to which new information can be directed. This is one of the basic principles of information processing: to proceed from the most accessible/ least informative message to the least accessible/ most informative one. Informative messages are placed in the end of textual segments for communicative purposes. By contrast, least informative messages occupy text initial position and are suitable to function as a reference point.

For the purpose of this study, given information was defined as including the types mentioned in Prince (1981). 'Situationally given information', 'textually given information' and 'inferrably given information'. An instance of textually given information is presented in Example 6:

Example 6:

> On the other hand there is an argument about 'description', the argument between the linguistic grading approach and the situational grading approach. Since these two approaches give diametrically opposed descriptions of what the child does, it should be possible to devise experiments which would discriminate between them.

Whether a clause should be classified as given or new was not, however, always clear cut. For that reason, it was decided that any occurrence of an initial causal clause was scored as given if it contained any given information. In the example above, "these two approaches" is textually given, whereas the verbal unit is new information. Accordingly, such occurrence of initial clause was scored as given.

The results of the analysis of the initial clauses in our data showed that all the occurrences encoded given information.

4. Discussion

The results obtained from the above analysis indicate that both Thematic continuity and the management of Given/New information are active constraints which operate in the two causal ordering strategies examined. Further consideration of these constraints suggests, moreover, that these pragmatic constraints reflect the different discourse functions played by the two ordering alternatives. The following hypotheses were thus confirmed:

1.- The high degree of thematic and referential continuity exhibited by initial causal clauses is an indication of their linking function: initial causal clauses present information which link the preceding material with the incoming information. This linking function follows the principles of information processing, according to which, we interpret incoming information in the light of information that we have already processed. The initial causal clause plays this role: it serves as the as the reference point

from whose perspective we interpret the material presented in the main clause. However, as the varied patterns of thematic continuity analysis showed, we cannot conclude that it is simply the immediately preceding context which plays a role in the position of purpose clauses. The fact that among the initial causal clauses in our data half of them (52 per cent) are not related to the preceding context, suggest that the thematic principle is only part of the story. We suggest that position is pragmatically determined in terms of the information that the writer assumes his reader must know in order to interpret what comes in the main clause. The Given / New information management thus operates here in the following way: the writer, by presenting some information at the beginning of a textual segment, is indicating to the reader that this information must be known to him/ her in order to be able to interpret the incoming discourse. Initial causal clauses, then, follow a textual strategy which the writer uses to indicate to his reader that the information presented in them must be interpreted as known, and, therefore, necessary, to efficiently process the information presented in the main clause.

2.- In terms of coherence relations, where we can distinguish nuclear and satellite material, and following their pragmatic function in discourse, we suggest that initial causal clauses operate as the 'background' satellite to the material presented in the nucleus. The relation of background is illustrated in figure 2 below, following Mann & Thompson (1988):

Figure 2. The Rhetorical Relation of Background (Mann & Thompson, 1988)	
relation name:	**BACKGROUND**
constraints on N:	**R won't comprehend N sufficiently before reading text of S**
constraints on S:	**none**
constraints on the N + S combination:	**S increases the ability of R to comprehend an element in N**
the effect:	**R's ability to comprehend N increases**
locus of the effect:	**N**

N= Nucleus; S= Satellite; R= Reader

The coherence relation of 'background' is clearly an interpersonal one (also called 'pragmatic'). Interpersonal relations are those whose intended effect is to increase some inclination in the reader, such as the desire to act or degree of positive regard for, belief in, or acceptance of the nucleus. In the case of the background relation, the speaker wants to increase the reader's ability to comprehend the material presented in the

nucleus. One of the most efficient ways to do this is by presenting first some material that he/she considers that the reader should know which will serve as the background to interpret the material that follows. That is why he places this background material at the beginning. Therefore, the nature of this relationship is clearly interpersonal, since it is based on the pragmatic assessment of the writer of what the reader must be conveyed for successful communication.

3.- By contrast, final causal clauses do not play this 'background' role. Their discourse function is much more local: either to state the direct <u>cause</u> of the material presented in their main clause (in which case, the relation is 'semantic') or less often, it expresses the <u>justification</u> (the relation is 'pragmatic') of the speech act presented in the main clause as in the example below:

Example 7:

'You're crazy!' he exploded. 'I can't speak about what happened five years ago, <u>because I didn't know Daisy then</u>....'

5. Conclusion

The present study offers two major findings. First , the language user's selection of the two apparently positioning variants of the same relation is not made randomly: as the frequency distribution data have shown, there is a clear predominance of the final option over the initial. Second, after studying the principles which might be the conditioning factors determining which position the clause would take, we found out that the initial formulation of the problem in terms of choice on the part of the writer of one of the two alternatives seemed inappropriate. The different positions reflect different strategies which the writer uses in order to encode pragmatic principles of information processing. The problem is then not of one construction occupying two different positions, but rather of two different constructions sharing a similar form which play different discourse functions. As we hope to have made clear in the course of the discussion, initial causal clauses present the 'background' against which the reader can understand the material presented in the nucleus, whereas final causal clauses fulfill the more local function of stating the direct cause or the justification of the information presented in the nucleus.

6. Acknowledgements

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