

## CHAPTER FIVE

### A SYSTEM FOR ANALYSING REVISION

This chapter is the first of the three which are dedicated to analysis and interpretation of the participants' post-treatment revisions of their pre-treatment final drafts. The first part of the chapter briefly discusses what is known about revision and the general goals and limitations of studying it. The second part outlines the specific objectives and problems of the analysis that I intend to carry out in this study, and provides the reader with an introduction to the system of analysis of revision developed. I will then provide further details about the system, by explaining how the revision data was processed and describing the taxonomies used for analysing it. I will conclude the chapter by reporting on the overall reliability of the system. The findings derived from its application to the participants' post-treatment revisions and the subsequent interpretation of these results will be left to chapters six and seven.

### 5.1 Understanding revision

There is little controversy about the fact that the goal of the writer during revision is to change text so as to make it optimally readable. The crux of the matter lies in finding out how writers do this. Most of what is presently known about revision comes from writing process research. This research has shown that, in the same way as writing is a complex activity made up of a series of subprocesses, revision (which is a subprocess of writing) is also complex and can be divided into a number of smaller components.

Different methods of data collection and analysis have been used in an attempt to understand the multidimensional nature of revision. Interviews (Sommers 1981), verbal protocols (Flower and Hayes 1980) and text analyses (Faigley and Witte 1981, Jacobs 1989) have been used to learn more about **why, when, how** and **what** writers revise. An important finding disclosed by these studies is that revision is not restricted to what writers do after they have completed a first draft. Revision may take place at any point during the activity of writing, including the time during which the first draft is being generated. These studies have also focused on the variety of ways in which writers may change text during revision. Writers may cross-out ideas they are not satisfied with, insert new information, change meaning, change the order of clauses, sentences and paragraphs, rewrite very small or very large

parts of text, correct grammar and spelling, tidy up presentation, and so on<sup>1</sup>. Also important is the discovery that skilled and unskilled writers tend to have very different attitudes towards revision. As pointed out in the beginning of chapter two, skilled writers tend to revise text both more frequently and more radically than unskilled writers, and are inclined to change text whenever they feel is necessary, as opposed to unskilled writers, who tend to leave revision to the end of the composing activity, if they revise at all.

Despite all that is known about revision nowadays, attention has been drawn to the limitations of the methods used to analyse it (Faigley and Witte 1981). Interviews provide us with useful information about writers' retrospections, but the method serves only as a complement to other methods. In addition to this, interviews suffer from all the drawbacks normally associated with intuitional data. Protocol analyses are important when it comes to understanding what causes writers to revise, but are very much criticized on the grounds of their artificiality. Writers are forced to verbalize what they are thinking as they compose, in a way which probably interferes with what they put down on paper. Text analyses, in turn, disclose helpful information about what writers chose to revise, but say little about how the writer behaved during revision (i.e., whether he revised meaning before form, whether or

not he began revising only after his first draft had been completed, etc.).

In addition to the above method-specific limitations, writers do so many different things when they revise that it is extremely difficult to systematize all that they do into a coherent framework. It is not my objective, however, to obtain a detailed picture of the full revision process. In the next section, I will explain what my objectives are, and will introduce the system of analysis utilized in this study.

## 5.2 Overview of the system

What I intend to do in the present study is analyze revision not as means of understanding revision in itself, but simply as a research tool for investigating treatment-effect and diagnosing writing instruction needs. More specifically, my aim is to:

- a. find out whether the post-treatment revisions are more readable than the corresponding pre-treatment final drafts and whether improved readability could be a function of the instruction provided;

b. find out whether the post-treatment revisions contain evidence of an increase in feedback-independence and whether increased feedback-independence could be a result of the treatment;

c. understand more fully the kind of feedback needed by the participants.

In order to address the above, I opted for a system for analysing revision which aimed to offer a comprehensive and reliable account of all changes made by the participants from the pre-treatment final drafts (T3) to the post-treatment revisions (T3\*), and of all changes which, as will be explained in section 5.3, the participants should have made but did not. Since the two texts are taken to represent the best final product the participants could arrive at on their own before and after the treatment (c.f. section 3.2.3), the analysis of the changes they decided to make from T3 to T3\* and of the changes they should have made but did not should provide useful information about what the participants learned or failed to learn during the treatment. All other questions about revision process are beyond the scope of this study.

A query that might arise at this juncture is why it was not possible to analyse revision data pertaining to T1 or T2, which would be unrelated to the instruction provided during

the experimental treatment, and compare it with the analysis of the post-treatment revision data. My answer is that the two cannot be compared on equal terms, for the earlier versions of T1 or T2 would have inevitably been first drafts of the later versions, as opposed to two final versions of the same text. The changes writers make from a first to a final draft are conceptually different from the changes added to a final draft after a period of instruction, for although some of the former may indicate that learning has taken place, many of those changes are probably simply a result of what writers reassessed on the basis of what they already knew at a given stage of learning. In contrast to this, because T3 and T3\* are two **final** versions of text, the changes made from one text to the other are distinctively a result of what the participants learned (or failed to learn). When analysing the effects of instruction upon readability and feedback-independence, it is obviously very important to distinguish between the felicitous changes which indicate that learning has taken place and the felicitous changes which simply indicate that the writer was able to improve what he missed out in a previous draft, without having actually learned anything new.

The fact that the present analysis is based on just the written (and not verbal or retrospective) record of only two versions of text does not make the analysis any

simpler. To begin with, it is not an easy task to identify in a systematic way all the micro and macro-level changes that a writer makes from one version of text to another. Some changes can be embedded within other changes, and there can be different relationships of embedding. Problems of this sort mean that the analysis of what changed and of what should have changed but did not from T3 to T3\* can only be reliable if a consistent minimal unit of analysis is decided upon a priori. The first thing needed is therefore an operational definition for determining what a single change is.

In the present study, all changes in text which stand on their own and which are not simply a repetition of a previous change will be regarded as a single change. That is to say, irrespective of where in the text hierarchy micro or macro-level changes appear, all changes which are not contingent on other changes, and all changes which are not an exact repetition of a previous change are to be considered changes on their own right. For example, if the word "writing" is consistently substituted for the word "composing", the substitutions are to be regarded as a single change, for changes which are exactly the same but appear more than once in text count as a single change. Similarly, adding an appositive and adding a pair of commas to set it off is an example of a single change, for the commas would not have been added if the decision to add the appositive had not been made in the first place. The

addition of commas is contingent on the addition of the appositive, for the former is not really a revision of the punctuation of the pre-treatment final draft. A change which is contingent on another change should not be confused with a change which is a consequence of another change. For example, replacing a word with a synonym because the original word has been added to a neighbouring sentence (making it repetitive) is a change on its own right. The word added and the synonym used to avoid repetition are two separate changes, for latter does not depend on the former, even though one is presumably a consequence of the other. Also, a change which is contained within another change does not necessarily imply in dependency. For example, changing the order of words in a sentence and correcting the spelling of one of the words within that sentence are two independent changes which can occur separately.

Since the starting point of the analysis is the decomposition of all that changed from T3 to T3\* (and of all which should have been changed) into a number of single changes, the obvious disadvantage of the present definition of single change is that the details represented by the changes which are contingent on a single change will not be analysed independently. Thus if, for example, the addition of an appositive seems appropriate but the pair of commas to set it off is forgotten, it is only the combined effect of the two that will count. The advantages of adopting the



present definition of single change seem nevertheless far greater. Since little room is left for inference as to what a single is, it is not unduly problematic to identify the changes consistently: changes which are exactly the same will not be analysed as more than one change, and single changes will not be double-counted because, irrespective of whether they are very small or very large changes in text, changes which stand on their own cannot overlap with other independent changes. In addition to this, the present definition of single change makes it a lot simpler to synthese the results of the analysis, for if the minimal unit of analysis is an independent change, one does not have to assign different (and possibly arbitrary) weight to changes which are contingent on other changes. Details about how the revisions were transcribed in a way which highlights all single changes made from T3 to T3\* and the single changes which should have been made but were not will be provided later on in section 5.3.

Having adopted the above operational definition of what a single change is, the next problem to be tackled involves making<sup>a</sup> number of decisions on how to code them according to a system which provides meaningful answers to the research questions that motivated the analysis. To sort out the changes in the revisions in a way which would enable me to interpret them from the perspectives of readability and feedback-independence, and which would also enable me to

diagnose the kind of feedback needed by the participants. I devised a system which is based on the view that L2 writing development occurs when the writer becomes a better writer and reader of his own texts. In other words, progress along the L2 writing continuum takes place when the writer is able to improve writing product and facilitate the reading process of his interlocutors. Although from a holistic point of view it does not make sense to draw a distinction between these two components, it is important to note that from the analytical point of view different changes in writing product may affect similar components of the reading process and that, conversely, the same change in writing product may affect reading process in different ways.

The idea that linguistic phenomena can be analysed in terms of interdependent dimensions is by no means novel. More than sixty years ago, Jespersen (1924:33) pointed out that

"any linguistic phenomenon may be regarded either from without or from within, either from the outer form or from the inner meaning. In the first case we take the sound [or more broadly, the symbol] (of a word or some other part of linguistic expression) and then inquire into the meaning attached to it; in the second case we start with the signification and ask ourselves what formal expression it has found in the particular language we are dealing with."

In the present study, the system of analysis developed is made up of three different, albeit complementary, taxonomies. The first taxonomy consists of a set of

qualification categories which serve to discriminate between different ways in which readers may respond to the changes in the revisions, irrespective of what these changes actually are. This taxonomy is to be used in combination with the two other taxonomies, which are descriptive but not evaluative. It was important to keep this evaluative taxonomy separate from the descriptive ones because similar changes may cause readers to react in different ways, depending on the co-text of the changes. For example, combining two separate sentences via subordination might on one point in text have a positive effect upon readability but, on a different part of text, this same type of change may cause the reader to react negatively. More details about the taxonomy for qualifying revision will be given in section 5.4. I should perhaps nevertheless anticipate that the qualification categories discriminate between not only positive and negative changes, which have a directional effect upon readability, but also between other ways in which readers may respond to revision. Later on in chapter six it will be seen that some of the changes which do not have a directional effect upon readability are important to the interpretation of the results from the perspective of feedback-independence and to the subsequent diagnosis of what future instruction should focus on.

The second taxonomy of the system is, as said earlier, purely descriptive. It consists of categories which describe the revisions from the perspective of reading process. The taxonomy was used to sort out the changes in a way which would later on enable me to decompose readability into a number of smaller components, and hence find out how exactly readability changed from T3 to T3\*. Cross-references between the categories which describe which parts of the reading process were affected by the revisions and the qualification categories are not far from Jespersen's (1924) "inner meaning" dimension, and are important to the analysis of the comparative readability of the pre-treatment final drafts and the post-treatment revisions. These cross-references are also important to the understanding of whether the participants gained feedback-independence with respect to putting themselves in the shoes of their readers, and to the subsequent understanding of the kind of reader feedback the participants still, or no longer, needed. More details about the reading process taxonomy will be provided in section 5.5.

The third taxonomy is again purely descriptive. It is made up of a set of linguistic categories combined with a set of revision categories which together describe the post-treatment revisions from the perspective of writing product. This taxonomy was used to arrive at a simple, yet detailed, description of the transformations underlying the changes made by the participants. It is different from the

reading process taxonomy in that it serves to analyse revision from the viewpoint of the linguistic resources utilized by the writer, and is in this way similar to Jespersen's (1924) "outer form" dimension. While the reading process categories are useful when it comes to answering questions of the type "Does the reader find the revised text more coherent?", the writing product categories serve to answer questions of the type "Was the writer able to make better use of sentence adverbials?". Cross-references between the writing product and the qualification categories should help finding out whether the participants gained feedback-independence in terms of revising writing product and are useful when it comes to diagnosing the kind of writing product support the participants might benefit from in the future. Further details about this taxonomy are supplied in section 5.6.

Keeping the three taxonomies of the system distinct from one another enables one to extract a lot more information from the data available than if the same data were to be analysed in terms of a single dimension. One can take the writing product description of a change as a starting point, and then inquire into its effect upon reader response (via the qualification categories) and find out what part of the reading process that change affects (via the reading process categories). Similarly, one can start the analysis with the description of a change from the perspective of how that change affects reading process, and

then evaluate its effect upon reader response and find out what changed in terms of writing product. And finally, one can assess a change from the viewpoint of reader response first, and then describe what the writing product change underlying it was and what part of the reading process it affected.

Although the practical definitions of the categories within each taxonomy were in different ways and for different reasons relatively problematic, acceptable standards of consistency, breadth of coverage and reliability seem to have been accomplished after a series of adjustments derived from testing the categories in practice. These will be discussed later, after I describe the taxonomies. I must nevertheless stress that I am not proposing the definitive methodology for analysing revision. It should not be forgotten that the present system was pragmatically motivated, and is only a research tool for investigating treatment-effect and diagnosing writing instruction needs.

I will now proceed to explain how the single changes in the post-treatment revisions were identified and transcribed, after which I will give more details about the three taxonomies used to analyse them.

### 5.3 Post-treatment revision data

As already explained, the raw data upon which the present analysis is based consists of the final draft of T3, which represents the best version of text the participants could arrive at on their own before the treatment, and T3\*, which is the product of the participants' post-treatment revision of T3.

To highlight the revision changes made by the participants from T3 to T3\*, the two versions of text were initially transcribed onto side by side columns. This enabled me to focus on all that changed from one draft to another in an objective and systematic way, without losing sight of the co-text surrounding each individual change. Keeping co-text in mind was important, for otherwise it would not have been possible to separate single changes from changes which were contingent on, or exact repetitions of, other changes.

All independent changes made from T3 to T3\* were then in both drafts identified by numbers and, wherever possible, capital letters were used to highlight exactly what changed. The procedure for numbering and capitalizing was as follows:

- a. The forms that were changed from T3 to T3\* were capitalized in both versions:

T3  
This change was capitalized  
in THE TWO versions.

T3\*  
This change was capitalized  
-in BOTH versions.

- b. The changes were numbered such that what was changed in T3 and the corresponding changes introduced in T3\* were identified by the same number in the two versions; the numbers were inserted in square brackets to the left of each change<sup>z</sup>:

T3  
This is how [1] A CHANGE  
[2] SHOULD BE numbered.

T3\*  
This is how [1] THE  
CHANGES [2] WERE numbered

- c. Any recurring change was identified by the same number throughout the transcription to avoid treating it as more than one change:

T3  
Some changes may occur [3]  
TWICE. This is an example  
of how a change which  
occurs [3] TWICE should be  
numbered.

T3\*  
Some changes may occur [3]  
MORE THAN ONCE. This is an  
example of how a change which  
occurs [3] MORE THAN ONCE  
should be numbered.

- d. Whatever was deleted from text in the revisions was capitalized in T3 and, if the deletion was an independent change, the point of deletion was marked in T3\* by the number corresponding to the change:

T3  
This [4] ELEMENT is an  
example of deletion.

T3\*  
This [4] is an example of  
deletion.



e. Whatever was added to text in the revisions was capitalized in T3\* and, if the addition was an independent change, the point of addition was marked in T3 by the number corresponding to the change:

T3  
Sometimes an element may  
[5] be added to text.

T3\*  
Sometimes an element may  
[5] ALSO be added to text.

f. Whenever an independent change affected a larger stretch of text, the number identifying it appeared at the point in which T3 and T3\* forked; independent changes within such larger changes were identified by the number of the latter followed by decimal numbers:

T3  
This is an example of  
a change affecting a larger  
stretch of text. [6] IT  
CONTAINS [6.1] A SMALLER  
change within it.

T3\*  
This is an example of  
a change affecting a larger  
stretch of text [6] CONTAINING  
[6.1] ANOTHER change within  
it.

In addition to the record left by all that changed from T3 to T3\*, impression judgements on which of the two texts was more readable were obtained by asking the same native speakers who had assessed the overall readability of the pre and post-treatment essays (c.f chapter four) to decide whether T3 or T3\* was more readable. Each pre-treatment final draft and post-treatment revision was given to two different readers in a random order, and without them knowing which of the two versions was the latest draft.

Once the readers had decided which of the two versions was more readable, they were then required to revise and proofread T3\* by changing whatever they thought was necessary to improve its readability. The native speakers were allowed as much time as they wished to carry out this task. The points of change which both native speakers agreed that were necessary and which did not overlap with the changes made by the participants themselves<sup>33</sup> were then annotated on the transcriptions as follows:

g. The elements in T3\* which two different native speakers felt should be deleted, substituted or rearranged were underlined and then numbered on the margin of the transcriptions.

h. The elements in text which two native speakers felt should be added to T3\* were marked with the symbol " ^ " and equally numbered on the margin of the transcriptions<sup>4</sup>.

The transcriptions of the post-treatment revisions are supplied in appendix V. In the next three sections of this chapter I will describe the taxonomies used for analysing the single changes identified in the revisions.

5.4 A taxonomy for qualifying revision from the viewpoint  
reader response

The taxonomy developed in order to qualify revision seeks to offer an objective and comprehensive account of the ways in which readers are likely to respond to the revision data available. To my knowledge, the only other attempt to systematize the analysis of revision in this way was made by Jacobs (1989), who identified four main ways in which revision changes following peer feedback in the writing classroom could be qualified:

ORIGINAL	REVISION
1. wrong	right
2. wrong	wrong
3. right	right
4. right	wrong

Although the categories proposed by Jacobs seem very straightforward, their validity when it comes to evaluating how readers respond to revision is questionable. To begin with, Jacobs' "right-right" category does not take into account the possibility that even if two different forms are equally right, one may be more readable, and therefore qualitatively more desirable, than the other. Besides, the "right-right" category does not distinguish between revision changes which are right, but unnecessary, and revision changes which are right, and had to be made as a result of other changes. Another weakness of Jacobs'

taxonomy insofar as the qualitative analysis of revision is concerned is that his "wrong-wrong" category does not capture partial correction, which means information regarding forms which were wrong in the original and slightly less wrong in the revision - and therefore probably more readable - is lost. Moreover, none of the categories in Jacobs' taxonomy serve to account for the fact that it is sometimes impossible to qualify certain changes according to whether they are right or wrong. Changes which affect readability but not correctness, for example, are likely to fall into this group. Jacobs' idea of comparing the original with the revision is nevertheless extremely useful, and many of the validity problems raised can be overcome simply by rewriting his right/wrong dichotomy in terms of a continuum for discerning what is more and what is less readable in the revision.

The first two categories of the present taxonomy serve to identify the revision changes which have a directional effect upon readability. They are adaptations of Jacobs' "wrong-right" and "right-wrong" categories. The next two categories serve to distinguish between two different cases in which the readability of the revision is the same as that of the original. They draw on Jacobs' "wrong-wrong" and "right-right" categories. Categories five and six, in turn, are secondary categories which serve to identify the revision changes which cannot be mapped onto a readability continuum. No parallel with Jacobs can be drawn.

The user of the taxonomy should allow the following criteria to orient him when qualifying the changes in the revisions:

a. POSITIVE (+)

A change should be qualified as positive whenever it has a felicitous or partially felicitous effect upon readability. The changes qualified as positive are therefore changes which enhance readability in one way or another. Both full and partial correction, for example, should be marked positive. Similarly, positive should be coded not only when a part of the original which was incoherent is made coherent in the revision, but also when a revision change makes the text cohere more than it did before.

b. NEGATIVE (-)

A change should be qualified as negative whenever it has an infelicitous or partially infelicitous effect upon readability, i.e., when the revision does more harm than good. The changes qualified as negative are therefore changes which hinder readability in one way or another. For example, negative should be coded when an inappropriate and misleading surface marker of cohesion is introduced.

c. INEFFECTIVE (i)

A change should be qualified as ineffective whenever there is no gain or loss in readability because what was defective in the original was replaced by an equally

defective equivalent in the revision. The changes qualified as ineffective are therefore changes which cannot be qualified according to whether they enhance or hinder readability because their effect upon readability is neutral. For example, ineffective should be coded when an inappropriate form in the original is replaced by an equally inappropriate form in the revision. The changes qualified as ineffective should therefore disclose the cases in which the participant was aware that revision was necessary, but was unaware that his revision did not have the effect he desired.

d. UNNECESSARY (u)

A change should be qualified as unnecessary whenever there is no gain or loss in readability because the original was as good as the revision. Therefore, the changes marked unnecessary are again changes which have a neutral effect upon readability. For example, unnecessary should be coded when a felicitous downgrading adverbial is replaced by an equivalent downgrading adverbial which does not affect any other aspect of readability (such as appropriateness, if the adverbial is repeated too often). The changes qualified as unnecessary should disclose the cases in which the participant was insecure as to whether revision was really necessary, or the cases in which he was not aware that revision was unnecessary.

e. CONSEQUENTIAL (c)

A change should be qualified as consequential whenever there is no gain or loss in readability from T3 to T3\* because what was changed was an adjustment made as a result of other changes in the environment. This means that the changes qualified as consequential cannot be classified according to whether they help or hinder the readability of T3\* in relation to T3. For example, consequential should be coded when a noun is replaced by a synonymous noun because the addition of the former to a neighbouring sentence has made the word sound overly repetitive. The synonym would have been unnecessary had the noun not been repeated, but since it was, the synonym is consequential. The changes qualified as consequential should disclose the cases in which the revision of one part of text is a result of the revision of another part of text.

f. INDETERMINATE (?)

A change should be qualified as indeterminate whenever any judgement regarding gain or loss of readability depends on irrecoverable contextual information, i.e., additional information about the author's intended meaning or about the subject-matter of the essay. The changes qualified as indeterminate are therefore changes which again cannot be qualified according to whether they enhance or hinder readability. For example, changing an "and" for an "or" might affect coherence, but it is not always possible tell

whether it is for the better or for the worse in the absence of further contextual information. In such a case the change should be coded indeterminate.

All changes made by the participants from T3 to T3\* are to be qualified according to any one of the six categories presented above. For the qualification of the revisions from the perspective of reader response to be complete, however, a category which captures information regarding what readers feel should have been revised but was not is also required. In the present study, the additional changes annotated on the margin of the transcriptions, i.e., those which the two native speakers responsible for revising and proofreading T3\* felt would have further enhanced its readability, are taken to disclose this kind of information. Hence the seventh and last qualification category is:

g. NECESSARY (n):

All changes by the NS proofreaders which were annotated on the margin of the transcriptions should be qualified as necessary. It should be noted that because the native speakers responsible for introducing such changes were not familiar with the subject-matter of the essays nor with the participants' intended meanings, the changes qualified as necessary do not represent what the participants should have revised in order to better convey their intended



meanings to a knowledgeable audience. The changes qualified as necessary simply point towards the parts of text which, had the participants revised them as required, would have enhanced the readability of the essays in the eyes of native speakers conversant with the conventions of English expository prose.

To summarize, the taxonomy for qualifying revision from the perspective of reader response is made up of six categories which are applicable to the changes made by the participants (positive, negative, ineffective, unnecessary, consequential and indeterminate), and one category which is applicable to the additional changes introduced by the native speakers after the participants had finished revising (necessary). In the next section the taxonomy of categories for describing revision from the perspective of reading process will be presented.

### 5.5 A taxonomy for describing revision from the perspective of reading process

The taxonomy developed to record the manner in which the post-treatment revisions affected reading process draws on semantic theory and research in both cognitive psychology and text linguistics. From semantic theory and cognitive psychology come the basic concepts underlying written communication; from text linguistics come some of the surface features of English prose which are known to play an important role in enhancing readability. In particular, I benefited from insights by Grice (1975,1978), Clark and Haviland (1977), Kintsch and van Dijk (1978), Huckin (1983), Danes (1974), Enkvist (1978), Clyne (1984), Walker and Meyer (1980), Widdowson (1973), Carrel (1982) and Halliday and Hasan (1976).

The boundaries between one reading process category and another serve to discriminate between different factors which may affect readability, some of which can be considered more central than others. Although it is obvious that the distinction between what is more central and what is more ancillary is by no means a clearcut one, it seemed only reasonable to keep apart from one another changes which play distinctively different roles when readability is at stake. For example, the effect of greater accuracy upon readability can be very different from that of greater coherence.

In all, the following reader-oriented questions gave origin to the seven main categories used for describing the revisions from the perspective of reading process:

1. Can the reader distinguish between the main points and the supporting details of the text?
2. Does the reader find the author's degree of commitment to the truth of what is asserted in text convincing?
3. Does the reader find the text as informative as is required and not more informative than necessary?
4. Does the reader find the text coherent?
5. Are the reader's expectations as to the sequence of the information in text fulfilled?
6. Is the reader distracted by any mistakes?
7. Is the style of the text irritating to the reader?

Needless to say, the above questions may not exhaust all possibilities of how reading process was affected by the revisions. For this reason, an eighth category was created to account for any reaction the reader might have which is not identified by the main categories of the taxonomy, and to account for changes which do not affect reading process in any perceptible way. Still, it seems to me that the questions upon which the seven main reading process categories within the taxonomy are based are representative of the greatest part of predictable factors underlying what makes a reader in a given context find a text easier to process and more pleasant to read. The full definitions of the categories are presented below.

### 5.5.1 Categories for describing changes in reading process

#### 1. Levels effect (lev):

This category was created to account for any restructuring of text which changed the amount of emphasis given to the different pieces of information contained within it, and is therefore related to the first reader-oriented question at the root of the taxonomy. According to research in cognitive psychology, readers tend to process text hierarchically, paying more attention to, and finding it easier to recall, information which is presented at higher levels of the hierarchy (Walker and Meyer 1980). The phenomenon is known as "levels effect", and its implications for how written texts should be structured in an optimal way in terms of readability are summarized by Huckin (1983:95):

... the important points of a text should be placed in superior positions hierarchically: in headings, in subheadings, in topic sentences at the beginning of paragraphs, etc. If certain details are also important, they can be listed instead of subordinated; this manoeuvre "flattens out" the hierarchy and thus, in effect, puts supporting details on a higher level."

Hand in hand with this go the findings by Clyne (1984) of how English-speaking scholars normally organize texts, whereby pieces of information of equivalent status within a

hierarchy tend to be assigned equal emphasis, and higher-level information tends to receive more emphasis than lower-level information.

Levels effect was coded whenever the hierarchy of text was changed. Improvement with respect to levels effect is obviously not a matter of simply assigning more or less emphasis to the different points covered in text, but a question of balancing the emphasis assigned to these points such that it becomes easier to distinguish between which are more central and which are more ancillary. This category is primarily intended to capture the ability of the writer to revise his text so as to better inform his reader about the relative importance of the ideas in text.

2. Commitment (com):

This category was created to account for any changes in text which affected the force assigned to the different assertions within it, as is therefore related to the second reader-oriented question which gave origin to the taxonomy. Based on Grice's (1975, 1978) Maxim of Quality, strong assertions should be backed by evidence in their support or by the author's full and explicit responsibility. Whenever the above is not possible, the strength of assertions should be reduced. Commitment was coded whenever the strength of the assertions in text was downgraded,

upgraded, or simply changed. Improvement in relation to commitment is again more a matter of giving the right force to the different assertions in text than simply a matter of making them more or less strong. This category is primarily supposed to capture the ability of the writer <sup>to</sup> revise text so as to make his degree of commitment to the truth of the ideas in text more convincing to the reader.

### 3. Informativity (inf):

This category was created to account for any changes which expanded or reduced the amount of information conveyed through text, and therefore has to do with the third reader-oriented question upon which the taxonomy is based. According to Grice's (1975, 1978) Maxims of Quantity and Relevance, text should be made as informative as is required, and only relevant information should be included in text. Informativity was coded whenever existing information in text was expanded or reduced, and whenever new information was added or old information was deleted. Improvement in this respect is obviously a question of conforming more to Grice's Maxims of Quantity and Relevance rather than simply a question of increasing or diminishing the amount of information in text. This category therefore has in part to do with prolixity, for it is about the use of neither more nor less words than necessary. The essential aim of this category is to capture the writer's ability to revise text with this in mind.

#### 4. Coherence (coh):

This category was created to account for any changes which make a single reader in a given context perceive text as being more or less coherent, and is thus related to the fourth reader-oriented question at the root of the taxonomy. My working definition of coherence is based on schema theory, which maintains that textual coherence is a function of how the reader in a given context is affected by text, rather than a function of the text itself. Thus it is not necessarily just an increase in the amount of surface markers of cohesion that will make a text more coherent<sup>er</sup>. Based on Enkvist (1978), I take it that texts cohere more when:

- a. coherent cohesive devices (i.e., those which evoke schemata that put the reader in the right frame of mind) are added to text;
- b. incoherent cohesive devices (i.e., those which evoke schemata that put the reader in the wrong frame of mind) are deleted from text;
- c. incoherent cohesive devices are replaced by coherent ones;
- d. no surface markers of cohesion are added, deleted or replaced, but the text is restructured in a way which makes information which was previously incoherent or not very coherent to the reader coherent or more coherent.

Coherence was coded whenever the changes introduced made the reader in a given context perceive the text as being more or less coherent, or simply (in)coherent in a different way, irrespective of whether or not surface markers of cohesion were resorted to. Unlike the first

three types of reading process categories described, for which improvement was a question of getting closer to an optimum level, the more a text coheres, the better. This category is intended to capture the writer's ability to revise text so as to ensure his reader can make better sense of it, or simply make sense of the text more easily.

5. Information-Structure (is):

This category was created to account for any changes of information-structure in text which made it develop in accordance, partial accordance or non-accordance with the reader's expectations. It is based on the fifth reader-oriented question at the origin of the taxonomy. According to Clark and Haviland (1977), the expectations of readers of English with respect to information-structure are more likely to be confirmed when given information has precedence over new information. In this way text becomes easier to process because the reader does not have to postpone finding out how new information relates to what has already been said or implied. After Danes (1974), three major ways of presenting information in English expository prose, which can combine among themselves, conform to the given-new contract:

a. Linear progression: given information in each stretch of text refers backwards to new information in the preceding co-text.

b. Constant topic: given information is repeated as new information is progressively added on to the text.



c. Hypertheme: given information associated with a single overriding theme precedes the addition of new information.

Information-structure was coded whenever the changes introduced affected the sequence of information in text. Unlike the previous reading process categories, improvement with respect to information-structure is neither a matter of getting closer to an optimum balance nor a matter of the more the better; it is simply a question of whether or not information is presented in a predictable fashion. This category is intended to capture the writer's ability to revise text so as to better fulfil his reader's expectations with regard to the sequencing of information in text.

6. Accuracy (acc):

This category was created to account for any changes in text which made it adhere to or infringe English grammar and spelling conventions, and is therefore based on the sixth reader-oriented question proposed. The category allows for both absolute judgements, i.e., the correction of incorrect forms or vice-versa, and relative judgements, i.e., the partial correction of incorrect forms or vice-versa. Overall improvement in relation to accuracy is, like coherence, a question of the more the better. The category aims to capture the writer's ability to revise text so as to avoid any mistakes which could distract his reader or even cause breakdowns in communication.

7. Appropriateness (app):

This category was created to account for any changes in text which made it conform more or less to English usage in general and to specific stylistic choices characteristic of English expository prose. It has to do with the seventh reader-oriented question upon which the taxonomy is founded, and is above all a category in which factors such as access to appropriate lexis and unity of style are considered. Because all previous reading process categories can in one way or another be ultimately related to usage and style, it must be made clear that this category should only be used when a change affects appropriateness in a way which does not overlap with accuracy, information-structure, coherence, informativity, commitment or levels effect. Appropriateness was therefore coded whenever any change relative to usage and style which did not relate to the other reading process categories was made. Improvement with respect to appropriateness is, like coherence, not a matter of getting closer to the right degree of appropriateness, but one of making as many felicitous changes in style and usage as possible. This category is primarily intended to capture the writer's ability to revise text so as to ensure his reader is not irritated or distracted by any incongruities of usage and style.

#### 8. Other (oth):

This category was created to account for changes which do not affect reading process in a perceptible way, and for changes which affect reading process but cannot be coded according to any of the seven main reading process categories predicted by the system (not even appropriateness). It goes without saying that the category is a secondary one, and should only be used when none of the seven other categories can be applied.

#### 5.5.2 Using the reading process categories

All changes in the revisions should be coded according to one, and only one, of the above categories. However, from the definitions given and notwithstanding the limitations imposed on the use of the categories "appropriateness" and "other", on some occasions the user of the taxonomy might respond to a change in terms of more than one category at a time. Whenever this occurs, only the most predominant response should be coded; the rationale behind this was to preserve the discriminating power of the system by thwarting the reader's tendency to overanalyse his own response, and in this way prevent him from finding all categories applicable to all changes. As in the case of "appropriateness", if the user of the system perceives the

inclusion of a category within another, he should only code the more specific category. For example, if a change affecting information-structure also affected coherence in a more general sense, he should give priority to information-structure.

Finally, it should be self-evident that not all reading process categories within the present taxonomy can combine with the whole range of categories within the taxonomy for qualifying reader response. When a change assigned to the reading process category "other" does not affect reading process in a perceptible way, for example, it can obviously not be qualified as being positive, negative or necessary. These changes will therefore only be coded according to the other qualification categories. Similarly, changes assigned to the reading process category "accuracy" cannot be qualified as unnecessary or indeterminate; they can therefore only be qualified as positive, negative, ineffective, consequential or necessary. Likewise, changes in "information-structure" cannot be qualified as indeterminate. In theory, the changes assigned to the remaining reading process categories can be coded in combination with the whole range of categories qualifying reader response.

In the next section, the taxonomy used to describe the changes identified in the revisions from the viewpoint of writing product will be presented.

5.6 A taxonomy for describing revision from the perspective of writing product

The taxonomy developed for describing the post-treatment revisions in terms of writing product recognizes the two fundamental components of linguistic organization: paradigmatic and syntagmatic. According to Widdowson (1973:118-119), this enables one

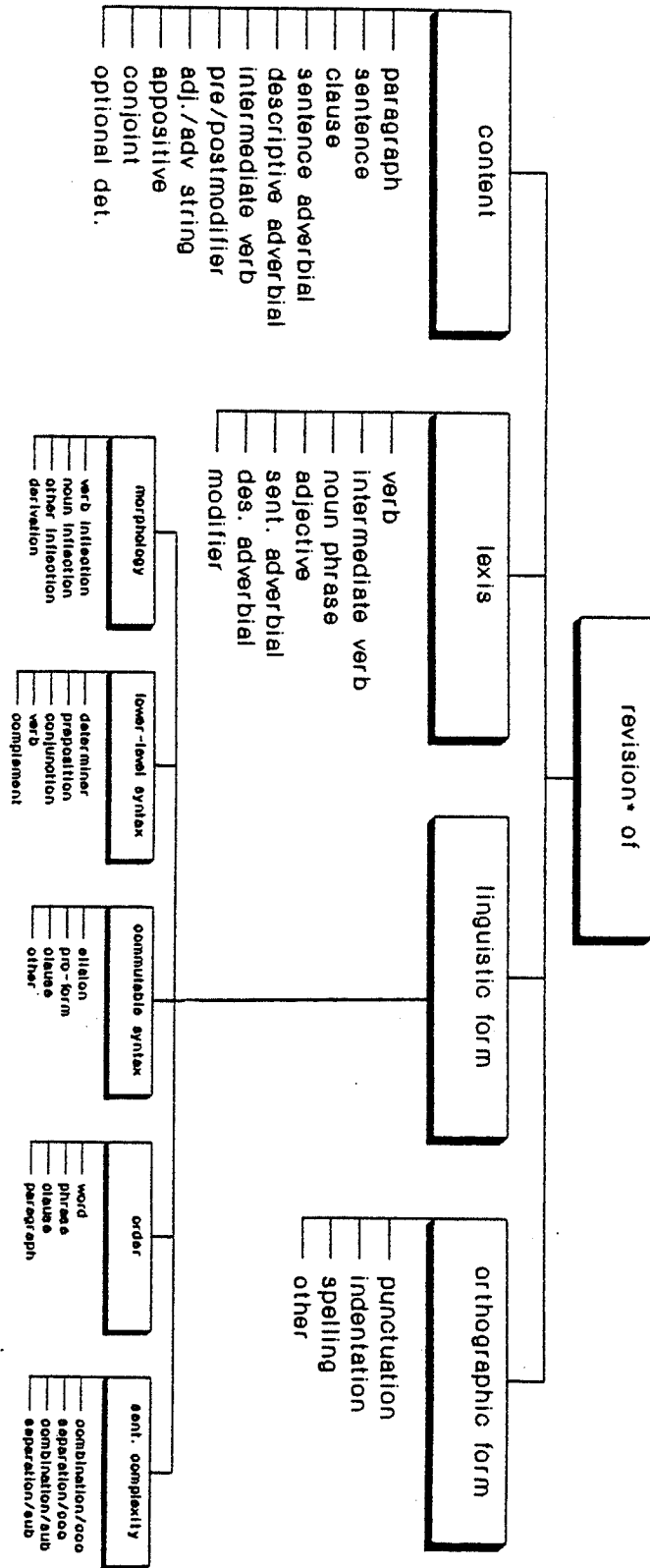
"to extend the principles of linguistic description beyond the limit of the sentence. One can study the structure of text paradigmatically by tracing the manner in which the constituent linguistic elements are related along the axis of equivalence, or one can study it syntagmatically by tracing the manner in which the linguistic elements are related along the axis of combination."

Combining two sentences in an essay, for example, can be viewed syntagmatically in relation to the structure of the two sentences that were combined, but paradigmatically in relation to the surrounding co-text, i.e., the neighbouring sentences. Because the revision of an essay often transcends sentence boundaries, it is obviously necessary to "extend linguistic description" in this way when analysing it. Any reasonable taxonomy for describing revision from the viewpoint of writing product must be powerful enough to capture both within and beyond sentence-level changes in text.

In the present taxonomy, the categories used to describe the revision of writing product seek to offer a comprehensive account of how the most micro to the most macro-level linguistic elements in text were subjected to different transformations. The categories were conceived under the influence of both the transformations identified by Chomsky, i.e., deletion (d), addition (a), substitution (s) and reordering (r), and the grammatical description of the English language proposed by Quirk, Greenbaum, Leech and Svartvik (1985).

As a precaution in case some of the changes assigned to categories capturing mere details of the revision be too infrequent to be analysed on their own right, the categories were organized hierarchically, in a way which allowed me to focus either on a detailed or a general description of how writing product was revised. A bird's eye-view of the hierarchy which rules the taxonomy is presented in figure 5.1. It helps visualising how the sub-categories lower down in the hierarchy, which describe the writing product changes in detail, relate to the four macro-categories at the top of the hierarchy, which simply discriminate between general changes in content, lexis, linguistic and orthographic form.

Figure 5.1 Categories for describing the revision of writing product



5.6.1 Categories for describing the revision of  
writing product

The definitions of the categories in figure 5.1 are presented below.

1. CONTENT (Co.a/d)

The changes assigned to the macro-category for content are all those in which information-units are added to or deleted from text. No distinction is made between the addition of information-units which actually bring new information to text and the addition of information-units which paraphrase, or in any other way reiterate, existing information in text. Likewise, no distinction is made between the deletion of information-units which remove unique information from text and the deletion of information-units which remove information stated elsewhere in text<sup>a</sup>. The changes assigned to the macro-category for content must also be coded according to one of the following sub-categories, which serve to describe the information-units added to or deleted from text in further detail:

1.1 PARAGRAPH (Co.Par.a/d)

- describes the addition or deletion of entire paragraphs



1.2 SENTENCE (Co.Sent.a/d)

- describes the addition or deletion of sentences within paragraphs

1.3 CLAUSE (Co.Cls.a/d)

- describes the addition or deletion of clauses which are immediate constituents of sentences

1.4 SENTENCE ADVERBIAL (Co.Sadv.a/d)

- describes the addition or deletion of adverbials which are peripheral to the clause structure. E.g. Co.Sadv.d:

He likes the idea but does not, [1] HOWEVER, have the time to follow it up.	He likes the idea but does not [1] have the time to follow it up.
---	---

1.5 DESCRIPTIVE ADVERBIAL (Co.Dadv.a/d)

- describes the addition or deletion of adverbials which are intrinsic to the clause structure, i.e., those which add descriptive meaning to the circumstances of situation. E.g. Co.Dadv.a:

It has been raining a lot [2].	It has been raining a lot [2] LATELY.
--------------------------------	---------------------------------------

1.6 VERB OF INTERMEDIATE FUNCTION (Co.Vif.a/d)

- the term is borrowed from Quirk et al. (1985); describes the addition or deletion of modal verbs and expressions, semi-auxiliaries and catenative verbs. E.g. Co.Vif.a:

It [3] IS true.

It [3] MUST BE true.

1.7 PREMODIFIER (Co.Premod.a/d)

- describes the addition or deletion of premodifiers. E.g.

Co.Premod.d:

The [4] RESEARCH methods.      The [4] methods.

1.8 POSTMODIFIER (Co.Postmod.a/d)

- describes the addition or deletion of postmodifiers. E.g.

Co.Postmod.a:

He borrowed the book [5].      He borrowed the book [5] ON  
VERBS.

1.9 ADJECTIVE STRING (Co.AdjStr.a/d)

- describes the addition of an adjective next to another adjective to form a string of adjectives, or the deletion of an adjective from a string of adjectives. E.g.

Co.AdjStr.d:

A [6] NICE old lady.      An [6] old lady.

1.10 ADVERB STRING (Co.AdvStr.a/d)

- describes the addition of an adverb next to another adverb to form a string of adverbs, or the deletion of an adverb from a string of adverbs. E.g. Co.AdvStr.a:

The work is now [7]  
completed.

The work is now [7] FINALLY  
completed

1.11 APPOSITIVE (Co.Appos.a/d)

- describes the addition or deletion of appositives, i.e.,  
coreferential linguistic units that are paratactically  
linked together. E.g. Co.Appos.d:

Edinburgh, [8] THE CAPITAL  
OF SCOTLAND, is a very  
windy city.

Edinburgh [8] is a very windy  
city.

1.12 CONJOINT (Co.Cjoint.a/d)

- describes the addition or deletion of elements linked by  
coordination to elements of equivalent status within the  
clause. E.g. Co.Cjoint.a:

John likes cooking [9].

John likes cooking [9] AND  
CLEANING.

1.13 OPTIONAL DETERMINATIVE (Co.OpDet.a/d)

- describes the addition or deletion of determinatives  
which do not affect grammaticality. E.g. Co.OpDet.a:

[10] Those elements.

[10] BOTH those elements.

2. LEXIS (Lx.s)

The changes assigned to the macro-category for lexis are  
all those which involve the substitution of content-words  
or expressions. The category allows for non-L2 forms and

strings of more than one orthographic word which read as a unit. All changes assigned to the macro-category for lexis must also be coded according to one of the following sub-categories:

2.1 VERB (Lx.Verb.s)

- describes word-choice revision of main verbs, including phrasal-verbs. E.g. Lx.Verb.s:

He [11] TOOK OFF her shoes. He [11] REMOVED her shoes.

2.2 VERB OF INTERMEDIATE FUNCTION (Lx.Vif.s)

- describes word-choice revision of verbs of intermediate function. E.g. Lx.Vif.s:

You [12] MUST call her. You [12] HAVE TO call her.

2.3 NOUN PHRASE (Lx.NP.s)

- describes word-choice revision of the whole noun phrase or just the head. E.g. Lx.NP.s:

[13] THE DISEASE is contagious. [13] MENINGITIS is contagious.

2.4 MODIFIER (Lx.Mod.s)

- describes word-choice revision of noun, adjective or adverb-phrase modification and complementation elements. E.g. Lx.Mod.s:

It happens [14] VERY often. It happens [14] QUITE often.

### 2.5 ADJECTIVE (Lx.Adj.s)

- describes word-choice revision of whole adjective phrases or just the head. E.g. Lx.Adj.s:

The building is very [15] TALL.      The building is very [15] HIGH.

### 2.6 DESCRIPTIVE ADVERBIAL (Lx.Dadv.s)

- describes word-choice revision of whole, or just the head of, adverb phrases which are intrinsic to the sentence.

E.g. Lx.Dadv.s

She worked [16] SLOWLY.      She worked [16] CAREFULLY.

### 2.7 SENTENCE ADVERBIAL (Lx.Sadv.s)

- describes word-choice revision of the whole, or just the head of, adverb phrases which are peripheral to the sentence. E.g. Lx.Sadv.s:

[17] THUS it ended up well.      [17] HENCE it ended up well.

## 3. LINGUISTIC FORM (Lf.a/d/s/r)

The macro-category for linguistic form describes morphological, syntactic and discursal transformations which do not involve changes in lexis or content. From figure 5.1 it can be seen that the category is very ample

and contains two levels of sub-categories. All changes assigned to linguistic form must be coded according to the higher-level sub-categories for morphology, lower-level syntax, commutable syntactic forms, sentence complexity or order, and then according to the appropriate lower-level sub-categories within them:

### 3.1 MORPHOLOGY (Lf.Morph.s)

This higher level sub-category of linguistic form describes the revision of inflectional or derivational morphology. The lower-level sub-categories embedded to it are:

#### 3.1.1 VERB INFLECTION (Lf.Morph.VI.s)

- describes the revision of inflectional variants of the same verb-lexeme. E.g. Lf.Morph.VI.s:

He [18] IS very patient.            He [18] HAS BEEN very patient.

#### 3.1.2 NOUN INFLECTION (Lf.Morph.NI.s)

- describes the revision of inflectional variants of the same noun-lexeme. E.g. Lf.Morph.NI.s:

She studied the [19] RESULT.            She studied the [18] RESULTS.

#### 3.1.3 OTHER INFLECTION (Lf.Morph.OI.s)

- describes the revision of inflectional variants of other lexemes, such as adjectives and pro-forms. E.g. Lf.Morph.OI.s:

The party was [20] AS GOOD  
AS I expected.

The party was [20] BETTER  
THAN I expected.

#### 3.1.4 DERIVATION (Lf.Morph.Dr.s)

- describes the revision of derivational variants of the same lexical item. E.g. Lf.morph.Dr.s:

\*She is a very [21]  
ACTIVELY person.

She is a very [21] ACTIVE  
person.

#### 3.2 LOWER-LEVEL SYNTAX (Lf.Lls.a/d/s)

This higher-level sub-category of linguistic form describes syntactic transformations which capture grammar mistakes either in the original or in the revision or in both. The lower-level sub-categories embedded to it are:

##### 3.2.1 DETERMINER (Lf.Lls.det.a/d/s)

- describes the addition, deletion or substitution of syntactically obligatory or non-permissible determiners. E.g. Lf.Lls.Det.a:

\*In [22] atmosphere.

In [22] THE atmosphere.

##### 3.2.2 PREPOSITION (Lf.Lls.Prep.a/d/s)

- describes the addition, deletion or substitution of syntactically obligatory or non-permissible prepositions. E.g. Lf.Lls.Prep.s:

\*It depends [23] IN the weather.

It depends [23] ON the weather.

### 3.2.3 CONJUNCTION (Lf.Lls.Conj.a/d/s)

- describes the addition, deletion or substitution of syntactically obligatory or non-permissible conjunctions.

E.g. Lf.Lls.Conj.a:

\*The cat [24] the dog are outside in the garden.

The cat [24] AND the dog are outside in the garden.

### 3.2.4 VERB (Lf.Lls.V.a/d)

- describes the addition or deletion of syntactically obligatory or non-permissible verb elements. E.g.

Lf.Lls.V.a:

\*The idea can [25] useful.

The idea can [25] BE useful.

### 3.2.5 COMPLEMENT (Lf.Lls.Comp.a/d)

- describes the addition or deletion of syntactically obligatory or non-permissible verb complementation phrases.

E.g. Lf.Lls.Comp.d:

He described [26] IT to me.

\*He described [26] to me.



### 3.3 COMMUTABLE SYNTACTIC FORMS (Lf.Csf.s)

This higher-level sub-category of linguistic form describes substitutions involving commutable syntactic forms within the clause. The lower-level sub-categories embedded to it are:

#### 3.3.1 PRO-FORMS (Lf.Csf.Pro.s)

- describes the substitution of a full form by a pro-form or of a pro-form by a full form. E.g. Lf.Csf.Pro.s:

[27] IT is inconclusive.                      [27] THE EVIDENCE is  
inconclusive.

#### 3.3.2 ELISION (Lf.Csf.El.s)

- describes the elision of a fully or partially recoverable element, or the restitution of a previous elision. E.g. Lf.Csf.El.s:

He said [28] he didn't                      He said [28] THAT he didn't  
know.    know.

#### 3.3.3 CLAUSE (Lf.Csf.Cls.s)

- describes a change of clause type. E.g. Lf.Csf.Cls.s:

She [29] WRITES WELL.                      She [29] IS A GOOD WRITER.

### 3.3.4 OTHER (Lf.Csf.O.s)

- describes other within-clause substitutions involving commutable syntactic forms. E.g. Lf.Csf.O.s:

You can depend [30] UPON his advice.      You can depend [30] ON his advice.

### 3.4 SENTENCE COMPLEXITY (Lf.Sc.s)

This higher-level sub-category of linguistic form describes transformations involving changes in sentence complexity. The lower-level sub-categories embedded to it are:

#### 3.4.1 SEPARATION/SUBORDINATION (Lf.Sc.Sep.Sub.s)

- describes the separation of a subordinate clause from the superordinate element (a clause or a phrase) it was attached to; i.e. they become coordinate or (part of) separate sentences. E.g. Lf.Sc.Sep.Sub.s:

[31] He said he was sorry,      [31] He said he was sorry.  
ALTHOUGH she wasn't really      BUT she wasn't really  
upset.      upset.

#### 3.4.2 SEPARATION/COORDINATION (Lf.Sc.Sep.Coo.s)

- describes the separation of conjoins (coordinate clauses or phrases); i.e., coordinate clauses become (part of) separate sentences, and coordinate phrases become part of separate clauses or sentences. E.g. Lf.Sc.Sep.Coo.s:

[32] I love cooking BUT      [32] I love cooking. I hate  
hate doing the washing up.      doing the washing up.

### 3.4.3 COMBINATION/SUBORDINATION (Lf.Sc.Comb.Sub.s)

- describes the combination of two separate sentences or coordinate clauses such that one becomes subordinate to (part of) another. E.g. Lf.Sc.Comb.Sub.s:

[33] This is the article. I telling you about IT the other day. [33] This is the article I was telling you about the other day.

### 3.4.4 COMBINATION/COORDINATION (Lf.Sc.Comb.Coo.s)

- describes the combination of (parts of) two separate sentences by coordination. E.g. Lf.Sc.Comb.Coo.s:

[34] She is fed up. She is tired. [34] She is fed up AND tired.

### 3.5 ORDER (Lf.Ord.r)

This higher-level sub-category of linguistic form describes the reordering of elements in text. The lower-level sub-categories embedded to it are:

#### 3.5.1 WORD (Lf.Ord.Word.r)

- describes the revision of the position of isolated words in the text; the new position of the word is need not necessarily be within the same phrase, and morphology or lexis, but not meaning, may change so that the form adapts itself to its new environment. E.g. Lf.Ord.Word.r:

I have a cat and a dog [35] I have [35] BOTH a cat and a TOO. dog.

### 3.5.2 PHRASE (Lf.Ord.Phr.r)

- describes the revision of the position of a phrase in the text; the new position of the phrase need not necessarily be within the same clause, and active voice may be changed into passive or vice-versa. E.g. Lf.Ord.Phr.r:

[36] There are too many cars in Lisbon.

[36] In Lisbon there are too many cars.

### 3.5.3 CLAUSE (Lf.Ord.Cls.r)

- describes the revision of the position of a clause or a sentence in the text; the new position of the clause or sentence need not necessarily be within the same sentence or paragraph. E.g. Lf.Ord.Cls.r:

[37] Although there is still a lot to be done, she can now see the light at the end of the tunnel.

[37] She can now see the light at the end of the tunnel, although there is still a lot to be done.

### 3.5.4 PARAGRAPH (Lf.Ord.Par.r)

- describes the revision of the position of a paragraph in the text.

## 4. ORTHOGRAPHIC FORM (Of.a/d/s)

The changes assigned to the last macro-category are all those in which orthographic form was revised. The sub-categories within it are:

4.1 PUNCTUATION (Of.Punct.a/d/s)

- describes the addition, deletion or substitution of punctuation markers.

4.2 INDENTATION (Of.Ind.s)

- describes paragraph indentation or merging.

4.3 SPELLING (Of.Spell.s)

- describes the revision of spelling.

4.4 OTHER (Of.O.a/d/s)

- describes any other orthographic change; for example, capitalizing, underlining, numbering listed items, and so on.

5.6.2 Coding system for changes which embrace more than one category

Different categories within the present taxonomy can and often do overlap when applied to the changes identified in the revisions. The reason why they do is that a single change was defined as a change which is not contingent on any other change (c.f. section 5.2). This means that a single change can contain a number of smaller, dependent changes, the result of which is that it can be coded

according to both the category which describes the single change as whole and the categories which describe the smaller, dependent components of the change. Although multiple-coding single changes in this way is in theory possible, changes which are not independent would start overlapping with changes which are, and it would become extremely complex to make cross-references between single changes which were multiple-coded in terms of writing product, but then single-coded in terms of the reading process and qualification categories.

It was therefore determined that all single changes should be coded according to one, and only one, combination of higher plus lower-level categories going down the hierarchy which rules the taxonomy (c.f. figure 5.1). However, since some changes will embrace categories which belong to different branches of this hierarchy, and since some changes will embrace more than one sub-category of the category immediately above it in the hierarchy, it is necessary to be consistent about the ways in which changes that conform to these mutually exclusive categories are coded. My aim in this section is to explain the system adopted in order to code these changes in a consistent and meaningful way.

I. HOW TO CODE CHANGES WHICH EMBRACE MORE THAN ONE SUB-CATEGORY OF THE CATEGORY IMMEDIATELY ABOVE IT IN THE HIERARCHY WHICH RULES THE TAXONOMY

The only sub-categories belonging to the same branch of the hierarchy which rules the taxonomy which can overlap are the sub-categories of content. These overlaps can only occur when one change is a smaller part of another. For example, the addition of a paragraph entails the addition of at least one sentence. Let us therefore suppose that a paragraph consisting of six separate sentences is added to text. Although a sentence is by definition an independent unit of text, in this study paragraph addition is an example of single change, for the six sentences which made up the paragraph were not added to text independently, but were contingent on the addition of the paragraph as a whole. Defining a single change in these terms enables me to distinguish between the addition of entire paragraphs and the addition of a single sentence within a paragraph. Clearly, it is important to preserve the difference between adding a sentence within a paragraph and adding a paragraph consisting of one or more sentences, for the two serve different purposes in an essay. A decision will therefore have to be made as to how this single change will be coded, for paragraph and sentence addition are two mutually exclusive categories (the two are sub-categories of content). When this kind of overlap occurs, it seems logical and is straightforward to use the coding system from top to down, and ignore the changes that are contingent on other changes. This means that in the above

paragraph containing sentences example, only paragraph addition should be coded. What is inevitably lost is the number of sentences, clauses, etc. contained in the paragraph that was added. Paragraph addition is nevertheless the category which accounts for the most complete description of the single change as a whole. Thus whenever sub-categories of content overlap, only the topmost or most all-embracing category should be coded, and all other details of the description should be ignored.

## II. HOW TO CODE CHANGES WHICH EMBRACE CATEGORIES WHICH BELONG TO DIFFERENT BRANCHES OF THE HIERARCHY WHICH RULES THE TAXONOMY

The system of priorities for coding single changes which embrace categories which belong to different branches of the hierarchy which rules the taxonomy is similar in principle to the one for coding single changes which embrace overlapping sub-categories of content, i.e., it too is top-down and ignores changes which are contingent on other changes. However, because it is not as simple to apply the top-down principle to categories belonging to different branches of the taxonomy, I will go over a few common examples of categories which overrule other categories. It should be noted that in the same way as in the coding of content changes, some of the details of the description will be admittedly lost because of the coding priorities adopted.



1. The orthographic form sub-category for punctuation is overruled by the linguistic form sub-categories for elision and sentence-complexity and by certain content categories when changes in punctuation are contingent on changes of elision, sentence-complexity or content. That is to say, punctuation alone cannot be said to be an independent part of the revision of the pre-treatment draft when these overlaps occur. The revision of punctuation should therefore only be coded if it does not overlap with elision, sentence-complexity or content. Examples:

a. The addition or deletion of full-stops is always overruled by the sentence-complexity categories.

b. The addition of commas, dashes, brackets, semi-colons and colons are overruled by the elision category when the former are used to replace a word.

c. The addition of a pair of commas is overruled by the addition of an appositive:

Lisbon is very noisy.

Lisbon, THE CAPITAL OF PORTUGAL, is very noisy.

What is lost is whether or not the changes in punctuation which normally accompany the addition of an appositive and

the changes in sentence-complexity and elision were actually made.

2. The linguistic form sub-category for morphology is overruled by the categories for both lexis and order when changes in morphology are contingent on changes in lexis or order. The revision of morphology should therefore only be coded when no overlaps with order or lexis occur. Examples:

d. Verb Lexis overrules Morphology:

He WAS GIVEN a book

He RECEIVED a book.

e. Phrase Order overrules Morphology:

HE was given a book

A book was given TO HIM.

What is lost is whether or not morphology was changed as required.

3. The category for elision is overruled by the category for sentence complexity whenever a change in the former is contingent on the latter transformation. Example:

f. Sentence Complexity overrules elision:

Mary has read the article. SHE thinks it is very good.

Mary has read the article and (SHE) thinks it is very good.

What the system does not capture in the above example is whether or not the person revising chose to delete the optional pronoun. However, since such a deletion is only optional when the two sentences are combined, the deletion cannot be said to be part of the revision of the pre-treatment draft.

4. The category for pro-forms is overruled by the category for order whenever they overlap. Example:

g. Clause Order overrules Pro-Forms:

If you think the BOOK is useful, you should buy IT.

You should buy the BOOK if you think IT is useful.

One should note that the system does not capture whether or not the person revising reordered the clauses without inverting nouns and pronouns:

You should buy it, if you think the book is useful.

5. The category for clause type is overruled by the category for sentence-complexity whenever they overlap.

Example:

h. Sentence Complexity overrules Clause Type:

Mary has read the article. She thinks it is very good.

Mary thinks the article she has read is very good.

6. The category for sentence complexity is overruled by the category for order whenever they overlap. Example:

i. Clause Order overrules Sentence Complexity:

John likes Mary, but Mary likes George. Love can be very complicated.

John likes Mary. But love can be very complicated, FOR Mary likes George.

To summarize, the user of the taxonomy should allow the following principle to guide him:

A single change which embraces two or more mutually exclusive categories is to be coded only according to the category which accounts for the most complete description of the change as a whole. In other words, since only the most all-embracing category is to be used to describe a change, it is the top-down principle which ultimately determines which mutually exclusive categories overrule which others.

The disadvantage of using the categories from top to down is that certain details of the description will be lost. The top-down principle is nevertheless both versatile and reliable when it comes to arbitrating which of two or more mutually exclusive categories accounts for the most complete description of a single change.

### 5.7 Reliability of the system

The analysis of revision - via the description of changes in writing product and reading process, and via the qualification of such changes from the perspective of reader response - brings to surface problems of interpretation which must be dealt with reliably in order for the results derived from such an analysis to be internally valid. Reliability is not always easy to achieve when reader-dependent interpretation is part of the system of analysis.

Faigley and Witte (1981) nevertheless claim to have achieved a 90% mark of interrater reliability in the system they developed for comparing the revision of meaning by skilled and unskilled writers. However, in obtaining that mark, they do not mention having distinguished between the categories of their system which had little reason to be unreliable and those which did. The 90% rate they obtained seems to have been based on both their formal categories, which pose no problems of interpretation, and their meaning categories, where the built in distinction between "meaning-preserving" and "meaning non-preserving" changes seems to entail a rather significant amount of reader-dependent interpretation. In view of this, it would not be surprising if the extremely high reliability of the system

was boosted, and hence distorted, by the probable 100% reliability of their formal categories for spelling, punctuation, tense, etc.

In the present study, the categories within the taxonomy for describing revision in terms of writing product were simply excluded from the test for reliability because they are not reader-dependent, and because the priorities adopted for coding changes which embraced more than one category left practically no room for interrater variability. The taxonomies for describing revision from the perspective of reading process and for qualifying revision from the perspective of reader response, however, have every reason to be potential sources of unreliability inasmuch as they are by definition reader-dependent.

The two taxonomies were therefore tested for reliability by having myself and a second coder - with a background knowledge similar to mine - apply them independently to the entire post-treatment revision by Wilson, a randomly selected participant. The second marker was given the transcription of Wilson's revision plus a coding sheet which already contained the writing product description of his 84 changes, and was asked to code those same changes in terms of reading process and reader response. In order to do so, he was advised to allow himself to be oriented by a previous draft of the sections of present chapter which describe the system. That earlier version of the chapter

was almost identical to the present one, but it is important to note that the description of the reading process category for appropriateness did not include the explanation that the category should only be used if appropriateness did not overlap with coherence, informativity, accuracy and the other main categories of the taxonomy.

The qualification categories were accepted as being reliable since the rate of agreement reached was of 87%, with no particular disagreement between the use of any two categories having prevailed. It is also worth noting that both myself and the second coder were able to apply those categories with no difficulty whatsoever.

The rate of agreement for the reading process categories reached the slightly lower mark of 76%, but they too were accepted as being reliable. Most of the disagreement involved the category appropriateness, which overlapped mainly with informativity, coherence and accuracy. Appropriateness understandably seems to be the most subjective category of the taxonomy inasmuch as readers seldom agree on matters of usage and style. Still, I chose not to reject appropriateness as an entirely unreliable category insofar as the rate of agreement for appropriateness alone was more than two times higher than the rate of disagreement. I nevertheless decided that, in order to improve its reliability, the description of the



category should include the explanation that appropriateness should not have precedence over the other reading process categories if overlaps occurred.

Finally, although no formal test of reliability was applied to the writing product categories, the second coder commented that he had no queries about the ways in which I had used those categories to code Wilson's changes in terms of writing product.

## Notes to chapter five

1. For some authors (Smith 1982, for example), only the more profound, reorganization changes in text are part of revision. Surface-level changes are part of what they call editing. This distinction will not be made in this study, for I am interested in both micro and macro-level changes in text, without submitting them to any prior analysis. The term revision shall therefore be used in its more generic sense, that is to say, meaning both editing and revising.

2. The numbers in T3 are in an ascending order; this order may be different in T3\* if elements have been shifted to completely different points in text in the revision.

3. The changes by the native speakers which coincided with the changes made by the participants themselves were not taken into account inasmuch as the corresponding points of change had already been identified in the transcriptions.

4. The reason why what is marked on the transcriptions is only the location of the changes that both native speakers found necessary (rather than the actual changes they made) is that the alternative forms proposed by the two native speakers, although necessarily similar, tended to vary unless the change in question involved the correction of spelling, prepositions or of other forms which could only be replaced by a single correct form. For example, when the two native speakers responsible for the revision and proofreading of the T3\* by a single participant agreed that he or she had made a spelling mistake, they simply corrected spelling in the only possible way in which spelling could be corrected; when the two native speakers agreed that the participant had used inappropriate lexis, however, they replaced the inappropriate word in question with a more appropriate word which was not always the same.

5. I do not think the operational definition of coherence adopted justifies dwelling on the argument between authors who apparently equate coherence with an extended definition of the term cohesion (Halliday and Hasan 1976) and authors who condemn this position in affirming that "cohesion is not coherence" (Carrel 1982 is notable for this, but also Widdowson 1973, Enkvist 1978 and many others). My position in this respect must nevertheless be stated. For Halliday and Hasan cohesion and coherence go together because, unlike Carrel and others, they see cohesion as something which is dependent upon reader interpretation. This is especially true for the surface markers of cohesion they classify as lexical, which can only be said to be cohesive when the reader is able to access a schema for co-classification or co-extension. For Carrel and others, cohesion is present only in text, and coherence is reader-dependent. The distinction is a useful one to make because although there might be a very close correspondence between

