

**SECOND LANGUAGE WRITING INSTRUCTION**

**A Study of the Effects  
of a Discourse-Oriented Programme  
upon the Ability of Skilled Writers  
to Improve their Written Production**

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I declare that this thesis has been composed by myself and that the work entailed by it is entirely my own.

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## ABSTRACT

This thesis argues that process-oriented approaches to second language writing instruction have been overly influenced by first language writing theory and that, in consequence, these pedagogies have paid too much notice to the difficulties encountered by unskilled writers. The thesis calls for the need for second language writing instruction to recognize the differences between skilled and unskilled writers and address the specific difficulties of the former. It is reasoned that skilled writers using L2 need far more support with regard to acquiring language-specific standards with which to evaluate their own prose than with regard to developing writing process planning, writing, rereading and revising skills (which they already possess). The empirical part of this study investigates the effects of a discourse-oriented programme of L2 writing instruction upon the ability of skilled writers to improve their written production. The pedagogy tested did not attempt to teach writing process strategies, but sought to provide a group of eight Brazilian researchers writing in English with parameters with which to improve the readability of their writing products in the absence of teacher feedback. Pre and post-instruction samples of expository texts and revision data by these writers disclose evidence that the instruction carried out was effective and efficient: the writers were able to improve the readability of their writing products and acquire standards with which to evaluate their own prose in the absence of teacher feedback after a very short instructional period. Although it was not possible to work with a control group, a detailed analysis of the revision data suggests that the above developments are more likely to have been outcomes of the specific instruction provided than outcomes of any type of writing instruction. It was concluded that skilled writers using L2 may greatly benefit from instruction which focuses on how L2 discourse is organized, and that the teaching of writing process strategies need not be a priority when the learners in question are already skilled writers. A final concern of the study was to learn more about instruction for skilled writers using L2. Its most important exploration in this respect suggests that instruction must strive to help these writers overcome language-specific difficulties that emerge during the process of writing. These difficulties are not always visible in finished products, and may easily be mistaken for lack of writing skill.



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Second language writing

Scholars for whom speculation precedes research and researchers who take empirical investigation as a starting point follow different methodological paths. The aim of both is to progress towards the construction of a new theory or the modification of existing theories so as to invest them with greater explanatory force. Although the balanced interplay of these two approaches is vital to the progress of scientific enquiry, to my knowledge most studies in the field of writing in a language other than one's mother tongue (L2) have been concerned with the investigation of isolated phenomena from a primarily empirical point of view. Indeed, research in the area has been carried out mostly in America, where the tradition of empiricism is to a large extent predominant.

As a probable result of this preponderance, what is presently known about L2 writing consists of a series of fragmentary findings which, though highly replicable, I believe have led to some rather premature assumptions concerning L2 writing instruction. Central to this question

is the fact that much of what has been recently investigated in terms of L2 writing was done under the extensive influence of a first language (L1) writing framework. Shadowing L1 writing theory and research methods, recent developments in the area of L2 writing have temporarily relegated writing product to a backstage position, and paid particular attention to writing process. A great number of similarities in the writing processes of L1 and L2 writers were disclosed, and similar instructional approaches for the two were consequently proposed.

The present study takes as a starting point my doubt as to whether similar instructional approaches for L1 and L2 writers is the most logical corollary of the two having similar writing processes. In reviewing previous writing research and theory, I develop a conceptual framework which, going against current influence from first language writing theory, justifies treating L1 and L2 writers differently. I maintain that the excessive importance attached to the writing process end of the process-product dichotomy has concealed important product-related differences between L1 and L2 writers which may have serious, albeit largely neglected, process implications. I then expand on this framework by speculating that if it is true that the writing processes of L1 and L2 writers are similar, skilled writers using L2 must be treated differently from unskilled writers using L2. That is to

say, instruction for L2 writers with efficient writing process skills must be different from instruction for L2 writers with inadequate writing process skills. I contend that failing to distinguish between the two may have unfortunate implications for L2 writing instruction, especially when the learners in question are skilled writers.

### 1.2 Why skilled writers using L2?

The very distinction made between skilled and unskilled writers implies that the latter have a lot more to learn. The logical question that arises is why concentrate on skilled writers if it is the unskilled who need most help. My answer is that many of the needs of the unskilled have already been recognized and catered for under the influence of pedagogical implications derived from L1 writing studies. However, there does not seem to exist a theory which sustains an approach to teaching L2 writing tailored to suit the somewhat different needs of L2 writers who are already skilled, i.e., those whose writing process strategies are efficient. L2 writing instruction must recognize that the needs of skilled writers using L2 can be very different from those of unskilled writers using L2. While this distinction is irrelevant to L1 inasmuch as skilled writers using L1 do not need any writing instruction, skilled writers using L2 do need instruction

and one must strive to come to a better understanding of the kind of instruction they would benefit from. I believe that treading in the shadow of L1 writing theory, most of the currently fashionable L2 writing courses pay too much notice to the difficulties encountered by unskilled writers, and end up overlooking the most precious asset that skilled writers using L2 possess: writing skill, which means that they need not be taught how to write all over again.

From a more pragmatic viewpoint, my interest in instruction for skilled writers using L2 has emerged out of a concern with the obstacles in the path of researchers whose native language is not one of widespread international communication. Many of these researchers are highly skilled writers whose work is simply not accessible to the international scientific community if they do not write and publish in an L2. Brazilian researchers who write only in Portuguese, for example, will not be much read outside Brazil, Portugal and the former Portuguese colonies in Africa and Asia. Likewise, the work by Dutch researchers who publish only in Dutch is bound to contribute very little to the progress of scientific enquiry outside the Dutch-speaking community. It is therefore crucial that researchers who are handicapped by an L1 of limited international comprehension possess a sound working knowledge of an L2 which is more accessible to their counterparts of different first language backgrounds.

Instruction which recognizes that these researchers are more often than not extremely skilled writers can be a lot more effective than instruction which treats L1 and L2 writers alike and, in consequence, tends to place too much emphasis on the difficulties encountered by the unskilled.

Insofar as the empirical part of this study is concerned, I do not attempt to refute the effectiveness of current L1-influenced approaches to L2 writing instruction. My preference is for a theory which recognizes that the needs of skilled writers using L2 are different from those of unskilled writers, and it follows that I believe it is fairly urgent to concentrate on the specific needs of the former. My aim is therefore to test the validity of a pedagogical approach which recognizes what skilled writers using L2 already know, and seeks to help them produce more readable writing products and acquire workable standards for evaluating their own prose. Parallel to this, I will attempt to come to a deeper understanding of the kind of instruction skilled writers using L2 would benefit from.

### 1.3 Situational context

Although I am interested in skilled writers using L2 in general, the testing of a pedagogy entailed by a given theory necessarily involves sampling. I specifically chose to work with a group of Brazilian researchers writing in

English because of my familiarity with Portuguese and English, and also because this research was sponsored by the Brazilian government. I must nevertheless stress that although this research was conducted with skilled Brazilian-Portuguese writers of English, its applications may concern any similar group of skilled writers using L2.

Very briefly, the situational context relevant to this research is as follows. English is undisputably the most valuable foreign language for Brazilian researchers who wish to divulge their work to the international scientific community. English is also the language of the majority of the research centres Brazilians join abroad in the case of a particular discipline not being well-explored or available in Brazil. Although Brazilian researchers are for the most part skilled writers who represent one of the most literate sectors of the Brazilian population, the current picture of the standard of writing in scientific English by Brazilian researchers is not a very bright one. The English that is taught in Brazilian secondary schools as well as the language substance of most alternative EFL courses in Brazil cater for little more than basic communication skills. It follows that even the researchers who have attended such courses are unlikely to have been taught much about scientific writing in English. Not surprisingly, Brazilian researchers who seek to publish in English or develop their work in English-speaking countries often find their working knowledge of English by and large inadequate.

The lack of specialist EFL writing courses in Brazil does not mean there are no such courses elsewhere. However, very few Brazilian researchers have access to specialist EFL writing courses abroad, for their cost is prohibitive for a country facing economic hardships like Brazil. This does not mean that this research purports to address merely or essentially a financial problem. As already implied, the main problem envisaged is the general lack of EFL writing courses which recognize that these researchers are experienced writers who are already familiar with Portuguese scientific discourse, and who above all need not be taught how to write all over again.

#### 1.4 Outline of the thesis

The remaining parts of this dissertation are organized as follows. In chapter two my aim is to develop the conceptual framework upon which the present study is to be founded. I review the literature in writing process and second language writing theory and research, and argue that research into L2 writing has all but neglected the highly specific needs of skilled writers using L2. I conclude the chapter by expanding my views on what can be done to help these writers improve their L2 writing products.

In chapter three I describe the empirical part of this study, which consists of applying the pedagogical approach entailed by the theory developed in chapter two. The aims of the investigation are :

- to test whether eight Brazilian researchers using English as an L2 are able to produce more readable writing products after instruction has ceased;

- to test whether they will have acquired workable standards to evaluate and then improve their own prose by themselves, i.e., in the absence of any cues or feedback from their writing teacher;

- and to come to a better understanding of the kind of instruction these writers would benefit from in the future.

The chapter gives details about the participants, the procedure for collecting data, and the materials and method utilized in the course on writing which constituted <sup>the</sup> experimental treatment. In the final section of <sup>the</sup> chapter I outline the different phases of analysis and interpretation to which the data collected was submitted.



Chapter four reports on the first phase of analysis and interpretation of results. It explains how the readability of the writing products by the participants was assessed, and tests whether their post-instruction writing products were more readable than their pre-instruction writing products.

Chapter five is the first of the three chapters dedicated to the second and more extensive phase of analysis and interpretation of the data. A system for analysing revision which seeks to provide a detailed reader-oriented account of all that changed as a result of the participants' post-treatment revision of essays produced prior to the experimental treatment is developed.

The first part of chapter six provides a purely descriptive overview of the results obtained from the application of the system of analysis developed in chapter five to the post-treatment revisions by the participants. The second and third parts of chapter six focus on the interpretation of the analysis from the viewpoints of readability and feedback-independence. Their aim is to test whether the participants were able to revise and further improve the readability of their pre-instruction writing products after instruction had ceased, and whether the post-instruction revisions by these writers hold evidence to an increase in their ability to revise their own prose in the absence of teacher feedback. The chapter also considers what future

instruction should address, and advances some preliminary conclusions on the relationship between readability, feedback-independence and writing instruction.

Chapter seven seeks to test whether improved readability and increased feedback-independence are likely outcomes of the specific instruction provided, as opposed to outcomes of any type of instruction. For the matter, the revision data analysed in chapter six is submitted to a further stage of analysis and interpretation, which is grounded on the distinction between revision changes directly related to the instruction provided and revision changes unrelated or only indirectly related to that instruction.

In chapter eight I review my original motivation for undertaking this research, I highlight the study's most distinctive findings and discuss their contribution towards the development of instruction for skilled writers using L2. I also reevaluate the conceptual framework put forward in chapter two, and I outline suggestions for future research in the area. I conclude the chapter by discussing a number of implications for the teaching of writing to skilled writers using L2.

## CHAPTER TWO

### A CONCEPTUAL FRAMEWORK FOR THE DEVELOPMENT OF SECOND LANGUAGE WRITING INSTRUCTION FOR SKILLED WRITERS USING L2

My aim in the present chapter is to review the literature relative to writing process and second language writing research and theory. In doing so, I will argue that there is much to be done in the area of writing instruction for skilled writers using L2. I will begin by reporting on a number of issues which are central to the present debate on writing, the influence of which upon second language pedagogies I will then discuss. I will conclude the chapter by proposing a second language writing pedagogy for skilled writers using L2 which attempts to address their specific writing needs.

#### 2.1 Writing process research

Recent literature in the area of writing has given a great deal of emphasis to the process of writing whereas not very long ago the major emphasis was placed on product. As Arndt (1987:257) put it,

"...the very fact that the term 'writing' can refer to both finished products and the processes underlying their production mirrors rather neatly the choice of focus available ..."

A fairly loose and non-controversial definition of writing process could be said to be whatever is entailed by the complex activities out of which a written text emerges. What such activities amount to, their relative importance, the extent to which they are distinct from one another and the degree to which they interact are indeed matters of great relevance to our understanding of writing. For the present, however, I should merely like to draw attention to how interest in writing-as-process emerged in the first place.

Historically speaking, one might say that a change of paradigm has occurred. Up until fairly recently, very little was known about the process of composing; the Romantic belief prevalent in the early twentieth century - and I refer the reader to Bizzel (1986) for a concise review of that - justified the popular idea that good writers were born good writers. Accordingly, evidence as to whether or not writers were among the Elect lay exclusively in the product of their writing. What efficient writers did as they composed was not even acknowledged insofar as the texts they produced were simply regarded as functions of inborn aptitudes elusive to the observant eye.

If one happened not to be a "born writer", it was commonly assumed that the only way to live up to the expectations of schooling and certain demands of literate societies was to attempt to produce texts which contained similar characteristics to those exhibited in the texts produced by the Elect. Hence considerable importance was attached to the style and rhetorical organization of such texts, and the general idea conveyed to student writers in the educational milieu was that writing was a matter of producing finished products similar to such canonical models. Little was said about creativity and the roads which led to the production of exemplary pieces of written discourse.

Gradually, however, dissatisfaction with the quality of the writing-as-product of a generation of student writers trained in this way (Bizzel 1986) undermined the faith on such product-oriented approach to writing instruction. As a result of this, in the early seventies attention began to shift to the need to understand what went on in the writer's mind prior to the conception of a finished text, i.e., the writing process.

In the United Kingdom, the turning point is perhaps best represented in the work of James Britton et al. (1975), while in America it was Janet Emig (1971) who first attempted to understand composing processes. While the British team carried out a cross-sectional study of essays

written by schoolchildren between the age of 11 and 18, Emig conducted a longitudinal case-study of an American twelfth grader; the analyses made them aware that success in composing could vary with the kind of writing students were required to produce. Both agreed that the genre scheme students had most difficulty in coping with was formal expository prose, yet the question that remained unanswered was what could actually be happening in the writer's mind while he was composing.

The doubt encouraged researchers to attempt for the first time to scan the minutiae involved during the actual process of writing. The methods generally used in this type of research consist of detailed case-studies, interviews, surveys and protocol analyses (Zamel 1987). Typical investigations of writing process involve the analysis of:

1. The amount of time writers spend thinking about what they are going to write before putting pen on paper (Stallard 1974; Emig 1975; Planko 1979; Flower 1980; Wall and Petrovsky 1981).

2. The degree to which writers modify their original rhetorical goals once they start writing (Rose 1980; Sommers 1980; Flower 1980).

3. The extent to which writers reread their own texts as they write (Stallard 1974; Pianko 1979; Birdwell 1980; Wall and Petrovsky 1981).

4. The amount and quality of changes writers make to their texts as they draft and redraft (Perl 1979; Sommers 1980; Flower 1980; Faigley and Witte 1981; Wall and Petrovsky 1981).

5. How writers organize their planning, writing, reading and revising activities (Perl 1980; Sommers 1981).

The findings this type of research generated soon proved to be very promising. Aspects of writing which had not been thought about before began to be recognized and, as the above references imply, one discovery led to the next in a succession of very rapid advances in the area. The most baffling trend these studies seemed to indicate was that on the whole skilled and unskilled writers behaved differently during the process of composing<sup>1</sup>.

Strictly speaking, the process of composing is far too complex for it to be possible to think of the differences between what skilled and unskilled writers do as they write in discrete terms. However, it is nevertheless possible to group such differences together into five major categories.

The categories I shall refer to next were derived from the specific research questions that oriented the five types of studies listed above.

The first category concerns the amount of time the writer spends thinking about what he is going to write before actually writing. This phase is known as planning or prewriting. It may involve the elaboration of a written outline which specifies the writer's rhetorical goals, it may consist of a mental representation of what the writer plans to translate into written words, or it may even be ignored by the writer who simply begins to write by writing. What actually happens during this phase may vary both among individual writers and according to different writing tasks. The general tendency, however, is that when a writing task is for some reason or other demanding, skilled writers dedicate a greater amount of time to this planning stage than unskilled writers.

The second major difference between what skilled and unskilled writers do as they write concerns how writers react to their original outlines or prewriting intentions once they begin drafting their texts. A writer may allow his initial plan to guide his entire text or he may feel the need to modify such a plan to a greater or lesser extent as the text emerges. It was found that skilled writers appear to be less committed to their plans in the sense that they are generally able to change or abandon



their initial specifications in favour of revised plans as they go along shaping their ideas into written words. Less experienced writers, on the other hand, tend to be controlled rather than control their prewriting intentions. More often than not, they are overwhelmed and, indeed, practically imprisoned by the ways in which they have defined their rhetorical goals prior to actually translating them into a final draft.

The third difference is relevant to the extent writers read and reread their texts during the activity of writing. Again, there is a considerable amount of variability in this respect which is closely related to the particular type of writing required. Britton (1975) reported that members of his research team were given the task of writing first a letter, then a story and then a research report without being allowed to reread what they wrote as they produced the texts. He found out that whereas this constraint posed no real problems for his admittedly skilled writers when tackling the letter task, it became increasingly more difficult for them to write the story and the research report without being able to refer back to their texts as they wrote. If, however, the genre variable is held constant, as it was in the studies cited above, it appears that expert writers are generally more inclined than unskilled writers to consult their emerging texts.

A fourth way in which the writing-as-activity of skilled and unskilled writers differs is with respect to the amount and quality of changes they make to their texts as they draft and redraft. The studies mentioned hold evidence to the fact that experienced writers tend to modify their initial drafts both more readily and more radically than inexperienced writers. In these studies, the latter gave signs of being prematurely satisfied with their written products or admitted being unable to express themselves in better ways. Expert writers, on the other hand, were not only more critical about their own texts but also tended to perceive themselves as capable of perfecting their initial drafts. As to the quality of the changes made, it was generally acknowledged that while unskilled writers timidly limited themselves to correcting spelling, altering isolated words or rephrasing sentences, skilled writers were prepared to shift paragraphs around, insert new ones and boldly cross out entire sections of their initial drafts if they were not satisfied with them.

Lastly, skilled and unskilled writers apparently also differ with regard to the ways in which they organize their planning, writing, reading and revising. It was found that while many inexperienced writers were simply unaware of such subprocesses of writing, others thought that they must first plan, then write, then read what they had written and

finally check whether there were any inaccuracies in their texts. Unlike them, skilled writers tended to organize these subprocesses of writing recursively in such a way that any given subprocess could be embedded within any other. For example, while inexperienced writers tended to plan their texts only before writing, if they planned at all, skilled writers were inclined to do so throughout the activity, whenever they came across cues that prompted them to reassess their initial prewriting intentions.

In summary, the above analyses lend support to the idea that the writing-as-activity or writing process of skilled and unskilled writers does indeed differ quite substantially in many aspects. Having said this, however, it is worth adding that in these studies fairly demanding essay-type tasks were generally utilized as elicitation procedures. Had more straightforward writing assignments been used instead, it is possible that the differences between what skilled and unskilled writers did as they wrote would have been more subtle. As Applebee (1986:102) put it,

"...different tasks pose different problems and require in turn somewhat different writing processes. Some tasks require much planning and organizing before the writer can begin; some require careful editing before being shared with a critical audience; some involve sharing familiar experiences within well-learned formats and require no further process supports at all."

Thus to be rigorous, one can only go so far as to say that skilled and unskilled writers tend to behave differently during the activity of writing if juggling with the constraints of complex writing assignments. In spite of this limitation, nowadays it is generally agreed that knowledge of such differences may bring new light to composition instruction, particularly when it comes to helping student writers cope with genre schemes that are unfamiliar and cognitively demanding.

Instructional approaches which have emerged from writing process research are especially concerned with a pedagogy that emphasizes the development among student writers of writing subprocesses similar to those of skilled writers. Although there does not seem to be a single authoritative conception of how student writers can be trained to behave like skilled writers during the activity of writing, the various instructional approaches which purport to achieve such an end commonly come under the cover name of The Process Approach. They generally involve exercises that encourage student writers to define their own rhetorical goals, to reassess such goals during the course of their development in writing, to worry about meaning before paying attention to form, and to tailor their writing to the taste of different audiences. Classroom activities typically associated with these exercises include learner-initiated assignments, assignments geared to audiences

other than the teacher, brainstorming sessions, multiple-drafting, and teacher feedback which focuses on meaning rather than form (Applebee 1986).

The aim of process-oriented exercises is to spell out the complex processes out of which a written text emerges so as to guide student writers along the paths which lead to the production of meaningful and rhetorically well-organized texts. By encouraging student writers to explore meaning through writing and by providing them with overt feedback on how readers would interpret the ways in which their meanings have been encoded, it is expected that they will learn to define and control their rhetorical goals, and rewrite their initial drafts until their meanings can be understood in the manner they desire.

Indeed, this new pedagogical direction is intuitively very appealing, particularly since it is now recognized that product-imitation approaches to writing instruction fail to address aspects of writing which transcend the domain of form and correctness in a suitable way (Bizzel 1986). However, recent surveys of what actually happens in the writing classroom seem to indicate that the impact of process research is still very limited (Applebee 1986; Zamel 1987). Of course at this early stage of implementation of The Process Approach, one does not as yet know whether training student writers to adopt writing strategies commonly employed by experienced writers will in

effect improve the content, the rhetorical organization and the consequent readability of their written products. It is certainly a matter which demands careful verification; after all, one cannot assume, as many unquestioning supporters of The Process Approach seem to have done, that all who sing will become blackbirds simply because all blackbirds sing.

The above is obviously only a brief account of how writing process came to be a major concern of research in writing. At this juncture perhaps I should make it clear that I have deliberately overlooked lower-level aspects of writing in order to better focus on writing process. My reason for doing this is not that I find orthographic and strictly linguistic aspects of writing unimportant, which I do not, but because writing process and its assumed connection with higher level, discoursal aspects of writing represent the point of departure of the argument I wish to pursue.

I shall argue that L2 writing pedagogies risk being overly influenced by instructional approaches that have emerged from process research, and that this might distract one from discoursal problems of singular importance to L2 writers. Before I proceed to do so, however, I shall review the most generalizable findings of recent research into the somewhat more specialized field of L2 writing process.

## 2.2 Writing process and second language writing

When concern with writing process was emerging in the early seventies, writing was regarded as the least important of the four language skills in the foreign or second language classroom. In the words of Rivers (1967:241), it should be considered

"...the handmaid of other language skills and not take precedence as the major skill to be developed."

It does not make a difference if this was because there were still traces of audiolingual methodology in second language instruction or if it was because early second language acquisition studies advocated that, as in first language acquisition, speaking should come before writing. Because of this relatively secondary rôle attributed to writing, while gigantic steps were being taken in other dimensions of second language instruction, the traditional methods of teaching L2 writing somehow escaped being seriously attacked. Thus dictation, translation, imitative composition and grammar-oriented exercises of sentence completion, expansion and transformation long outlived the equally traditional modes of teaching spoken language.

Eventually, however, it was realized that for many L2 learners the comprehension and production of written discourse could in fact be more vital than the development of second language oral skills (Hatch 1984). It was in this

context that the traditional L2 reading pedagogies and later the equally traditional L2 writing pedagogies became objects of critical scrutiny.

At the beginning of the last decade, L2 composition scholar Vivian Zamel (1980) was one of the pioneers of the idea that L2 writing exercises which focused on grammar affected only a relatively minor component of the complex compositional process. A couple of years later she expanded this thought in claiming that

"Methods that emphasize form and correctness ignore how ideas get explored through writing and fail to teach students that writing is essentially a process of discovering meaning." (Zamel 1982:195).

Much in the same line, Watson (1982) affirmed that imitative composition, a common practice in the traditional L2 writing classroom, was an exercise that could inhibit the development of the L2 writer's ideas. Watson then added that imitative composition based on less stultifying, albeit non-authentic, didactic model passages could lead to false reassurance on the part of the learner. Similarly, Raimes (1983) criticized the undue emphasis given to form and correctness on the grounds that it tended to indulge learners in disregarding content and gave them the illusion of learning how to write in the L2 when they were only learning how to avoid errors and produce grammatically correct, but otherwise flat and uninteresting texts. Taking criticism a step further, Robb et al. (1986) conducted a



study in which they analysed the effects of traditional corrective feedback upon L2 writers' composing ability. Based on their findings, they concluded that such feedback did not directly improve the overall quality of L2 writers' texts.

Obviously, however, merely criticizing the traditional methods used in the L2 classroom and proving that they were insufficient would not bring about much innovation. There was a much felt need to address the problems which transcended the domain of form and correctness in the texts by L2 writers.

Aware of the newly born aura of excitement about writing process, Zamel (1976) called her colleagues' attention to the fact that L2 writing teachers could have a lot to learn from the type of research being carried out in L1 writing process, especially with regard to the attempts to find out what writing-as-activity was, what it involved and what differentiated the skilled from the unskilled writer. Her intentions were commendable, for L2 researchers began to acknowledge writing process and hence their studies no longer focused exclusively on writing-as-product. In this context, writing process research methods were imported to the field of L2 writing and, allowing for some generalizations, it was found that the composing processes of L2 writers were very similar indeed to those of native writers.

Zamel (1983) herself conducted a case-study in which she analysed the writing-as-activity of six advanced ESL writers. She reported that although they seemed to be aware of the recursive potential of the subprocesses of writing, her skilled writers - those who did not find the activity of writing "in and of itself problematic" - manifested this understanding more effectively. Likewise, Raimes (1987:459) found that

"... [L2 writers] with greater demonstrated writing ability revised and edited more than those at lower levels. Those with confidence in their L1 writing ability revised and edited the most."

In an earlier study, Raimes (1985) analysed what unskilled L2 writers did as they wrote and came to the conclusion that their overall behaviour was very similar to that of unskilled native writers. Recently, Arndt (1987) devised a rather well-devised comparative study in which she in a sense replicated the findings of both Zamel and Raimes. What she did was to analyse what Chinese learners of English did as they wrote first in Chinese and then in English, only to discover that their writing behaviour remained fairly constant, irrespective of the language in which they wrote.

Anticipating such similarities, Zamel (1982:203) hypothesized that

"...approaches to the teaching of composition ESL teachers may have felt only appropriate for native speakers [...] may be effective for teaching all levels of writing, including ESL composition."

Interpreting this in a way that seemed to emphasize spontaneous acquisition as opposed to non-spontaneous learning, and hence fit in his theory of second language acquisition rather neatly, Krashen (1984:38) claimed that

"...significant similarities in pedagogical applications are called for."

And Raimes (1987:460) too affirmed that

"... the similarities noted between the writing process of ESL student writers and native-speaker students suggest that many of the teaching techniques recommended for L1 students are appropriate for L2 learners as well."

Responsive to such findings and claims, the more innovative L2 writing teachers and course-book writers began to envisage The Process Approach as a promising addition or alternative to the outmoded traditional exercises in L2 composition. In contrast to the widespread attention the similarities in L1 and L2 writing processes have received, to my knowledge the only difference that has been adequately documented in the writing process literature is that L2 writers do not appear so inhibited as L1 writers by their own mistakes and attempts to correct them (Raimes 1987).

### 2.3 Do the similarities between L1 and L2 writing processes conceal important differences?

I have already pointed out that, under the influence of first language writing studies, attention has shifted from writing product to writing process in recent second language writing research. I have also mentioned that this research has disclosed more similarities than differences in the writing processes of L1 and L2 writers, and that it has drawn particular attention to what the writing processes of skilled and unskilled L1 and L2 writers have in common (Zamel 1983, Raimes 1985 and 1987, and Arndt 1987). I then reported that as a result of such findings, similar instructional approaches for the two have been proposed (Zamel 1982, Krashen 1984 and Raimes 1987). In this section I shall present some evidence in support of the possibility that the similarities between the writing processes of L1 and L2 writers can conceal many differences, including differences in writing process. Based on such evidence, I shall proceed to build the conceptual framework upon which the present research is founded. The discussion will give special emphasis to the following three claims:

1. The importance attached to the shift from product to process has been exaggerated.
2. The call for similar pedagogical approaches for L1 and L2 writers is hypothetically premature.

3. Skilled writers using L2 are the ones who benefit the least from process-oriented second language writing pedagogies.

To begin with, I would like to remind the reader that it is yet too early to tell for sure whether emphasis on writing process or writing-as-activity is indeed an effective way of improving the readability of the writing-as-product of native writers. The ways in which skilled writers behave during the activity of writing does not automatically mean that unskilled writers need be trained to behave in the same way in order for their writing products to improve. This cause and consequence relationship should be empirically tested before any claims pertaining to it are made. The assumption that emphasis on writing-as-process can be an effective way of addressing the L2 writer's discursal problems should therefore also be regarded with care. Before endorsing the theoretical position of Zamel (1982), Krashen (1984) and Raimes (1987) in this respect, and before more and more L2 writing teachers start opting for the rather fashionable process-oriented course-books on writing gradually invading the foreign language market, it seems only reasonable to ask to what extent L2 writing is similar to L1 writing in the first place.

In the very beginning of this chapter, I called attention to the fact that writing was not only an activity but also a product. I would therefore like to address this question from both angles. In doing so, I will argue that the shift

of attention from product to process has distracted one from seeing significant differences between L1 and L2 writers, including differences in writing process. This does not mean I wish to imply that writing process research must have missed out some obvious difference in comparing the writing processes of L1 and L2 writers. On the contrary, I believe the evidence so far collected suggests that there are more immediate similarities than there are differences in the writing processes of the two. That is to say, the planning, writing, rereading and revising activities of skilled writers using L1 are basically the same as those of skilled writers using L2; likewise, unskilled writers experience similar writing process difficulties irrespective of whether they are using L1 or L2. The point I am trying to make is that the major difference between L1 and L2 writers has primarily to do with writing product. While the writing processes of the two may indeed function in the same way, the texts L1 and L2 writers with equivalent writing skills produce tend to differ in quality. The fact that the texts (products) by L2 writers are usually more defective means that they must also have greater problems in discerning which parts of their production are good and which are bad. I will now explain why I believe that these product-related problems can have indirect, albeit very significant, process implications.

The most obvious of the differences between writers using L1 and L2 which does not immediately have to do with writing process is that of linguistic competence. This competence is usually associated with writing product, for its effects are more visible in writing products than in writing processes: the texts by low proficiency L2 writers are normally dotted with simply a lot more errors than those by L1 writers with equivalent writing skills.

It is not, however, just the writing products of writers using L2 that are negatively affected by low second language proficiency. Their writing processes too may suffer indirectly as a consequence of that, for these writers have to overcome lexical and syntactical barriers which simply do not concern their L1 counterparts to the same extent. According to Widdowson (1983), the non-automation of the syntactic rules of a language can have a negative effect upon the writer's ability to deal with its discourse function because his mental resources will be overly preoccupied with achieving linguistic correctness. Similarly, Daiute (1984) asserts that there is psycholinguistic evidence to suggest that the automation of certain aspects of writing such as syntax and access to lexis can drastically reduce the burden upon the writer's short-term memory, and hence allow more space for competing higher-level mental activities that take place during

writing. The higher-level activities that take place in the mind of writers using L1 during the process of writing must therefore be a lot less constrained by lower-level concerns than those of low-proficiency writers using L2.

There is another, if less obvious, product-related difference between L1 and L2 writers which on the surface has little to do with writing process. Since this particular difference is the one which is most relevant to the present study, I will discuss it in much greater depth. To begin with, one should bear in mind that the objective of the writer is to encode his ideas into written words in such a way that the reader is able to interpret them as the author wished. This can be achieved if the writer makes appropriate use of the conventions which writers and readers must agree on if a text is to be fully understood in the manner authors desire (Smith 1982). It is therefore important to understand what these conventions are and to be aware of the extent to which they are language-specific. At the level of lexis and syntax, it is fairly self-evident that writer/reader conventions are for the most part language-specific. What is not so obvious, however, is that language-specific writer/reader conventions can go beyond lexis and syntax.

Kaplan (1972) asserted that rhetoric, coherence, unity and style are arbitrary but rule governed in any given language in the same way as phonological, morphological and



syntactic choices. He illustrated what he meant by showing how the relatively linear fashion in which ideas are held together in written English discourse clashes with the inherent circularity of the written discourse of Oriental languages and the tendency towards digressiveness of that of Romance languages. Kaplan (1983:140-141) pointed out that

"...speakers of different languages use different devices to present information, to establish relationships among ideas, to show the centrality of one idea as opposed to another, to select the most effective means of presentation."

Kaplan also used this argument to support his Sapir-Whorfian claim that logic, the basis of what holds ideas together in texts, evolves out of culture. According to Smith (1982), these writer/reader conventions may indeed vary from culture to culture. However, Smith did not go so far as to affirm that logic is culturally bound; instead, and perhaps more perceptively, he claimed that the discourse conventions of languages need not necessarily be directly related to pure logic. Needless to say, this highly philosophical divergence does not really concern the point I am trying to make. For the matter, I shall assume that logic can be viewed in terms of a surface and a deep structure. Within this framework, the surface logic underlying the implicit rules of the discourse conventions of languages can differ irrespective of whether the deep structure of pre-verbal logic is universal or culturally bound.

I must admit, however, that the above assumption contradicts the idea that Western languages possess a common denominator which can be traced back to Aristotelian rhetoric. Indeed, as Regent (1985) put it, this may be true insofar as simplified didactic discourse is concerned. On the other hand, Regent added that his analysis of French and English scientific discourse revealed that many discursal features of the genre are to a large extent language-specific. To illustrate this, a simplified version of the differences between the French and English scientific discourse conventions highlighted by Regent is supplied in table 2.1.

DISCOURSE CONVENTIONS	FRENCH	ENGLISH
ICONIC CHARACTERISTICS OF TEXT	text is more fragmented; abundance of typographical markers	text is more compact; few typographical markers
DISCURSIVE SEQUENCES	many paragraphs and propositions are merely juxtaposed	most paragraphs and propositions are explicitly connected
ILLOCUTION	discussion tends to be left open-ended	stronger final assertions
GENERAL FOCUS	on facts	on reasoning

Table 2.1: differences between French and English scientific discourse, as noted by Regent (1985).

Much in the same line, Clyne (1984) conducted a comparative study of academic texts by English and German-speaking scholars. A schematic representation of the study's findings is supplied in table 2.2 below.

DISCOURSE CONVENTIONS	ENGLISH-SPEAKING AUTHORS	GERMAN-SPEAKING AUTHORS
Linearity of text	64% linear 36% slightly or very digressive	20% linear 80% slightly or very digressive
Symmetry of text	64% symmetrical 36% slightly asymmetrical	20% symmetrical 80% slightly or very asymmetrical
Placing of advance organizers	61% at or near beginning of text 39% later in text	50% at or near beginning of text 50% later in text
Sentence types	47% topic sentences 53% bridging or other non-topic sentences	37% topic sentences 63% bridging or other non-topic sentences
Integration of supplementary data to the main text corpus	64% entirely integrated 36% partly integrated	18% entirely integrated 82% partly or not at all integrated

Table 2.2: discursal differences in texts by German and English-speaking scholars, after Clyne (1984).

Clyne's analysis gave him reasons to believe that what determines the above differences in discourse is not so much the different structures of languages, but cultural determinants and national attitudes to knowledge. He found out that while in English it is the writer who must ensure that the reader will gain access to a text, in German this

responsibility lies primarily in the hands of the reader. He concluded that whereas in English expository prose clarity is prized, in the German equivalent erudition is what matters most.

There is no point in imposing value judgments in this respect. Clearly, within the framework of Schema theory (Bartlett 1932; Carrel 1983), both clarity and erudition may serve their purpose perfectly well provided the expectations of readers are not violated. The problem lies in that more often than not one is so accustomed to the schemata that govern the discourse conventions of the genres one usually reads in one's own native language (Steffensen 1986) that one is likely to become prejudiced against the schemata that govern the conventions of these same genres in other languages.

This explains why English-speaking scholars, whose expectations conform to a relatively linear structure of discourse, might find articles written by German-speaking authors rather opaque. Conversely, papers by English-speaking authors may appear to be excessively simplistic in the eyes of native German readers. In the words of Clyne, English-speaking scholars tend to find German publications "heavy", "longwinded", "muddled" and "partly irrelevant"; conversely, it seems that their German counterparts generally find articles by English-speaking authors "superficial" and their presentation "laymanlike".

Translations offer yet another example of how the discourse conventions of a particular register in a language may be incompatible with those of an equivalent register in another language. Perhaps the most salient exponent of such an incompatibility is poetry; translators often have to ignore structural equivalences between languages and actually rewrite poems in an entirely different way so that the emotional charge behind them can travel across language-boundaries. It is commonly said that it takes another poet to translate poetry. But even in the case of the least emotional of genres, such as formal expository prose, translators often find themselves obliged to modify certain patterns of the original in order to accommodate them to the language into which they are translating. In her analysis of English translations of a variety of French texts, Guillemin-Flescher (1981:154) pointed out that

"...on constate souvent, en comparant un énoncé français avec sa traduction, que le traducteur anglais a ajouté de points de repère ne figurant pas dans le texte d'origine."

The most noteworthy domains of discourse incompatibility between the French texts and English translations analysed by Guillemin-Flescher are supplied in table 2.3 below.

DISCOURSE CONVENTIONS	FRENCH ORIGINAL	ENGLISH TRANSLATION
Sentence-complexity	X main clauses	simplification of syntax
Use of conjunctions	X conjunctions	conjunctions added to text
Use of punctuation	X punctuation markers	punctuation markers deleted from text
Use of canonical SVO order	X non-SVO clauses	clauses rewritten according to SVO order

Table 2.3: discursal changes commonly introduced in English translations of texts which are in French in the original, adapted from Guillemin-Flescher (1981).

I do not wish, however, to prolong this discussion on cultural differences that come to surface in the discourse of languages per se. Rather, my major concern is whether such differences can affect the writing-as-product of L2 writers. What I shall review next is the evidence as to whether an L2 writer is likely to transfer the discourse conventions he takes for granted in his native language to the texts he produces in L2.

Kaplan (1983) conducted a very interesting experiment involving native and non-native speakers' intuitions about written English discourse. The experimental task consisted of a series of English sentences each of which was followed by three possible alternatives for sentences which could come next in the text. Subjects were asked to decide which one of the three was the most likely, and Kaplan found out

that native and non-native speaker responses were significantly different. He suggested that this could be due to the fact that the latter brought with them alternatives available in their native languages and applied them to English.

Rutherford (1983) also appears to endorse the general idea that discorsal aspects of an L2 writer's native language may affect his L2 writing-as-product. Rutherford's analysis of essays written by Mandarin, Japanese and Korean learners of English gave him reasons to believe that discourse phenomena such as topic-prominence and pragmatic word order are transferable entities although they are not always readily visible according to conventional language typologies.

Scarcella (1984) studied how a group of thirty native and eighty non-native writers of English of different L1 backgrounds oriented their readers in expository essays. She found significant discorsal differences between the two groups in terms of how frequently they resorted to "attention-engaging and clarifying devices" such as cataphoras, interrogatives, topic sentences and so on. The differences led her to conclude that it was important that discourse and cultural knowledge be taught in the L2 writing classroom. Table 2.4 below provides more details about these differences.

DISCOURSE CONVENTIONS	NON-NATIVE SPEAKERS	NATIVE SPEAKERS
Cataphora	-	+
Interrogatives	-	+
Direct Assertions	-	+
Structural repetition	-	+
Topic sentences	-	+

Table 2.4: discoursal differences of orientations by native and non-native speakers of English, after Scarcella (1984).  
 - comparatively restricted (-)/ frequent (+) use -

Similarly, Regent (1985) claims that for the text of a person wishing to write in a foreign language to be fully readable, it has to conform to the foreign rhetorical system; more than a decade earlier, Kaplan (1972:103) had already defended this position in asserting that

"...the ways in which sentences are related to each other in large lumps of language constitute something to be taught, not something to be assumed to exist universally across languages."

In brief, the above findings and claims give some indication that the language-specific conventions which orient the native writer with regard to the efficiency, effectiveness and appropriateness of his written words represent a problem area for L2 writers of different first language backgrounds. In other words, the transfer of L1 conventions to L2 texts may constitute an important difference between the writing products of L1 and L2



writers. In order to determine if such product-related differences might also have indirect process implications, what one must examine next is whether this can be a problem for **all** L2 writers, irrespective of their skill or strictly linguistic proficiency.

The question of whether L2 writers with a high level of linguistic proficiency in L2 still have difficulties with its discourse conventions was probed by Scarcella (1984). What Scarcella did was to introduce a further variable to her orientation study in observing not only how differently native and non-native speakers oriented their readers, but also whether the orientations by high and low-proficiency non-native speakers could differ as well. Although she found the discourse conventions of the texts by high-proficiency non-native speakers to be indeed more in tune with those of the texts by native speakers, the discrepancies perceived still appeared to be too significant to be ignored. In other words, although it is not surprising that strictly linguistic proficiency more or less correlated with Scarcella's L2 writers' knowledge of L2 discourse conventions, there appears to be an upper limit to such a correlation in the sense that the discourse of highly proficient L2 writers can still be significantly different from that of native writers.

The second question is whether the discorsal problems of L2 writers in an advanced stage of second language development have to do with weak writing skills. In her famous study about the composing processes of six advanced ESL students, Zamel (1983) reported that her L2 writers who understood the recursive nature of writing and who did not view L2 writing as something in and of itself problematical still experienced individual difficulties and frustrations in relation to stylistic and lexical choices. Zamel, however, does not seem to have attached any importance to the fact that this could be due to insufficient L2 discourse knowledge.

Arndt (1987:265) attributed greater significance to this question in asserting that regardless of their writing skill her L2 writers

"...felt less able to try out alternatives and less happy with their decisions in L2 than in L1, not only because they had more limited resources to draw on, but also because they felt less secure about the options available in the L2."

This means that even her L2 writers who were skilled in terms of writing-as-activity were apparently unable to discriminate among the discorsal options available in English in the ways native English writers would.

Similarly, Raimes (1987) affirmed that even skilled L2 writers who plan, reread and revise their texts do so with few principles to guide them, and in a way described by Raimes as being "haphazard".

To summarize, there is evidence to suggest that equivalent registers of different languages are governed by different discourse conventions, and that cross-linguistic influence is not at all uncommon in the discourse of L2 writers. Further, it also appears that L2 writers who are in an advanced stage of second language proficiency and who are skilled in terms of writing-as-activity also experience difficulties in this respect. What does not seem to have been explored, however, is the possibility that such product-related discursual incompatibilities can indirectly constrain the writing processes of L2 writers.

While writing according to the discourse conventions of any particular genre can be automatic for L1 writers who are familiar with the genre in question (Kogen 1986), L2 writers who are familiar with the discourse conventions of an equivalent genre in their L1 cannot blindly rely on the same conventions when composing in L2. If they do, then it is likely that the ways in which L2 writers organize texts can jeopardize a native reader's understanding of discourse. If, on the other hand, L2 writers try to make use of L2 discourse conventions, because this is not necessarily a matter of writing within well-learned,

automatic formats, writing according to these conventions can represent an additional burden on the mental activities of writers using L2 during the process of writing. Thus the writing processes of L2 writers can be constrained not only by lexical and syntactical product-related difficulties (Widdowson 1983; Daiute 1984), but also by discursal ones.

It therefore seems that in having attached so much importance to the writing process/product dichotomy, process research has paid too little attention not only to the two product-related differences between L1 and L2 writers - strictly linguistic proficiency and knowledge of language-specific discourse conventions - but also to the process implications these differences might have. This brings me to the next point in this discussion, namely, that those who have called for similar instructional approaches for L1 and L2 writers have failed to take into account such differences between the two.

When it comes to assessing the repercussions of second language process research upon second language writing instruction, the emphasis placed on the process/product dichotomy (it does not really seem to be a dichotomy) and the consequent undue emphasis assigned to the similarities in the writing processes of L1 and L2 writers is at the root of the misconceived claim that if The Process Approach works for L1 writers it should also work for L2 writers.

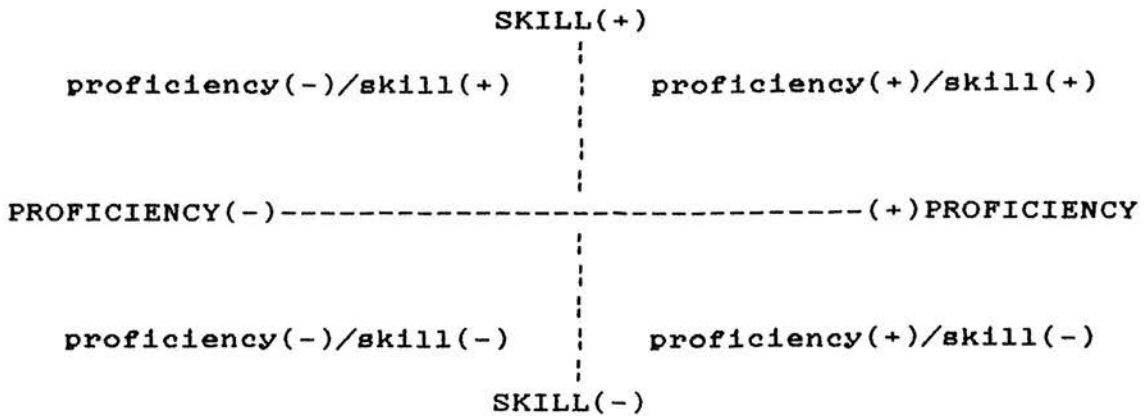
The first flaw in the above reasoning is one of inconsistency. While process research has acknowledged the non-trivial distinction between the writing processes of skilled and unskilled writers in drawing attention to the similarities between writers using L1 and L2, little attention has been paid to the importance this distinction might have in relation to L2 writing instruction. To put it differently, unskilled writers using L2 (UL2 writers), just like unskilled writers using L1 (UL1 writers), may indeed benefit from learning what skilled writers do when they write. To make UL2 writers aware of their audiences, to make them aware that writing is a process of discovering meaning, that it is recursive, that planning is important, that plans should be flexible, that revision should give priority to meaning, and that editing is merely a matter of polishing an already well-planned text, might have a positive effect not only on their L2 writing-as-product, but even their L1 texts may benefit from such type of instruction<sup>2</sup>.

However, in theory this would also mean that skilled writers using L2 (SL2 writers), just like skilled writers using L1 (SL1 writers), should find process instruction redundant. If the writing processes of L1 and L2 writers are indeed so similar, to encourage SL2 writers to define their own rhetorical goals, to reassess these goals during the course of their development in writing, to review and revise meaning before form, and to take different audiences

into account, is to encourage them to do what they most probably already do. The theoretical implication of this rationale is simply that, in the same way as SL1 writers, SL2 writers do not need any writing instruction.

The differences in the writing of L1 and L2 writers referred to earlier in this section suggest that not only UL2 writers but also SL2 writers can benefit from L2 writing instruction. Or rather, if one recognizes that L2 writing is based upon both the axis of L2 proficiency and the axis of writing skill, it should be obvious that L2 writing instruction should distinguish between at least the four extreme combinations along them, as shown in figure 2.1 below.

**Figure 2.1:** The four extreme combinations along the axes of second language writing



The inconsistency factor of process-oriented L2 writing instruction therefore lies in a failure to take into account the differences in writing skill highlighted by

process research. The consequent deficiency of process-oriented L2 writing instruction is then the neglect of the positive half of the axis of skill. In other words, no distinction with regard to instruction is made between SL2 writers and UL2 writers, both of whom tend to be treated as if they were unskilled<sup>33</sup>.

It would be naive, however, to assume that The Process Approach focuses on writing skills for their own sake; in fact, most of the supporters of The Process Approach see it ultimately as a means of addressing writing-as-product beyond the domain of form and correctness. In other words, The Process Approach is believed to be a way in which L2 writers in general can be helped to go beyond the production of grammatically accurate texts, and actually explore meaning and the different ways meanings can be realized in the target language.

It is possible to support this position on the grounds that by learning writing-as-activity strategies or skills from the perspective of the target language, L2 writers can become unconsciously familiar with the language-specific conventions of L2 discourse. As L2 writers draft and redraft in the process classroom, their teacher will supply overt feedback on how native readers would decode their texts; eventually, this could enable L2 writers to modify their writing-as-product in a manner which would conform to native readers' expectations.

However, I would like to remind the reader that The Process Approach in the L2 writing classroom is very much based on the conception of The Process Approach in L1 writing pedagogies. Having said this, I believe that to neglect the differences between UL1 writers (for whom process instruction was originally conceived) and L2 writers in general can be an extremely costly way of teaching the latter what the expectations of native readers are. The time native writers have to acquire a special sensitivity towards the discourse conventions of their own language is almost limitless if compared with the time most L2 writers normally have to learn how to write in a foreign language. What could work in terms of L1 writing instruction may not be satisfactory in terms of L2 writing instruction; if one remembers that L2 writing courses are usually relatively short, there is simply no time to simulate spontaneous acquisition over real time in the L2 classroom context.

Not only have native writers the chance to familiarize themselves with the sociocultural expectations of their readers throughout their schoolyears, and even throughout their lives, but they also have the additional advantage of a far more signposted exposure to the discourse conventions in question given that they are native readers themselves, and that they are not handicapped by the often competing conventions of another language. Moreover, it seems rather absurd to overlook the fact that SL2 writers are likely to have already developed a somewhat similar sensitivity with



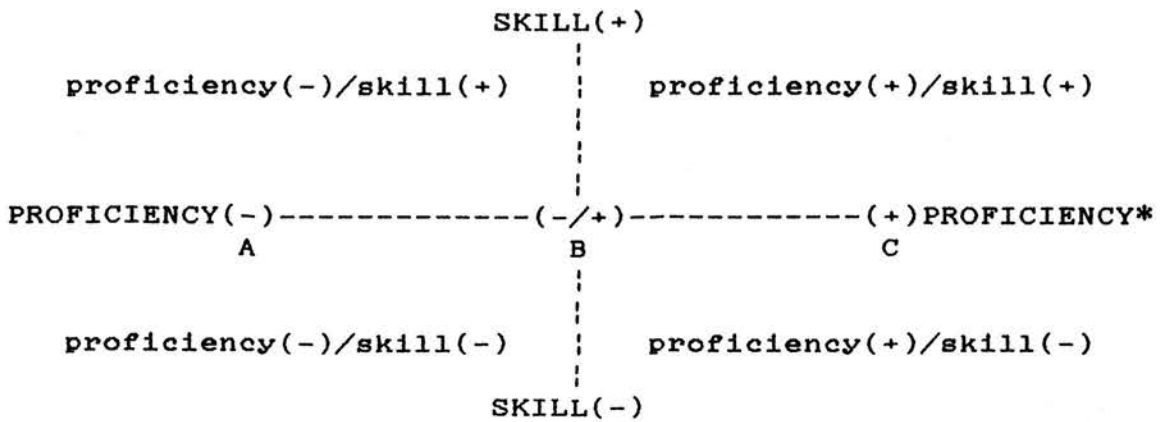
regard to the discourse of their native languages which, in turn, could be used precisely as a short-cut towards the acquisition of the language-specific decision-making protocol of the native writer. According to Edelsky (1982), the knowledge about writing L2 writers already possess in L1 is applied to L2 writing. Similarly, for Raimes (1987:441),

"...when writing strategies are acquired in L1, the strategies are transferred to L2."

To treat SL2 writers as if they were unskilled writers and as if they were ignorant of a general understanding of discourse is therefore to neglect what are probably their most precious tools.

Another flaw with respect to The Process Approach is that many of its supporters seem to have interpreted the axis of proficiency too narrowly. After all, as far as writing is concerned, proficiency is not limited to strictly linguistic proficiency; it also, and very significantly, includes knowledge of L2 discourse conventions. Figure 2.2 below draws attention to this fact.

**Figure 2.2:** The four extreme combinations along the axes of second language writing, with special emphasis to the three different stages along the axis of proficiency



\* on the proficiency axis:<sup>4</sup>

- A = (-) strictly linguistic and (-) discursual proficiency
- B = (+) strictly linguistic and (-) discursual proficiency
- C = (+) strictly linguistic and (+) discursual proficiency

What seems to have occurred is that discourse knowledge has been implicitly perceived as belonging more to the axis of skill than to the axis of proficiency. In other words, in failing to acknowledge that not all discourse conventions are language-universals, the discursual problems of L2 writers have often been perceived as problems of writing skills rather than as problems of proficiency. In fact, this is not at all surprising, for, as already stated, more often than not one is so accustomed to the schemata that govern the discourse conventions of one's native language that one is likely to become prejudiced against the schemata that govern the discourse conventions of other languages (Steffensen 1986).

One should therefore not be unaware of the possibility of some undesirable side-effects that might arise in the L2 writing process classroom due to the fact that both teachers and learners may fail to decentre<sup>m</sup> from the sociocultural expectations that pervade the ways meanings are conveyed through the discourse of their respective native languages. A native L2 writing teacher may all too easily fail to see that what is, say, incoherent in her students' texts might be coherent and appropriate according to the discourse conventions that govern their L1. He may therefore interpret this as a sign of lack of understanding of the notion of coherence rather than as a sign of insufficient knowledge of L2 discourse and even, unknowingly, adopt a patronizing attitude towards his students as a consequence of this.

When Raimes (1987) described the revision of her skilled L2 writers as being "haphazard", it seems that she did not consider that what was apparently "haphazard" to her could in fact be systematic to her writers. Not knowing that what these students might need most in order for their revision in L2 to be felicitous is to become aware of L2 discourse conventions, Raimes (1987:460) proceeded to suggest that

"Course design thus should include instruction and practice with strategies: [how] to generate ideas, plan, rehearse, write, rescan, revise, edit."



The above suggestion is a clear example of how lack of discourse knowledge can be mistaken for lack of writing skill, and in this way end up promoting extremely patronizing attitudes on the part of L2 writing teachers. Conversely, SL2 writers too may fail to decentre from the sociocultural expectations that pervade the discourse of their native languages. I have often heard EAP teachers complain that that their judgment about the language used in specialist essays is sometimes declined on the grounds that they do not understand enough about the jargon of certain disciplines. Such unsparing remarks must surely come from SL2 writers who are very confident about their abilities as writers, but who nevertheless ignore that the L2 might operate under the auspices of different discourse conventions. After all, even if the trade-off between the L2 writer's knowledge of subject and the EAP teacher's knowledge of language is not always straightforward (James 1984), the experienced EAP teacher does not have to be extremely knowledgeable of the specialist's jargon in order to be able to tell whether or not the essence of a text is readable. Alternatively, SL2 writers who accept the teacher's comments may nevertheless find overt feedback of the kind "this sounds repetitive" or "this is unclear" very obscure if they normally express themselves successfully in their native languages by means of the same inherent discursal logic. To ask SL2 writers to rewrite their initial drafts in the light of feedback based on the misleading assumption that discourse conventions - which

govern what could sound repetitive or unclear - are universal, may undermine their confidence as writers and hence disrupt the flow of their written words.

In spite of these potential drawbacks, however, I do not want to give the impression that feedback in the process classroom has an essentially negative effect upon the SL2 writer. There is, in fact, some evidence that by providing L2 writers with overt feedback on how native readers would decode and react to their texts, the readability of their final drafts can improve in relation to that of their initial drafts (Raimes 1983). The two problems I wish to raise are therefore of a different order.

Firstly, in the EFL context at least, one must recognize that many L2 teachers are not native speakers themselves, thus it is doubtful whether they are able to provide learners with overt feedback on how native readers would react to their texts. Also, one should note that the non-native L2 teacher too may experience negative transfer with regard to the discourse conventions of his native language, and hence fail to perceive which aspects of it might clash with the conventions of the L2.

Secondly, and most importantly, the type of feedback given in the L2 writing process classroom may result in an excessive and unnecessary dependence upon teacher feedback. Although there is evidence that such feedback has a

positive effect on L2 writers' final drafts in comparison with their initial drafts, there is little to indicate that the same improvement will occur in the absence of teacher feedback after the instructional period is over. In other words, to my knowledge there are not as yet any studies which have investigated whether L2 writers are able to improve their successive drafts on their own after having attended a process-centred L2 writing course. It is imperative to recognize, as Widdowson (1980:238-239) put it, that the writer has to

"...convey his propositions **without** the benefit of overt interaction which enables conversationalists to negotiate meanings by direct confrontation." (my stress)

Similarly, Luria (1982:164) points out that

"...the writer does not witness any immediate responses to his/her communication and has no external stimuli that can serve to modify his/her mistakes."

If this is so, then the sooner the L2 writer is able to stand on his own, the better. Teacher feedback, after all, ceases as soon as the usually short instructional period ends. The feedback I think the L2 writer needs most is therefore precisely that which will enable him to rely less and less on cues from his writing teacher. It is of crucial importance that learners avoid becoming addicted to teacher feedback. According to De Beaugrande (1980:286),

"Learners who acquire workable standards for evaluating their own prose as a protocol of decision-making need not rely constantly on the teacher's feedback."

I do not believe the kind of feedback given by the L2 process teacher enables L2 writers to acquire such standards in an efficient way. Although it can help writers improve their successive drafts, it is doubtful whether it enables L2 writers to generalize rules that will promote their independence from such feedback after a short period of instruction. On the other hand, explicit information on the parameters which orient the native writer's decisions with regard to the use of language-specific discourse conventions could play a fundamental part in L2 writing instruction, particularly if the learners in question are SL2 writers who can handle writing-as-activity self-sufficiently.

But I must stress that I am not altogether rejecting The Process Approach in the L2 composition classroom; I simply do not think one should assume that it is as relevant to the SL2 writer as it can be to the UL2 writer or the UL1 writer. Moreover, it is also true that process-oriented L2 pedagogies can deal with the problems of L2 writers in general in a way which represents a considerable improvement on what product-oriented pedagogies are able to offer. Indeed, the problems regarding pedagogies which give special emphasis to written products are well known and fairly uncontroversial (Bizzel 1986, Zamel 1982, Watson

1982, Raimes 1983, Robb et al. 1986). In addition to not having taken into account the axis of skill, product-oriented approaches too have addressed only a narrow aspect of the axis of proficiency. A backwards shift from process to product has nevertheless been proposed. Arndt (1987:265) goes so far as to assert that

"Whilst those L2 writers with inadequate composing skills would certainly benefit from the incorporation of a "process-centred" approach into EFL writing pedagogy [...] all L2 writers, proficient or otherwise in terms of writing-as-activity, need more help with the demands of writing-as-text."

Although to a certain extent the above might be true, perhaps it is too strong a claim. Contrary to Arndt's view, what I suppose is needed is not so much yet another change of paradigm which states that The Process Approach in the L2 classroom is not as important as one would have thought, but more careful consideration as to when it is required and how indiscriminately it is adopted. Similarly, Hamp-Lyons (1987:34) has pondered that

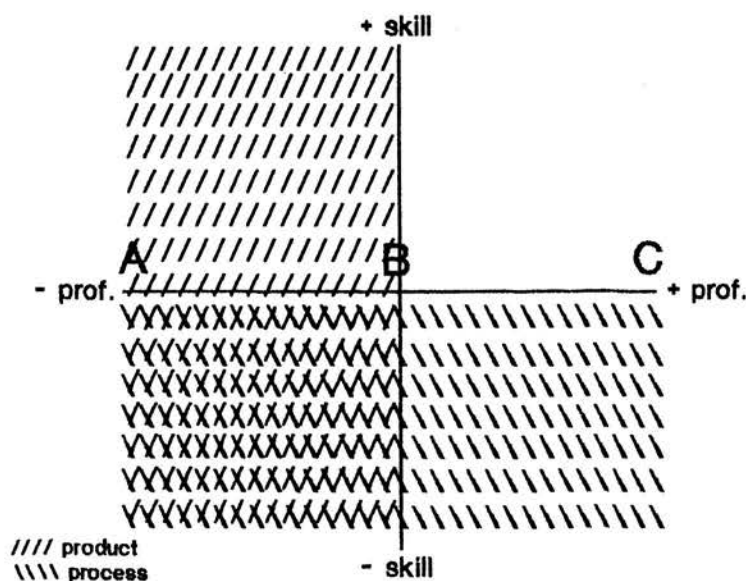
"What is needed [...] is research rather than polemic and hypotheses: without the results of such research are [sic] available, the process approach is as vulnerable to assault as the product approach has been."

Because writing skills can affect writing products and linguistic and discursal proficiency can constrain writing processes, what seems to be required is further research at the crossroads of process and product. The most



urgent need in exploring the intersection of process and product is, I believe, to investigate whether it can address the writing problems of high proficiency SL2 writers. After all, as shown in figure 2.3 below, neither process nor product-oriented pedagogies seem to have left much room for improvement in the writing of those who are already skilled in terms of writing-as-activity and proficient in terms of L2 lexis and syntax.

**Figure 2.3:** Main focus of process and product-oriented L2 writing instruction



\* on the proficiency axis:\*

- A = (-) strictly linguistic and (-) discursal proficiency
- B = (+) strictly linguistic and (-) discursal proficiency
- C = (+) strictly linguistic and (+) discursal proficiency

While process-oriented pedagogies have given too much attention to teaching these writers skills they already possess, product-oriented pedagogies have promoted little more than standards of lexical and syntactic correctness these writers are already aware of. It would be interesting to see how much Clyne's (1984) German-speaking scholars who were proficient in English would learn from EAP writing pedagogies which "taught" them how to plan, write, reread and revise their texts by paying attention to meaning; it would be equally interesting to see how much these scholars would learn from pedagogies which encouraged them to write in a flat and uninteresting way, or worse, only prized the standards of lexical and syntactic correctness of their texts while at the same time allowing them to be "opaque, longwinded and partly irrelevant".

As already implied earlier in this section, what these writers seem to need most is to become aware of the discourse conventions of the genres they wish to master in L2, and then to be able to use them in a way which does not have the washback side-effect of overburdening their minds during the activity of writing. This is precisely the question that will be discussed in the next section.

#### 2.4 Writing instruction for skilled writers using L2

In this section a second language writing pedagogy for SL2 writers which is based on both process and product will be proposed. In terms of product, the focus will not be on standards of correctness, but on L2 discourse conventions. In terms of process, the focus will not be on the development of writing skills (i.e., planning, writing, rereading and revising), but on drawing on the existing skills of SL2 writers. The pedagogical goals of the instructional approach proposed are to help SL2 writers produce more readable texts in L2, and to help them become more independent from feedback.

In order for these goals to be achieved, both SL2 writers and their writing teachers must first of all decentre from the discourse conventions of their native languages by accepting that such conventions are not universal across cultures. In this way it is possible for SL2 writers to understand the comments from their writing teachers more readily, and for writing teachers to point out not only what exactly it is that needs rewriting in L2 texts, but also how such texts can be rewritten according to L2 discourse conventions. In other words, for the dialogue between SL2 writers and their writing teachers to make sense for both, the two need to decentre from the schemata that pervade the discourse conventions of their respective first languages.

One way this could be brought about is by helping SL2 writers familiarize themselves with the discourse conventions of the target language through reading. More specifically, if their aim is to learn how to produce the language of, say, English scientific papers, SL2 writers should read scientific papers in English in order to realize that the discourse conventions of the genre may be different from the ways they normally organize their L1 scientific papers. By reading model passages and paying attention to how such texts have been written, and comparing this with how they themselves would have written similar texts, SL2 writers can extract a measure of what might sound repetitive, incoherent or unclear according to the discourse conventions underlying English scientific papers.

Although this might remind one of Contrastive Analysis, I should like to stress that I am aware that pedagogical implications derived from such studies have been aptly criticized on the grounds that not all contrasts between L1 and L2 actually interfere with second language development. I refer the reader to Gass & Selinker (1983) for a detailed discussion of the debate around the notion of transfer, for it would be well beyond the scope of this research to dwell on this aspect of second language development; however, since I accept the argument behind the criticism of pedagogies based on Contrastive Analysis, I feel obliged to make it clear that what I am proposing is a pedagogy based

on a rather different conception of Contrastive Analysis. Namely, it is not the contrast between L1 and L2 as such that I think is important the SL2 writer should become aware of, but the contrast between target L2 discourse conventions and the faulty discourse of his own L2 texts.

In other words, I believe that by comparing and contrasting the ways in which they attempt to express meanings through writing with the ways similar meanings have been expressed in the target language, SL2 writers can acquire parameters for evaluating their own prose, and subsequently make their own decisions as to what needs and what needn't be rejected in their first drafts. It is obvious that this does not mean I am advocating a return to product-imitation, and that SL2 writers should simply pour their meanings into the mould of canonical English scientific papers. It is clear that models of discourse do not show how ideas **can** be expressed through writing, but only how ideas **have** been expressed through writing (Donaldson 1978; Vygotsky 1962). Still, it is important for SL2 writers to become aware of how ideas have been expressed through L2 texts in order to develop a self-sufficient feeling for L2 discourse conventions. True, this type of selective reading, i.e., of reading with a specific awareness of how L2 discourse has been organized, is obviously not in and of itself enough; SL2 writers must then try to work out the possibilities they have become aware of in practice. For example, the SL2 writer who wishes to learn how to produce the language of

English scientific papers must try to write scientific papers in English by allowing the standards his reading has enabled him to become aware of to orient him. Thus rather than adapting their intended meanings to the form of model passages, what SL2 writers can be trained to do is use the L2 discourse conventions learned from reading authentic texts by native-speakers in order to make sure their meanings are read as intended.

Of course, neither SL2 writers nor L2 writing teachers need externalize their knowledge of such differences in the ways a linguist would. According to Sharwood-Smith (1981), this kind of consciousness can be accomplished without one having to talk about what one has become aware of. Still, maybe what is most needed is a compromise between the linguist's consciousness and the learner's unspoken intuitions: didactic explanations on L2 discourse conventions could accelerate the process of helping SL2 writers to develop an autonomous feeling for such conventions while reading and writing in L2.

The rôle of the writing teacher would not be to advise these writers on how to plan, write, reread and revise, but to reinforce their awareness of L2 discourse conventions by providing **decentred** feedback during their idiosyncratic planning, writing, rereading and revising subprocesses of writing. In this way it is possible to train SL2 writers to apply their acquired knowledge of L2 discourse conventions

at any point during the activity of writing, without trying to change their presumably already efficient writing behaviour, and without trying to teach them writing skills they already possess. After all, if L1 writing skills are applied to L2 contexts (Edelsky 1982), I see no reason why these skills should be taught all over again.

What I mean by decentred feedback is feedback of the type "This section of your text sounds unclear because there seems to be little tolerance for this kind of digression in English scientific papers, even if in your L1 it might be acceptable" or, to take Regent's (1985) example of the greater use of typographical markers in French scientific papers, "English scientific papers seem to be less fragmented, they have less sub-titles, is it different in French?". That is to say, decentred feedback is feedback which makes it clear to the learner that he is required to operate under the rules of a system which is not better or worse, but which is different from the system he is originally familiar with.

Perhaps just as important as providing the SL2 writer with negative evidence is to provide him with positive feedback as well. To tell an SL2 writer that certain constructions in his text have an especially felicitous effect in the L2 can prompt him to develop the use of such constructions when he writes in L2. This kind of positive and negative decentred feedback, it seems, is not only more explicit,

more encouraging and less patronizing, but, above all, it can make more sense to the SL2 writer who is used to organizing texts in terms of the discoursal logic of a different language. Besides, it can certainly make the SL2 writer feel more secure about the alternatives available in the target language when he is forced to make his own planning, writing and revising decisions in the absence of teacher feedback.

Arguably, it could be said that an awareness of L2 discourse conventions could result in unnecessary psychological constraints that would mentally overburden the SL2 writer, and hence catalyse the washback side-effect of blocking his fluency. Krashen and Terrel (1983), for example, maintain that second language development can only be achieved via the spontaneous acquisition route. One must remember, however, that unlike speakers, writers can plan and modify what they want to say in a written text. As pointed out in section 2.1, this is especially true in the case of skilled writers tackling cognitively demanding tasks, who tend to plan and revise their texts to a much greater extent than unskilled writers. Hence, the writing-as-activity of skilled writers is something that tends to take place over a considerable period of time; before a text is finalized, skilled writers frequently use the permanent quality of written language to their advantage in order to rethink and revise their initial drafts.



As Luria (1982:166) put it, writing

"...involves conscious operations with linguistic categories. These can be carried out at a far slower rate of processing than is possible in oral speech, and one can go over the product several times."

If an SL2 writer senses that his awareness of how native writers have organized discourse is blocking him, he need not overanalyse his words before they are put to paper; but for his writing-as-product to conform to the expectations of native readers, he must learn how to analyse his initial drafts with the eyes of a native reader and make the necessary alterations to his text in the process of rewriting. I believe it is possible for an SL2 writer to imagine how a native reader would react to his texts if he is able to compare what he has produced with the ways similar meanings have been expressed in similar genres in the L2; whatever appears to be strikingly different is likely to be what most violates the sociocultural expectations of native readers.

If SL2 writers are taught how to develop a measure of what conforms and what does not conform to the target language discourse conventions, they can utilize this knowledge to reject what is likely to violate the sociocultural expectations of native readers, and this very rejection can be a learning experience. The next time they write in L2 the probability of their having to reject again what they already rejected once will be smaller. That is to say, I

believe that certain ways of organizing discourse that have been rejected by an SL2 writer in his revision of a text can be rejected in the planning stage of future texts produced by the same writer. At length, this might enable SL2 writers to bridge the gap between a deliberate awareness of how native writers have organized discourse and a more spontaneous use of L2 discourse conventions in all stages of writing.

The idea that conscious learning promotes non-conscious development is not novel (Vygotsky 1962); what remains to be tested is whether indeed SL2 writers can gain feedback-independence and produce more readable texts in L2 after becoming aware of the differences between the ways they are used to expressing meanings through writing and the ways meanings are normally expressed in the L2.

## Notes to chapter two

1. For the purpose of such studies, usually the skilled writers were those who took up writing as a profession, whereas the unskilled were by and large American college freshmen learning how to write in academic prose.

2. Of course this raises the question of whether UL2 writers would benefit from process instruction conducted in an L2 rather than in the L1. L2 process instruction is most probably beneficial when the L1 of an L2 writer is not a literate language, i.e., when the L2 writer is probably unskilled because he is learning both the L2 and how to write at the same time. L2 process instruction is also probably justifiable when for some reason or other UL2 writers find it more useful to compose in an L2 than in their own L1. In both cases, writing skill is likely to be considerably more relevant to the L2 context since there is comparatively little or no use for this type of knowledge in the L1 context. It is obvious, however, that the above question cannot be reasonably discussed any further in purely theoretical terms. In order to take a stand with regard to such a controversial issue, it is necessary to consider the various sociolinguistic implications of teaching writing process in an L2. This is only possible if one is fully aware of the specific linguistic and situational contexts in which the teaching would take place. Let me therefore make it clear that the present study is not sociolinguistically oriented.

3. To my knowledge, this distinction has not been adequately dealt with in the literature in the past. Zamel (op.cit.), for example, has often referred to high proficiency L2 writers without making it sufficiently clear whether this proficiency was relative to their writing abilities or whether it had to do with their level of second language development.

4. The way in which development along the axis of proficiency is graphically represented is, for the sake of clarity, obviously a great simplification. I do not wish to convey the idea that strictly linguistic proficiency necessarily precedes discursual proficiency. The two may be acquired at the same time.

5. The term *decentre* is borrowed from Donaldson (1978), who uses it to describe the act of coming to understand that one's egocentric system exists among other possible systems.

## CHAPTER THREE

### THE STUDY

#### 3.1 Aims of the investigation

The present study had three major objectives. The first one was to find out whether a second language writing course organized according to the principles put forward in section 2.4 would help a group of skilled writers using L2 produce more readable writing products after a short period of instruction. The pedagogy tested specifically called the attention of the writers to the use of a number of L2 discourse conventions their L2 texts seemed to violate, and purposefully did not seek to emphasize the development of writing skills, although it did draw on their existing skills.

The second objective of the study was to investigate whether the pedagogy proposed helped this group of writers learn about parameters with which to evaluate and improve their own prose in the absence of teacher feedback.

The third objective of the study was to develop a method of analysing revision which helped in diagnosing the problems encountered by L2 writers more fully, and in this way come to a deeper understanding of what might help skilled writers using L2 produce more readable texts.

### 3.2 Research design

The EFL writing course which promoted the type of instruction tested took place in Brazil, and was hosted and sponsored by the Department of Immunology of the University of Sao Paulo. The whole experiment comprised two weekly three-hour sessions over a period of nine weeks, amounting to a total of fifty-one hours. Of these, twenty-one hours were dedicated to the collection of pre and post-treatment data, and the thirty hours in between were used for the course on writing which constituted the experimental treatment. In other words, data collection was organized on the lines of a time-series research design (Hatch and Farhady 1982).

### 3.2.1 Hypotheses

Before I introduce the hypotheses tested in the course of the study, the following terms need be recalled and operationally defined:

SL2 writers: SL2 writers are highly literate non-native speakers who have developed writing skill and experience in L1.

Readable: Readable texts are written texts of a particular genre which a given reader who is familiar with the genre in question finds clear and easy to read. Improved readability: The readability of a written text is improved when changes which facilitate the reader's interpretation of the text are made.

Instruction: Instruction is the pedagogical approach proposed in this study made actual in the thirty-hour course on EFL writing which constituted the experimental treatment.

Independent from feedback: A writer is independent from feedback when he is able to see for himself which are the inappropriate or less appropriate parts of his own prose and rewrite them in a more appropriate way without receiving any cues from another person as to what in his text could be improved. Increased feedback-independence:

The feedback-independence of a writer increases when he learns to rewrite in a more appropriate way (and in the absence of any cues from another person as to what in his text could be improved) parts of his written texts which he was not able improve before.

Having defined the above terms, the hypotheses tested in the present study were the following:

H1

The texts SL2 writers produce after the instruction provided has ceased will be more readable than the texts they produce prior to that instruction

H2

SL2 writers will be able to revise and further improve the readability of pre-instruction final drafts after instruction has ceased

H3

SL2 writers will have become more independent from feedback after instruction has ceased

H4

Improved readability and increased feedback-independence are likely outcomes of the specific instruction provided

### 3.2.2 Participants

The SL2 writers selected to participate in the experiment were eight Brazilian researchers, four male and four female, between 27 and 45 years of age. They all worked at the University of Sao Paulo, two of whom as immunologists (Gustavo and Henrique), two as pharmacologists (Cida and Silvia), one as a pediatrician (Thelma), one as a physicist (Elisa), one as a geologist (Wilson) and one as a

journalist (Dony). Four of the participants were members of staff (Cida, Silvia, Elisa and Wilson) and four were postgraduate students pursuing Ph.D. degrees (Gustavo, Henrique, Thelma and Dony).

It seemed appropriate to work with Brazilian researchers writing in English given that my interest in L2 writing had originally emerged out of a concern with the limitations of Portuguese scientific and academic discourse with regard to the participation of these researchers in the international scientific community. In addition to this, I did not wish insufficient writing skill to affect the experiment given that the pedagogical approach to be tested had been devised for SL2 writers only. I assumed that by allowing only postgraduate students and university staff members to participate, I would automatically narrow down the sample so as to include only one of the most highly literate sectors of the Brazilian population. This assumption is strengthened by the fact that the University of Sao Paulo is unquestionably one of the most prestigious universities in Brazil. It is but the intellectual elite of the country that gains access to it. Apart from that, all eight participants had previous experience in publishing scientific articles in Brazilian journals.



On average, the participants had had five years of instruction in English of which, according to them, most emphasis had been given to grammar and oral communication skills. It was not possible to control for proficiency on the basis of accredited English proficiency examinations since most of those who applied for the course did not possess any recent results from such examinations, and waiting for such results to arrive in Brazil would have delayed the experiment beyond limit. However, the participants were required to write an approximately two-hundred word summary of their areas of specialization under normal, one-hour test conditions so as to ensure that they did not make major syntax errors, and that their vocabulary in English was not too limited<sup>1</sup>. At least intermediate-level knowledge of English syntax and lexis was thought to be an important criterion in the selection of the participants, for I was primarily interested in tapping data pertaining to higher-level discorsal aspects of L2 writing. As Widdowson (1983) and Daiute (1984) pointed out, a writer's performance at the level of discourse can be greatly affected by insufficient knowledge of syntax and lexis. Similarly, in a pilot phase of the present study, the discourse-oriented pedagogy tested did not seem effective for one of my subjects who had a very limited knowledge of English lexis and syntax.

The two other control measures adopted were that the participants selected were required not to attend any other EFL course at the time of the experiment, and had to be able to attend all sessions of the admittedly extended schedule of the experiment<sup>2</sup>.

The motivation for the participants to take part in the experiment was by and large the treatment itself, which had been briefly explained to all applicants. An additional motivational factor might have been that the writing course which contained the experimental treatment was free of charge.

Finally, I had foreseen that it would be impossible to find a control group that matched the participants in a normal EFL classroom setting, for there does not appear to be a single EAP writing course in Sao Paulo for skilled writers only. Under these circumstances, the only possibility of working with a control group would have been to split the eight participants into two groups of four, one of which would receive the experimental treatment while the other one received some placebo treatment. I rejected this alternative for the following two reasons: first, it would be unethical to expect the control group to voluntarily dedicate their time and energy to the experiment when their motivation to take part in it was to a large extent the treatment itself. Second, to draw any sort of conclusions from the differences perceived between two samples of only

four would risk compromising the validity of the study. As shall be seen, the absence of a control group was nevertheless partly compensated for by the conditions under which the data was collected and then analysed.

### 3.2.3 Data collection

The primary source of data upon which the analysis of the effects of the instruction provided was carried out consisted of a series of three pre-treatment and three post-treatment essays in between which instruction took place, plus the post-treatment revision of the final draft of one of the essays produced in the pre-treatment phase. I shall start by describing the conditions under which the three pre-treatment and the three post-treatment essays were produced. Having done that, I will then report on how the post-treatment revision data was collected. Additional intuitional data was collected at the end of the experiment via the retrospective questionnaire in appendix II.

Before each of the three pre-treatment and the three post-treatment sessions, the participants were required to select, read and bring with them to the classroom a published and untranslated text in their areas of specialization written by a native speaker of English (NS texts). The NS texts could be papers, articles or chapters from books, but the participants were encouraged to bring

NS texts on topics about which they wished to write during the test sessions. Later on, during the treatment, the participants were going to be asked to reread these NS texts so as to try to extract from them parameters for rewriting their own pre-treatment essays.

During a maximum of a full three-hour session, the participants then had to write an essay which could be a discussion, an analysis, a summary or a criticism of the NS texts they had read. Alternatively, they could also write about their own ongoing work, provided that it was related to the topics of the NS texts. The choice depended exclusively on how the NS texts the participants had selected related to what they wanted to write about during the test sessions. Of course such freedom of choice traded-off a certain homogeneity in the kind of essay produced for an opportunity for the participants to write meaningfully about what they really wanted to put down on paper. The reason for such a trade-off was that it would be unlikely that a single reading and writing task would mould itself perfectly to the writing interests of the eight participants. On the other hand, having them choose what they wanted to write about would probably keep motivation high as well as capture their specific writing needs and problems more realistically. That is to say, it would be rather delusive to have the participants write an essay which was a general discussion on abortion or euthanasia - to take as examples two favourite EAP writing topics - when

in actual fact their interests lay in overcoming problems they faced when writing articles or papers on very specific subject-matters which had little or nothing to do with issues such as abortion or euthanasia.

The only other constraint imposed was that the length of the essays was restricted to around two A4 pages. The reason for this was to keep the amount of data collected within reasonable proportions. Otherwise, the participants were allowed to make notes, draft and redraft their essays as much as they wished, as well as consult the NS texts, dictionaries or any other reference book. The rationale behind simulating such normal writing circumstances was to allow, within the time and length limits imposed, for as much writing process freedom as possible.

Although there were no major problems with regard to conducting the pre and post-treatment sessions under near identical circumstances, I must draw attention to the fact that it was not possible to have the essays written at regular intervals of time. The irregular time intervals between the three pre-treatment (T1, T2 and T3) and the three post-treatment (T4, T5 and T6) sessions are shown in figure 3.1 below.

Figure 3.1: Time intervals between pre and post-treatment sessions ( - = 2 days)

T1---T2-T3      TREATMENT      T4---T5---T6  
(5 1/2 weeks)

The data upon which the analysis of post-treatment revision was based consisted of the final draft of the third pre-treatment essay (T3) and the post-treatment revision of that same essay (T3\*). The two texts were taken to represent the best product the participants could arrive at after revising their texts on their own at two different points in the experiment, i.e., before and after the treatment. What I mean by "on their own" is that neither before nor after the treatment were the participants given any cues as to what in their texts might have needed rewriting, although they were allowed to consult dictionaries, grammar books or any other references during the activity in the same way as they would do so under normal writing conditions. The participants were not warned beforehand that they would be required to revise their texts so as to prevent them from preparing the revision at home. They were nevertheless allowed as much time as they wished during the sessions for the two revisions. They did not, however, take longer than one and a half hour.

T3 was finalized a full week after it had first been written, and, naturally, before the treatment began. It was important to allow for this pre-treatment time-lag so as to minimize the possibility of the analysis capturing changes which had to do with detachment rather than with the treatment itself. Otherwise, the analysis of post-treatment revision could be distorted by changes made simply as a result of the participants rereading their essays with the more detached eyes of the writer who has given a rest to his own text (Chandrasegaran 1986). The idea of returning T3 to the participants a week after it had been written, and of asking them to make sure that they revised it as best they could before the actual treatment began, was therefore to keep this intervening variable under control.

The post-treatment revision of T3, T3\*, was then produced immediately after the treatment had ceased, and before the collection of the post-treatment essays began. It could be argued that I did not allow for the same amount of pre and post-treatment writing practice to take place before the two final revisions were collected. In other words, in a perfectly symmetrical experimental design, T3\* would have been produced at the end of the post-treatment phase in the same way as T3 had been finalized at the end of the pre-treatment phase. Figure 3.2 below illustrates the lack of symmetry in the data collection, and figure 3.3 illustrates what would have been the symmetrical order for collecting the data in question.

Figure 3.2: Assymetrical order in which the data was collected

T1 - T2 - T3 - T3(rev) - TREATMENT - T3\* - T4 - T5 - T6

Figure 3.3: Symmetrical order for collecting the data

T1 - T2 - T3 - T3(rev) - TREATMENT - T4 - T5 - T6 - T3\*

From the above it can be seen that the assymetrical order in which the data was collected does not invalidate the study, but actually strengthens it, inasmuch as it can only interfere with the results in making my predictions more difficult to confirm. After all, had T3\* been produced at the end of the post-treatment phase, the added writing practice this would have entailed would most probably also have enhanced the quality of the post-treatment revisions. In asking the participants to revise T3 a second time immediately after the treatment was over, I have deliberately denied them the opportunity of further writing practice.

A second apparent flaw in the procedure is that the original T3 draft written before its pre-treatment revision was not preserved. Had this been done, I would have been able to to compare the two revisions rather than only the pre-treatment final draft with its post-treatment revision. The reason why this was not done is that writing-as-activity is a recursive process, which means that much of the pre-treatment revision of T3 took place during the very



session in which the participants wrote it in the first place, i.e., before it was returned to them a week later. The changes made from the original to the final pre-treatment T3 therefore do not tap the participants' pre-treatment revision in full, but only the changes they decided to introduce after a period of detachment. In view of this, it would be naive to assume that the pre-treatment revision of T3 could be compared with its post-treatment revision in equal terms. Moreover, since the pre-treatment revision of T3 represented the best version of T3 the participants could arrive at before the treatment, the differences between it and the post-treatment revision of T3 should yield sufficient information for it to be possible to analyse which aspects of their texts the participants found it necessary to further revise after the treatment.

The full set of pre and post-treatment essays by Wilson (a participant whose performance was average in relation to the rest of the group) is supplied in appendix III. The pre-treatment final drafts and post-treatment revisions of T3 by all eight participants are transcribed in appendix V<sup>F</sup>.

### 3.2.4 Treatment materials

The materials utilized during the treatment comprised:

- the bibliography of reference books enclosed in appendix IV;
- the NS texts the participants had selected themselves in the pre-treatment phase;
- the first two pre-treatment essays the participants had written;
- and eight course handouts of which copies are also supplied in appendix IV.

The bibliography included a learner's dictionary, the Thesaurus, a pedagogical grammar and a text-book on academic writing. Reference to these books was not compulsory, but a few copies of each were kept in the classroom for the participants to consult at their leisure. The NS texts the participants had selected were utilized as reading materials out of which the participants were encouraged to extract parameters for evaluating their own prose. The first two pre-treatment essays were used for practising revision. Some extracts selected from them were also utilized as examples for contextualizing the use different discourse conventions. The eight course handouts

were used as a means of helping the participants understand a few of the most pervasive problems visible in their pre-treatment essays.

A few words need be said about how the course handouts were prepared. I began by allowing my reading of the pre-treatment texts to be oriented by the acknowledged domains of discourse incompatibility between English and the Romance languages mentioned in chapter two, and by paying special attention to problems of discourse which were common to the essays by three or more different participants. Having done this, I was able to identify eight major problems of discourse which the participants generally seemed to need help in overcoming. These problems did not cover all that was markedly inappropriate in the pre-treatment essays, but only what appeared to be the most pervasive factors of non-compliance with the discourse conventions of English expository prose. Each of these problems gave origin to a different handout, all of which sought to provide the participants with:

- A didactic explanation of the problem in question. Care was taken to make sure these explanations were "decentred".
- Guidelines on how to overcome the problem based on how native speakers of English normally organize discourse.

More specifically, the eight course handouts covered the following:

a. Priming

One of the major factors of non-compliance with the conventions of English expository prose that surfaced in the pre-treatment essays was the absence of linguistic elements to signpost or prime the reader for what could come up in the text. Many of the ideas contained in the pre-treatment essays were introduced in what appeared to be an overly abrupt manner. For example, at a very macro-level, apart from essay titles, there were very few advance organizers - as the ones Clyne (1984) noted in the texts by English-speaking scholars - to inform the reader what the essays would be about. Of the 24 pre-treatment essays collected, only two contained advance organizers of this sort, both of which were by the same participant:

"The purpose of this report is the preparation of mesophases composed by disks and rods using aromatic detergent at or near mole fraction = 1 in the micelle."

"Criticism to this [Deuterium Nuclear Magnetic Resonance... technique] approach is developed below."

Given the almost total absence of advance organizers at the above macro-level, I decided it would also be worth reinforcing linguistic resources that could be used in order to prime the reader for other levels of text. At the level of the paragraph, the handout on priming called the participants' attention the need for introductory topic sentences to inform the reader what the paragraph would be about. The greater proportion of topic sentences in the texts by native-speakers of English had already been noted by Scarcella (1984). At the level of the sentence, the participants were advised that it helped processing a text if they fronted the topic of the sentence. The handout then showed how a subordinate clause starting with "although", "whereas", or "while" could sometimes be fronted in order to warn the reader that a within-sentence contrast would come up. In the case of long compound sentences, the handout explained that certain key function words or phrases - such as "both", "either", or "not only" - could warn the reader that an additional "and", "or", or "but also" clause would come up in the sequence of the text<sup>1</sup>.

b. The given-new principle

Another major factor of non-compliance with the discourse of English expository prose perceived was the relative lack of linear organization in the presentation of the ideas contained in the pre-treatment essays. The convention that

linearity is important and necessary in English expository prose was noted by Clyne (1984) and others. The examples below, taken from the pre-treatment essays by four different participants, briefly illustrate how the order of information in their texts tended to meander back and forth in a non-linear way.

"Lung diseases are responsible for a considerable part of the morbidity and mortality of man [...] In developed countries the environmental contaminants and exposure to toxic volatile solvents are ranked top of the list of leading respiratory diseases and injuries."

"Synthetic membranes have been used as models to study certain properties of life membrane [...] Deuterium Nuclear Magnetic Resonance is the used technique."

"Although this early Earth was relatively cool, at least three mechanisms started to heat up it: [a)...b)...c)....]"

"Taking into account the bulk of the planet and the time of development of these processes, the most important of those mechanisms was the radioactive one..."

"[...] a genetic monitoring program needs to be established beginning with basic cares of the colony. The correct nomenclature of the strain asked by the users is a beginning of some guarantee for the quality of the animal received."

As can be seen, many linguistic elements which would normally come together in text were separated by a non-conventional ordering of clauses and sentences. To help the participants reorder the elements in their texts in a more linear fashion, the given-new principle handout was prepared. This handout explained the semantic status of

"given" and of "new", and advised the participants to organize their sentences and paragraphs by starting with what they assumed the reader would know, or with what had already been mentioned in the text (given), and by finishing them with information which was being introduced to the reader (new). Although this piece of advice might sound prescriptive, it is a well-documented fact in the literature that English discourse is normally organized in this way (Danes 1974, Clark and Haviland 1977, Quirk et al. 1986 - to cite only a few sources). The handout then provided the participants with examples of some of the less obvious linguistic resources they could use to this end, namely, the inversion of main/subordinate clause strings and the use of cleft-sentence constructions. The obvious connection of the given-new principle with the handout on priming was also pointed out to the participants.

#### c. Sentence-complexity

The next handout was about sentence-complexity. The pragmatic distinction between the use of simple and complex sentences - in which simple sentences are normally used as topic sentences to introduce new ideas or emphasize a point, and complex sentences are used to convey relationships between ideas (Huckin 1983, Hamp-lyons and Heasley 1987) - did not always surface in the pre-treatment essays. In fact, what emerged was a pervasive use of overly

complex syntax, which not only rendered the essays rather dense and opaque, but also failed to signpost the reader towards distinguishing between its central and ancillary points. This clearly flattened out the hierarchy of the important points and the supporting details of the essays; the "levels effect", which according to research in cognitive psychology facilitates recall<sup>25</sup>, therefore did not emerge in any obvious way (Huckin 1983). The examples below, again taken from some of the pretest essays, illustrate this.

"The fact that treatment with fungicidal drugs can revert this picture repairing the cellular immunity of the patients is in agreement with the idea that those immunodepression is not inherit by the host but caused by circulating fungal elements, possibly by inducing alterations in the immunological system of the host."

" In short, ABO incompatibility represents a spectrum of hemolytic disease extending from those in which there is little laboratory evidence of erythrocyte sensitization, but evidence of hemolysis, to severe hemolytic disease in which erythrocyte sensitization is usually demonstrable."

"For combat the expression 'post-industrial society' Jameson will use the marxist economist Ernest Mandel, who says that late capitalism, far from representing a 'post-industrial society', thus appears as the period in which all branches of the economy are fully industrialized for the first time."

The handout on sentence-complexity began by pointing out that simple and complex sentences serve different purposes in a text, and that their use is more or less predictable



in English expository prose. The handout then advised the participants to compare their texts with those by their native speaker counterparts, and to pay special attention to sentences that contained too much subordination if they thought their sentences were overly complex. The participants were also warned that it would not be enough to try and keep all their sentences short and simple, for this could not only make their texts sound boring to the reader, but also make it difficult to express certain ideas. The participants were therefore advised to use simple sentences whenever they wished to introduce a topic, highlight a conclusion or emphasize a point. They were also told that they could "split" overly complex sentences by separating them into equivalent semantic units and rewriting these units in a syntactically parallel way. The importance of symmetry and structural repetition in English discourse was noted by Clyne (1984); these factors are also considered to be cohesive devices by Halliday and Hasan (1976).

#### d. Connectives

A fourth significant difficulty I perceived while reading the pre-treatment essays had to do with the use of adverbials as links between sentences and paragraphs, which often seemed to be lacking. When they were not lacking,

their frequently inappropriate use put me on the wrong frame of mind for was coming up in the texts and, in certain cases, even jeopardized coherence. The examples below illustrate this.

"Those infants whose red cells had the greatest evidence of sensitization had the highest bilirubin and lowest hemoglobin levels.

"On the contrary, it is possible to find mild degree of hemolysis even though there is no 'in vitro' evidence of sensitization..."

"The non-polar trail of the molecules are maintained inside the aggregate as the polar heads faces the water. These aggregates form clusters that possess liquid crystalline properties. Nevertheless, the more common liquid crystal is the so called..."

Because the use of adverbials as sentence and paragraph connectives is so complex that it could constitute a course in itself, the handout I prepared only dealt with the issue in a very brief way. It explained, following Regent (1985), that in English expository prose very little room was usually left for the reader to infer the relationship between sentences and paragraphs in the text. Guillemin-Flescher (1981) noted that in English translations of French texts many conjunctions are actually added to text. Clyne (1984) too drew attention to the fact that in English expository texts it is the writer who must ensure the reader will gain access to text. Clearly, this access is facilitated when the relationship between clauses, sentences and paragraphs is made explicit. The handout therefore explained that sentence adverbials could be used

as links between sentences and paragraphs in two different ways: first, by conveying the relationship between ideas (conjuncts), and second, by conveying the author's comment on the content of his own text (disjuncts). Next, the handout provided the participants with a list of sentence and paragraph connectives grouped according to those which had similar meanings. The participants were then advised to consult the COBUILD<sup>6</sup> in order to find examples of different contexts for the connectives in the list, and to learn about their usage.

e. The use of commas

Another marked feature of the pre-treatment essays was the inappropriate use of commas. Although the use of commas is not normally seen as belonging to the domain of discourse, the fact that it "provides considerable opportunity for [...] implying fine degrees of cohesion and separation" (Quirk et al. 1985:1611), makes its importance to discourse obvious. Some representative examples of the inappropriate use of commas taken from the pre-treatment essays are provided below:

"It seems that Ts cell require another distinct cells to be induced, which lack the lyt-antigen and resemble Th lymphocytes but have Qa-1 and I-J antigens in its surface."

"For example, the chief symptom of respiratory failure, dyspnoea cannot be applied to animals, since this concept is based on subjective feeling of discomfort or difficulty in breathing."

"This conversion is triggered by  $Ca^{++}$  whose levels are increased in cells submitted to anoxia."

"Because of the better conductivity of the rocks within the outside shell (the crust) the Earth started rapidly to cool and after that became a typical zoned stable planet."

The handout on the use of commas called the participants' attention to the most persistent inadequacies concerning commas in their essays, and provided them with some general guidelines on the conventional use of commas in English prose. The major problems the handout highlighted were: first, many short independent clauses in the pretest essays were paratactically linked together with a comma rather than with a conjunction. In Portuguese, this is acceptable and even literary (Cunha and Cintra 1985). Second, very few commas were used in sentences with clauses linked by coordination - the participants frequently used either commas or additive conjunctions to link long independent clauses, but very rarely used the two together, as is normal in English expository prose. Third, commas were wrongly used to set-off long adverbials which occurred in their normal, non-emphatic end-position, which is normal in Portuguese (Cunha and Cintra 1985) but not in English. And fourth, commas were often ungrammatically employed to set off defining relative clauses, or were lacking in the case

of non-defining relative clauses. Although the same rule applies to Portuguese (Cunha and Cintra 1985), the participants did not seem at ease with it in English.

f. Certainty and commitment

A sixth notable problem in the pre-treatment essays was the absence of language resources to vary the degree of commitment and certainty with regard to the different assertions in texts. Based on Grice's (1975,1978) Maxim of Quality, I take it that strong assertions should be backed by evidence in their support or by the author's full and explicit commitment, and whenever this is not possible, the strength of assertions should be downgraded. The problems concerning commitment noted in the pre-treatment essays were especially marked in cases which, due to both a probable avoidance of modals or modal expressions and a failure to cite references, the texts tended to sound unjustifiably authoritative. The examples below illustrate this:

"... the temperature reached about 1500 - 2000 C, which caused the so-called 'Iron Catastrophe'" (no reference)

"For type II phase optical evidences strongly suggest that this mesophase is rod-like nematic. More precise experiments observing type II phase in the microscope were not achieved because the alignment was rapidly randomized." (strongly suggest?)

"ADP is accepted to responsible for the first pathway of platelet aggregation." (no references)

The handout on certainty and commitment began by pointing out that the author's reasoning and commitment to ideas presented in text were very important features of English expository prose, and that texts which focus on facts and neglect opinions tend to sound inconclusive in the eyes of native English readers (Regent 1985). The handout then provided the participants with a list of modals and modal expressions that could be used when presenting non-controversial evidence, irrefutable evidence, and strong and partial evidence. Then, the handout explained that it was common practice in English expository prose to start a text by making general, impersonal statements and relying on non-controversial evidence; the handout also pointed out the importance of presenting specific evidence from the work by other authors and of concluding with a personal account of one's own interpretation of facts, the strength of which depended on the evidence presented (Regent 1985).

g. Synonyms and reference

The seventh markedly inappropriate feature noted in the pre-treatment essays pertains to synonyms and text-internal referring expressions. The participants often made use of synonyms to avoid the repetition of previously defined terms, with the misleading effect of inducing the reader to think such synonyms were being used to refer to somewhat different entities. Also, the problem of NP ambiguity was even further aggravated by the (sometimes faulty) use of pronominals in places far too distant from where full reference to an entity had last been made. The examples below illustrate such problems<sup>7</sup>:

"In developed countries, the environmental contaminants and occupational exposure to toxic volatile solvents are ranked at the top of a list of leading respiratory injuries (table 1).  
"Another widely diffuse agent is cigarette smoking...."  
(injury/agent?)

"Lyotard was considered as a philosopher with a strong influence of Nietzsche and his "active nihilism" on trying to accelerate the decadence of the idea of 'truth'...  
"On his book, he discusses the question of...."  
(Lyotard or Nietzsche?)

The objective of handout on synonyms and reference was to draw attention to problems of the above type. It began by warning the participants that synonyms of certain terms could be ambiguous if these terms were being employed in very specific senses, and that word-repetition was not

stylistically inappropriate in such cases. The handout then provided the participants with a list of pro-forms that could be used to avoid repeating noun phrases and clauses in the same or in neighbouring sentences. Finally, the handout pointed out that the use of pro-forms varied according to their distance from the last time their corresponding full-form recurred in the text. It is important to note that in Portuguese reference by means of pronouns can often be stretched without risk of ambiguity since, unlike English, common nouns and their respective pronouns are marked by gender.

#### h. Word-order and adverbs

The last of the course handouts was about the position of adverbs in the sentence, which - though normally seen as part of grammar - is seen here as part of discourse given its unquestionable prosodic importance. It appeared to me that in the pre-treatment essays many descriptive adverbs were placed either before or after the verb, with no regard to their type, length or emphasis. I believe this could be a consequence of transfer from Portuguese, where the position of adverbials in the sentence is relatively free (Cunha and Cintra 1985). The examples below illustrate this:

"... the Earth started rapidly to cool..."



"...specific plaque forming cells can be macroscopically visualized..."

"These branches, certainly, will frutify over and over."

"... animals that are not able to respond to a particular antigen normally."

The purpose of the handout on word-order and adverbs was to provide the participants with some general guidelines with regard to the position of descriptive adverbs (mostly adjuncts and subjuncts) in the sentence. The handout began by explaining that word-order in English was relatively rigid, and that unless the author wanted to give special emphasis to an idea or, in certain cases, invert the order of the elements of a sentence so as to adhere to the given-new principle, the canonical SVO order prevailed. The handout then drew attention to the position of adverbs which were peripheral and intrinsic to the sentence structure, and, in the case of the latter, provided the participants with a simplified reference table to help them decide between medial and end positions.

The above handouts were thought sufficient for the thirty-hour treatment planned, which I presumed would allow me to assess how the writing performance of the participants would be affected by it. Although this limit was by and

large a practical one, it also reinforces the fact that I did not claim to know, let alone presume to teach, everything about the discourse of English expository prose. The pedagogical approach adopted during the treatment will be described next.

### 3.2.5 Treatment procedure

In this section I shall describe the procedure adopted during the experimental treatment. Before I begin, however, I must draw attention to the fact that contrary to one of the principles of pedagogy proposed in section 2.4, at the time of the experimental treatment the participants did not practise all stages <sup>of</sup> writing. They practised rereading and revising but not planning and writing first drafts. Though in a normal writing course this would have been pedagogically desirable, further writing practice at the time of the treatment would have interfered with the most important compensatory control measure in the experimental design. That is to say, the absence of a control group made it absolutely essential that the participants should begin the post-treatment phase with no added writing practice in exactly the same way as they began the pre-treatment phase without practising writing beforehand. For writing practice per se to interfere with the results as little as possible,

post-treatment writing should begin exactly at the same point where pre-treatment writing left off. Apart from this one limitation, the experimental conditions allowed me to be faithful to all other principles of the pedagogy for teaching writing to skilled writers using L2 proposed in 2.4.

Having made this one point clear, I should like to remind the reader that the objective of the treatment was to promote among the participants an awareness of certain English expository prose discourse conventions, and to encourage them to use this awareness in order to evaluate and improve their L2 texts on their own. In remaining parts of this section I shall therefore explain how the materials described in the previous section were used in an attempt to achieve such an end. As I do so, I will comment on how the participants reacted to and behaved during the treatment.

The first eight sessions of the treatment were dedicated to the presentation of the eight course handouts, one in each session. Since the procedure for presenting the handouts was more or less the same, I shall describe how the first eight sessions were organized by using the session on the "Given-New Principle" as an example. The handout on the "Given-New Principle" was introduced in a lecture which lasted approximately the first hour of the three-hour session. Like all other lectures, this lecture was very

informal since the participants were allowed and encouraged to make questions and interrupt me as we went over the handout. The most purist defenders of the claim that language is **acquired** rather than **learned** might argue that the metalanguage utilized in the lecture (e.g. "semantic status", "given", "new" and so on) must have hindered the participants' comprehension of it. This did not, however, appear to be the case. The participants were actually quite comfortable with my use of such terms and began using them themselves when asking questions about the lecture. English was the language that prevailed in the classroom, although some of the more elaborate questions were asked in Portuguese and then answered in English. The blackboard and an overhead projector were often used to clarify certain points in a more visual way.

The exercises that followed the presentation of the handout drew on the participants' first pre-treatment essays (T1) to illustrate the points covered in the lecture. In the next half-hour, as a group, the participants were requested to analyse a few representative extracts I had selected from T1 which illustrated the violation of the given-new principle. Based on what they had learned from the lecture, the participants were asked to identify how such selected extracts violated the given-new principle, and to try and rewrite them in a less discrepant form. Again, I noticed that the participants used the metalanguage of the handout when discussing among themselves how to rewrite the

extracts. In addition to this, they seemed surprised and highly motivated to see extracts from their own texts being used as exercises. Although some participants were quicker than others to see how the extracts given to them could be rewritten, all of them ended up grasping what they were meant to do. Occasionally, however, the participants could see and even verbalize how the extracts violated the given-new principle, but were unable rewrite them. When this occurred, I reminded them of the linguistic resources that could be used to that end; for example, by changing sentences or paragraphs around, switching from active to passive voice, fronting subordinate clauses, or by means of cleft-sentence constructions. Exercises on the use of these resources were then quickly drafted on the blackboard so as to provide the participants with further practice.

Having dealt with these initial illustrative extracts, in the next twenty minutes of the session the participants were required to go back to the NS texts they had read and skim through them while paying particular attention to the given-new principle. Here, the intention was to train them in engaging themselves not only in the content of what they read, but also in the language resources used by their NS counterparts to apply the given-new principle. This reading stage was then followed by an approximately twenty-minute plenary session, during which the participants were asked to put forward their doubts and discuss their ideas on the NS texts from the perspective of the given-new principle.

They seemed very impressed when they realized that the NS texts actually obeyed the given-new principle. Another important point raised in the plenary session was that the participants said that they were more used to reading NS texts by paying attention to meaning rather than form, and that they found the latter very helpful.

During the remaining fifty minutes of the session, working in pairs, the participants were requested to scan through their own and their partners' T1, and rewrite whichever parts violated the given-new principle. Although priority was given to the given-new principle, the participants were not dissuaded from revising other parts of text they felt necessary, which many of them did. At this point I stepped back and encouraged them to seek whatever external assistance they needed from the course handout, the bibliography of references or the NS texts, although I provided them with decentred feedback when called for. At first the participants seemed a bit discouraged, but became quite contented when it was explained that the reason for this was to train them to identify and sort out the given-new discrepancies in their texts by themselves, and thus prepare them to revise their texts in the absence of teacher feedback (Jacobs 1989). During this particular session I noticed the participants consulted almost only the course handout. In the other sessions, however, I saw that they began looking for answers to their problems by consulting the course bibliography and the NS texts as

well. They particularly liked the learners' dictionary (COBUILD), Hamp-Lyons and Heasley's (1987) "Study Writing" and the Thesaurus.

Although I had initially feared that the fact that the participants were working with partners who had written texts in areas completely different from theirs would render the task of revising more difficult, I was told that it was in fact easier to perceive discrepancies in texts other than their own, for in such cases it was easier to separate language from content. This seems to confirm Bartlett's (1982) suggestion that language learners are less able to spot their own errors than errors by peers. And indeed, the participants worked in very close cooperation with each other and seemed very engaged in the activity. Once the participants thought they had rewritten all that violated the given-new principle, I went over their texts and called their attention to the occasional points they had missed without actually telling them how to rewrite. Most of the time they were immediately able to see what needed be done, and very little was left for me to hint.

As said before, the sessions for presenting the other seven handouts were more or less the same as the one which was dedicated to the given-new principle handout. A diagrammatic summary of the all stages of this first part of the

treatment process is nevertheless provided in table 3.1 below.

**Table 3.1:** Summary of part I of the experimental treatment (recycled eight times, once for each handout)

<u>DURATION</u>	<u>ACTIVITY</u>	<u>OBJECTIVE</u>
1 hour	lecture	help participants understand discourse conventions in the handout
30 min.	group revision of selected extracts	help participants see flaws in their texts and apply linguistic resources learned to improve texts
20 min.	skim through NS texts looking for conventions	practise paying attention to form and discourse of NSs
20 min.	plenary session	discuss NS texts, put forward questions
50 min.	revise T1 in pairs (especially the conventions seen)	practise independent revision of different conventions

After having scanned T1 eight times, i.e., once after each handout was introduced, the participants were asked to reread the NS texts related to T2 at home, by paying attention not only to the conventions highlighted in class, but also to other conventional ways in which their NS counterparts had organized discourse. In the last two sessions of the treatment the participants were then required to reread and revise their second pretest essays (T2). They did this in pairs, and were encouraged to bear the globality of the course content in mind during the activity. This exercise was meant to encourage the participants to revise their texts as a whole. Although the



order in which the eight handouts had been introduced to the participants followed a roughly top-down hierarchy<sup>2</sup>, the presentation of the handouts in this particular order was not intended as model of which parts of text needed to be revised first. In fact, the participants were given complete freedom to revise their texts in any way they wished given that, being SL2 writers, they were taken to have already developed their own effective, albeit possibly idiosyncratic, writing process strategies. Most participants preferred revising a paragraph at a time, but a few of them felt it was more practical to go over the whole text several times, each time looking for different flaws. To respect how the participants wished to revise different aspects of their texts was thought more constructive than to insist that they use process strategies based on canonical models of how skilled writers normally revise their texts. Once more I deliberately stepped back and told them to try and solve their doubts as best they could by referring to the course handouts, the NS texts and the course bibliography. Feedback on the changes introduced by the participants and on the parts of text that they should have changed but did not was provided only after they had finished revising, unless they specifically requested my assistance during the activity. Once more, the rationale behind this was to encourage the participants to evaluate and revise their own prose in the absence of teacher feedback.

In short, the experimental treatment attempted to promote both feedback-independence and an improvement in the readability of the participants' writing products by encouraging them to:

a. become aware of some standard English expository prose discourse conventions their L2 texts tended to violate.

b. learn to distinguish between the parts of their texts which stood in competition to the ways NSs organized discourse and the parts of their texts which conformed with L2 conventions.

c. draw upon their existing writing (and reading) skills when rereading and rewriting their own texts.

### 3.2.6 The different phases of analysis and interpretation of results

The data collected was for convenience processed, analysed and interpreted in more than one phase. Chapter four is dedicated to the first of these phases. The three pre-treatment and the three post-treatment essays were assigned readability scores based on holistic evaluations by a group

of native-speaker readers conversant with the discourse of English expository prose. The scores were then used to test H1, i.e., that the readability of the writing products by the participants improved after instruction had ceased.

The groundwork for the second phase of analysis is developed in chapter five, which explains the system devised for analysing the post-treatment revisions. The actual analysis of the revisions is left to the first part of chapter six. The next two parts of chapter six then focus on the interpretation of the revisions from the viewpoints of readability and feedback-independence. More specifically, I attempt to find out whether the participants were able to further improve the readability of pre-instruction final drafts (H2), and whether the revisions by the participants hold evidence to an increase in feedback-independence (H3). The interpretation of the revisions from the perspective of feedback-independence was then utilized as a source of information which permitted me to come to a deeper understanding of the kind of reading process and writing product support which might help the group of writers in question improve their written production.

In chapter seven the post-treatment revisions were initially submitted to a third stage of analysis, after which, drawing on the results presented in chapter six, it

was possible to interpret the effects of the instruction provided upon readability and feedback-independence. The objective was of course to test H4, i.e., that improved readability and increased feedback-independence are likely outcomes of the specific instruction provided.

### Notes to chapter three

1. There were fifteen original applicants, seven of whom were eliminated from the sample because the summaries they produced contained more than two errors of subject-verb agreement and more than one non-L2 form.
2. See appendix I for the information file given to the participants prior to the commencement of the course.
3. The procedure and notation adopted for transcribing the final pre-treatment draft and post-treatment revision of T3 is explained in chapter five. For the present, the capital letters, numbers and other signals marked on the transcriptions should be ignored.
4. Whenever possible, the examples utilized to illustrate the topics addressed in this and the following handouts were taken or adapted from the first two pretest essays. The examples which were in accordance with the discourse conventions being discussed were intended to be what was referred to in section 2.4 as "positive feedback". That is to say, they were meant to encourage the participants to make further use of similar constructions. Conversely, the examples which illustrated the violation of a convention mentioned in class were intended to be what was referred to as "negative feedback".
5. Walker and Meyer (1980) have verified this empirically. They showed that syntactically prominent elements, i.e., those which are higher up in text-hierarchies, tend to be easier to recall.
6. Learner's dictionary included in the course bibliography (c.f. appendix IV).
7. There are many other examples of this type. I chose not to present them here because most of such examples require the transcription of too large a stretch of text for the reader to be able to follow where exactly the problems relative to reference occurred.
8. The order in which they were referred to earlier in this section.

## CHAPTER FOUR

### IMPRESSION JUDGEMENTS ON READABILITY

The aim of the present chapter is to test H1, i.e., that the readability of the writing products by the participants improved after instruction had ceased. More specifically, my objective is to compare the readability of the three pre-treatment and the three post-treatment essays in order to find out whether my prediction that the latter will be more readable can be sustained. I will begin by describing how the participants' performance in such essays was converted into readability scores, after which I will use those scores in order to test H1.

#### 4.1 Converting writing performance into readability scores

To convert writing performance in the pre and post-treatment essays into readability scores, two preliminary steps had to be taken: first it was necessary to define how, and then by whom, the essays would be graded. These questions obviously presuppose the more fundamental question of what is meant by the term readability, which

was operationally defined in section 3.2.1 of chapter three. The definition draws on Clyne (1984) and Schema theory.

For Clyne, as stated in chapter two, the main factor of readability in English expository prose is clarity or whatever ensures the reader will gain access to text. Clarity or processing ease seems to be the most logical measure of the readability of the essays upon which this study is based inasmuch as the essays in question are expository texts, which means that their main function is to inform<sup>1</sup>. For an expository text to achieve its goal, its author must convey his message to readers clearly. The factors which ensure written discourse is clear are not direct functions of text, but of an agreement between writers and readers which is conveyed through text. This is in accordance with Schema theory, which maintains that what differentiates discourse from text is that the former is reader-dependent. That is to say, discourse depends on how a reader in a given context interprets text. In the words of Carrel (1982: 482),

"In the schema-theoretical view of text processing, what is important is not only the text, its structure and content, but what the reader or listener does with the text."

Written discourse can therefore only said to be readable when the text that serves as a bridge between the writer and his interlocutors is clear, i.e., it causes no

processing difficulties to the latter. From this point onwards, readability will therefore be assessed by measuring the extent to which written discourse conveys information to the reader in a clear way.

Having defined readability in this way, it was established that in the present part of the analysis clarity or processing ease would be measured via the impression method. Of the three different ways of marking essays described by Heaton (1975), the impression method was thought to be more appropriate than both the analytical and the error-count (or accuracy-based) methods.

The error-count method is by definition the one which has the least to do with processing ease or clarity, for an error-free text may not necessarily be easier to process than one which is dotted with errors. In fact, an error-free piece of written discourse may be so longwinded and unclear to the reader that it can be a lot more difficult to decode than a well-organized text tainted with a large number of spelling and grammar mistakes.

The analytical method, in turn, involves synthesizing the evaluation of separate components of text, such as spelling, grammar, punctuation, fluency etc. It therefore consists of a series of impression marks which may be



useful when it comes to identifying specific problems in text, but which are probably very difficult to put together in a way which summarizes overall processing ease.

Unlike the error-count and analytical methods, the impression method offers a holistic perspective of discourse, which enables one to access and measure readability directly. That is to say, the impression method takes into account both the more central and the more ancillary factors which might affect overall readability, and automatically assigns them their proper weight, without the reader having to decompose readability consciously, into parts which would be extremely difficult, if not impossible, to synthesize into one meaningful overall score<sup>2</sup>. The impression method is also the most convenient method for marking of a large number of essays, as in the case of the 24 pre-treatment and 24 post-treatment essays relevant to this part of the analysis.

Using the impression method in order to assess readability obviously requires the use of a scale. According to the definition of readability adopted, I take it that written discourse ranked top on this scale is very clear and causes no difficulties to a given group of readers; written discourse ranked bottom on this same scale is not accessible to the same group of readers. The values in between these two extremes are theoretically limitless, but in practice they should be confined to a number which poses

no problems for the users of this scale (the readers) to distinguish between them. The following ordinal scale, which was validated by two native speakers of English who agreed that its intervals were semantically distinct from one another, was utilized to convert impression-judgements by a given group of readers into readability scores<sup>3</sup>:

- 1 - The essay is completely confusing and does not adequately convey its message.
- 2 - The essay is confusing and conveys its message with considerable difficulty.
- 3 - The essay is not always clear and conveys its message with some strain.
- 4 - The essay is clear and causes the reader few difficulties.
- 5 - The essay is very clear and gives no difficulties to the reader.

Insofar as the above scale is above all reader-dependent, it is obvious that it only makes sense if it is used by readers who are likely to share roughly the same amount of background knowledge on the content of the texts being evaluated. Because the pre and post-treatment essays in question were meant to be written according to the

conventions underlying the discourse of English expository prose, I decided to have them assessed by native speakers of English who shared a high degree of familiarity with this kind of discourse. At the same time, however, because impression judgements on readability can be quite significantly distorted by a knowledgeable reader's opinion on content, it was thought best to have them graded by a group of native-speaker readers who would not be overly influenced by factors which had more to do with opinions on the subject-matter of the essays than on readability. I therefore decided that all readers had to be equally unfamiliar with the subject-matter of the essays in question. Moreover, as James (1984) so aptly observed, the subject specialist tends to be overly tolerant with respect to communication breakdowns which his specialized knowledge enables him to overcome, and I specifically wanted to avoid making any allowances for such breakdowns. Thus what the readers chosen had in common was that they were native speakers of English highly familiar with the discourse of English expository prose but unfamiliar with the topics covered in the essays by the participants: they were sixteen Edinburgh University postgraduate students and members of staff working in areas different from those the participants were specialists in<sup>4</sup>.

The 48 pre and post-treatment essays were distributed among the above readers so that in the end two different readers had to score the full set of pre and post-treatment essays

by the same participant. The reason for having distributed the essays in this way was that I did not expect any of the above readers to have the time to assess 48 essays (3 pre-treatment essays + 3 post-treatment essays x 8 participants) on topics unfamiliar to him all on the same day, let alone expect his or her judgements not to be influenced by fatigue<sup>2</sup>. The drawback of doing so, it could be argued, is that no matter how homogeneous the sixteen readers were expected to be, their interpretation of the values on the readability scale established would probably vary as a function of beyond control differences in personal interest in the topics of the different essays. However, the objective of assigning readability scores to the essays was to assess the progress of the participants along the succession of essays rather than to cross-compare their individual performances. Thus although it was crucial that all essays by the same participant be judged by a single reader, it did not matter so much that the essays by different participants should be assessed by different readers.

Once the scale and the readers who would use the scale to evaluate readability had been established, the essays by each participant were masked and shuffled into a random order so that their readers would be ignorant of the original order in which they had been written. The readers were then given the following instructions in writing:

a. Read the six essays enclosed in any order you wish, but all in one go.

b. Do not allow the technical words you are not familiar with stop you. You are to concentrate on your impression of the overall readability and clarity of the essays rather than on trying to understand their content in detail.

c. Give an impression mark to each essay according to the readability values set in the 1-5 scale provided. Half-marks allowed.

d. Write down your score to each essay next to its corresponding symbol on the scoring sheet enclosed.

The above instructions were repeated orally and the readers were allowed to make questions if they had any doubts concerning the procedure. No time limit was imposed for the task.

Having thus assigned the pre and post-treatment essays impression marks on readability, before handling them it was necessary to check whether the two respective readers of the sets of essays by the same participant had agreed often enough for me to feel confident about their ratings. Given ordinal scale used, the Spearman rank-order correlational analysis was the one chosen for this purpose.

Six out of the eight correlation coefficients were  $+0.5$  or over, a figure that was accepted as indicating that there was sufficient agreement between six out of the eight pairs of readers. However, the remaining two coefficients obtained,  $+0.1$  and  $-0.5$ , indicated that the former pair of readers had not reached any significant agreement, and that the latter pair had actually disagreed. This was rather problematic because the number of essays was relatively small, which meant that any statistical computation applied to the readability scores would be especially sensitive to such disagreements. In consequence, before proceeding any further, the two sets of essays in question had to be reassessed until some significant agreement by any two readers was reached. Each of these sets was therefore duly scored by a third reader, both of whom were again native speakers of English highly familiar with the discourse of English expository prose but unfamiliar with the topics of the essays in question. When the correlation coefficients were then recalculated, it was found that both third

readers had agreed more with one of the original readers than the original readers among themselves. The ratings given by the most discrepant original readers were therefore discarded at the expense of the new ratings provided by the third readers. The eight final pairs of readability scores and their respective correlation coefficients are summarized in table 4.1 below. The fact that it was not unduly problematic to obtain such positive coefficients in itself gives some indication that the method used to arrive at the readability scores was reliable.

**Table 4.1:** Readability scores assigned to the eight sets of pre and post-treatment essays plus correlation coefficient per pairs of scores (\*scores on the left by first reader; scores on the right by second reader)

PARTICIPANTS				
	Cida	Dony	Elisa	Gustavo
PAIRS OF	5 : 2	2 : 1	2.5 : 2.5	3.5 : 4
SCORES PER	4 : 2	3 : 2	2 : 3.5	3.5 : 4
ESSAY*	2 : 2	1 : 2	2.5 : 1	3 : 3
	3.5 : 1.5	3 : 3	3.5 : 4	3.5 : 1.5
	5 : 2	4 : 3	4.5 : 5	4 : 3
	3 : 1	5 : 2	4 : 4.5	4 : 5
COEFF.	+0.5	+0.5	+0.8	+0.5

**Table 4.1 (cont.):**

PARTICIPANTS				
	Henrique	Silvia	Thelma	Wilson
PAIRS OF	4 : 4	3 : 2	3 : 2.5	3 : 3
SCORES PER	1 : 3	4 : 2	3 : 3	3 : 4
ESSAY*	5 : 4	4 : 3	4 : 4	3 : 2
	5 : 4	3 : 2.5	4.5 : 4.5	4 : 3
	4.5 : 3	5 : 3	5 : 5	4 : 4.5
	5 : 4	4 : 2	3.5 : 4	4 : 4.5
COEFF.	+0.7	+0.6	+1.0	+0.7

#### 4.2 Were the post-treatment essays more readable than the pre-treatment essays?

I shall now describe how the final two readability scores given to each of the 48 essays were processed, and how the readability of the pre and post-treatment essays were subsequently compared. Given the ordinal scale used, an option was made for non-parametric statistical methods.

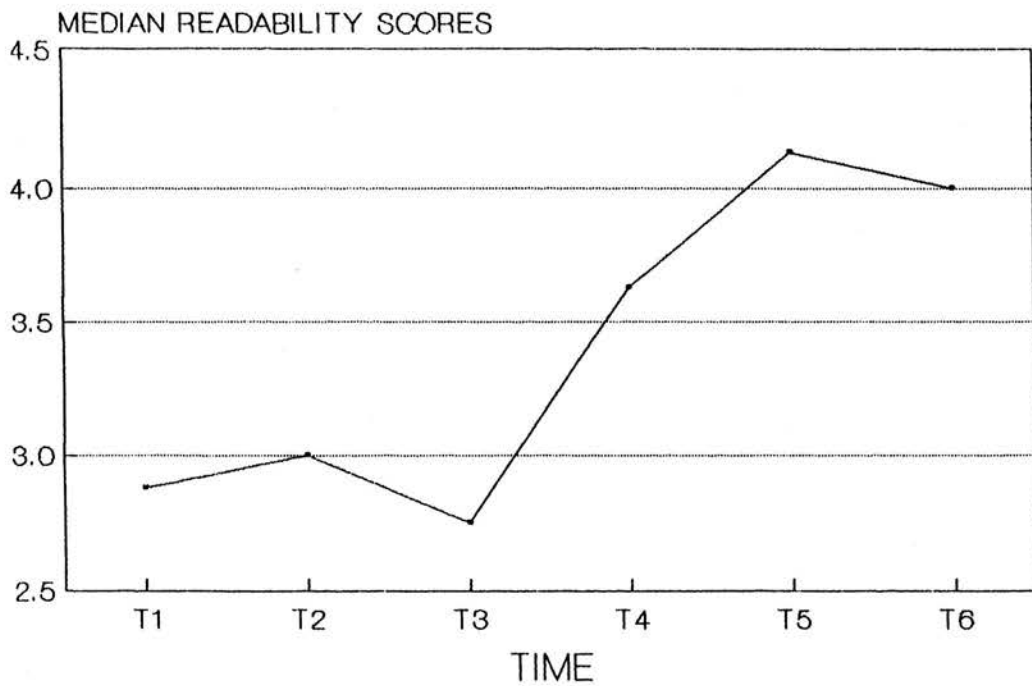
The first step was to extract the median readability score for each individual essay so that the scores by all readers would be taken into account. Having obtained the median score for each essay, the next step was to unmask the essays and sort them out according to the order in which they had been written. That is to say, the eight median scores given to each of the three pre-treatment essays (T1, T2 and T3) and each of the three post-treatment essays (T4, T5 and T6) were distributed as required in a time-series design. Next, the median readability score for each T was computed. Table 4.2 below summarizes the median scores per essay and the overall medians per T, which were then mapped onto the graph in figure 4.1.



**Table 4.2:** Distribution of median readability scores per essay and overall median readability score per T.

PARTICIPANT	T1	T2	T3	T4	T5	T6
Cida	4.00	3.00	2.00	2.75	4.25	3.25
Dony	1.50	2.50	1.50	3.00	3.50	3.50
Elisa	2.50	2.75	1.75	3.75	4.75	4.25
Gustavo	3.75	3.75	3.00	3.75	3.50	4.50
Henrique	4.00	2.00	4.50	4.50	3.75	4.50
Silvia	2.50	3.00	3.50	2.75	4.00	3.00
Thelma	2.75	3.00	4.00	4.50	5.00	3.75
Wilson	3.00	3.50	2.50	3.50	4.25	4.25
<b>MEDIAN</b>	<b>2.88</b>	<b>3.00</b>	<b>2.75</b>	<b>3.63</b>	<b>4.13</b>	<b>4.00</b>

**Figure 4.1:** Median readability scores from T1 to T6



It can be seen from the gradients in figure 4.1 that the biggest improvement in readability occurred between T3 and T4 (+0.88). It can also be seen that the three post-treatment group medians (T4, T5 and T6) were higher than the three pre-treatment group medians (T1, T2 and T3), which is already an indication that the post-treatment writing products by the participants were more readable, and that the improvement which took place was maintained after the treatment had ceased.

To find out whether or not time or reading and writing practice alone (as opposed to instruction) could have affected these results, it seems appropriate to examine the curves pertaining to pre and post-treatment performance separately. It can be seen from figure 4.1 that before the treatment was introduced readability increased very little from T1 to T2 (+0.12) and then, from T2 to T3, dropped below T1 (-0.25). After the treatment had ceased, readability increased quite substantially from T4 to T5 (+0.5) and then dropped slightly from T5 to T6 (-0.13), to a point which was nevertheless above T4. The fact that readability both increased and dropped twice, once before and once after the treatment, suggests that time or reading and writing practice alone did not in themselves result in improved readability. In other words, neither the pre-treatment curve between T1 and T3 nor the post-treatment curve between T4 and T6 indicate that practising reading and writing, which is what the participants did during

those two phases of the experiment, or time alone, contributed towards a consistent increase or decrease in readability.

Since neither time nor reading and writing practice alone seemed to have affected the results in a specific direction, to find out more about how the post-treatment writing products by the participants compared with the pre-treatment equivalents, I found it legitimate to compare overall pre-treatment readability and overall post-treatment readability as two unitary blocks. Table 4.3 below summarizes the overall pre and post-treatment readability medians per participant.

**Table 4.3:** Comparison of overall pre and post-treatment readability medians per participant

<u>PARTICIPANT</u>	<u>PRE median</u>	<u>POST median</u>	<u>CHANGE</u>
Cida	3.00	3.25	+0.25
Dony	1.50	3.50	+2.00
Elisa	2.50	4.25	+1.75
Gustavo	3.75	3.75	0.00
Henrique	4.00	4.50	+0.50
Silvia	3.00	3.00	0.00
Thelma	3.00	4.50	+1.50
Wilson	3.00	4.25	+1.25
<b>CENTRAL TENDENCY:</b>	<b>3.00</b>	<b>4.00</b>	<b>+1.38</b>

The above results indicate that although there does not seem to have been any post-treatment improvement in readability in the essays by Gustavo and Silvia<sup>e</sup>, the post-treatment overall readability medians for the essays by all other participants were higher than the pre-treatment equivalents. In addition to this, from the bottom row of

table 4.3 it can be seen that the central tendency for the group as whole (which was computed by extracting the median of the individual medians) leaves no doubt about evidence of a general improvement in readability. If this is interpreted in association with the fact that there were no significant fluctuations between the pre or post-treatment readability scores upon which those medians are based (before and after the treatment readability both increased and decreased), one might infer that the instruction provided during the experimental treatment is more likely to have been the cause of improvement than time or reading and writing practice alone. Evidence that the participants were able to produce more readable writing products after instruction had ceased is further strengthened by the fact that:

a. the group readability medians for T4, T5 and T6 were higher than the equivalent medians for T1, T2 and T3 (table 4.2);

b. the biggest improvement observed occurred from T3 to T4 (figure 4.1).

Although the present results are highly encouraging, it would be precipitate to attribute the improvement perceived to the specific instruction provided during the experimental treatment without examining its effects in further detail. After all, it could be argued that any type

of writing instruction could in the end promote some kind of improvement in readability. In other words, it would be wrong to equate the improvement perceived with the pedagogy tested during the treatment without having a measure of whether or not the peculiarities of the experimental treatment played an important role in such a development.

To draw any significant conclusion about the relationship between the instruction provided and the above evidence of improved readability, a more extensive analysis of the data is required. For the matter, I opted for analysing and interpreting only a selected part of the data - the post-treatment revisions of the pre-treatment final drafts - in much greater depth. The next three chapters will deal with that data, the last of which will finally examine the effects of instruction.

#### Notes to chapter four

1. Elsewhere in the literature this particular function has been referred to as transactional (Brown and Yule 1983), descriptive (Lyons 1977), ideational (Halliday 1970), referential (Jakobson 1960), and representative (Buhler 1934).

2. In a later part of this study (chapter six), readability will however be analysed in parts. It shall nevertheless be seen that no attempt will be made to add up the parts, although the overall picture they make will be discussed in the light of holistic impression judgements on readability.

3. Half-marks were allowed as a means of capturing differences finer than the wording of the values in the scale.

4. As stated in chapter three, the participants wrote essays in immunology, pharmacology, medicine, geology and communication studies. The native speaker of English readers responsible for evaluating those essays were specialists in applied linguistics, linguistics, cognitive sciences, artificial intelligence and anthropology. Care was taken to have the set of essays in communication studies assessed by the specialists in artificial intelligence, who were considered to be the readers who had had less contact with humanities. It will be seen in chapter six, however, that it was belatedly discovered that one of the applied linguists responsible for evaluating the essays by one of the pharmacologists (Silvia) was an experienced teacher of medical English.

5. According to Underhill (1982), one of the major sources of unreliability in the marking of written texts is that a single reader may assign different scores to the same essay from one day to the next. For this reason, it was thought important to have the essays marked all in one go.

6. See note 4 above and chapter six for a possible reason why Silvia's post-treatment writing products were not thought to be more readable.

## 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 synthesise 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>3</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>2</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 (add):

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

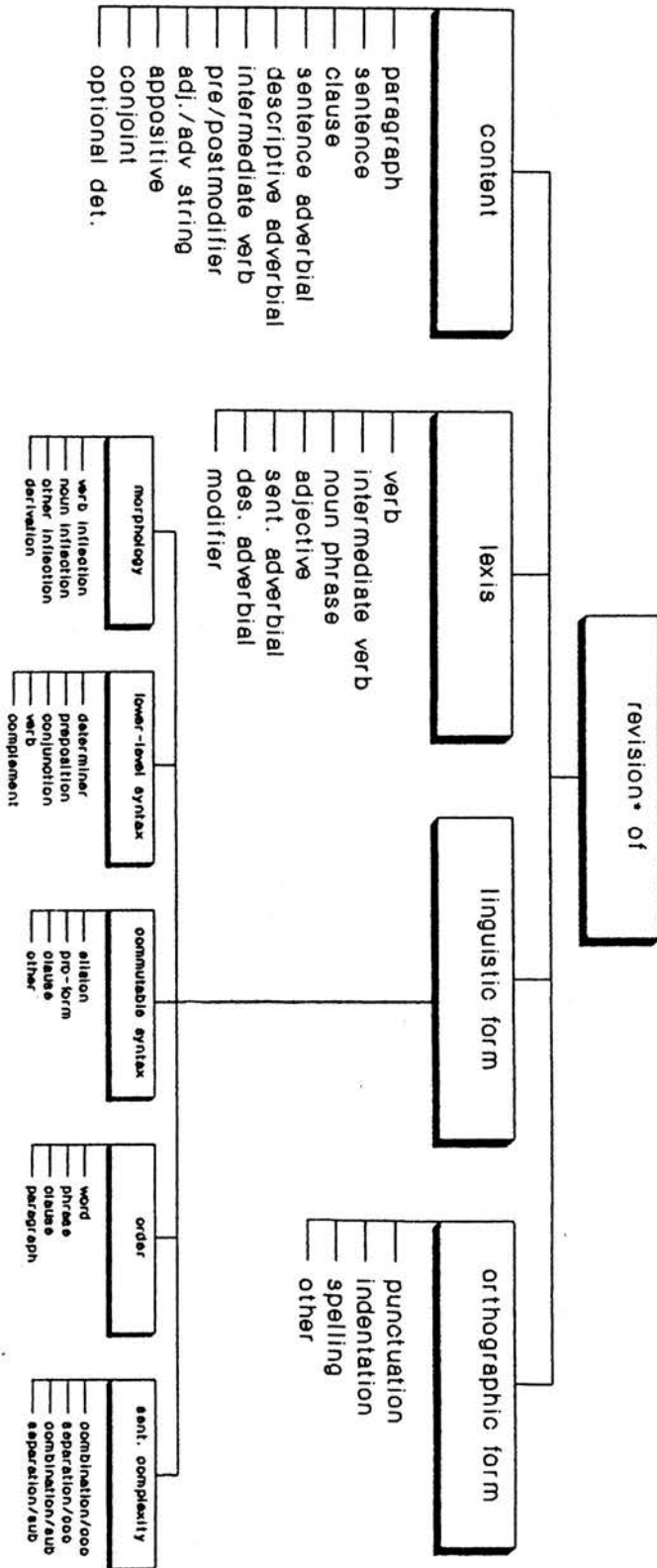
"to extend the principles of linguistic description beyond the limit of the sentence. One can study the structure of text paradigmatically by tracing the manner in which the constituent linguistic elements are related along the axis of equivalence, or one can study it syntagmatically by tracing the manner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

He said [28] THAT he didn't 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,  
ALTHOUGH she wasn't really  
upset.

[31] He said he was sorry.  
BUT she wasn't really 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  
hate doing the washing up.

[32] I love cooking. I hate  
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<sup>n</sup> 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:

1. 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



coherence and cohesion, the link between sentences within text is conceptually different from the link between the communicative acts such sentences perform (Widdowson 1973). The fact that, according to my definition, coherence is reader-dependent, and can be achieved without the writer having resorted to explicit cohesive devices, means it is close to Carrel's, Enkvist's and Widdowson's definition of coherence. The cohesive devices used by the participants in the revisions will nevertheless be considered via the taxonomy for describing revision from the viewpoint of writing product.

6. This writing product category may appear to be identical to the reading process category for informativity, but it is in actual fact very different. Although correspondences between the two will occur, the addition or deletion of certain information-units from the perspective of writing product does not always affect the reading process category for informativity. The addition or deletion of a sentence adverbial, for example, may at times affect coherence more than informativity. Likewise, the addition or deletion of a clause containing given information may affect information-structure more than informativity.

## CHAPTER SIX

### POST-TREATMENT REVISION RESULTS

This chapter is divided into four main sections. In the first section, I will briefly summarize the findings yielded by the application of the three separate taxonomies described in chapter five to the post-treatment revisions by the participants. Cross-references between taxonomies will be left to the next two sections, which focus on the interpretation of the post-treatment revisions from the perspective of readability and feedback-independence. The last main section of the chapter advances some preliminary conclusions about the relationship between readability, feedback-independence and the subsequent diagnosis of writing instruction needs.

#### 6.1 General Findings

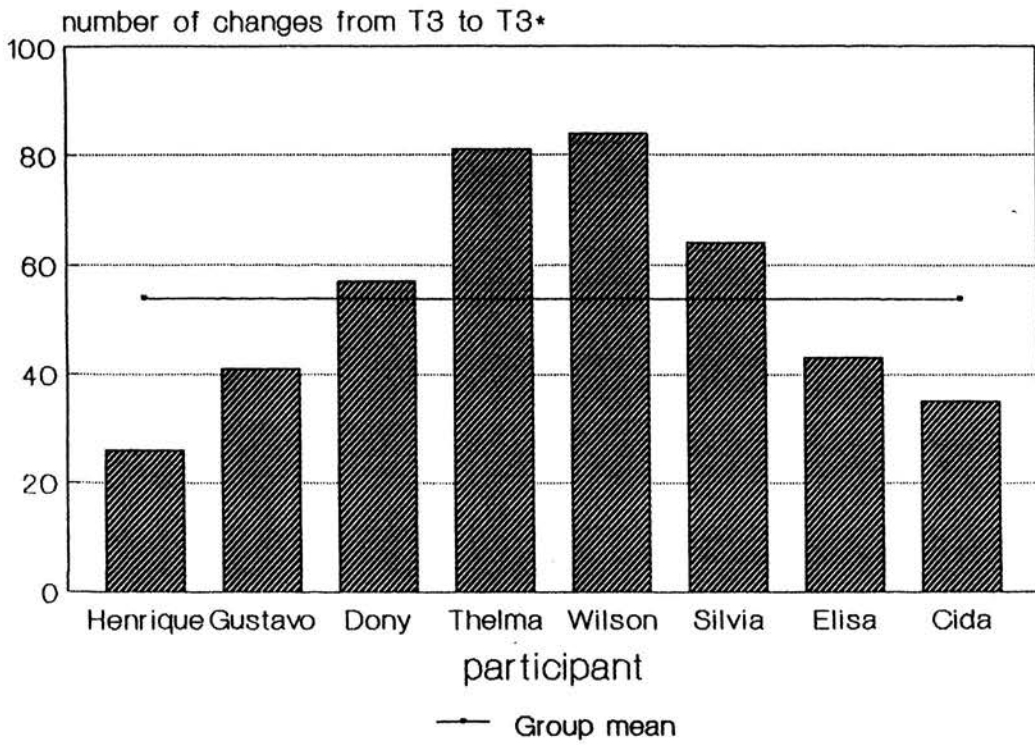
My aim in this section is simply to summarize what changed and what should have changed but did not in post-treatment revisions. I will begin by reporting on the number of changes identified in the revisions, and by describing how

they were distributed among the individual participants. After that, I will describe how the changes were distributed according to the reading process, the writing product and the qualification categories, and will comment on factors which may have affected these distributions. Although at this stage I will not attempt to make any cross-references between taxonomies, the full details of the revisions are provided in appendix VI, which lists how each single change was coded according to the three taxonomies of the system.

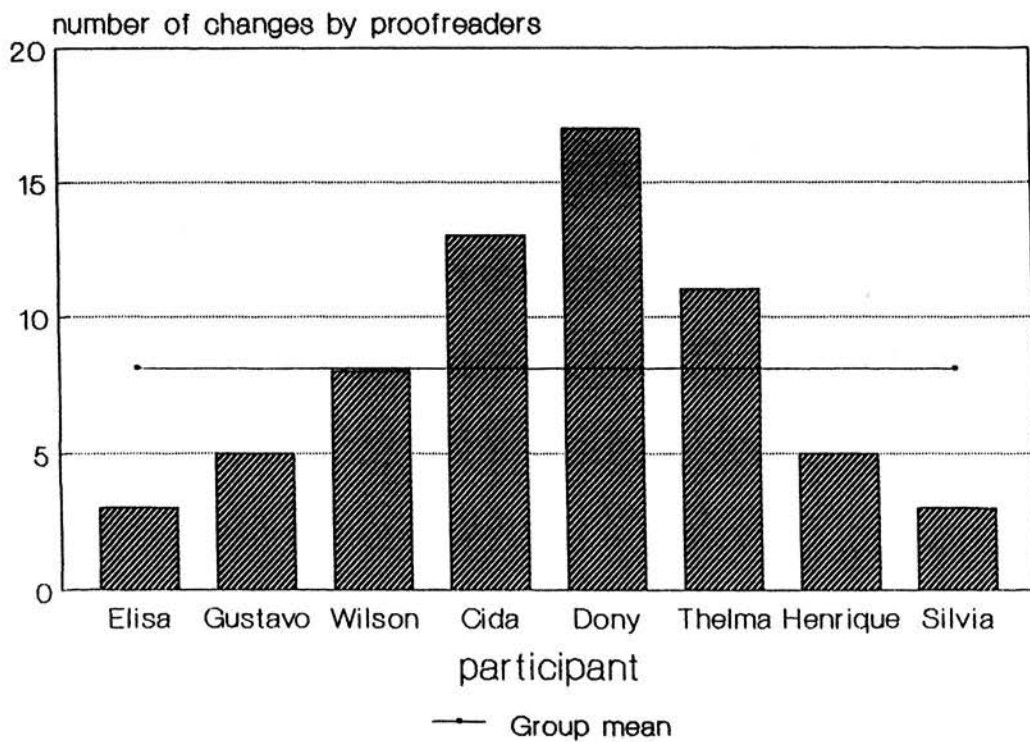
#### 6.1.1 Distribution of changes

A total of 496 single changes were identified in the eight revisions analysed. Of these, 431 changes were made by the participants themselves, and the remaining 65 changes were additional changes subsequently made by the native-speaker proofreaders. Figures 6.1 and 6.2 summarize how these changes were distributed among the eight participants in the group.

**Figure 6.1:** Distribution of changes made from T3 to T3\*



**Figure 6.2:** Distribution of changes added by proofreaders



As shown in figure 6.1, the number of changes per participant ranged from 26 (Henrique) to 84 (Wilson), the average being 53.9 changes, with a standard deviation of 21.3. A possible explanation for this rather large variance is that the participants began the post-treatment revisions at different starting points, i.e., some pre-treatment texts needed a lot more revision than others. In addition to this, it is also possible that after instruction had ceased some participants felt simply more critical than others about their pre-treatment texts.

Figure 6.2 indicates that the number of changes added by the native speakers after the participants had finished revising varied from 3 (Silvia and Elisa) to 17 (Dony), with an average of 8.1 and a standard deviation of 5.1. These differences at the "finishing-line" can in part be accounted for by the possibility that some participants left more parts of text unrevised than others. In addition to this, the differences shown in figure 6.2 could also be a consequence of some pairs of proofreaders having agreed more often than others, for, as explained in chapter five, only the changes which both native-speaker proofreaders agreed were necessary were taken into account. It is nevertheless worth recalling that none of the native speakers in question disagreed with one another in general terms, for, as said in chapter four, the accepted minimum

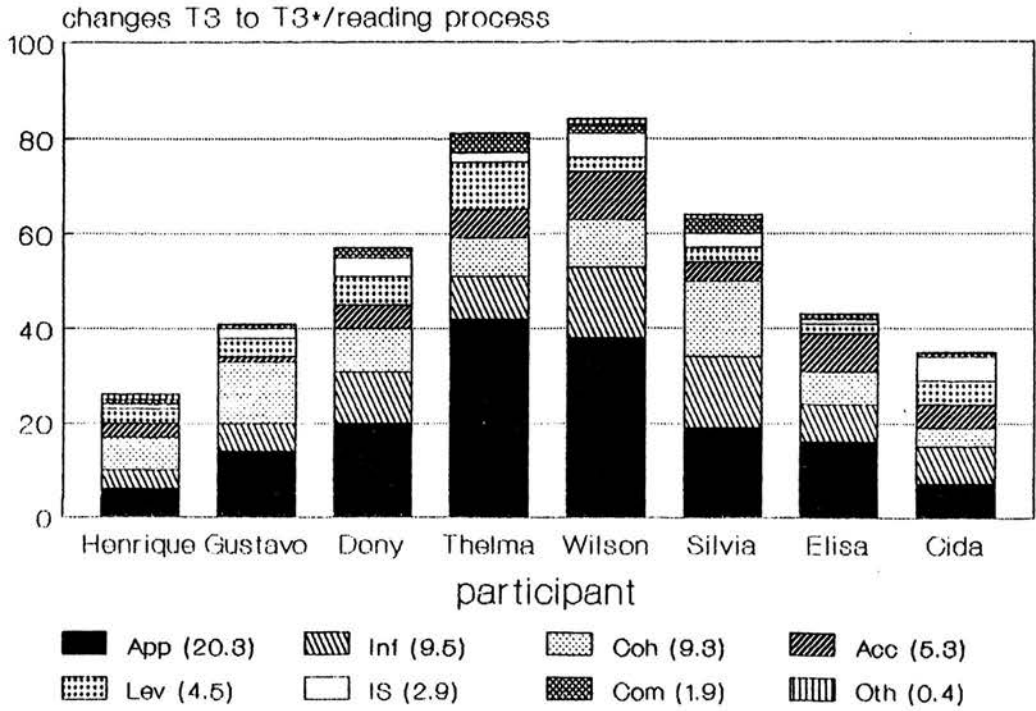
rate of agreement between readers as to impression judgements on the comparative readability of T1 to T6 was a correlation coefficient of +0.5.

To conclude this section, I should also mention that there is no significant relationship between the number of changes made by the participants and the number of changes then added by the proofreaders. That is to say, the correlation coefficient for the two distributions was +0.2, which means that the participants who left many parts of text unrevised were not necessarily those who made the fewest changes.

#### 6.1.2 Distribution of changes according to the reading process categories

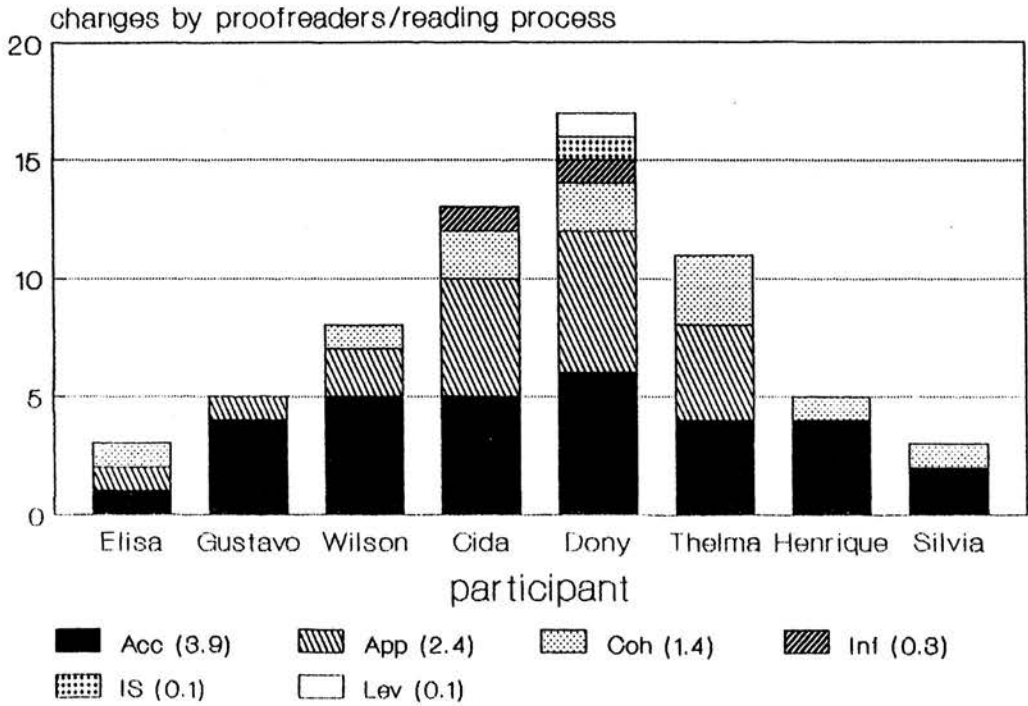
The distribution of the changes made by the participants according to the taxonomy for describing what changed in terms of reading process is summarized in figure 6.3, and figure 6.4 illustrates how the changes made by the native-speaker proofreaders were distributed according to the reading process categories.

**Figure 6.3:** Distribution of changes made from T3 to T3\* according to the reading process categories



values in brackets - group means

**Figure 6.4:** Distribution of changes added by proofreaders according to reading process categories



values in brackets - group means

From figure 6.3 it is clear that, in almost all revisions, the great majority of changes made from T3 to T3\* affected appropriateness. The second comparatively most frequently affected reading process category was informativity, which was closely followed by coherence. The average number of changes affecting accuracy was then much lower. Next came the changes affecting the reading process category for levels effect, and the sixth in the list was information-structure. The changes affecting commitment accounted for only a very small proportion of the changes made from T3 to T3\*. Finally, the changes which could not be coded according to any of the above reading process categories, i.e., the changes coded "other", were the fewest of all.

From figure 6.4, in turn, it can be seen that the great majority of changes which should have been made but were not had to do with accuracy. After that came the changes affecting appropriateness, which were closely followed by the ones in coherence. The native speakers then added only a very small number of changes in informativity, information-structure and levels effect, and no changes at all in commitment.

A number of factors may have affected the distribution of the changes according to the reading process categories. The first and most obvious one is that the analysis is



based on texts which may have needed different changes and on changes made by different participants and different proofreaders.

The second factor which may have affected the above results has to do with the experimental treatment itself, which may have placed more emphasis on some components of the reading process than others. For example, the different proportions of changes affecting coherence and accuracy could have to do with the fact that while coherence was explicitly discussed during the presentation of the course handout on connectives, comparatively very little attention was paid to accuracy. Although the experimental treatment factor could not have directly affected the changes by the proofreaders, it may have nevertheless affected what remained for them to change. In other words, there may have been more necessary changes which were unrelated to the treatment than necessary changes which were related to it.

A third factor which may have affected the distribution of the changes by the proofreaders but not the participants in terms of reading process is that only the changes which two different readers unfamiliar with subject-matter agreed were necessary were taken into account. This means that the changes which did not depend on idiosyncratic value-judgements, like probably all changes in accuracy, are a lot more likely to have been taken into account, and that

the proofreaders may have been reluctant to add changes which, like many changes in commitment, could have affected meaning in one way or another.

The last and less obvious of the factors which may have affected the above distributions is that some categories describe changes which can occur a lot less frequently than others in a text of limited length. For example, in a short text there can be many more changes pertaining to a category like appropriateness than changes pertaining to a category like levels effect: the number of changes in text-hierarchy (levels effect) which can be made in an essay which is roughly only two A4 pages long is simply a lot more limited than the number of changes in usage and style (appropriateness) which can be made in that same text.

The connection between what the proofreaders and what the participants changed in terms of reading process varied a lot from revision to revision. In Elisa's, Dony's and Thelma's revisions there was a certain amount of agreement between what the participants and the proofreaders changed in terms of reading process, for the correlation coefficients for the two distributions varied from +0.5 (Thelma's revision) to +0.7 (Elisa's revision). In the revisions by the remaining five participants, however, these same coefficients varied from +0.4 (Cida's revision) to -0.1 (Gustavo's and Silvia's revisions), indicating that

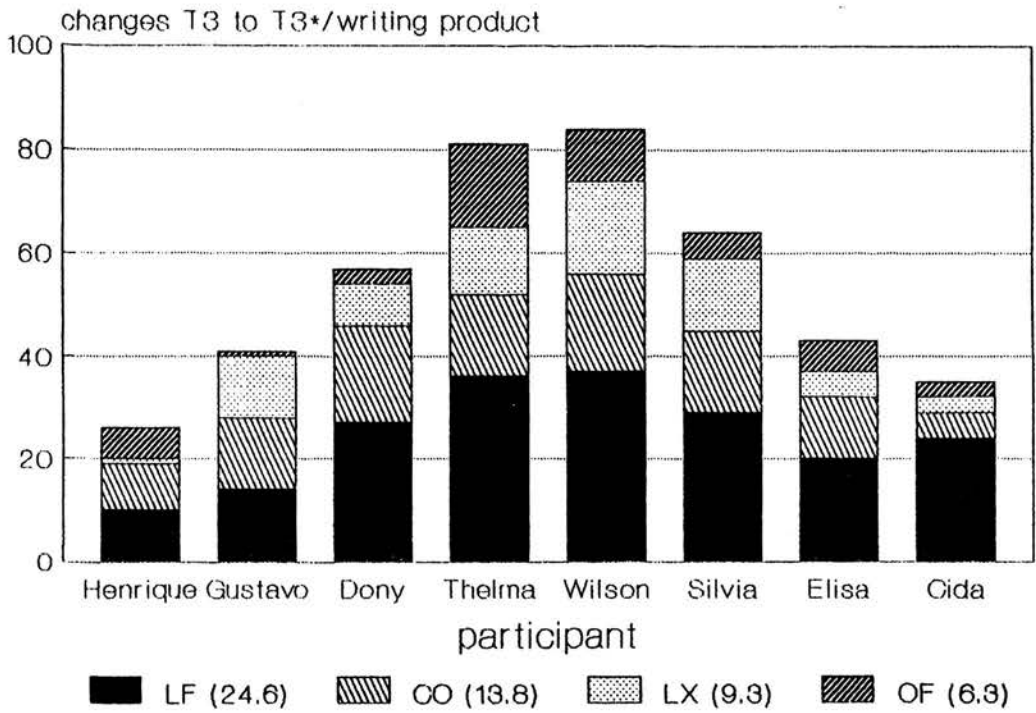
the changes in reading process by the participants and by the proofreaders were comparatively much more unrelated.

Having said this, in the next section I shall describe how these same changes were distributed according to the writing product categories.

### 6.1.3 Distribution of changes according to the writing product categories

The distribution of the changes made from T3 to T3\* according to the four macro-categories for describing revision from the viewpoint of writing product is summarized in figure 6.5, and the corresponding distribution of the changes by the proofreaders is shown in figure 6.6.

**Figure 6.5:** Distribution of changes made from T3 to T3\* according to writing product



**Figure 6.6:** Distribution of changes added by proofreaders according to writing product

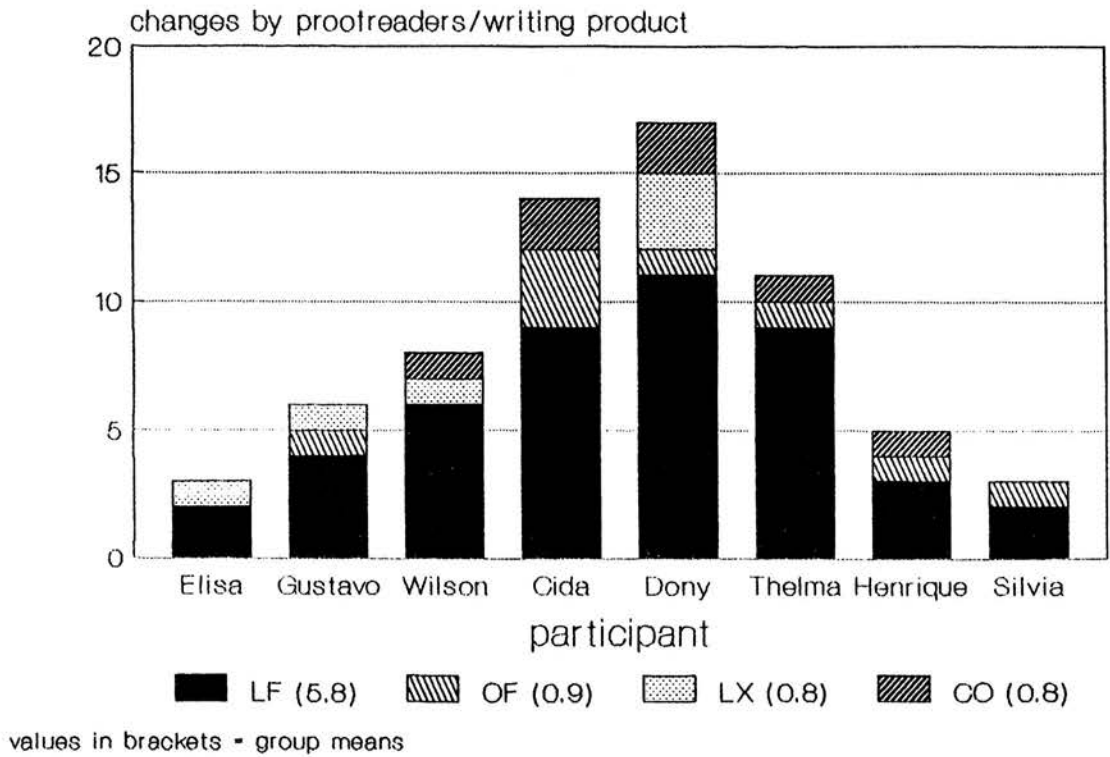
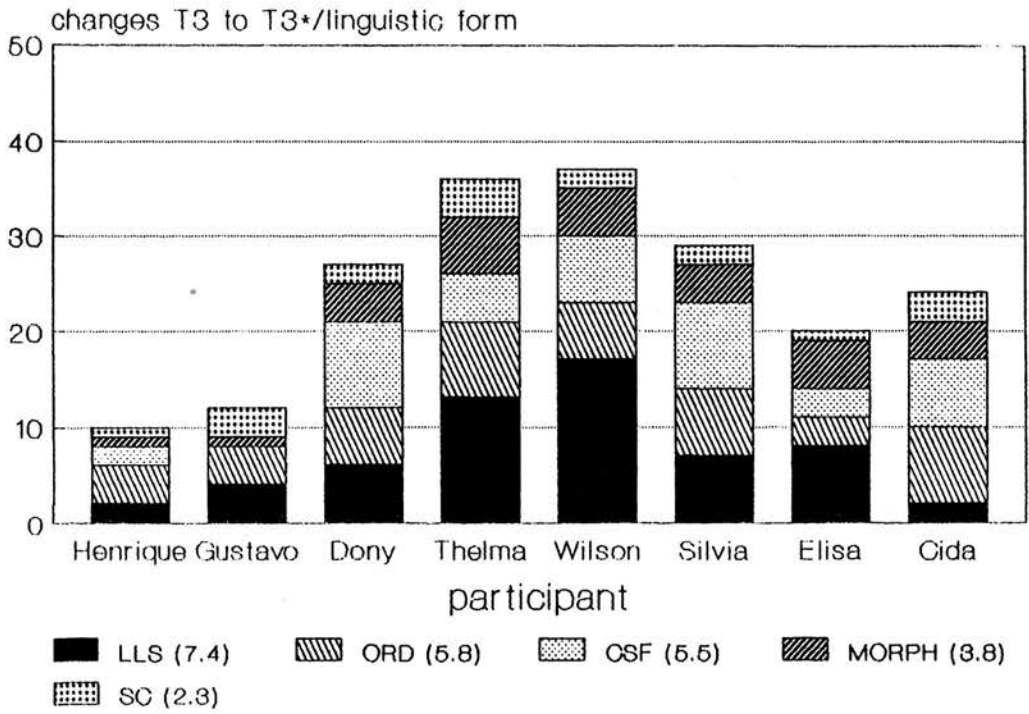


Figure 6.5 shows that all participants gave priority to the revision of linguistic form. The second comparatively most frequent changes were those in content. Next came the changes in lexis, and the changes in orthographic form, in terms of group averages, were the least frequent ones of all. As to what should have been revised but was not, it can be seen from figure 6.6 that most changes introduced by the native speakers had to do with linguistic form. They then added an almost equal proportion of changes in content, lexis and orthographic form.

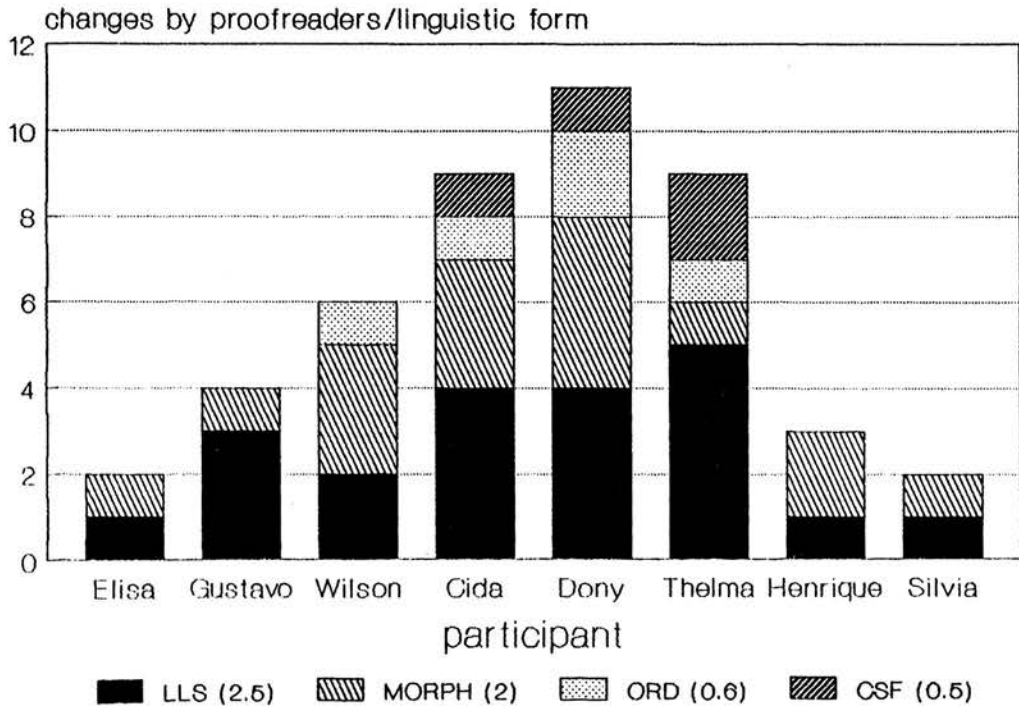
There seems to have been a very explicit connection between what the participants and what the proofreaders changed in terms of writing product, for the correlation coefficients for the two distributions varied from +0.5 (Gustavo's revision) to +1.0 (Cida's, Thelma's and Wilson's revisions). This means that the participants and the proofreaders tended to make the same general types of changes in writing product.

Going down the hierarchy for describing what changed in terms of writing product, the changes made from T3 to T3\* pertaining to the sub-categories immediately below linguistic form were distributed as shown in figure 6.7 below. Figure 6.8 then summarizes the distribution of the changes in linguistic form which were subsequently added by the proofreaders.

**Figure 6.7:** Distribution of changes made from T3 to T3\* according to sub-categories of linguistic form



**Figure 6.8:** Distribution of changes added by proofreaders according to sub-categories of linguistic form



From figure 6.7 it is clear that the changes in linguistic form made from T3 to T3\* were predominantly those in lower-level syntax. The changes involving the reordering of elements in text were comparatively less frequent, and were closely followed by the changes in commutable syntactic forms. Next came the changes in morphology, and the least frequent changes of all were those in sentence-complexity. From figure 6.8 it can then be seen that most of the necessary changes in linguistic form had to do with lower-level syntax and morphology. Much less frequent were the necessary changes in order and commutable syntax, and there were no necessary changes in sentence-complexity.

When the distribution of the changes in linguistic form by the participants and the proofreaders were then compared, it was found that the changes in linguistic form by two of the participants (Elisa and Thelma) were proportionally very similar to those by the proofreaders, for the correlation coefficients for the two distributions were in both cases  $+0.9$ . Conversely, Henrique's and Cida's changes in linguistic form were relatively different from the changes in linguistic form by the proofreaders, for the two correlation coefficients were  $-0.5$  and  $-0.6$  respectively. The remaining coefficients were close to zero, which means that there was little or no connection between the changes in linguistic form by the other four participants and the proofreaders.

At this point it should be recalled that the reason why the categories within the taxonomy for describing changes in writing product were organized hierarchically is that I had predicted that the changes pertaining to some of the lowest-level categories in the hierarchy might be too infrequent to be analysed on their own right. It was therefore determined that the changes pertaining to these categories would only deserve separate attention later on in this chapter if they were represented by sixteen or more records, i.e., changes by the participants plus changes by the proofreaders, in the overall distribution. This means that there had to be an average of two or more records of those changes per revision for them to be considered representative enough to be analysed on their own right. The analysis of the categories which did not reach this criterion should be understood in the context of the analysis of the category immediately above it in the hierarchy which rules the taxonomy. For example, since the number of changes in spelling was below sixteen, the analysis of spelling is to be understood in the more general context of the analysis of orthographic form. Conversely, since the number of changes in punctuation was above sixteen, punctuation was considered representative enough to be analysed separately.

Figures 6.9 to 6.16 below summarize the overall distribution of the changes pertaining to the lowest-level categories within the taxonomy for describing the revision



of writing product. Attention is drawn to the pre-established criterion of sixteen, which determines which categories will later on be analysed separately and which will not.

Figure 6.9: Overall distribution of content changes

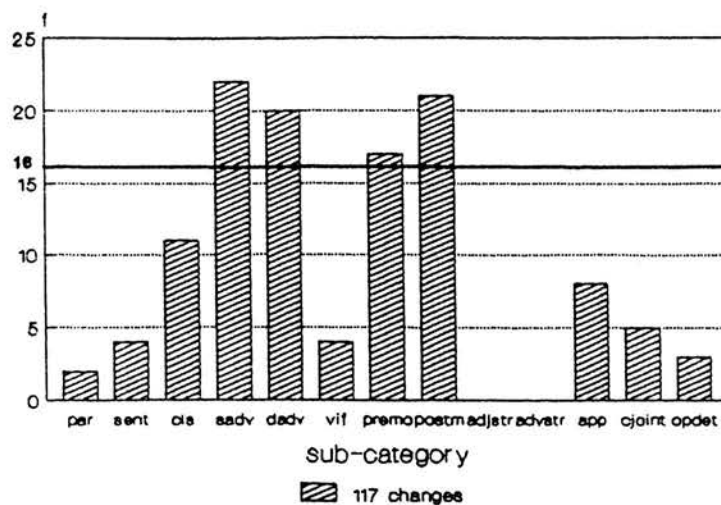


Figure 6.10: Overall distribution of changes in lexis

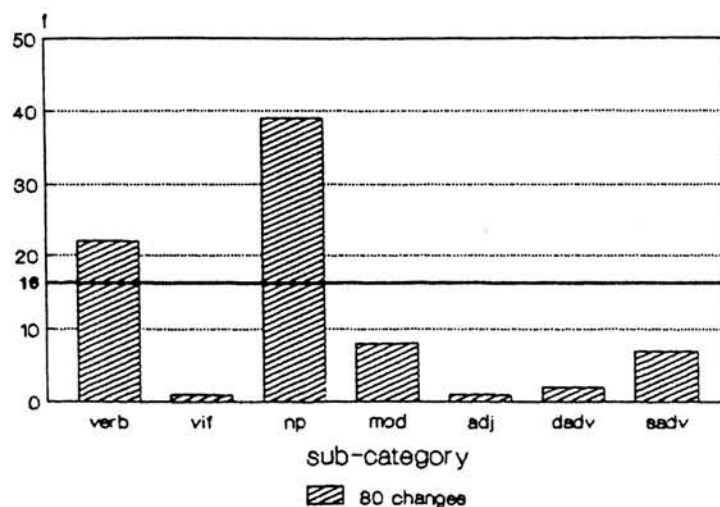


Figure 6.11: Overall distribution of changes in morphology

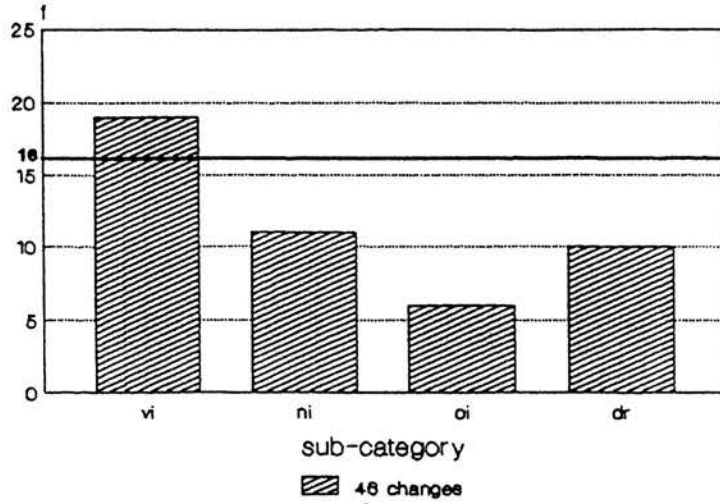


Figure 6.12: Overall distribution of changes in lower-level syntax

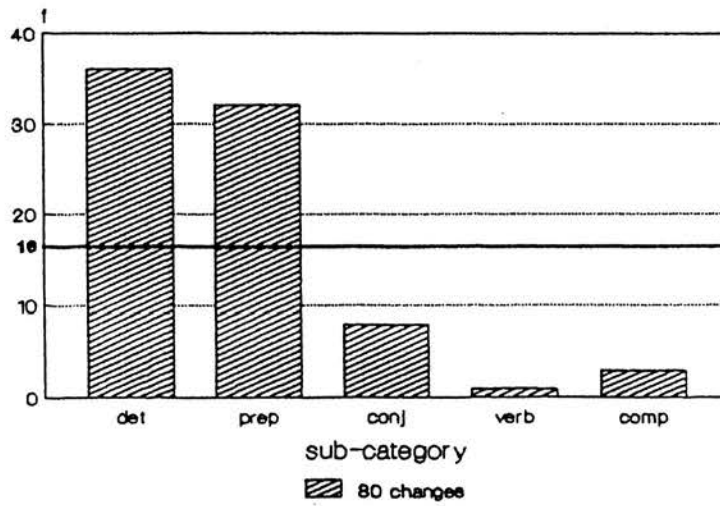


Figure 6.13: Overall distribution of changes in commutable syntax

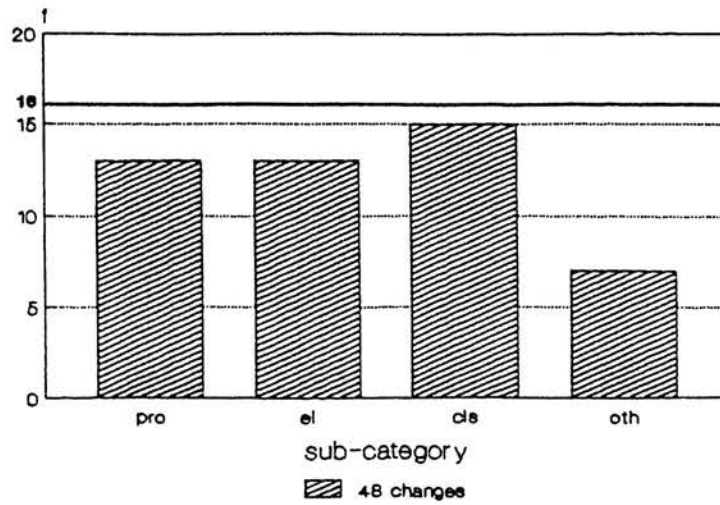


Figure 6.14: Overall distribution of changes in sentence-complexity

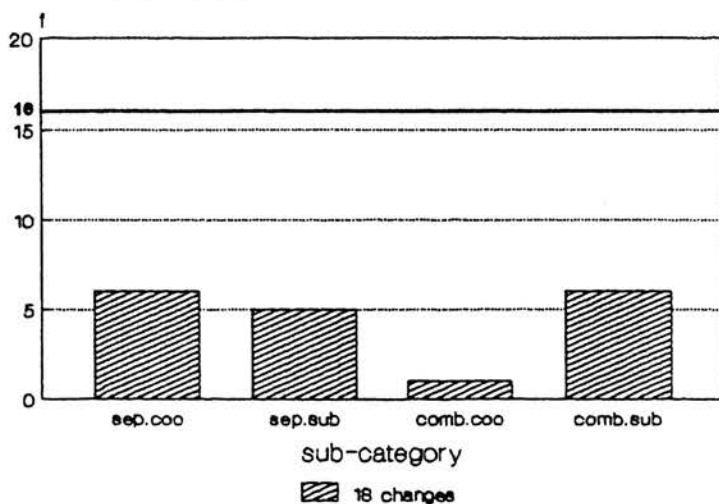


Figure 6.15: Overall distribution of changes in order

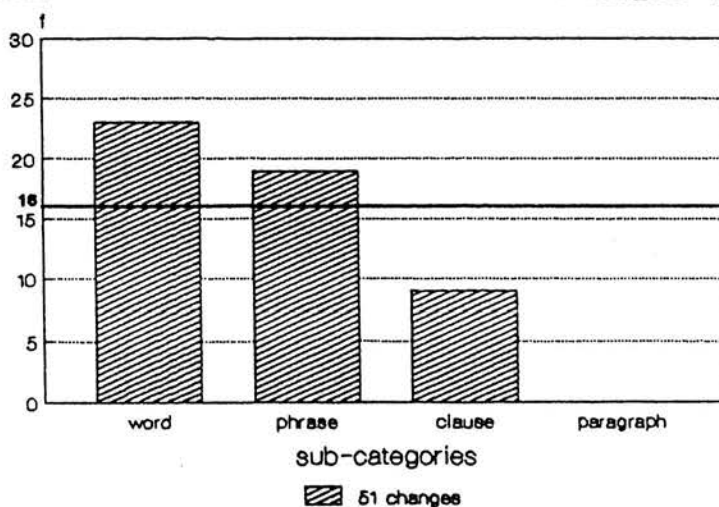
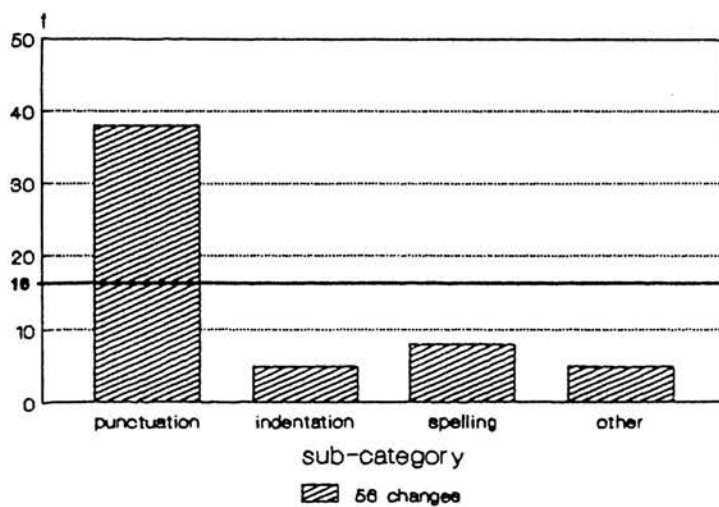


Figure 6.16: Overall distribution of changes in orthographic form



From the above it is clear that only the following lower-level categories were frequent enough to deserve separate attention later on in this study:

CONTENT - the addition or deletion of sentence and descriptive adverbials plus pre and postmodifiers;

LEXIS - verb and noun phrase lexis;

MORPHOLOGY - verb inflection;

LOWER-LEVEL SYNTAX - determiners and prepositions;

ORDER- word and phrase order;

ORTHOGRAPHIC FORM - punctuation.

In contrast to this, the analysis of the changes pertaining to all other lower-level categories is to be understood in the context of the category immediately above them in the hierarchy which rules the taxonomy.

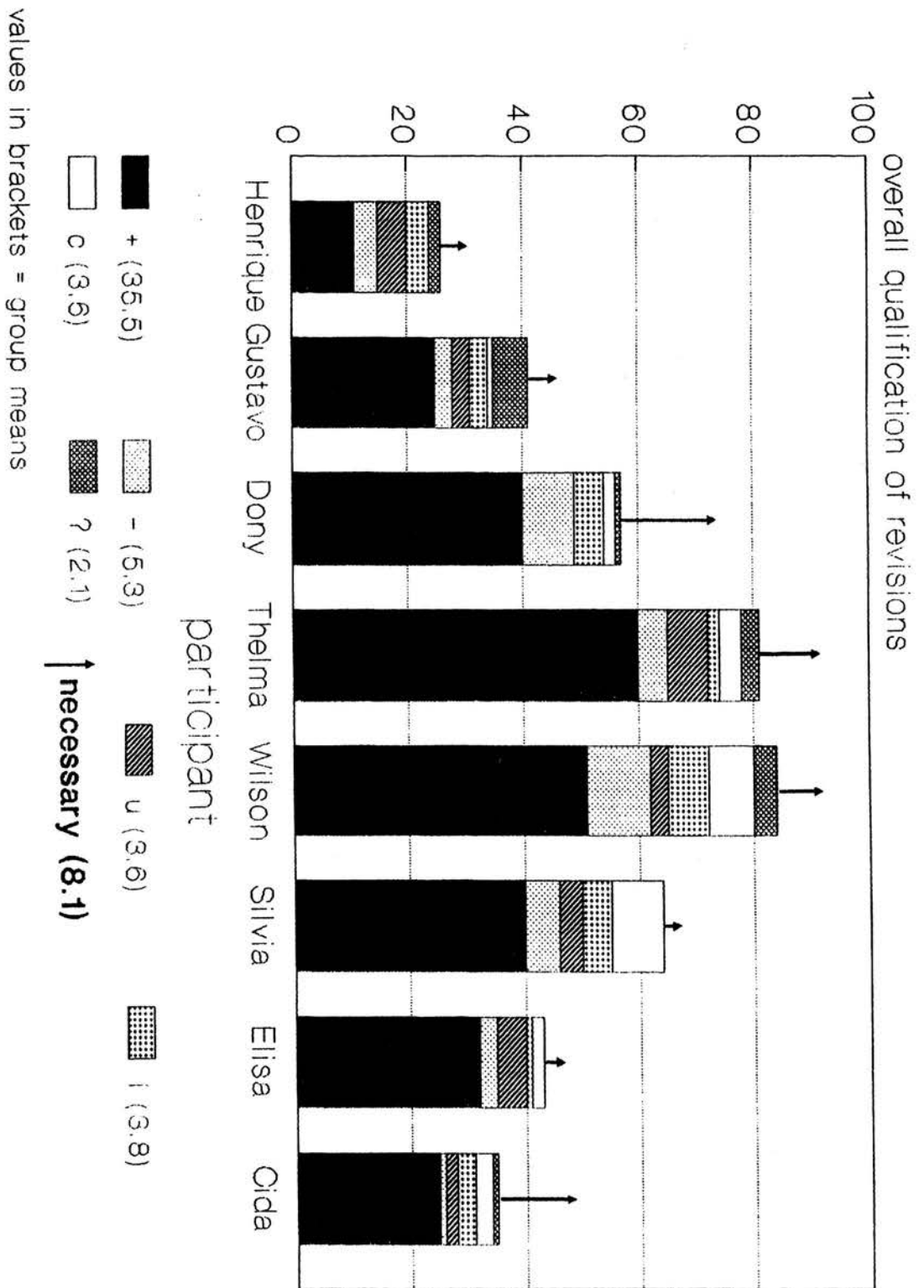
The factors which may have affected the distribution of the changes according to the writing product categories are similar in principle to the ones which may have affected the distribution of the changes according to the reading process categories, for it is only the categories, and not

the changes, that are different. Thus all one has to do is look at those factors from the perspective of writing product, as opposed to reading process. More specifically, the distribution of the changes according to the writing product categories may have been affected by the following: the pre-treatment texts may have needed different changes in writing product and the participants and proofreaders who decided what to change were different; the treatment gave probably more emphasis to some aspects of writing product than others; some writing product categories describe changes which can occur a lot less frequently than others in a short text; and only the additional changes which two different proofreaders unfamiliar with the subject-matter of the essays agreed were necessary were taken into account.

#### 6.1.4 Distribution of changes according to the qualification categories

The analysis of the revisions from the perspective of the qualification categories alone is summarized in figure 6.17 below.

**Figure 6.17:** Distribution of the changes made from T3 to T3\* and the changes by the proofreaders according to the qualification categories



As can be seen, the changes qualified as positive were by far the most predominant ones. In terms of group averages, it is also possible to say that the second most predominant changes were the necessary ones, that the negative changes came next, that the average number of ineffective, unnecessary and consequential changes was almost the same, and that the indeterminate changes were comparatively the fewest of all.

It is clear, however, that there was a lot of variability with regard to the qualification of changes in the individual revisions. In Cida's revision, for example, there were comparatively many changes which she should have made but did not (necessary), and only one change which did more harm than good (negative). This particular combination could indicate that Cida was the risk-avoider of the group.

Dony's revision stands out in that none of his changes were unnecessary. Since the unnecessary changes disclose the cases in which the participant was insecure as to whether revision was really necessary, Dony (the journalist in the group) seems to have behaved like a very confident writer. The pitfall was of course that the proportion of necessary changes in his revision was well above average.

Elisa's and Thelma's overall revisions were in turn markedly more positive and less ineffective than average. Silvia's revision then had the third greatest percentage of positive changes and only a very small proportion of necessary changes. In terms of overall qualification, their revisions seem to have been the three best in the group.

The two most average revisions in the group with respect to the qualification of the changes seem to have been Gustavo's and Wilson's. While the only marked feature in Gustavo's revision was high percentage of indeterminate changes, Wilson's revision was totally unmarked in terms of overall qualification.

In contrast to Gustavo's and Wilson's revisions, Henrique's was by far the most deviant one in the group in terms of overall qualification. On the one hand, his positive changes were comparatively a lot fewer than average, and he made no consequential changes at all. On the other hand, the proportions of negative, ineffective and unnecessary changes in his revision were well above what was average for the group. Clearly, Henrique's revision seems to have been the least successful one of all.

Many of the above differences can be accounted for by the possibility that some participants were better able to spot what needed revision in their pre-treatment texts and the possibility that, when they did see what needed revision,



some participants were simply better able to improve their texts. In addition to these individual variables, the experimental treatment too is likely to have been the cause of the above differences, for its relevance with regard to what needed revision in the first place was not the same for all pre-treatment texts. In other words, the revision of texts which contained many problems that were addressed during the treatment and the revision of texts which contained many problems that were not discussed during the treatment may have been qualitatively different. The last factor which may have affected the distribution of the changes according to the qualification categories has to do with the kind of changes made by the participants. Because only the changes which two different proofreaders agreed were necessary were taken into account, it is likely that the proportion of necessary changes was greater in the revisions by participants who did not pay too much notice to the correction of certain elements, such as spelling and grammar, the necessity of which should not cause any disagreement between proofreaders.

In the next two sections of this chapter, cross-references which disclose information about changes in readability and feedback-independence will be made.

## 6.2 Readability

My objective in the present section is to compare the readability of the post-treatment revisions and pre-treatment final drafts by decomposing readability into the seven main reading process categories of the system of analysis<sup>1</sup>. This will enable me to find out how exactly readability changed from one version of text to the other, and hence test the following hypotheses, which are taken to be part of the more general hypothesis that the post-treatment revisions are more readable (H2):

- a. The post-treatment revisions are more coherent than the pre-treatment final drafts;
- b. The distinction between main points and supporting details of text is clearer in the post-treatment revisions;
- c. The post-treatment revisions are less over or under-informative than the pre-treatment final drafts;
- d. The degree of commitment to the truth of what is asserted in text is more convincing to the reader in the post-treatment revisions;
- e. The reader's expectations as to the sequence of information in text are better fulfilled in the post-treatment revisions;

f. Usage and style are more appropriate in the post-treatment revisions;

g. The post-treatment revisions infringe fewer grammar and spelling conventions than the pre-treatment final drafts.

To test the above hypotheses, it was necessary to retrieve coding of the revisions according to both the reading process categories to which they are related, and the two qualification categories which have a directional effect upon readability, i.e., positive and negative. As said in chapter five, the ineffective changes do not affect readability because such changes are about infelicitous elements in text which were replaced by equally infelicitous equivalents. Likewise, the unnecessary changes do not influence readability in any specific direction because they are about felicitous elements in text which were replaced by other, equally felicitous ones. The indeterminate changes, in turn, have to be ignored if one wishes to obtain a realistic measure of what changed from one version of text to the other in terms of readability simply because they were changes which could not be evaluated. Also, the consequential changes cannot be included in the comparative analysis of the readability of the two texts because they were changes which were introduced as a result of other changes, which means that although they may affect the readability of T3\* in relation to a comparative T3\* without any consequential changes,

they do not affect the readability of T3\* in relation to that of T3. Finally, the necessary changes must also be excluded from the interpretation of the comparative readability of T3 and T3\* since they were changes which were added by the proofreaders after the participants had finished revising.

Thus of the total number of changes identified in the transcriptions, only the positive and negative changes, i.e., the changes which have a directional effect upon readability, were taken into account in the present part of the study. As shown in table 6.1 below, an average of 74.2% of the total number of changes per participant had a directional effect upon readability.

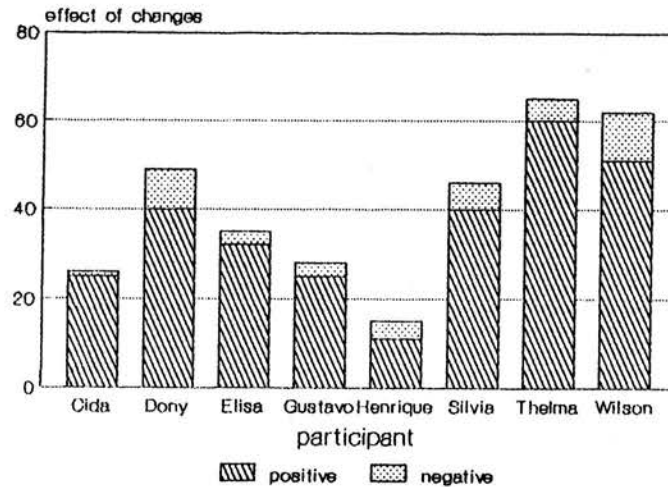
**Table 6.1:** Distribution of total number of changes per participant (T) and of changes with a directional effect upon readability (N)

<u>PARTICIPANT</u>	<u>N</u>	<u>T</u>	<u>N/T%</u>
Cida	26	35	74.3
Dony	49	57	86.0
Elisa	35	43	81.4
Gustavo	28	41	68.3
Henrique	15	26	57.7
Silvia	46	64	71.9
Thelma	65	81	80.2
Wilson	62	84	73.8
<u>Total</u>	<u>326</u>	<u>431</u>	
Mean	40.7	53.9	74.2
SD	17.8	21.3	8.8

Having determined which changes are relevant to the comparison of the readability of the post-treatment revisions and pre-treatment final drafts, the distribution

of such changes according to those which enhanced and those which hindered readability is summarized in figure 6.18 below.

**Figure 6.18:** Distribution of changes with a directional effect upon readability



As can be seen, although readability was affected to different extents in the different revisions, the total number of positive changes, which enhanced readability in one way or another, was greater than the total number of negative changes, which hindered readability, in all eight revisions. Having said this, it should be noted that figure 6.18 only gives a very vague, if not distorted, idea of how readability was generally affected by the revisions, for it converges changes which affected different aspects of readability, some of which may carry more weight than others. The effect upon readability of, for instance, ten positive changes in accuracy and five negative changes in

coherence can be very different (from that of ten positive changes in coherence and five negative changes in accuracy.

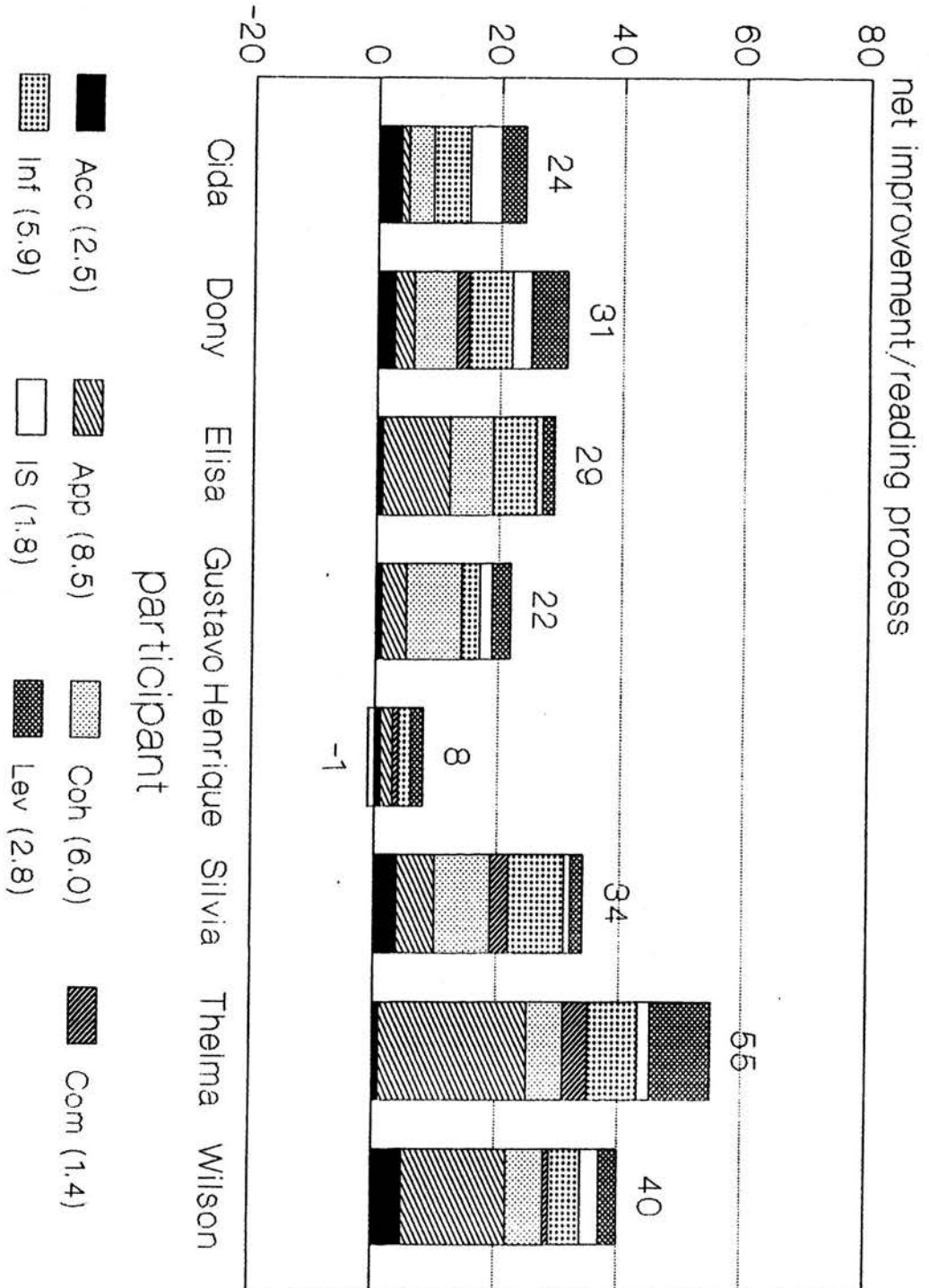
To obtain a more accurate picture of how readability was affected and then test hypotheses (a) to (g), it was necessary to distribute the positive and negative changes by each participant according to the system's reading process categories, and compare the number of positive and negative changes for each separate category. This of course implies that for convenience I am assuming that the positive and negative changes carry equal weight once they have been distributed according to the reading process categories. That is to say, if on the one hand it is misleading to assign equal weight to the positive and negative changes pertaining to categories so diverse as, say, coherence and accuracy, it is on the other hand legitimate to compare the positive and negative changes in coherence alone in order to find out whether or not coherence improved. Thus while it is meaningless to compare a positive change in coherence with a negative change in accuracy when assessing their combined effect upon readability, it seems operationally reasonable to assume that one positive and one negative change in coherence cancel each other out.

Figure 6.19 below therefore summarizes the revisions' net effect upon readability after the positive and negative changes by each participant were sorted out according to

the reading process categories. The values shown were calculated by subtracting the negative changes for each category from the positive ones.

**Figure 6.19:** Net effect upon readability of changes in reading process

values in brackets = group means



From the above it can be seen that although the revisions seem to have had a generally positive effect upon the various reading process categories in which readability was decomposed, there was a considerable amount of variability with respect to the ways in which readability was affected in the different revisions. I will leave the differences between reading process categories to a later part of the analysis, and will comment on the differences between participants first. This will enable me to check whether the present atomistic approach towards comparing the readability of T3 and T3\* is consistent with the corresponding holistic impression judgements on readability that, as explained in chapter five, eight pairs of readers had been asked to supply.

#### 6.2.1 Differences between participants

Thelma's revision was the one with the greatest number of changes with a directional effect upon readability. Most of those changes tied in with appropriateness, which, like levels effect, informativity and commitment, improved more than average in Thelma's revision. In addition to this, Thelma's changes pertaining to the remaining reading process categories into which readability was decomposed were also predominantly positive. In accordance with these results, the pair of readers responsible for comparing her texts agreed that the revision was more readable.



Wilson's revision too had a comparatively very large number of changes affecting readability and, like in Thelma's revision, resulted in an above average improvement in appropriateness. Accuracy and information-structure also improved more than average in Wilson's revision, and the effect of his changes pertaining to the four other reading process categories was more often positive than negative. In agreement with this, the two readers who evaluated Wilson's revision found it more readable than his pre-treatment version of the same text.

Dony's positive and negative changes were fewer than Thelma's and Wilson's but were nevertheless greater in number than the changes with a directional effect upon readability in the other revisions. When Dony's positive and negative changes were distributed according to the reading process categories, it became clear that in his revision coherence, informativity, levels effect, information-structure, accuracy and commitment had improved more than in the average revision. Also, Dony made more positive than negative changes in appropriateness. Accordingly, the readers who assessed his revision found it more readable than the pre-treatment text.

Silvia's changes with a directional effect upon readability were almost as frequent as Dony's. Not only was there improvement with respect to all reading process categories, but also accuracy, commitment, coherence and informativity

improved more than average in Silvia's revision. Although this indicates readability must have certainly improved, one of the readers responsible for comparing Silvia's revision with her pre-treatment final draft disagreed with his co-reader and thought the revision was less readable. There seems to be nothing in the actual revision to justify this divergent opinion, and it is contradictory that the reader who found Silvia's revision less readable added very few extra "necessary" changes when asked to revise and proofread the text so as to enhance its readability. There is however a plausible external explanation for his negative impression judgement: Silvia's essay was about pharmacology, and the reader in question, as he belatedly informed me, was an experienced teacher of medical English. When asked whether he had evaluated readability as required, he admitted it being possible that his evaluation was based on the content of the courses he taught more than on readability alone.

The revision by Elisa contained a below average number of changes with a directional effect upon readability, and none of them had to do with commitment. However, there was improvement with respect to all other categories into which readability was decomposed, and appropriateness, coherence and informativity improved more than in the average revision. This time there was no disagreement between

readers, both of whom, in accordance with the present analysis, found Elisa's revision more readable than her pre-treatment text.

The changes affecting readability in Gustavo's revision were slightly fewer and, like the ones by Elisa, did not affect commitment. The changes pertaining to all other reading process categories were more frequently positive than negative, and what was particularly marked in Gustavo's revision was an above average improvement in coherence. Again, in agreement with the present analysis, the pair of readers responsible for comparing the two versions of text found the post-treatment revision more readable. Without having been asked to do so, one of the readers even emphasized the point in affirming that the revision was "a lot more readable". This could mean that Gustavo's changes in coherence played a very important role in enhancing readability.

Cida did not make many changes which affected readability, but of these, all except one were positive. Commitment again did not change, but there was improvement with respect to all other reading process categories. In addition to this, accuracy, informativity and information-structure improved more than average. Accordingly, the two readers who evaluated Cida's texts felt her post-treatment revision was more readable than her pre-treatment final draft.

Finally, Henrique's revision affected readability to a much lesser extent than that of his colleagues, and very few of his changes were positive. The only two changes in coherence in his revision cancelled each other out (one was positive but the other, negative), and his changes in information-structure had an overall negative effect upon readability. Although there was apparently some improvement with respect to the remaining five reading process categories, it was below average if compared with the improvement in the revisions by the other participants.

The two native speakers who compared Henrique's pre-treatment final draft with his post-treatment revision did not perceive any overall improvement, and actually found the earlier version of text more readable. A possible explanation for their failure to detect an overall improvement in readability - despite the fact that the changes pertaining to five reading process were more frequently positive than negative - is that the differences between the two was so small that their combined effect upon overall readability was imperceptible. And indeed, when matched t-tests were applied in order to compare the positive and negative reading process changes by the participants, Henrique's were the only ones which were not significantly different at the 0.05 level. Because the differences between Henrique's positive and negative

reading process changes were not significant, the latter may have influenced his readers' perceptions slightly more than the former, which explains why the native speakers actually found Henrique's revision less readable.

To summarize, although the participants changed readability to different extents and in different ways from T3 to T3\*, seven of the eight post-treatment revisions were considered to be more readable than the pre-treatment final drafts according to both the system's atomistic analysis of the revisions and the holistic impression judgements supplied by fifteen out of sixteen different NS readers (the only discrepant reader being the medical English teacher responsible for evaluating Silvia's texts). In the next section, I will focus on the differences between categories so as to determine which changes in reading process were more successful and find out which of those changes could have actually contributed towards improved readability.

#### 6.2.2 Differences between categories

To begin with, if one refers back to figure 6.19, it can be seen that when the negative reading process changes were subtracted from the positive ones, the category with the

biggest average net improvement was appropriateness (+8.5) and the one with the smallest average net improvement was commitment (+1.4). However, these were also the categories with the greatest and smallest average number of changes with a directional effect upon readability. In fact, if one correlates average net improvement per category with average number of positive and negative changes per category, the coefficient obtained is +0.9. This means that the more positive and negative changes there were, the bigger was the net improvement observed. It therefore does not make sense to compare one reading process category with another in terms of net improvement, for, as said in section 6.1.2, some categories describe reading process changes which can occur a lot less frequently than others in a text of limited length.

It makes a lot more sense to compare one category with another in terms of positive/negative ratios for, irrespective of the number of positive and negative changes per category, they tell us how many more positive than negative changes there were for each category. The results obtained are summarized in table 6.2 below.

Table 6.2: Distribution of positive and negative changes according to reading process categories

PARTICIPANT	APP		ACC		COH		COM	
	+	-	+	-	+	-	+	-
Cida	1	0	4	0	4	0	0	0
Dony	10	7	4	1	7	0	2	0
Elisa	11	0	4	3	7	0	0	0
Gustavo	6	2	1	0	10	1	0	0
Henrique	3	1	2	1	1	1	1	0
Silvia	8	2	4	0	10	1	3	0
Thelma	26	2	3	2	7	1	4	0
Wilson	23	6	6	1	6	0	1	0
MEAN	11	2.5	3.5	1	6.5	0.5	1.4	0
SD	9.0	2.6	1.5	1.1	3.0	0.5	1.5	0
+: - overall ratio	4.4		3.5		13		*	

Table 6.3 (continued):

PARTICIPANT	INF		IS		LEV	
	+	-	+	-	+	-
Cida	7	1	5	0	4	0
Dony	8	1	3	0	6	0
Elisa	7	0	1	0	2	0
Gustavo	3	0	2	0	3	0
Henrique	2	0	0	1	2	0
Silvia	12	3	1	0	2	0
Thelma	8	0	2	0	10	0
Wilson	8	3	4	1	3	0
MEAN	6.9	1	2.3	0.3	4	0
SD	3.1	1.3	1.7	0.5	2.8	0
+: - overall ratio	6.9		9		*	

As can be seen, there was a considerable amount of variability in the overall ratios of positive and negative changes for each separate reading process category, although for all types of reading process changes the total number of positive changes was greater than the total

number of negative changes. When it comes to comparing one category with another in terms of overall ratios, at the least fortunate extreme are the changes in accuracy and appropriateness. The changes which improved accuracy were only 3.5 times more frequent than the changes which compromised accuracy, and the positive changes in appropriateness were only 4.4 times more frequent than the negative ones. The overall results for informativity were slightly better, for there were 6.9 times as many changes which made the post-treatment revisions as informative as was required than changes which made them either less or more informative than necessary. The positive/negative ratios were much higher for information-structure and coherence. In terms of information-structure, the changes which made the sequencing of ideas in text more predictable to the reader were 9 times more frequent than the changes with the opposite effect; in terms of coherence, the changes which made the post-treatment revisions more coherent than the pre-treatment final drafts were 13 times more frequent than the changes which made T3\* less coherent. Finally, it is notable that none of the changes in levels effect or commitment hindered readability.

Although the above results give some idea of which changes in reading process were more and which were less successful, it must be recalled that they are based exclusively on group totals, and may therefore flatten out individual profiles in an unrealistic way. Table 6.3



therefore summarizes the results for the statistical comparison of the positive and negative means for each separate reading process category.

Table 6.3: Comparison of positive and negative means for each separate reading process category (\* all values are significant at the 0.05 level for one-tailed test)

<u>CATEGORY</u>	<u>T-matched*</u>
app	2.921
acc	4.183
coh	5.796
com	2.376
inf	6.905
is	3.190
lev	4.073

From the above it can be seen that for all categories the positive changes were significantly more frequent than the negative ones at the 0.05 probability level. This implies the changes pertaining to all seven reading process categories into which readability was decomposed must have enhanced more than hindered overall readability.

### 6.2.3 Are the post-treatment revisions more readable than the corresponding pre-treatment final drafts?

The results presented in 6.2.1 indicate that the post-treatment revisions by seven of the eight participants were more readable than their corresponding pre-treatment final

drafts. The results supplied in 6.2.2, in turn, indicate that the changes pertaining to all reading process categories were significantly more positive than negative. Although some reading process changes may have helped enhance readability more than others, and although some revisions were probably more successful than others, it is not possible to determine exactly which revisions were more successful and which reading process changes helped enhance readability more. After all, the participants made different changes in reading process, revised some components of reading process better than others, and some reading process changes carry simply more weight than others. Still, since the globality of the results point towards improved readability in seven individual revisions plus improvement with respect to all categories into which readability was decomposed, my overall conclusion is that after instruction had ceased the participants were able to improve the readability of their pre-treatment final drafts. Moreover, the fact that the above conclusion - which was reached via the system of analysis developed in chapter five - is in accordance with the impression judgements by fifteen out of sixteen different native-speaker readers conversant with the discourse of English expository prose seems to constitute proof that the system's atomistic approach towards the data is consistent with holistic impression judgements on readability.

### 6.3 Feedback-independence

In this section the pre-treatment final drafts and the post-treatment revisions will be interpreted from the viewpoint of feedback-independence. More specifically, my first concern is to find out whether the revisions disclose evidence of increased feedback-independence, and my second concern is to investigate in what respects feedback-independence may have increased. The former will enable me to test H3, i.e., that the revisions contain evidence of an increase in feedback-independence, and the latter will help diagnosing the kind of feedback needed by the participants.

It is already known that the results presented in the previous section indicate that after instruction had ceased the participants were generally able to revise their own essays in a way which improved overall readability. Such evidence must not, however, be equated with evidence of an increase in feedback-independence. This claim is based on the following considerations:

- I. Is feedback-independence analysable only in terms of the end-product of revision?

The interpretation of the results from the perspective of readability in 6.2 drew upon only the outcome or product of the revisions, for only the changes which enhanced or hindered the readability of the end-product were relevant

to the analysis. In the interpretation of the revisions from the perspective of feedback-independence, however, it makes sense to consider the revision process as well. The ineffective and the unnecessary changes must therefore also be retrieved, for although qualitatively they do not affect the product of the revisions, they disclose information which is relevant to the efficiency of the revision process and to the understanding of the kind of feedback the participants needed. While the changes qualified as ineffective yield important information about what the participants tried, but failed, to improve, the changes qualified as unnecessary disclose important information about what the participants changed, but did not have to, probably because they felt unsure about the quality of certain parts of their pre-treatment final drafts. In contrast to this, the changes qualified as consequential and the ones qualified as indeterminate must be excluded from the interpretation of the revisions from the perspective of feedback-independence just as they were excluded from the interpretation of the revisions from the viewpoint of readability. The consequential changes cannot be included because these changes were subordinated to other changes, which makes it impossible to tell whether the consequential changes mean that learning has taken place, or whether the participants would have already been able to introduce the consequential changes before the treatment had they been necessary at that point. The indeterminate changes, in turn, cannot be included in the

interpretation of the post-treatment revisions from the viewpoint of feedback-independence simply because those changes could not be evaluated.

II. Is feedback-independence analysable on the basis of the changes made by the participants alone?

In the interpretation of the revisions from the viewpoint of readability it was only necessary to examine the parts of the pre-treatment final drafts which were revised by the participants themselves. After all, what the participants left unchanged could not have affected readability. To understand the revisions from the perspective of feedback-independence, however, it is important to take into account what the participants left unrevised, for this kind of information is essential to the understanding of the feedback the participants needed. Thus besides having to retrieve the changes coded positive, negative, ineffective and unnecessary, it was also important to retrieve additional information outside the revisions about what the participants left unrevised. In view of this, the "necessary" changes introduced by the native-speaker proofreaders, which, as said in chapter five, are taken to disclose precisely this kind of information, were also accessed.

III. Is feedback-independence analysable only in terms of reading process?

As pointed out in the beginning of this section, besides trying to determine whether or not feedback-independence increased, my second concern was to attempt to find out in what respects it increased. The idea being of course to try and diagnose the kind of feedback needed by the participants. Unlike the interpretation of the revisions from the viewpoint of readability, in which only cross-references with the reading process categories were considered, in the diagnosis of the kind of feedback needed by the participants it is important that the coding of the revisions according to writing product also be accessed. After all, if a given type of writing product change can affect different components of the reading process, and if the same change in reading process can be generated by different changes in writing product, then it is obvious that being independent from feedback presupposes being able to revise not only reading process, but also writing product. If the writer has difficulties in revising certain aspects of his own prose, the feedback he needs may sometimes have more to do with helping him understand how to manage a given component of the reading process and the writing product changes it requires, and sometimes it may have more to do with helping him understand how to manage writing product so that he can address different components of the reading process. For the diagnosis of feedback-

independence to serve a practical pedagogical purpose, it must therefore take both reading process and writing product into account.

Thus to find out whether feedback-independence increased from T3 to T3\*, it was necessary to retrieve the coding of all changes by the participants - except for the consequential and indeterminate ones - and of all additional "necessary" changes made by the proofreaders. To find out in what respects feedback-independence increased, it was in turn necessary to examine the above from the dual perspective of reading process and writing product. In numeric terms, this means this part of the study is based on a corpus of 450 observations (385 positive, negative, ineffective and unnecessary changes made by the participants themselves, and 65 necessary changes made by the native speakers). Such observations shall be referred to as feedback-independence observations (FIO).

To explain how increased feedback-independence was measured, I must first of all make it clear my interpretation of increased feedback-independence is based on the following set of assumptions:

ASSUMPTION I: The FIO are observations which signal that learning has been to a greater or lesser extent sufficient (Learning-sufficient observations, i.e., LSO), and observations which signal that learning, even if partial, has been insufficient (Learning-insufficient observations, i.e. LIO). Hence  $FIO = LSO + LIO$ .

ASSUMPTION II: The positive changes signal that learning has been to a greater or lesser extent sufficient. Hence  $LSO = \text{positive changes}$ :

- The changes qualified as positive are FIO which indicate that after the treatment the writer was able to revise with full or partial success parts of text which he was not able to revise on his own at a pre-treatment point. Learning was to a greater or lesser extent sufficient.

ASSUMPTION III: All other FIO are signs of insufficient learning. Hence  $LIO = \text{negative, ineffective, unnecessary and necessary changes}$ :

- The negative changes indicate that the writer probably needed feedback telling him that his post-treatment revision intuitions were ill-founded and actually made certain parts of text less, rather than more, readable. Learning, even if partial<sup>2</sup>, was insufficient.



- The ineffective changes focus on the parts of text the writer may have noticed needed revision, but which he was nevertheless unable to revise successfully when drawing on his own resources. Therefore, the writer probably needed feedback telling him that his attempted revision was unsuccessful and which showed him how to revise what he correctly perceived needed revision. Again, even if partial, learning was insufficient.

- The unnecessary changes indicate that the writer needed feedback in the form of external reassurance from a person able to point out that certain parts of text did not need any revision in the first place. Learning was once more insufficient.

- The necessary changes point towards the need for feedback alerting the writer to the parts of text which should have been revised but were not, either because the writer was unaware those parts needed revision, or because he realized those parts needed revision but for some reason or other avoided revising. In this case too, learning was insufficient.

The operational consequence of the above set of assumptions is that the FIO which indicate that learning was sufficient can be measured and compared with the FIO which indicate that learning was insufficient. This measure, in turn, is the one which seems most logical to use when attempting to

find out whether the post-treatment revisions contain evidence of an increase in feedback-independence. After all, apart from the fact that neither before nor after the treatment the participants were given any cues as to what in their texts might have needed revision, the pre-treatment final drafts represent the best version of text the participants were able to arrive at on their own at a pre-treatment point. In addition to this, as seen in chapter four, the learning which took place during the treatment, whatever it might have been, was maintained in T4, T5 and T6. Evidence that the learning-sufficient observations are significantly more frequent than the learning-insufficient observations will therefore be interpreted as a sign of increased feedback-independence.

In the next three sections I will concentrate first on the results obtained for the overall comparison of learning-sufficient and learning-insufficient observations in order to test H3, i.e., that the post-treatment revisions disclose evidence of increased feedback-independence. After that, cross-references between the learning-sufficient and learning-insufficient observations and the reading process categories will be utilized in order to find out more about feedback-independence from the perspective of reading process, and the consequent reader-oriented feedback the participants might need; cross-references between the learning-sufficient and learning-insufficient observations and the writing product categories will then be used in

order to examine feedback-independence from the perspective of content, lexis, and linguistic and orthographic form, and the consequent writing-product support the participants might need.

6.3.1 Do the post-treatment revisions contain evidence of an increase in feedback-independence?

In order <sup>to</sup> find out simply whether or not the post-treatment revisions disclose evidence of increased feedback-independence, all that is strictly necessary is to retrieve the 450 FIO relevant to this part of the study, and distribute them according to those which indicate that learning was sufficient and those which indicate that learning was insufficient. Table 6.4 summarizes the results obtained for such a distribution.

Table 6.4: Distribution of feedback-independence observations according to those which signal that learning was sufficient (LSO) and those which signal that learning was insufficient (LIO)

<u>PARTICIPANT</u>	<u>LSO</u>	<u>LIO</u>
Cida	25	19
Dony	40	31
Elisa	32	12
Gustavo	25	14
Henrique	11	18
Silvia	40	18
Thelma	60	25
Wilson	51	29
MEAN	35.5	20.8
SD	15.6	6.9
<u>LSO:LIO overall ratio = 1.7</u>		

From the above it is clear that there was much variability with regard to the LSO:LIO ratios for the different participants. Elisa is the participant whose revision disclosed the greatest overall evidence of increased feedback-independence (2.7 LSO for every LIO), and in Henrique's revision, the learning-insufficient observations were actually more frequent than the learning-sufficient ones (0.6 LSO for every LIO).

For the group as a whole, the total number of learning-sufficient observations was almost two times greater than the total number of learning-insufficient observations. When the two were then compared via a matched t-test, it was found that the observations signaling that learning had been sufficient were, at the 0.05 level, significantly more frequent than the observations which pointed towards insufficient learning ( $t_{\text{matched}} = 3.270$ ). From this it was concluded that the post-treatment revisions hold evidence to a very likely overall increase in feedback-independence.

In the next two sections these feedback-independence observations will be analysed from the perspective of reading process and writing product so as to find out in what respects feedback-independence increased and consequently determine what kind of feedback is still, or no longer, needed.

### 6.3.2 Feedback-independence and reading process

The first step in the interpretation of feedback-independence from the viewpoint of reading process was to distribute the learning-sufficient and learning-insufficient observations according to system's reading process categories<sup>3</sup>. The results are summarized in table 6.5.

**Table 6.5:** Distribution of feedback-independence observations which signal that learning has been sufficient (LSO) and that learning has been insufficient (LIO) according to the reading process categories

CATEGORY/ PARTICIP.	Acc		App		Coh		Com	
	LSO	LIO	LSO	LIO	LSO	LIO	LSO	LIO
Cida	4	5	1	10	4	2	0	0
Dony	4	7	10	15	7	4	1	0
Elisa	4	4	11	5	7	1	0	1
Gustavo	1	4	6	7	10	2	0	0
Henrique	2	5	3	3	1	6	1	0
Silvia	4	2	8	7	10	5	3	0
Thelma	3	7	26	14	7	4	4	0
Wilson	6	7	23	12	6	4	1	0
MEAN	3.5	5.1	11	9.1	6.5	3.5	1.3	0.1
SD	1.5	1.8	9.0	4.3	3.0	1.7	1.5	0.4
LSO:LIO	0.7		1.2		1.9		10	
overall ratio								

Table 6.5 (continued):

CATEGORY/ PARTICIP.	Inf		IS		Lev	
	LSO	LIO	LSO	LIO	LSO	LIO
Cida	7	2	5	0	4	0
Dony	8	3	3	1	6	1
Elisa	7	1	1	0	2	0
Gustavo	3	0	2	0	3	1
Henrique	2	2	0	1	2	0
Silvia	12	3	1	0	2	0
Thelma	8	0	2	0	10	0
Wilson	8	5	4	1	3	0
MEAN	6.9	2	2.3	0.4	4	0.3
SD	3.1	1.7	1.7	0.5	2.8	0.5
LSO:LIO	3.4		6		16	
overall ratio	<hr/>					

As can be seen, the average number of changes which signal that learning was sufficient was greater than the average number of changes which signal that learning was insufficient for all reading process categories except accuracy. The LSO:LIO ratios in turn indicate that for every learning-insufficient observation in levels effect, there were as many as 16 learning-sufficient observations. Commitment also scored high in this respect, and the LSO:LIO ratios for information-structure, informativity and coherence were not too low. For both appropriateness and accuracy, however, there was almost a one to one correspondence between the total number of learning-sufficient and learning-insufficient observations.

The above ratios give some idea of the differences between between categories, but do not take individual differences into account. They therefore do not tell us in which

respects feedback-independence actually increased for the group as a whole. The results obtained for the comparison of the learning-sufficient and learning-insufficient means for each reading process category are shown in table 6.6 below.

Table 6.6: Results for the comparison of reading process learning-sufficient and learning-insufficient means (not significant (\*)) significant (\*\*) for one-tailed test: 0.05 level)

<u>CATEGORY</u>	<u>T-MATCHED</u>
Acc	-2.303**
App	0.719*
Com	1.938**
Coh	2.201**
IS	3.071**
Lev	3.837**
Inf	4.754**

As can be seen, the results obtained for one-tailed tests at the 0.05 probability level reveal that the learning-sufficient observations were significantly more frequent than the learning-insufficient observations in coherence, commitment, informativity, information-structure and levels effect, but not in accuracy and appropriateness. The results therefore suggest that following the experimental treatment there was an overall increase of feedback-independence with respect to the former. In contrast to this, there does not seem to be sufficient proof of increased feedback-independence in terms of appropriateness and accuracy. The fact that the learning-sufficient observations pertaining to accuracy were actually

significantly less frequent than the learning-insufficient ones suggests that the participants are still particularly far from being independent from feedback in this respect. But this does not rule out the possibility that the participants may have nevertheless learned something about accuracy, for results might have been even less favourable had there been no treatment<sup>4</sup>.

According to the above diagnosis, future instruction should certainly give more emphasis to helping the participants handle accuracy and appropriateness, and also to helping them gain further feedback-independence in terms of coherence and informativity, for which the learning-insufficient observations were still comparatively frequent. When cross-references with these reading process learning-insufficient observations and the macro-categories for writing product were made, it was found that 87.8% of the feedback on accuracy needed by the participants had to do with linguistic form, and that the remaining 12.2% had to do with orthographic form. Feedback regarding appropriateness should focus mostly on linguistic form (53.4%) and lexis (37%), but should not underrate the importance of orthographic form (8.2%). In order to help the participants become more independent from feedback in terms of coherence, instruction should focus mainly on content (60.7%) and linguistic form (28.6%), and to a lesser extent on lexis (7.1%) and orthographic form (3.6%).



The feedback on informativity, in turn, should pay special attention to content (87.5%).

The amount of emphasis future instruction should assign to the remaining components of the reading process, i.e., levels effect, information-structure and commitment, can probably be reduced since the very small number of learning-insufficient observations pertaining to them indicates that the participants seem to have acquired by now reasonable standards with which to evaluate their own prose in these respects.

### 6.3.3 Feedback-independence and writing product

In this section feedback-independence will be interpreted from the viewpoint of writing product. The same 450 observations examined from the perspective of reading process in the previous section were therefore sorted out according to the system's taxonomy for describing the revision of writing product.

Since this taxonomy contains categories which are embedded within larger categories, a top-down approach to the analysis was adopted. This means that cross-references between the learning-sufficient and learning-insufficient observations and the macro-level categories at the top of

the taxonomy were accessed first; after that, cross-references between the feedback-independence observations and the sub-categories immediately under linguistic form were retrieved; the details relative to the categories at the lowest level of the hierarchy of the taxonomy, as explained in the beginning of this chapter, were only examined from the viewpoint of feedback-independence if the categories were represented by a minimum of 16 records in the overall distribution.

Thus to begin with, table 6.7 below summarizes the results obtained for the distribution of the learning-sufficient and learning-insufficient observations according to content, lexis, linguistic and orthographic form. Table 6.8, in turn, shows the results obtained for the statistical comparison of means.

**Table 6.7:** Distribution of learning-sufficient and learning-insufficient observations according to content, lexis, linguistic and orthographic form

CATEGORY/ PARTICIPANT	Content		Lexis		Ling. form		Orth. form	
	LSO	LIO	LSO	LIO	LSO	LIO	LSO	LIO
Cida	3	3	2	0	17	14	3	2
Dony	15	6	4	7	18	17	3	1
Elisa	11	1	2	4	15	6	4	1
Gustavo	10	0	2	9	12	5	1	0
Henrique	3	7	1	0	4	7	3	4
Silvia	10	5	7	3	20	7	3	3
Thelma	14	2	7	2	25	18	14	3
Wilson	8	8	9	5	24	16	10	0
MEAN	9.3	4	4.3	3.8	16.9	11.3	5.1	1.8
SD	4.5	2.9	3.0	3.2	6.8	5.5	4.5	1.5
LSO:LIO	2.3		1.1		1.5		2.9	
<u>overall ratio</u>								

Table 6.8: Results for the comparison of learning-sufficient and learning-insufficient means for content, lexis, linguistic and orthographic form (not significant (\*)) significant (\*\*) for one-tailed test: 0.05 level)

<u>CATEGORY</u>	<u>T-MATCHED</u>
Content	2.507**
Lexis	0.339*
Ling.form	3.156**
Orth.form	2.091**

From table 6.7 it can be seen that when the 450 feedback-independence observations were distributed according to the four macro-categories of writing product, the differences between the total number of learning-sufficient and learning-insufficient observations were a lot more evenly balanced than when these same observations were distributed according to the reading process categories. While the LSO:LIO ratios for reading process varied from 16 (levels effect) to 0.7 (accuracy), the same ratios for the writing product macro-categories varied only from 2.9 (orthographic form) to 1.1 (lexis). A possible explanation for this could be that the writing product macro-categories are so ample that the finer differences underlying them become flattened out when grouped together into categories as general as content, lexis, linguistic and orthographic form. It is also possible, however, that the amount of emphasis assigned during the treatment to the different components of the reading process was a lot less evenly balanced than the amount of emphasis conferred to content,

lexis, linguistic and orthographic form. In fact, because the instruction provided was above all discourse-oriented, rather than focus exclusively on content or lexis or linguistic or orthographic form, it touched a bit of everything. In contrast to this, the treatment must have obviously paid much greater attention to the more discursual components of the reading process (coherence and information-structure, for example) than to its less discursual components (accuracy and appropriateness)<sup>25</sup>.

Still, from table 6.8 it is possible to see that at least one important distinction in writing product has surfaced: the learning-sufficient observations in lexis were not significantly more frequent than the learning-insufficient observations. On the one hand, it is therefore unlikely that there has been an increase in feedback-independence with regard to lexis. On the other hand, however, there appears to have been an increase in feedback-independence in terms of content, linguistic and orthographic form.

The differences between learning-sufficient and learning-insufficient observations became much less even when the macro-category for linguistic form was decomposed into the sub-categories for morphology, lower-level syntax, commutable syntactic forms, sentence complexity and order. Tables 6.9 and 6.10 below summarize the results obtained.

**Table 6.9:** Distribution of learning-sufficient and learning-insufficient observations according to morphology, lower-level syntax, commutable syntax, sentence complexity and order

CATEG.	MORPH		LLS		CSF		SC		ORD	
	LSO	LIO	LSO	LIO	LSO	LIO	LSO	LIO	LSO	LIO
Cida	3	3	2	4	3	5	2	0	7	2
Dony	2	5	4	6	6	3	2	0	4	3
Elisa	3	2	7	2	2	1	1	0	2	0
Gust.	1	1	4	3	1	0	2	1	4	0
Hen.	1	2	1	2	0	1	1	0	1	2
Silvia	4	1	6	1	6	2	0	1	4	1
Thelma	2	4	10	8	2	5	4	0	7	1
Wilson	4	4	11	6	3	3	1	1	5	2
MEAN	2.5	2.8	5.6	4	2.9	2.5	1.6	0.4	4.3	1.4
SD	1.2	1.5	3.6	2.4	2.1	1.9	1.2	0.5	2.1	1.1
LSO:LIO	0.9		1.4		1.2		4.3		3.1	
overall ratio										

**Table 6.10:** Results for the comparison of learning-sufficient and learning-insufficient means for morphology, lower-level syntax, commutable syntax, sentence complexity and order (not significant (\*)) significant (\*\*) for one-tailed test: 0.05 level)

CATEGORY	T-MATCHED
Morph	-0.386*
Lls	1.476*
Csf	0.444*
Sc	2.376**
Ord	3.643**

From the above it is clear that the biggest difficulties in the revision of linguistic form had to do with morphology. The post-treatment revisions also did not disclose enough evidence of increased feedback-independence in terms of lower-level and commutable syntax. However, the same does not apply to sentence complexity and order. In terms of sentence complexity, there were as many as 4.3 learning-

sufficient observations for every learning-insufficient one, and in terms of order the total number of learning-sufficient observations was 3.1 times greater than the total number of learning-insufficient ones. In both cases, the fact that the means for learning-sufficient observations were significantly greater than the means for learning-insufficient ones suggests that there was an increase in feedback-independence.

Going further down the hierarchy of the writing product taxonomy, tables 6.11 and 6.12 below summarize the results obtained for feedback-independence and the sub-categories of content which were represented by 16 or more records in the overall distribution.

**Table 6.11:** Distribution of learning-sufficient and learning-insufficient observations according to the addition or deletion of sentence and descriptive adverbials, and pre and postmodifiers.

CATEGORY/ PARTICIPANT	SADV		DADV		PREMOD		POSTMOD	
	LSO	LIO	LSO	LIO	LSO	LIO	LSO	LIO
Cida	0	1	1	0	1	0	1	0
Dony	0	2	4	0	1	1	3	2
Elisa	1	0	1	1	1	0	3	0
Gustavo	2	0	0	0	2	0	1	0
Henrique	0	2	1	2	0	1	0	1
Silvia	0	2	2	1	3	0	3	0
Thelma	3	0	2	0	6	0	1	1
Wilson	2	3	3	2	0	1	1	1
MEAN	1	1.3	1.8	0.8	1.8	0.4	1.6	0.6
SD	1.2	1.2	1.3	0.9	2.0	0.5	1.2	0.7
LSO:LIO	0.8		2.3		4.7		2.6	
<u>overall ratio</u>								

Table 6.12: Results for the comparison of learning-sufficient and learning-insufficient means for the addition or deletion of sentence and descriptive adverbials, and pre and postmodifiers (not significant (\*) significant (\*\*) for one-tailed test: 0.05 level)

<u>CATEGORY</u>	<u>T-MATCHED</u>
SAdv	-0.357*
DAdv	1.871*
Premod	1.672*
Postmod	2.000**

The above figures indicate that the addition or deletion of postmodifiers was the only one of the sub-categories of content with 16 or more records in the overall distribution for which evidence of increased feedback-independence was accepted as being sufficient. It is however interesting to note is that even though the LSO:LIO ratio for the addition or deletion of premodifiers was comparatively the highest, the mean for learning-sufficient observations was not significantly greater than the mean for learning-insufficient observations. The large amount of individual variability with respect to the category explains this apparent contradiction.

Tables 6.13 and 6.14 below summarize the results obtained for cross-references between the learning-sufficient and learning-insufficient observations, and verb and noun phrase lexis, which were the only two sub-categories of lexis with 16 or more records in the overall distribution.

**Table 6.13:** Distribution of learning-sufficient and learning-insufficient observations according to verb and noun phrase lexis

CATEGORY/ PARTICIPANT	VERB LEX		NP LEX	
	LSO	LIO	LSO	LIO
Cida	0	0	2	0
Dony	3	4	1	2
Elisa	1	0	1	2
Gustavo	0	2	0	4
Henrique	0	0	1	0
Silvia	2	0	4	3
Thelma	3	1	2	1
Wilson	2	2	7	3
MEAN	1.4	1.1	2.3	1.9
SD	1.3	1.5	2.3	1.5
LSO:LIO overall ratio	1.2		1.2	

**Table 6.14:** Results for the comparison of learning-sufficient and learning-insufficient means for verb and noun phrase lexis (not significant (\*) for one-tailed test: 0.05 level)

CATEGORY	T-MATCHED
Verb lexis	0.509*
NP lexis	0.444*

According to the figures in table 6.13, the total number of learning-sufficient observations in verb and noun phrase lexis was almost the same as the total number of learning-insufficient observations. The values in table 6.14 then confirm that the evidence of increased feedback-independence in terms of verb and noun phrase lexis was as unsatisfactory as that of increased feedback-independence in terms of lexis in general.



Only five of the lower-level categories of linguistic form had enough records to justify a more detailed interpretation of their relationship with feedback-independence. The first one, verb-inflection, was a sub-category of morphology; the next two, determiners and prepositions, were sub-categories of lower-level syntax; and the last two, word and phrase-order, were sub-categories of order in general. The results derived from cross-references between these lower-level categories of linguistic form and the learning-sufficient and insufficient observations are summarized in tables 6.15 and 6.16 below.

**Table 6.15:** Distribution of learning-sufficient and learning-insufficient observations according to verb inflection, determiners, prepositions, word and phrase order

CATEGORY/ PARTICIP.	MORPH.vi		LLS.det		LLS.prep		ORD.word		ORD.phr	
	LSO	LIO	LSO	LIO	LSO	LIO	LSO	LIO	LSO	LIO
Cida	1	2	1	4	0	0	3	2	4	0
Dony	2	2	2	2	2	3	0	2	4	0
Elisa	2	1	5	1	1	1	1	1	0	0
Gustavo	0	1	2	0	1	3	2	0	1	0
Henrique	1	1	0	0	1	1	1	0	0	2
Silvia	0	0	2	0	3	2	1	1	1	0
Thelma	0	1	5	5	2	2	3	1	1	0
Wilson	2	0	3	4	7	2	2	2	3	0
MEAN	1	1	2.5	2	2.1	1.8	1.6	1.1	1.8	0.3
SD	0.9	0.8	1.8	2.1	2.2	1.0	1.1	0.8	1.7	0.7
LSO:LIO	1		1.3		1.2		1.4		7	
<u>overall ratio</u>										

Table 6.16: Results for the comparison of learning-sufficient and learning-insufficient means for verb inflection, determiners, prepositions, word and phrase order (not significant (\*) significant (\*\*) for one-tailed test: 0.05 level)

<u>CATEGORY</u>	<u>T-MATCHED</u>
MORPH.vi	0.000*
LLS.det	0.661*
LLS.prep	0.513*
ORD.word	1.080*
ORD.phr	2.049**

The above figures indicate that there was an exact one-to-one correspondence for the total number of learning-sufficient and insufficient observations in verb-inflection. According to the criteria adopted in the present interpretation of the results, this means that there is not enough evidence of an increase in feedback-independence insofar as verb-inflection is concerned. The learning-sufficient means for determiners, prepositions and word order were also not very different from the corresponding learning-insufficient means, which again implies that the data holds no evidence to an increase in feedback-independence in those respects. For phrase order, however, there were as many as seven learning-sufficient observations for every learning-insufficient one, and the statistical comparison of means led me to the conclusion that there was enough evidence of an increase in feedback-independence.

The last lower-level category of writing product which was frequent enough to be examined from the viewpoint of feedback-independence was punctuation. The results derived from cross-references between the category and the LSO and LIO are shown in tables 6.17 and 6.18 below.

Table 6.17: Distribution of learning-sufficient and learning-insufficient observations according to punctuation

PARTICIPANT	PUNCTUATION	
	LSO	LIO
Cida	1	1
Dony	2	0
Elisa	4	0
Gustavo	1	0
Henrique	3	3
Silvia	1	2
Thelma	8	2
Wilson	9	0
MEAN	3.6	1
SD	3.2	1.2
<u>LSO:LIO overall ratio</u>	<u>3.6</u>	

Table 6.18: Results for the comparison of learning-sufficient and learning-insufficient means for punctuation (significant (\*\*) for one-tailed test: 0.05 level)

<u>CATEGORY</u>	<u>T-MATCHED</u>
punct	2.145**

The above indicates not only that for every learning-insufficient observation in punctuation there were as many as 3.6 learning-sufficient observations, but also that the latter were significantly more frequent than the former. There is therefore evidence to suggest that there was an increase in feedback-independence in terms of punctuation.

To conclude this section, according to the above interpretation of feedback-independence from the viewpoint of writing product, it appears that the participants would benefit from further instruction which gave special emphasis to lexis, morphology (especially verb inflection), lower-level syntax (especially determiners and prepositions), commutable syntax, adverbials, premodifiers and word order.

When cross-references between the learning-insufficient observations pertaining to lexis and the reading process categories were made, it was found that 90% of these observations had to do with appropriateness. It therefore seems that feedback on lexis would greatly help the participants manage appropriateness on their own. The learning-insufficient observations pertaining to morphology and lower-level syntax tied in with mostly accuracy and appropriateness. Feedback on morphology and lower-level syntax would therefore probably help the participants produce more accurate and more appropriate texts. The learning-insufficient observations pertaining to commutable syntax affected mainly appropriateness and coherence, which means feedback on commutable syntax would probably have a positive effect on these two components of the reading process. From cross-references between reading process and the learning-insufficient observations pertaining to adverbials in general, it appears that teaching the participants more about their use will enhance coherence

and informativity. Finally, the LIO pertaining to premodifiers had a one-to one correspondence with informativity, and the word-order LIO had to do with appropriateness, accuracy, information-structure and levels effect. Teaching the participants more about premodifiers and word-order would therefore probably help them improve the above components of the reading process.

The participants would obviously also benefit from instruction which helped them become even more independent from feedback regarding punctuation, phrase-order, sentence-complexity and postmodifiers, although the few learning-insufficient observations pertaining to these categories indicate that by now the participants seem to have acquired reasonable standards with which to evaluate their own prose in these respects, and that the amount of emphasis assigned to these parts of writing product can consequently be reduced.

#### 6.4 Conclusions

The first conclusion about the interpretation of the post-treatment revisions from the perspective of readability and feedback-independence is that after instruction had ceased the participants seem to have been generally able to improve the readability of their pre-treatment final

drafts, and that feedback-independence appears to have generally increased.

Notwithstanding these coinciding results, the second conclusion reached is that it is misleading to assume that evidence of improvement in the readability of the end-product of revision can be equated with evidence of increased feedback-independence. A learner's self-sufficient ability to improve the readability of his text may at times distract one from seeing that he has not in fact gained feedback-independence.

With regard to the present data, it is notable that although the post-treatment revisions were found to be both more accurate and more appropriate than the corresponding pre-treatment final drafts - and hence the changes in accuracy and appropriateness must have enhanced more than hindered readability -, evidence of increased feedback-independence in these respects was inconclusive, for there were comparatively too many feedback-independence observations in accuracy and appropriateness indicating that learning had been insufficient. In addition to this, even though there was evidence of improved readability and increased feedback-independence for the remaining five components of the reading process, the overall positive:negative ratios for each category were always much higher than the corresponding learning-sufficient:learning-insufficient ratios. In other words, the changes in reading

process which enhanced readability outnumbered the corresponding changes which hindered readability to a much greater extent than the learning-sufficient observations in reading process outnumbered the learning-insufficient ones. The reason why this was so is that certain changes which did not in fact hinder the readability of the end-product were nevertheless taken to be signs of insufficient learning.

Thus even if writers are able to improve the readability of their texts on their own, there may still be much more for them to learn before feedback becomes unnecessary. It should not be forgotten, however, that feedback-independence may increase in some respects without the overall result being improved readability if what increases in terms of feedback-independence contributes only very slightly towards improved readability. Traditional product-oriented instruction, for example, may result in increased feedback-independence in accuracy, which is unlikely to in itself correlate with a general improvement in readability. Depending on the kind of instruction provided, the following four combinations of changes in readability and feedback-independence may result:

1. + readability + feedback-independence
2. + readability - feedback-independence
3. - readability + feedback-independence\*
4. - readability - feedback-independence

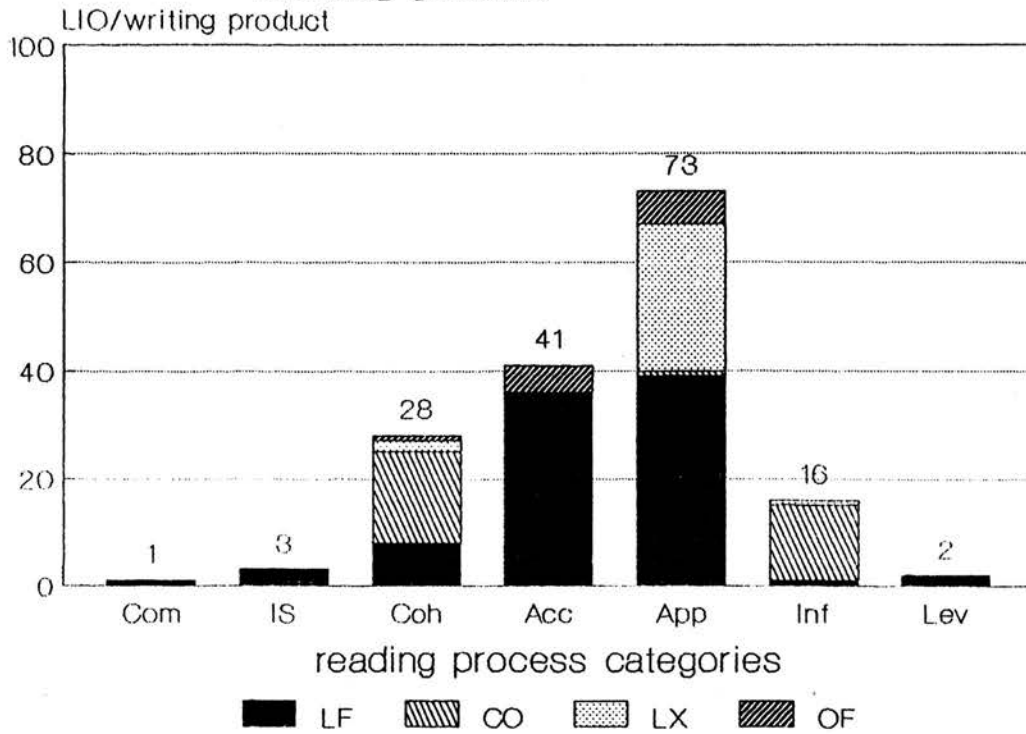
(\*in accuracy or other factors unlikely to contribute much towards improved readability)

If the goal of writing instruction is to help writers rely less and less on cues from the writing teacher, then it follows that the analysis of feedback-independence is more basic to one's understanding of writers' needs than the analysis of the readability of the texts they produce. If feedback-independence increases in all respects, or at least in terms of what is important to readability, then it is natural that readability should also improve.

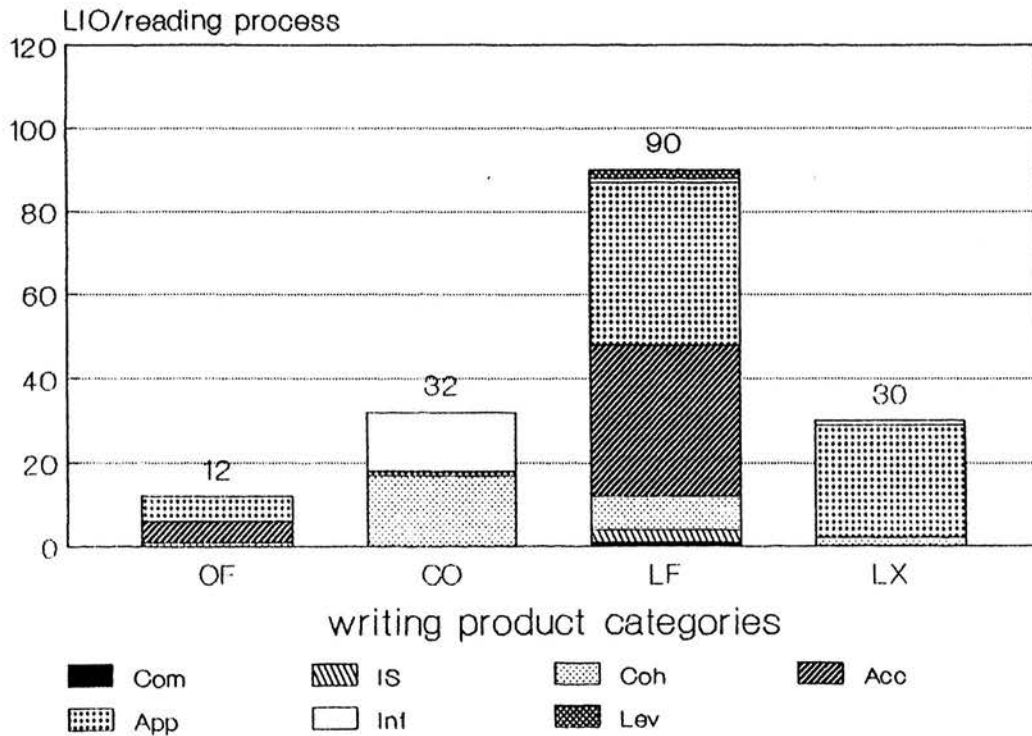
The third and last conclusion reached is that for the analysis of feedback-independence to serve a practical pedagogical purpose, it is vital that it be understood from the dual perspective of reading process and writing product. Although certain correspondences between the two are not unlikely, when the learning-insufficient observations pertaining to the different reading process categories were sorted out according to the macro-categories for writing product, and when the learning-insufficient observations pertaining to the different writing product categories were conversely sorted out according to reading process, different combinations of the two occurred. Figures 6.20 and 6.21 below summarize the results obtained.



**Figure 6.20:** Distribution of learning-insufficient observations in reading process according to writing product



**Figure 6.21:** Distribution of learning insufficient observations in writing product according to reading process



From the above it is clear that in order to help the participants gain feedback-independence in terms of different components of the reading process, future instruction should provide them with different types and amounts of writing product feedback. For the participants to gain further feedback-independence in terms of coherence and informativity, for example, considerable emphasis may have to be placed on content, which is however likely to be of little or no consequence to an increase in feedback-independence with respect to the remaining components of the reading process. Conversely, in order to help the participants gain feedback-independence with regard to different aspects of the writing product, future instruction should provide them with different types and amounts of reading process feedback. For example, before the participants can do without feedback on lexis, they will have to learn a lot more about appropriateness and comparatively very little else about the remaining components of the reading process. Keeping reading process and writing product apart from one another is therefore extremely important when it comes to choosing the right focus for future writing instruction, especially if the instructional period is short and decisions have to be made as to what needs be addressed most urgently.

## Notes to chapter six

1. The changes coded according to the discourse category 'other', which added up to only 0.4% of the total number of changes identified in the transcriptions, were not taken into account inasmuch as these changes do not affect readability in any perceptible or identifiable way.

2. Negative changes should not be categorically interpreted as signs of irreversible backsliding. On the contrary, in the context of revision following a short instructional period they seem to be typical indicators of what may occur in Stage Two of Kellerman's (1983;1987) U-shaped behaviour language acquisition thesis, whereby a form which was error-free in Stage One becomes deviant in Stage Two and returns to the norm in Stage Three. In the words of Kellerman (1987:215), "... the appearance of deviant forms in Stage Two should not be seen as evidence of attrition in linguistic competence, but as a cognitive advance..." Thus if Stage Two is seen as part of the path towards second language development, then it seems perfectly plausible that some of the negative changes in the revisions be signs insufficient, albeit partial, learning. Frawley and Tolf (1985:41) have similar views: "errors may not be errors as such, but may well represent a speaker's [or, more broadly, a learner's] attempt to gain control of a task".

3. The reading process changes coded "other" were again excluded from the analysis.

4. As explained in the beginning of chapter five, the changes made from the pre-treatment final drafts to the post-treatment revisions could not be compared with changes made in the absence of the experimental treatment in equal terms, which makes it impossible to determine whether there would have been even more LIO pertaining to accuracy had there been no treatment.

5. It is not my yet intent to examine treatment effect. This will be left to chapter seven. At this point it seems nevertheless appropriate to anticipate that the changes with an explicit connection with the treatment tended to tie in with the more discursal reading process categories.

## CHAPTER SEVEN

### THE EFFECTS OF INSTRUCTION

My objective in this chapter is to investigate treatment-effect from the perspective of readability and feedback-independence. Its purpose is to test H4, i.e., that improved readability and increased feedback-independence are likely outcomes of the instruction provided, as opposed to outcomes of any type of instruction. In section 7.1 I will discuss the limitations of attempting to test H4 on the basis of the revision data available. In section 7.2, I will explain the method of analysis and interpretation adopted in view of those limitations, which is founded on the distinction between the parts of the revision data with an explicit connection with the experimental treatment and the parts of the revision data which are unrelated or only indirectly related to the treatment. Section 7.3 will then summarize the main differences between the two in terms of qualification, reading process and writing product. I will conclude the chapter with the next two sections, which focus on the interpretation of treatment-effect upon readability and feedback-independence.

### 7.1 Problems of analysing the effects of instruction

On the strength of the evidence presented in chapters four and six, it appears that the participants were able to improve the readability of their writing products after instruction had ceased. Chapter six also discloses evidence which suggests that following the experimental treatment feedback-independence generally increased. What is not as yet known, however, is whether such a development can be attributed to the experimental treatment. To put it differently, it could be argued that the participants would have been able to improve readability and would have become more independent from feedback after receiving some other kind of instruction, as opposed to the specific instruction provided during the treatment. My present objective is therefore to find out whether improved readability and increased feedback-independence are likely outcomes of the instruction carried out in this study.

Ideally, this investigation would involve comparing the benefits attributable to the instruction provided with those attributable to a placebo treatment, i.e., another type of instruction. However, as is often common in educational research, one of the major limitations of the present study was that it was not possible to work with a control group<sup>1</sup>. A less rigorous alternative to working with a control group would be to compare, in general terms, the effects which followed the instruction provided with those

which are known to follow other types of instruction previously submitted to critical scrutiny. Following this orientation, one of the parallels which can be drawn is that previous research in L2 writing has shown that, unlike the discourse-oriented instruction carried out in the present study, traditional product-oriented writing instruction does not result in any major advances in readability<sup>2</sup>. In contrast to this, process-oriented instruction apparently does, although there does not seem to be any evidence in the literature in support of the idea that its effects upon readability will persist after instruction has ceased. Also, to my knowledge there is no evidence to suggest that process-oriented instruction helps L2 writers become more independent from feedback<sup>3</sup>. The absence of studies concerned with finding out answers to questions similar to the ones which motivated the present study therefore makes it difficult to compare the benefits attributable to the instruction provided during the treatment with those attributable to other types of instruction.

## 7.2 Method of analysis and interpretation

In view of the limitations put forward in the above section, the most viable alternative to finding out whether improved readability and increased feedback-independence are likely outcomes of the instruction carried out was to

single out the part of the post-treatment revision data related to topics specifically addressed during the experimental treatment, and investigate whether this selected data alone disclosed evidence of improved readability and increased feedback-independence.

Having said this, I cannot overly stress that the post-treatment changes considered not to have an explicit connection with the treatment may have nevertheless been influenced by it. This is an especially important point to raise in the light of Kellerman's (1983:1987) framework of learners' psychotypology. Kellerman maintains that learners become more skeptical about correctness in L2 as metalinguistic sophistication grows, a phenomenon which he describes as the "suspicion-inducing influence of teaching". The fact that the treatment actually had this "suspicion-inducing influence" built into one of its main objectives, i.e., to make L2 writers more aware of the distance between their L2 texts and target L2 discourse conventions, may have therefore made the participants reassess and revise not only what had been explicitly discussed during the treatment, but also what had not even been mentioned at the time of instruction. In fact, as described in chapter three, at the time of instruction the participants were encouraged to pay attention to not only the target L2 conventions explicitly mentioned in class,

but also to other L2 conventions which they were able to grasp while reading texts in their areas of specialization by native-speaker authors.

The influence of the experimental treatment upon the revision data with no apparent connection with the instruction provided becomes not only probable, but even likely, if one remembers that the data collection conditions ensured that the pre-treatment final drafts were the best version of text the participants could arrive at on their own before the treatment began. This means that ~~some~~ all post-treatment changes, as opposed to only the ones with an explicit connection with the instruction provided, are likely to have been in one way or another influenced by the treatment.

For convenience, I am therefore assuming that while the post-treatment changes with an explicit connection with the instruction provided during the treatment are likely to have been directly motivated by that instruction, the post-treatment changes with no apparent connection with the experimental treatment are likely to have been only an indirect result of the instruction provided. Proof that the post-treatment changes likely to have been directly motivated by the instruction provided contributed towards an improvement in readability and an increase in feedback-



independence will be accepted as an indication that improved readability and increased feedback-independence are likely outcomes of that instruction.

My predictions with regard to the differences between the post-treatment changes with an explicit connection with the instruction provided and the remaining post-treatment changes, in turn, are not as strong as my predictions with regard to the differences between the experimental treatment and a placebo treatment would have been. That is to say, having shown in chapter six that the post-treatment data in general disclosed evidence of improved readability and increased feedback-independence, I do not expect that the revision changes explicitly related to the treatment will affect readability in a predominantly positive way and that the remaining post-treatment changes will not, but I expect the changes with an explicit connection with the treatment to enhance readability to a greater extent than the other post-treatment changes. Similarly, I do not expect that the treatment-specific feedback-independence observations will signal increased feedback-independence and that the remaining ones will not, but I expect the treatment-specific FIO to disclose greater evidence of increased feedback-independence than the remaining post-treatment FIO.

It is obvious that drawing the line between the part of the post-treatment data related to topics explicitly taught during the treatment and the part of the post-treatment revision data which did not have an explicit connection with the treatment is not a straightforward matter. Still, it is possible to operationalize this distinction by keeping the data which is explicable in terms of the specific instruction provided during the treatment apart from the data which is not explicable in those terms. The most reliable and systematic way of doing so, it seems, is to separate the changes in the post-treatment revisions associated with the linguistic resources and discourse conventions highlighted in the course handouts from the changes which hold no explicit relationship with the handouts<sup>4</sup>.

Some, but not all, of the changes related to the course handouts can be identified via the system's writing product taxonomy. An example of this would be the changes pertaining to the categories for phrase, clause, sentence and paragraph order. These changes are likely to have an explicit connection with the course handout on "the given-new principle", for the handout contained information on how to make the sequencing of ideas in text more predictable to the English reader by making sure the order of phrases, clauses, sentences and paragraphs in text was such that given information preceded new information. A second type of post-treatment change likely to have been

motivated by the treatment and also identifiable in terms of the writing product taxonomy are the changes in sentence-complexity. These changes are probably related to the course handout on "sentence-complexity", for the handout drew attention to the pragmatic distinction between the use of simple and complex sentences known to help readers separate main ideas from supporting details of text, and to the effect of syntactic parallelism upon coherence. A third type of post-treatment changes which can be considered to be a direct function of the experimental treatment are the ones identifiable in terms of the category for sentence adverbials. Many of these changes are likely to relate back to the course handout on "connectives", which emphasized the need of using connectives to tie up ideas in text in an explicit way, and to convey the author's comment on the content of his text. The post-treatment changes identifiable in terms of the category for intermediate verbs too are likely to have been influenced by the treatment. These changes have very much to do with the course handout on "certainty and commitment", which encouraged the participants to choose between different modal verbs and expressions to make their texts more convincing to the reader. The connection with the experimental treatment of the changes identifiable in terms of the category for pro-forms is also quite obvious. Such changes probably relate back to the course handout on "synonyms and reference", which called the participants' attention to problems of ambiguity and contained guidelines

on how to decide between the use of full-forms and pro-forms.

As said before, however, not all topics which were explicitly taught during the treatment are identifiable in terms of the system's writing product categories. For example, the addition or deletion<sup>of</sup> commas, which obviously relates to the course handout on "the use of commas", cannot be accessed via the category for punctuation, for the category includes other changes in punctuation which are unrelated or only indirectly related to the handouts. It is also impossible to access via the writing product categories the distinction between word-order changes which are likely to be related to the course handouts and word-order changes which are unrelated or only indirectly related to the handouts. The revision of the position of adverbs, for example, is clearly related to the handout on "word order and adverbs"; however, the category for word order also includes other types of word-order revision which have nothing to do with the topics addressed in the course handouts.

There are of course changes which are unrelated or only indirectly related to the handouts, such as those in morphology and paragraph indentation, which are easily identifiable via the writing product categories. However, because the taxonomy distinguishes between only some, and not all, of the changes directly related to the course

handouts and the remaining post-treatment changes, it was impossible to rely on the writing product categories in order to single out the post-treatment changes with a likely connection with the handouts.

In view of this, the procedure adopted in order to separate the changes explicitly related to the course handouts from those which were unrelated or only indirectly related to them involved coding the changes in the post-treatment revisions all over again while referring back to both the handouts and the revisions; the changes with a direct connection with any one of the various linguistic resources and discourse conventions addressed in the handouts were simply coded "treatment-specific changes", and the changes which were not explicable in terms of the content of the handouts were coded "other changes". When sorting out the changes in this way, I deliberately did not consult the previous coding of the revisions according to the three taxonomies of the system. This prevented me from making misconceived a priori associations between the treatment and reading process or writing product, and most importantly, from being influenced by the qualification of the changes.

After the treatment-specific changes by the participants were separated from the remaining post-treatment changes, the "necessary" changes introduced by the native-speaker proofreaders were also sorted out in this way. The

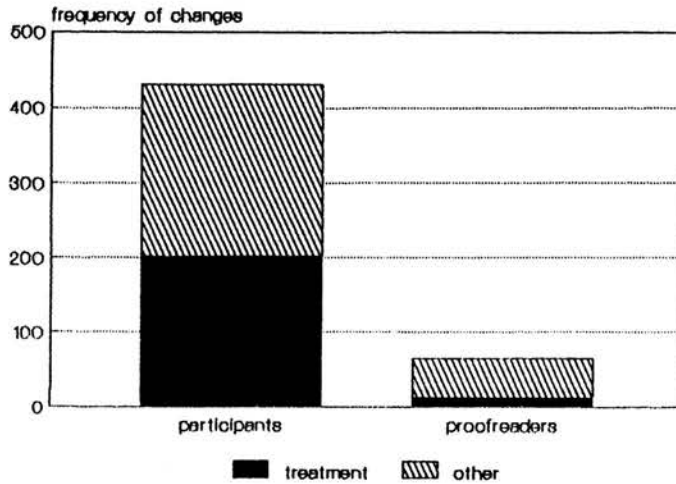
procedure enabled me to compare the treatment-specific changes which should have been made but were not with other changes which should have been made but were not. The coding of the 496 changes by the participants and by the NS proofreaders according to whether or not they were treatment-specific is supplied in appendix VII.

### 7.3 General differences between treatment-specific changes and changes unrelated or only indirectly related to the treatment

Before going on to the interpretation of the results from the viewpoints of readability and feedback-independence, in this section I will simply go over the differences between the treatment-specific and other changes according to frequency, reading process, writing product and qualification. No cross-references between taxonomies will be made at this point.

To begin with, figure 7.1 below summarizes the distribution of the 431 changes by the participants and the 65 changes by the proofreaders according to those which were treatment-specific and those which were not.

Figure 7.1: Distribution of changes according to those which were treatment-specific and those which were not

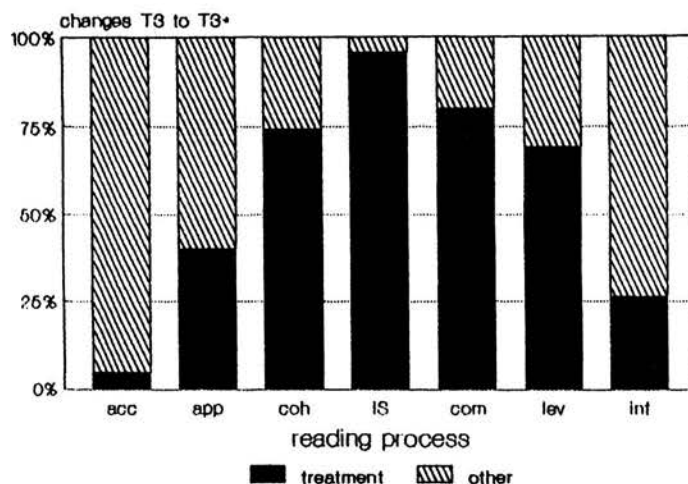


As can be seen, slightly over half the changes made by the participants from T3 to T3\* were not actually treatment-specific. Although this might be somewhat surprising, it must be remembered that the treatment is likely to have motivated the participants to make changes which had no explicit connection with the course handouts, and that these handouts only addressed the main areas of discourse where the participants in general supposedly needed help. In addition to this, as discussed in chapter two, it is possible that teaching the participants about discourse may have reduced the burden of a number of higher-level writing process constraints, the consequence of which may have been that the participants had more room to pay attention to and hence revise lower-level components of writing which had not been dealt with at the time of instruction. The changes then added by the proofreaders, however, were clearly a lot

more frequently unrelated or only indirectly related to the treatment. This is already an indication that whatever it was that the treatment addressed, it must have addressed in a relatively thorough way.

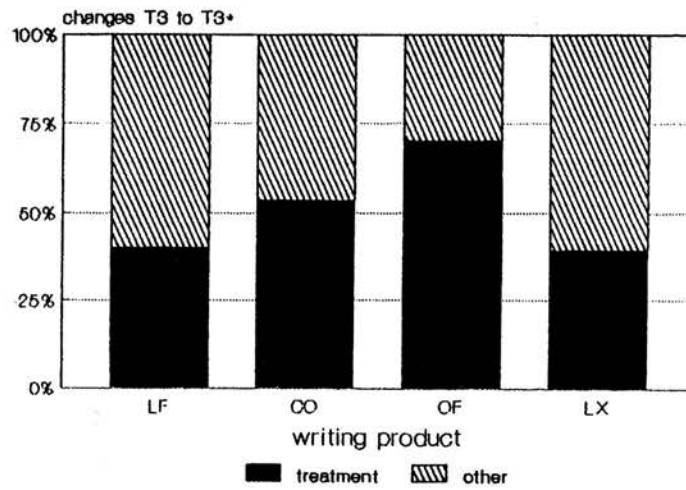
Figures 7.2 and 7.3 show how the treatment-specific and other changes by the participants were distributed according to reading process and writing product respectively.

Figure 7.2: Distribution of treatment-specific and other changes made from T3 to T3\* according to reading process





**Figure 7.3:** Distribution of treatment-specific and other changes made from T3 to T3\* according to writing product macro-categories

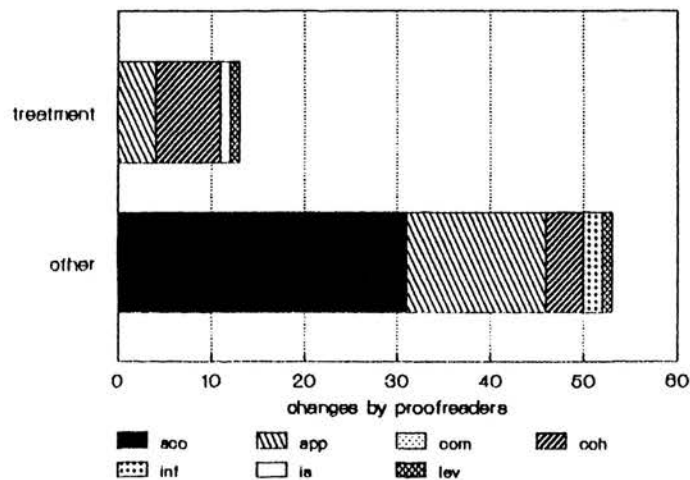


The short instructional period entailed by the treatment has obviously meant that it could not have dedicated equal emphasis to all aspects of reading process and writing product analysed. From figure 7.2 it can be seen that the changes in information-structure, commitment, coherence, and levels effect made from T3 to T3\* were predominantly treatment-specific. The changes in accuracy, informativity and appropriateness made by the participants were however predominantly unrelated or only indirectly related to the treatment. Clearly, the treatment seems to have assigned greater emphasis to the more discursal components of the reading process. From figure 7.3, in turn, it can be seen that when these same changes were distributed according to writing product, the differences between what was and what was not treatment-specific were a lot more evenly balanced. This therefore seems to confirm what was hinted at in chapter six: that in an attempt to help the participants

improve discourse, the treatment assigned greater emphasis to the more discursal components of the reading process, and at the same time touched a bit of everything in terms of writing product.

As to the changes in reading process subsequently added by the proofreaders, it can be seen from figure 7.4 that the the majority of treatment-specific changes had to do with coherence, and that the necessary changes unrelated or only indirectly related to the treatment were mostly those in accuracy. Accuracy therefore seems to have been what the treatment least addressed, and coherence what it addressed least thoroughly.

**Figure 7.4:** Distribution of treatment-specific and other changes by proofreaders according to reading process



In terms of writing product, figure 7.5 indicates that the majority of treatment-specific and other changes added by the proofreaders had to do with linguistic form. This probably means that the treatment should have placed greater emphasis on linguistic form had there been more time available.

Figure 7.5: Distribution of treatment-specific and other changes by proofreaders according to writing product macro-categories

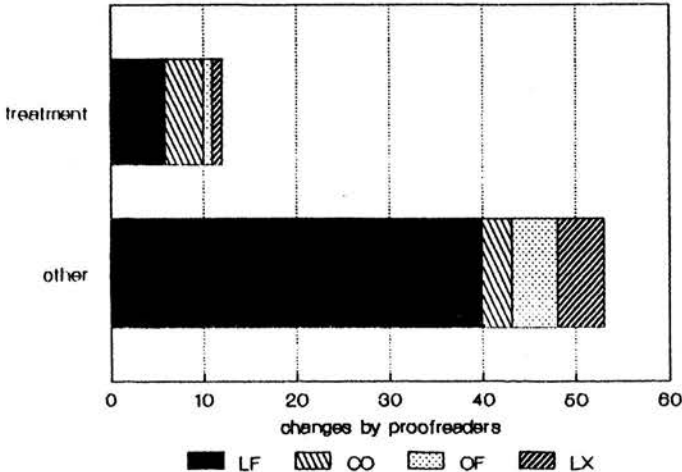
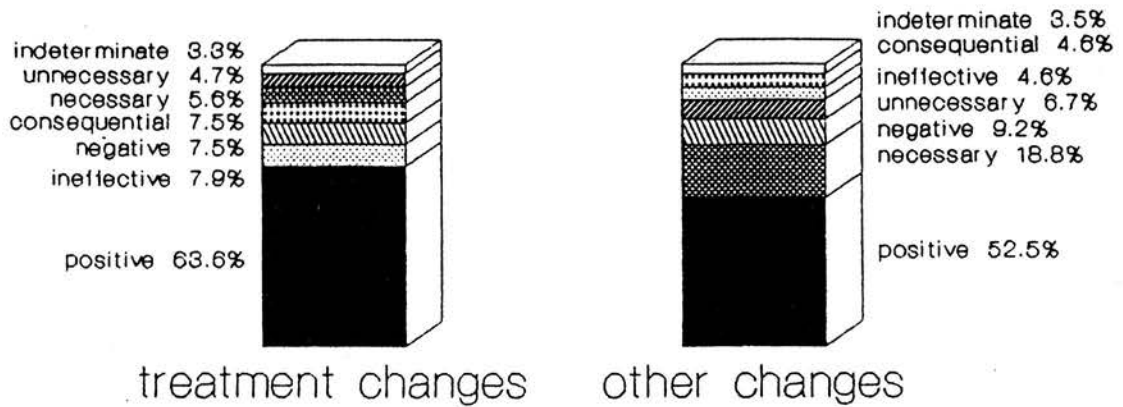


Figure 7.6, in turn, summarizes the overall distribution of the treatment-specific and other changes according to the system's qualification categories.

Figure 7.6: Distribution of treatment-specific and other changes according to qualification categories



It can be seen that that the percentage of treatment changes qualified as positive, ineffective and consequential was on the one hand greater than the percentage of other changes qualified in these ways. On the other hand, the changes not explicitly related to the treatment were comparatively more frequently necessary, negative, unnecessary and indeterminate than the treatment-specific changes. This is already a preliminary indication that the overall outcome of the treatment-specific changes is likely to have been qualitatively better.

Having summarized what the main differences between the treatment-specific changes and the remaining post-treatment changes were, in the next two sections I will attempt to find out whether the treatment-specific changes alone

brought about an improvement in readability and an increase in feedback-independence, and whether their contribution in those respects was greater than that of other post-treatment changes.

#### 7.4 The effects of the experimental treatment upon readability

My objectives in this section are to find out whether the treatment-specific changes alone contributed towards improved readability, and whether their contribution was greater than that of the remaining post-treatment changes. As explained in chapter six, only the positive and negative changes in the revisions need be accessed in the interpretation of the revisions from the viewpoint of readability. The total number of changes relevant to this part of the study is therefore again 326, i.e., an average of 74.2% of the total number of changes per participant<sup>2</sup>.

To find out whether the treatment-specific changes alone helped enhance the readability of T3\* in relation to T3, the treatment-specific were initially singled out and distributed according to both whether they enhanced or hindered readability and the seven reading process categories into which readability was decomposed. Having

done that, the positive and negative treatment-specific means for each reading process category were compared via matched t-tests. The results obtained are summarized in table 7.1 below.

**Table 7.1:** Comparison of positive and negative treatment-specific changes per reading process categories (significant\*\*, not significant\* for one-tailed test:95%)

CATEGORY PARTICIPANT	ACC		APP		COH		COM	
	+	-	+	-	+	-	+	-
Cida	0	0	1	0	3	0	0	0
Dony	0	0	2	0	3	0	2	0
Elisa	0	1	6	0	4	0	0	0
Gustavo	0	0	3	1	8	1	0	0
Henrique	0	1	3	1	1	1	1	0
Silvia	0	0	1	1	5	1	2	0
Thelma	0	0	11	1	6	1	4	0
Wilson	0	0	12	2	4	0	0	0
MEAN	0	0.3	4.9	0.8	4.3	0.5	1.1	0
SD	0	0.5	4.4	0.7	2.1	0.5	0.5	0
T-MATCHED	-1.528*		2.839**		5.351**		2.183**	

**Table 7.1 (continued):**

CATEGORY PARTICIPANT	INF		IS		LEV	
	+	-	+	-	+	-
Cida	2	0	4	0	0	0
Dony	2	0	3	0	5	0
Elisa	1	0	1	0	2	0
Gustavo	1	0	2	0	3	0
Henrique	1	0	0	1	2	0
Silvia	4	1	1	0	1	0
Thelma	4	0	2	0	7	0
Wilson	1	1	4	1	1	0
MEAN	2	0.3	2.1	0.3	2.6	0
SD	1.3	0.5	1.5	0.5	2.3	0
T-MATCHED	3.862**		3.416**		3.192**	

As can be seen, the positive treatment-specific changes were significantly more frequent than the negative ones for all reading process categories except accuracy. It is therefore very likely that the instruction provided contributed in a direct way towards an overall improvement in readability. The fact that the experimental treatment does not appear to have directly contributed towards improved accuracy is understandable, for the instruction provided was above all discourse-oriented. It is nevertheless unlikely that improved accuracy would have in itself helped enhance readability.

In order to find out whether the remaining post-treatment changes could have also helped enhance readability, they were submitted to the same kind of analysis as the treatment-specific changes. The results obtained are summarized in table 7.2 below.

Table 7.2: Comparison of other positive and negative changes per reading process categories (significant\*\*, not significant\* for one-tailed test:95%)

CATEGORY	ACC		APP		COH		COM	
	+	-	+	-	+	-	+	-
PARTICIPANT								
Cida	4	0	0	0	1	0	0	0
Dony	4	1	8	7	4	0	0	0
Elisa	4	2	5	0	3	0	0	0
Gustavo	1	0	3	1	2	0	0	0
Henrique	2	0	0	0	0	0	0	0
Silvia	4	0	7	1	5	0	1	0
Thelma	3	2	15	1	1	0	0	0
Wilson	6	1	11	4	2	0	1	0
MEAN	3.5	0.8	6.1	1.8	2.3	0	0.3	0
SD	1.5	0.9	5.2	2.5	1.6	0	0.5	0
T-MATCHED	5.227**		2.606**		3.813**		1.528*	

Table 7.2 (continued):

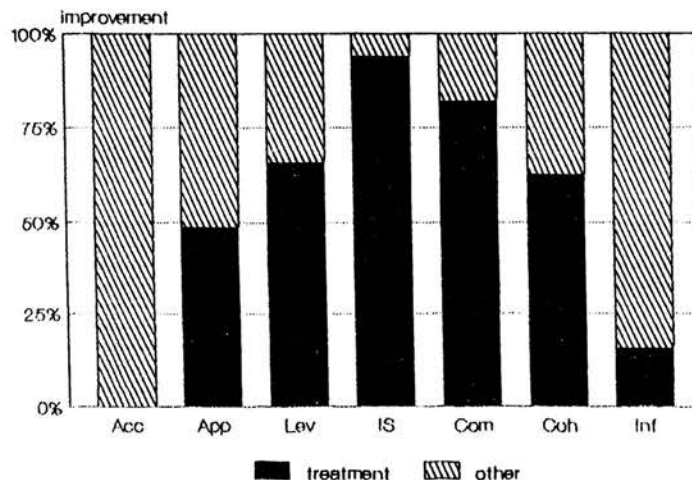
CATEGORY	INF		IS		LEV	
	+	-	+	-	+	-
PARTICIPANT						
Cida	5	1	1	0	4	0
Dony	6	1	0	0	1	0
Elisa	6	0	0	0	0	0
Gustavo	2	0	0	0	0	0
Henrique	1	0	0	0	0	0
Silvia	8	2	0	0	1	0
Thelma	4	0	0	0	3	0
Wilson	7	2	0	0	2	0
MEAN	4.9	0.8	0.1	0	1.4	0
SD	2.4	0.9	0.4	0	1.5	0
T-MATCHED	6.454**		1.000*		2.528**	



It can be seen that the results for the changes indirectly related to the treatment were somewhat different. Although they too seem to have contributed towards improved appropriateness, coherence, informativity and levels effect, they do not appear to have resulted in a significant improvement in commitment and information-structure. However, unlike the treatment-specific changes, the ones indirectly related to the treatment are likely to have resulted in improved accuracy.

Because the treatment-specific and the remaining post-treatment changes must have certainly contributed towards improved readability to different extents, my second concern was to investigate whether the former could have helped improve readability more than the latter. In order to compare the two, the negative treatment-specific and other changes for each reading process category were subtracted from the corresponding positive changes. The amount of improvement in readability attributable to the two types of changes is summarized in figure 7.7 below.

Figure 7.7: Improvement in readability by treatment-specific and other post-treatment changes



From the above it can be seen that only the changes indirectly related to the treatment seem to have helped enhance accuracy, and that they appear to have helped enhance informativity more than the treatment-specific changes. The two then contributed practically to the same extent towards improved appropriateness, but improved coherence, commitment, information-structure and levels effect are likely to have been predominantly due to the treatment-specific changes.

It is of course impossible to synthesize these results computationally, for the different components of the reading process under investigation carry different weights. Still, it is very probable that, when overall readability is at stake, accuracy plus informativity carry less weight than coherence, commitment, information-structure and levels effect combined. In addition to this, at this juncture it is worth recalling that, according to the results presented in chapter six, the overall improvement in levels effect, commitment, coherence and information-structure was greater than the overall improvement in informativity, which was in turn greater than the overall improvement in appropriateness and accuracy. The four categories which disclosed the greatest evidence of improvement are therefore the very same categories for which improvement is likely to have been mainly a direct result of the instruction provided; accuracy, the category which improved the least, is in turn

the only category for which improvement is unlikely to have been a direct result of the instruction. Thus apart from the fact that improvement with respect to six out of the seven categories into which readability was decomposed is likely to have been a direct outcome of the instruction provided, the probability that overall improvement in readability was caused mainly by the treatment-specific changes seems to be greater than the probability that this improvement was predominantly a result of the changes indirectly related to the pedagogy tested.

My overall conclusion regarding the first part of H4 is therefore that improved readability is a likely outcome of the instruction provided. In the next section, I will concentrate on the second part of H4, which involves finding out whether increased feedback-independence is also a likely outcome of the pedagogy tested.

#### 7.5 The effects of the experimental treatment upon feedback-independence

My objective in this section is to find out whether increased feedback-independence is a likely outcome of the instruction provided during the experimental treatment. As

explained in 7.2, the most viable procedure for testing the above on the basis of the data available involves investigating whether the treatment-specific changes alone disclose evidence of increased feedback-independence, and whether they disclose greater evidence of increased feedback-independence than the changes indirectly related to the treatment.

As said in chapter six, in the interpretation of the post-treatment revisions from the perspective of feedback-independence it is necessary to access the 450 feedback-independence observations identified in the revisions, and distribute them according to those which signal that learning was to a greater or lesser extent sufficient (positive changes) and those which signal that learning, even if partial, was insufficient (negative, ineffective, unnecessary and necessary changes). Since the interpretation of feedback-independence from the perspective of reading process and writing product is only a subsequently useful means of determining what kind of feedback is still, or no longer, needed, reference to reading process and writing product is obviously dispensable when one's objective is simply to find out whether increased feedback-independence is a likely outcome of the instruction provided. In other words, in testing whether increased feedback-independence was brought about by the specific instruction provided as opposed to any type of instruction, and whether increased feedback-independence

is more likely to be a direct rather than an indirect outcome of that instruction. I am simply testing the validity of a specific pedagogical approach; assessing the kind of feedback learners might need in the future is a completely different matter inasmuch as it is about what, rather than how, to teach<sup>e</sup>.

For the present, all that is therefore necessary is to find out whether the treatment-specific FIO disclosed evidence of an increase in feedback-independence and whether the evidence they disclose is greater than the evidence of increased feedback-independence attributable to the remaining FIO. The first step taken was to distribute the 450 feedback-independence observations according to those which were treatment-specific and those which were not, and then distribute the two according to those which signal that learning was sufficient (LSO) and those which signal that learning was insufficient (LIO). The results are summarized in table 7.9, which also supplies the t-matched values for the statistical comparison of the means.

Table 7.3: Distribution of treatment-specific feedback-independence observations and other feedback-independence observations according to those which signal that learning was sufficient (LSO) and those which indicate that learning was insufficient (LIO) plus comparison of means (significant\*\* for one-tailed test:95%)

PARTICIPANT	TREAT		OTHER	
	LSO	LIO	LSO	LIO
Cida	10	6	15	13
Dony	17	6	23	25
Elisa	14	4	18	8
Gustavo	17	8	8	6
Henrique	8	10	3	8
Silvia	14	8	26	10
Thelma	34	5	26	20
Wilson	22	8	29	21
MEAN	17	6.9	18.5	13.9
SD	8.1	2.0	9.3	7.2
T-MATCHED	3.160**		1.929**	

From the above it can be seen that for both the treatment-specific FIO and the remaining FIO the learning-sufficient observations were more frequent than the learning-insufficient observations. In addition to this, from the statistical comparison of means it appears that the two also disclosed acceptable evidence of increased feedback-independence. This is hardly surprising, for as I said in the beginning of the present chapter, given the likelihood of the experimental treatment having influenced changes with no explicit connection with the instruction provided, I did not expect that only the treatment-specific FIO would disclose acceptable evidence of increased feedback-independence.

What I did expect, however, was that the treatment-specific FIO would disclose greater evidence of increased feedback-independence. To find out whether they actually did, the treatment-specific and the other feedback-independence observation LSO:LIO ratios were compared. The results are shown in table 7.4 below.

Table 7.4: Comparison of treatment-specific and other LSO:LIO ratios (significant\*\* for one-tailed test:95%)

<u>PARTICIPANT</u>	<u>TREAT LSO:LIO</u>	<u>OTHER LSO:LIO</u>
Cida	1.7	1.2
Dony	2.8	0.9
Elisa	3.5	2.3
Gustavo	2.1	1.3
Henrique	0.8	0.4
Silvia	1.8	2.6
Thelma	6.8	1.3
Wilson	2.8	1.4
MEAN	2.8	1.4
SD	1.8	0.7
<u>T-MATCHED</u>	<u>2.077**</u>	

From the above it is clear that for all participants except Silvia the treatment-specific LSO:LIO ratios were greater than the LSO:LIO ratios pertaining to the remaining feedback-independence observations. In addition to this, while the treatment-specific LSO were on average 2.8 times more frequent than the LIO, the LSO indirectly related to the treatment were only 1.4 times more frequent than the corresponding LIO. The statistical comparison of the two then reveals that the treatment-specific LSO:LIO ratios

were actually significantly higher than the equivalent ratios for the remaining feedback-independence observations.

In view of the above results, it appears that increased feedback-independence is a likely outcome of the specific instruction provided during the treatment, and that the probability that increased feedback-independence was a direct outcome of the specific instruction provided during the treatment is greater than the probability that increased feedback-independence was an indirect outcome of that instruction.

My overall conclusion regarding the effects of the instruction provided is that it must have contributed towards improved readability and promoted an overall increase in feedback-independence.



### Notes to chapter seven

1. The reason why it was not possible to work with a control group is explained in chapter three.
2. The idea that product-oriented instruction does not result in any major advances in readability is supported by Bizzel (1986), Zamel (1982), Watson (1982), Raimes (1983), Robb et al. (1986) and others.
3. Raimes (1983) contends that process-oriented feedback on earlier drafts can help L2 writers improve the readability of final drafts, but says little about what occurs in the absence of feedback, and about what is likely to occur after instruction has ceased.
4. See section on treatment materials (chapter three) for a description of the handouts, and appendix IV for copies of the handouts.
5. See table 6.1 in chapter six.
6. It is obviously important that all post-treatment changes, as opposed to only the treatment-specific changes, be considered in order to determine the right focus for future instruction. That is to say, the analysis of the feedback that is still, or no longer, needed depends on a global evaluation of what was and what was not learning-sufficient in the revisions, irrespective of the direct or indirect effects of previous instruction.

CONCLUSIONS AND IMPLICATIONS FOR TEACHING

8.1 Conclusions

My motivation to undertake the present investigation arose from the need to address the specific difficulties encountered by skilled writers using L2. I reasoned that shadowing L1 theory and research methods, recent approaches to L2 writing instruction have paid too much notice to the similarities in the writing processes of L1 and L2 writers, and have consequently failed to account for important differences between the two. The most unfortunate implication of treating L1 and L2 writers alike, I argued, is that the needs of skilled writers using L2 can be very easily neglected. First language writing instruction was conceived for unskilled writers, but second language writing instruction must address the needs of the skilled as well as those of the unskilled. Based on this reevaluation of current influence from L1 writing studies upon second language instruction, I developed a conceptual framework which justifies distinguishing between the following four extreme combinations along the axes of writing skill and second language proficiency:

1. + skill + proficiency
2. - skill + proficiency
3. + skill - proficiency
4. - skill - proficiency

Thinking of the needs of highly literate researchers whose first language is not one of international scientific communication, I proceeded to test the validity of a pedagogical approach which sought to concentrate on the specific needs of intermediate to high-proficiency skilled writers using L2, i.e. more or less the first of the above. At the same time, I attempted to come to a better understanding of the kind of instruction these writers might benefit from.

Drawing on the work by authors interested in discorsal differences between languages, and on the claim that insufficient knowledge of L2 discourse conventions may constrain writing processes, I hypothesized that intermediate to high-proficiency skilled writers using L2 would be able to improve the readability of their writing products and acquire workable standards to evaluate their own prose after receiving instruction which gave special emphasis to the teaching of L2 discourse conventions. The pedagogy tested specifically attempted to make a group of eight Brazilian researchers writing in English aware of a number of discourse conventions their L2 texts seemed to violate, and purposefully did not emphasize the development

of writing skills, although it did draw on their existing, presumably already efficient, writing process strategies.

Samples of pre and post-instruction writing products by the above group of writers were then compared via holistic impression judgements on readability and via a three-dimensional system for analysing revision in terms of the effect of changes upon readability plus their description from the viewpoints of reading process and writing product. The analysis and interpretation of the results disclosed evidence of the following:

H1: The participants were able to produce more readable texts after instruction has ceased (c.f. chapter four).

H2: After instruction had ceased, the participants were able to further improve the readability of texts produced before instruction (c.f. chapter six).

H3: The participants' post-instruction revisions of pre-instruction final drafts pointed towards a general increase in feedback-independence (c.f. chapter six).

H4: Improved readability and increased feedback-independence are likely to have been outcomes of the specific kind of instruction provided (c.f. chapter seven).

The pedagogy tested therefore seems to have helped a group of Brazilian researchers writing in English improve the readability of their writing products and learn about standards with which to evaluate their own prose in the absence of teacher-feedback. Granted that it is usually the case that the more there is to improve, the easier it is to perceive improvement, the fact that the learners in question were intermediate to high-proficiency skilled writers - and hence had a lot less to learn about second language writing than if they had been low-proficiency unskilled writers - suggests that the improvement perceived was especially significant. Moreover, the fact that these results were obtained after a period of instruction of only thirty hours (constrained by a number of experimental control measures) seems to constitute further proof that the pedagogical approach proposed is likely to have addressed the needs of this particular group of writers in a way which was both effective and efficient.

The above claim is obviously based exclusively on the practical effects of the pedagogy tested upon readability and feedback-independence. However, in educational research it is also important to evaluate how learners react to a given type of pedagogy, for it is essential that they believe in the instruction received. Even if instruction is proven to have achieved its objectives, its success or

failure will ultimately depend upon whether or not it has face validity.

At this point, the participants' responses to the retrospective questionnaire in appendix II therefore also deserve being considered, for they disclose useful information about the participants' reactions to the discourse-oriented instruction they received. In this retrospective questionnaire, which was given to the participants after instruction had ceased and after the post-treatment essays had been collected, the participants were initially asked to assess on a 1-5 scale how much the different aspects of the course had contributed to their learning<sup>1</sup>. Table 8.1 below summarizes their responses.

Table 8.1: Contribution of different aspects of the course towards the participants' learning processes according to their intuitions (1=very little; 5=a lot)

<u>ASPECT OF THE COURSE</u>	<u>MEDIAN</u>	<u>RANGE</u>
Course handouts	5	4-5
Revising with a partner	5	4-5
Revising own texts	5	3-5
Revising partner's text	5	2-5
Course bibliography	5	2-5
Writing last three essays	4	4-5
Revising alone	4	3-5
Reading NS texts	4	2-5
<u>Writing first three essays</u>	<u>3</u>	<u>3-4</u>

According to these responses, it is clear that the discourse-oriented pedagogy tested scored high in terms of general acceptance. The three parts of the course which

could have allowed the participants to develop a feeling for L2 discourse conventions were the course handouts, the course bibliography and reading NS texts. The participants not only thought the three contributed quite a lot to their learning, but also felt that writing practice after instruction contributed more to their learning than writing practice alone. In addition to this, the opportunity to practice revision after the discourse conventions had been presented was generally thought have been very helpful.

I was nevertheless interested in finding out whether teaching the participants about L2 discourse conventions could have in any way catalysed the washback side-effect of constraining writing process, which would have had negative repercussions upon the overall validity of the pedagogy tested. The participants' responses to question two in the retrospective questionnaire, **"Did the conventions discussed during the course in any way block (inhibit) your facility of writing? Did they in any way make writing easier?"**, added strength to my prediction that this kind of washback effect was unlikely<sup>2</sup>. All participants reported that the conventions discussed during the course had not blocked their writing processes, and had in fact made writing easier. The following comments are representative of how the participants supported their views on this particular matter:

"I do not think the conventions we have seen inhibited my writing [...some] conventions function as guidelines when we are writing for the first time [...others] are fundamental when it is time to revise the essay. Revising became more practical and easier."

"I don't think that the conventions we have discussed blocked me at any rate. Instead they improved my writing and consequently increased my wish to write"

"The conventions presented have facilitated my writing in all general aspects. Now, during and after a first draft, I think about connectives, adverbs, etc., and after the final draft the text seems to be more clear. Similarly, when I am reading a paper I can see the conventions easily"

The above seems to add strength to one of the explanations given in chapter seven, as to why slightly over half the changes made from T3 to T3\* were not actually treatment-specific: the reduced writing process constraints brought about by the discourse-oriented instruction provided could have allowed the participants more room for reassessing and improving lower-level components of text which had not been discussed during the treatment.

The next question I was interested in was whether the participants perceived themselves as being more independent from feedback, which is another point that has to be considered when evaluating the participants' reactions towards the instruction provided. Question three in the retrospective questionnaire, "Now that the course has ended, do you feel you are more prepared than before to



improve your writing on your own?". was answered unanimously in the affirmative. When asked to explain why, the participants invariably reported that it was because of the parts of the course which focused on making them aware of L2 discourse conventions. In this respect, the following comments were representative:

"...because [the course] taught me to read the NS paper not only considering the subject but also the shape of the text..."

"Using the handouts [...] and the bibliography as a guide, I think that anyone who wants to improve both writing and reading [...] will be able to do it on his own."

"Now, all aspects of your course are considered when I am writing an English text. I think improvement [...] will be greater when I read the bibliography "

"[Because] I am sure I increased my attention and accuracy to writing, and my relation to the use of dictionary, Thesaurus and texts by NS."

"The handouts [...] will help us write papers in English. It is really good we can keep them"

The above comments clearly indicate that the participants tended to support their answers to question three by making explicit reference to the parts of instruction which sought to make them aware of target language discourse conventions, as opposed to other aspects of the course. That is to say, they seem to have preferred supporting the

claim that they feel better prepared to improve their writing on their own because of what they were able to learn from the course handouts, the course bibliography and the way in which they were encouraged to read NS texts, than because of other factors such as the opportunity given for them to practice reading, writing and revision. This not only reinforces the fact that the participants welcomed guidelines which helped them understand L2 discourse conventions, but also seems to strengthen my conclusion that increased feedback-independence is a likely outcome of instruction which specifically focuses on drawing the attention of skilled writers using L2 to target language discourse conventions. In addition to this, the fact that the participants made no spontaneous reference to the benefits of reading, writing and revision practice alone raises serious doubts about the validity of Raimes' (1987) suggestion that what these writers need most is simply further practice in writing process strategies (c.f. chapter two).

The discourse-oriented pedagogy tested therefore not only produced encouraging results in terms of its effects upon readability and feedback-independence, but also, from the analysis of the retrospective questionnaires, it appears that it scored high in terms of overall face validity. Unlike what skilled writers using L2 might think of process-oriented instruction, i.e., that it is redundant insofar as it teaches skills they already possess, the

present discourse-oriented instruction seems to have generated among the participants a general feeling of relevance, satisfaction and immediacy: they felt most aspects of the course contributed "a lot" to their learning, that learning about L2 discourse conventions facilitated more than constrained writing processes, and that, on the basis of what they had learned, in the future they would be better able to improve their texts on their own.

It is obvious, however, that like in all comparative educational experiments, the present results cannot, with confidence, be generalized to other teaching situations. This is even more so in view of the fact that in this study it was only possible to work with a very limited sample from a population of intermediate to high-proficiency skilled writers using L2, and that it was not possible to work with a control group. In the future, the present discourse-oriented approach to second language writing instruction therefore has to be tested again, and other second language writing pedagogies need be scrutinized in the light of research questions similar to the ones which motivated the present study. Still, it goes without saying that the present approach is likely to offer more than traditional product-oriented writing instruction, for the latter is known to have failed to address readability. In addition to this, while the present approach is likely to help learners rely less on external cues from the writing

teacher, to the present date there is yet no evidence that process-oriented approaches promote any increase in feedback-independence. The present attempt to study the effects of a discourse-oriented second language programme upon the ability of skilled writers to improve their written production therefore seems to have been genuinely worthwhile.

## 8.2 Implications for teaching

The urgency I expressed in developing writing pedagogies for skilled writers using L2 has meant that the present study greatly emphasised the expediency of practice. In this final section I will therefore go over a number of implications for teaching which are rooted on what the present study enabled me to learn about writing instruction for intermediate to high-proficiency skilled writers using L2.

To begin with, the effects of the discourse-oriented instruction provided upon readability and feedback-independence plus the participants' reactions to this type of instruction make me insist on the following two general recommendations:

a. Skilled writers of intermediate to high second language proficiency will benefit from second language writing instruction which focuses on making them aware of how L2 discourse is organized.

b. Because skilled writers using L2 are already skilled writers, the exercises in the classroom need not emphasize the development of writing process strategies.

As originally intended, the present study also enabled me to understand much more about the kind of instruction skilled writers using L2 might benefit from. Therefore, I now wish to make some further, more specific recommendations regarding what instruction for skilled writers using L2 should focus on. Because these recommendations were not actually tested in the course of this study - they were however derived from what it enabled me to learn - I cannot overly stress that my objective is not so much to invite indiscriminate acceptance, but to call attention to the need for them to be submitted to future investigation. I will begin by making a few suggestions on how to teach, after which I will discuss what to teach.

## I. HOW TO TEACH

To begin with, opting for the use of authentic materials seems to play an important role in ensuring ideal conditions for learning. For Smith (1982), learning takes place when there is "engagement" on the part of the learner at the time a "demonstration" of how something is done takes place. In the present study, the fact that the majority of the "demonstrations" in the course handouts were based on texts the participants themselves had written combined with the fact that the "demonstrations" regarding how native speakers normally organize discourse came from NS texts the participants themselves had selected seems to have automatically triggered their "engagement".

Also, when teaching about L2 discourse conventions, it seems important to make sure that they are introduced in a very gradual way. Otherwise, learners may find themselves overburdened by their own conscious efforts to incorporate those conventions. In the present study, at first the participants were only required to pay attention to one convention at a time (each time a new handout was presented), as opposed to all at once, to apply the conventions to texts they and their colleagues had already written (T1 and T2), as opposed to completely new texts (T4, T5 and T6), and with the aid of peer-feedback (T1 and T2), as opposed to completely on their own (T3). In the end, however, they seem to have been able to apply the globality of what they had learned both when writing (T4,

T5 and T6) and revising (T3) on their own, without feeling overburdened by the enormous amount of information regarding L2 conventions to which they had been exposed.

Another suggestion regarding how to teach is that it seems important to discuss the problems writers encounter in an **explicit** way. This recommendation is by no means novel. It is grounded on the Vygotskian thesis that conscious learning promotes development plus the interface position with respect to SLA adopted by Sharwood-Smith (1981). In the present study, it was seen that the revision changes related to what had been explicitly mentioned and explained in the classroom contributed more towards improved readability and increased feedback-independence than the revision changes indirectly related to the instruction provided. Krashen and Terrel's (1983) opposing view, i.e., that it is comprehensible input alone that contributes to second language acquisition, therefore seems less valid insofar as writing is concerned. Explicitness in the second language writing class can be said to help more than hinder inasmuch as writing "involves conscious operations [that] can be carried out at a far slower rate of processing than is possible in oral speech, and one can go over the product several times" (Luria 1982:166).

Finally, practising revision in pairs seems to be highly desirable too. As mentioned in chapter three, the participants had commented that it was easier to perceive

discoursal discrepancies in the texts by their peers because in those cases it was easier to decentre from subject-matter and pay more attention to language alone. Thus while the author benefited from being told what was discrepant in his text, his partner benefited from being given the opportunity to evaluate language separately from content. The present recommendation on the benefits of practising revision in pairs is again not particularly novel. It is in accordance with Jacobs' (1989) suggestion that revising with the help of peer-feedback - without the interference of the teacher - is an important step towards learning how to revise in the absence of feedback, and with Bartlett's (1982) claims on the advantages of working in pairs given that learners are less able to spot their own errors than errors by their peers.

## II. WHAT TO TEACH

The first suggestion regarding what to teach I wish to make is that analysing revision seems to be more basic to understanding L2 writers' needs than analysing the ways in which their end-products violate L2 conventions. Writing products only tell us which parts of text are good and which are bad, but tell us little about the language-specific difficulties that writers encounter during the process of writing. The analysis of revision, however, is able to offer insights into what such difficulties might



be, for it tells us whether the standards the writer applied in order to evaluate his emerging text in the absence of feedback were good or bad. That is to say, while writing products tell us only whether the result of the decisions writers were forced to make during the process of writing were good or bad, the analysis of revision enables one to access information regarding whether the decisions themselves were good or bad. Although there might often be a very close correspondence between the two, i.e., good decisions lead to good end-products and bad decisions lead to bad end-products, this is not always the case. A writer's (good) decision to rewrite what he perceived could be improved in his emerging text does not mean he will actually be able to generate a better final product: he may well be unable to rewrite his text in a better way. Similarly, a writer's (bad) decision to reject what was already appropriate in his emerging text does not necessarily mean that his final product will be worse: he may simply replace an appropriate element with another equally appropriate one.

The above does not imply that I am revoking the principles underlying my original conception of what instruction for intermediate to high-proficiency skilled writers using L2 should focus on. Understanding the ways in which the end-products of their writing violate L2 conventions is not irrelevant to the assessment of their needs. On the contrary, the present study has shown that this is probably

a good starting point. Understanding the language-specific difficulties encountered by these writers during the writing process, however, is a useful way of coming to a deeper understanding of problem-areas which both are and are not visible in writing products.

In the analysis of revision according to the taxonomy of qualification categories utilized in this study, the positive and consequential changes tell us not only that the writer made good decisions during the process of rewriting, but also that the outcome of those decisions was satisfactory. In other words, the standards with which the writer evaluated his emerging text were probably good, and he was able to apply those standards in a fully or partly successful way. The positive and consequential changes therefore probably tell us that the writer faced few or no language-specific difficulties during the process of rewriting. It is therefore on the revision changes qualified according to the remaining qualification categories that an analysis of writers' needs should concentrate.

The indeterminate changes simply tell us that teachers and learners must get together in order to discuss what the latter had in mind so as to find out whether or not those changes were positive or consequential, and hence whether or not the learners in question need help in those respects. The negative, unnecessary and necessary changes

tell us that the writer lacked standards with which to evaluate his emerging text inasmuch as he rejected appropriate or more appropriate elements in text and accepted inappropriate or less appropriate ones. Of these, the negative and unnecessary changes tell us that the writer was at least concerned with evaluating parts of his emerging text, even though the standards he applied were, in the case of the former, detrimental to the final product, and, in the case of the latter, probably deleterious to the overall revision process. The necessary changes, however, point towards where the writer's most basic difficulties lay, for they indicate that either the writer avoided revising, or that he was not even able to locate points in text which needed revision. In other words, necessary changes indicate that the writer accepted inappropriate elements in text without even realizing it, or at least without attempting to replace them with more appropriate ones. The ineffective changes, in turn, tell us that the writer already acquired some standards with which to evaluate his emerging text of insofar as he rightfully rejected what was not appropriate. He needs however to further develop his understanding of those standards so as to be able to replace the inappropriate elements he rejected with more appropriate ones.

To summarize, the analysis of revision according to the qualification categories of the system proposed enables one to identify many of the product-related difficulties that

writers encounter during the process of writing, some of which are not visible in their writing products. The analysis also enables one to grade such difficulties into three different levels: the necessary changes point towards the most acute of these difficulties, for they indicate that the writer either avoided dealing with or was totally unaware of certain problems in his text; the negative and unnecessary changes, in turn, indicate that the route towards proficiency is likely to be shorter, for at least the writer was consciously trying to improve his emerging text; the ineffective changes, in turn, indicate that second language development is probably well on its way, for they tell us that the writer has acquired some standards with which to reject inappropriate parts of text, even though he was unable to retrieve more appropriate linguistic resources with which to replace what he correctly perceived should have been rejected<sup>3</sup>.

The next suggestion I wish to make is that, as pointed out in chapter six, cross-references between the learning-insufficient observations and the categories for describing the revision of reading process and writing product can be especially useful when it comes to identifying the domains of reading process and writing product to which special attention must be given<sup>4</sup>. The participants who took part in the present study, for example, seem to be in particular need of further instruction which focuses on accuracy, for which the learning-insufficient observations were

significantly more frequent than the learning-sufficient ones. To determine then what exactly it is they need to learn in order to produce more accurate texts, the learning-insufficient observations pertaining to accuracy must be accessed from the viewpoint of writing product. In chapter six it was seen that the majority of learning-insufficient observations pertaining to accuracy had to do with linguistic form. Should these LIO in accuracy/linguistic form be mainly those which involve determiners, then instruction should give special emphasis to the use of determiners. If however those learning-insufficient observations pertaining to accuracy make cross-references with a whole series of different sub-categories of linguistic form, then it is more likely that what the learners need is a general course on English grammar.

It is obvious that future instruction should not focus exclusively on the reading process and writing product domains for which the learning-insufficient observations are more frequent than the learning-sufficient ones. After all, determining whether or not feedback-independence has increased has nothing to do with the amount of feedback that is still needed. It may for example be the case that learners whose feedback-independence in terms of coherence has increased still have a lot to learn about coherence in L2 before they can do without feedback. If this is so, then cross-references between the learning-insufficient

observations pertaining to coherence and the writing product categories should serve to identify what exactly it is that future instruction must address if it is to help learners ensure their texts cohere more. If the learning-insufficient observations pertaining to coherence relate back to a wide range of different writing product categories, then it is likely that what the learners need is a course which gives special emphasis to the variety of ways in which coherence can be conveyed to the reader. However, if those learning-insufficient observations are mainly those which involve sentence adverbials, then instruction should give special emphasis to the use of sentence adverbials. If the difficulties writers encounter with the use of sentence adverbials affect more than just coherence, instruction which focuses on sentence adverbials may consequently have a positive effect on other components of the reading process as well.

Thus to summarize, I am suggesting that instruction for skilled writers using L2 which focuses on the problems they encounter during the process of writing can be more efficient than instruction which only addresses the problems which are visible in their writing products. The writing process difficulties I am referring to are not so much typical writing process difficulties, i.e., those which originate from inadequate planning, writing and revising skills, but language-specific difficulties grounded on the fact that L2 writers sometimes lack

standards to evaluate their emerging texts, or lack the linguistic resources necessary to apply those standards successfully. Analysing revision can help identifying many of the language-specific difficulties that writers encounter during the process of writing, and examining those difficulties from the dual perspective of reading process and writing product can help selecting the right focus for future instruction.

### Notes to chapter eight

1. To encourage the participants to respond truthfully, they were explicitly asked not to write down their names on the questionnaire; the analysis is based on the responses by only seven of the eight participants because one of the participants was unable to attend the end-of-course session in which the questionnaire was given.

2. In section 2.4 I argued that an awareness of L2 discourse conventions was not likely to constrain writing processes given that writing-as-activity is something which takes place over time. This means that, unlike speakers, writers need not juggle with the possible constraints imposed by such an awareness at the moment of production; they can go over the product several times and use the permanent quality of written language to their advantage in order to rethink and revise their initial drafts in the light of L2 conventions. Luria (1982) has similar views on the matter.

3. At this point it seems once more appropriate to refer to Kellerman's (1983;1987) U-shaped behaviour second language acquisition thesis. Necessary changes seem to be related to Stage One inasmuch as they suggest that learners are unaware of certain differences between L1 and L2 which could lead to error. Negative and unnecessary changes seem to be related to Stage Two insofar as they suggest that learners are predicting that there are more differences than there actually are between L1 and L2, the result of which can lead to the rejection of appropriate or more appropriate forms. Ineffective changes seem to mark the beginning of the ascent towards Stage Three, for learners are starting to make predictions which are based on L2 standards, even though performance is not as yet target-like.

4. In the present study, only the negative, ineffective, unnecessary, necessary changes were considered to be signs of insufficient learning. However, had it been possible to recover information outside the revisions about subject-matter and intended meanings, the indeterminate changes could also be sorted out according to whether or not they were learning-insufficient. In analysing writers' needs, whenever possible, one should strive to sort out in this way the changes initially qualified as indeterminate.



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COURSE INFORMATION FILE

## A COURSE IN ENGLISH EXPOSITORY PROSE

## INFORMATION FILE

The course objectives

This course is for Brazilian researchers interested in publishing in English. It is assumed that you are already competent writers, who understand that an expository text must be logical, coherent and rigorous. It is also assumed that you possess a fair command of basic English grammar. The objectives of the course are therefore somewhat beyond these aspects of writing: the course will focus on the peculiarities of the discourse of English expository prose and some of the more advanced grammar that goes with it, which includes the ways in which sentences and paragraphs are connected to each other, the ways ideas can be emphasized, the overall readability of a text, etc.

Even if your texts in English are grammatically correct, they may still be heavily influenced by the way you are used to organizing texts in Portuguese, and by your not knowing enough about the special conventions of English discourse. This may seriously affect the comprehension of your texts by English-speaking readers because they expect your discourse to be in accordance with the conventions they are familiar with. The main objectives of the course are thus to help you perceive:

1. how your English-speaking counterparts organize discourse;
2. what in your own texts might violate the conventions of English expository prose;

and to teach you how to improve your writing by:

3. helping you reread your texts with English-speaking readers in mind;
4. helping you rewrite the parts of your texts which go against the conventions of English expository prose.

The course structure

The course will be divided into three parts. Part one will be very short. You will be simply required to write three short essay-type texts about a topic pertaining to your area of specialization. No instruction will be given at that time. Part two, being the main part of the course, will last about three times longer. The essays you produced in part one will be used to help you improve your writing. Finally, in part three you will be asked to write three more essays. They will help you practise what you have



learnt and will be used to check how much your written English has improved.

The course time-table

Mondays and Wednesdays, from 9:00 to 12:00. Begins next Monday and finishes at the end of October.

The course as an experiment

This course is an experiment in the sense that later on I shall be using your essays as data to analyse what has changed in your writing as a function of the instruction provided. Because this experiment has to be very carefully controlled, it is extremely important that:

- a. you attend all sessions of the course
- b. you do **not** attend any other course in English while the present course lasts

If you are unable to meet these requirements, you will not be allowed to attend.

The course materials

You are required to select **six** short articles or chapters from books about topics in your field which are written in English, by native speaker of English (British, American, Canadian, Australian, ect.) specialists, and about which you wish to write.

You should also bring with you to the classroom any dictionary or reference book you think you might wish to consult as you write, and your own writing equipment. The dictionaries, grammar book and a text-book on writing in English referred to in the course bibliography will be available in the classroom, but you are advised to purchase your own copies of those.

In addition to this, in you will eventually be given a series of handouts which will be specially prepared for the course.

RETROSPECTIVE QUESTIONNAIRE

## END OF COURSE QUESTIONNAIRE

1. On a scale of 1-5, where 1= very little and 5= a lot, how much have the following contributed to your learning?

	1	2	3	4	5
Reading NS texts					
Writing first three essays					
Writing last three essays					
The course handouts					
Revising your own texts					
Revising your partners' texts					
Revising on your own					
Revising with a partner					
The course bibliography					

2. Did the conventions discussed during the course in any way block (inhibit) your facility of writing? did they in any way make writing easier? Explain.

3. Now that the course has ended, do you feel more prepared than before to improve your writing on your own?

( ) YES

( ) NO

Use the space below to explain why.

APPENDIX III

SAMPLE PRE AND POST-TREATMENT DATA:

T1 to T6 Wilson

EARTH AS AN EVOLVING PLANET  
 WILSON

Wilson James

At the beginning, the primitive Earth was just a gas and dust homogeneous conglomeration belonging to the Solar system, 4.5 billion years ago. Within this system, the position of the primitive Earth was mostly controlled by the density and fusion point equilibrium of its own materials (as similar as to the other planets.)

Although this early Earth was relatively cool, at least three mechanisms started to heat up it: a) the impacting of planetesimals (meteorites) which converted their energy motion into heat; b) the gravity compression of the primitive Earth into a smaller volume; c) the denaturation of radioactive elements through the geological time.

Taking into account the bulk of the planet and the time of development of these processes, the most important of these mechanisms was the radioactive one which has been active until the present.

The available thermal models for the early stages of the Earth indicate that, about 1 billion years after the beginning of this heating, the temperature reached about 1500-2000°C, which caused the so-called "Iron Catastrophe". This episode corresponds to the formation of a heavy liquid layer within the Earth at depths between 400 and 800 km, which started to sink (like drops) toward the center of the Earth (this was controlled by the gravity). In consequence of this motion, which acted as a complementary heating parameter, large silicatic fraction of the Earth reached its melting point too.

At that time  $\rho$ , density, strongly controlled <sup>(again)</sup> the distribution of the materials within the bulk of the Earth <sup>(and at the end)</sup> leading to the so called planetary differentiation: the inner core, the mantle and the crust.

The core seems to be made up of Iron-Nickel compounds, the heaviest available materials of the Earth. The mantle is composed by heavier Fe, Mg silicate materials ~~comparing~~ to the light K, Na silicates and oxides from the crust.

In addition, the radioactive elements such as: U, K, Rb were concentrated within the crust due to their chemical affinities and to the differentiation. Because of the better conductivity of the rocks within the outside shell (i.e. the crust) the Earth started rapidly to cool and after that became a typical zoned stable planet.

(or has become?)

W. Fairman

U

★ WILSON

## SOME COMMENTS ABOUT THE EVOLUTION OF THE EARTH CONTINENTAL CRUST.

The crust corresponds to the outer shell of the Earth. At present, the most important documented geological processes has been developed within it. However, the origin of those processes is the mantle which ~~occurs~~ underlays the crust.

Regarding to the evolution of the continental crust the still open question is whether the primitive processes which took place on the early Earth (4.6 - 2.6 billion years ago) were similar to those occurring nowadays or if the type of evolution through geological time has been mostly homogeneous, without any significant <sup>change</sup> modification since 4.6 b.y. ago.

What can be established is that the decreasing of the Earth internal heat production through time (which is dependant on the radioactive elements) must be a factor ~~for~~ of the continental growth because the radioactive minerals ~~which~~ were concentrated within the crust after the differentiation phenomenon, leading to the progressive cooling of the Planet.

There are at least two main schools concerning on the continental growth through:

- the first proposal is that the continental crust growth was continuous and proportional to the decreasing of the Earth heat flow which is associated to ~~an~~ equilibrium on the rates of continental accretion and destruction (into the mantle).
- the other proposal is based on a higher continental accretion rate

during the first 2000 million years comparatively to recent periods (2) of the Earth. A complementary proposal suggests that some partial "shrinking" of previous formed crust might be occurred through the geological time.

~~Concerning to the style of the continental crust through time the Precambrian time there are significant differences~~

In addition, there are some significant differences of the styles of the continental crust generated during the Precambrian time:

In the Archean (> 2500 million years period) this crust is characterized by small fragments surrounded by folded supracrustal sequences. These are common features for the so-called Perambic period of the Earth, as described in many continents of the world.

In the Proterozoic period (2.5-0.57 billion years) the structures are typically linear and large <sup>masses</sup> dimensions of continental crust were accretionated. Most of these "linear zones" surrounds the primitive Archean fragments. Within these large platforms typical ordinary sequences, and igneous activity are found.

The dimensions of the crust in the Archean and Proterozoic periods, the differences of ~~the~~ structures, as well as the type of rocks supports, as a whole, the progressive changing of the geological processes during the ~~geological~~ time.



WILSON

At present, the Earth atmosphere is due to volcanic outgassing. However, the atmospheric conditions must have changed since the beginning of the planet's evolution.

As supported by direct measurements on volcanoes, the most important gases found in the atmosphere are  $N_2$ ,  $O_2$ , Ar and  $CO_2$ , plus different proportions of  $H_2O$ . Volcanic gases and the atmosphere have similar Ar/ $N_2$  ratios although  $H_2O$  and  $CO_2$  from volcanoes are more abundant.

Thus, the oceans were originated through the <sup>excessed</sup> outgassed water vapor which has condensed. In turn, most of the  $CO_2$  <sup>was</sup> dissolved in the ocean like calcium carbonate in limestones. However, a fraction of this  $CO_2$  is used in photosynthesis <sup>with which both</sup>  $H_2O$  and  $CO_2$  into carbohydrates. This process is concomitant with <sup>the</sup> oxygen-releasing.

During the early Earth, another kind of process <sup>referring to the photosynthesis</sup> (photo-dissociation) may have been important. This process is called photo-dissociation and caused oxygen-releasing by breakdown of water molecules by <sup>de</sup> ultraviolet light from the sun. A small fraction of the oxygen molecules is converted to <sup>as known</sup>  $O_3$  because the early Earth's gravity <sup>progressive</sup> field <sup>limits</sup> the releasing of the "heavy" oxygen molecules. The formation of an ozone outer "trap" tends to reduce the ultraviolet effect, and so photo-dissociation ~~is~~ corresponds to a self-regulating process in terms of further dissociation phenomena.

The ~~the~~ early atmosphere <sup>oxidizing conditions of</sup> may have depended as suggested by the photo-dissociation <sup>processes</sup> by the sedimentary rock record. The typical <sup>Archean</sup> Banded Iron Formation are thought to be deposited in marine environments (liberation of soluble  $Fe^{2+}$  state) but in the Proterozoic period the Red Beds sediments are <sup>quite</sup> common (increasing of oxidizing surface).

conditions. In addition, the existence of Uraninite and Pyrite in well known <sup>(2)</sup> the Archaean sedimentary rocks, both <sup>only</sup> formed ~~only~~ in reducing conditions ~~is~~, in connection with the increasing abundance of sulphate deposits since 2.5 billion years ago also support the ~~reducing~~ <sup>one</sup> gradation conditions of the geological evolution towards <sup>one</sup> more oxidising ~~conditions~~.

Concerning the precambrian life the earliest life-forms, as identified in Archaean sedimentary rocks, are the microfossils. If a reducing environment prevailed during the Archaean period, the strong ultraviolet radiation condition of that atmosphere ~~(which would have been limited the available~~ ~~organisms to live in deep water (that radiation destroys all of amino-acids).~~

The recent discovery of quite complex organisms in 3.5 b.y. rocks suggests that the photosynthesis may have started ~~with the Earth's evolution~~ at that time although some chronological variation can be expected because of the variety of ~~possible~~ geological phenomena which took place ~~in the history of the~~ during the Archaean Earth's evolution.

## Δ WILSON GEOLOGY OF THE MOON AND LUNAR ROCKS

The morphology of the Moon's surface can be described as a product of impacting cratering combined with volcanic activity, modified by erosional processes under vacuum-like conditions. The surface is mostly covered by ~~rock~~ pulverized rock debris and fragmented meteorite material, ~~which~~ ~~was~~ ~~has~~ been produced through impacting cratering during a long period of time. Moreover, the ~~shape~~ <sup>shape</sup> of the Moon's surface was <sup>eventually</sup> influenced by the lunar rocks which formed by cooling and crystallization of silicate materials. These rocks occur either as solid primary materials, or as the constituents of secondary rocks or regolith (several types of altered lunar materials). Widely dispersed in the ~~regolith~~ <sup>regolithe</sup> surface, are also many various varieties of impact-generated breccias which, sometimes, can form extensive and thick deposits.

According to the chemical characteristics, the lunar rocks are broadly comparable with the Earth's rocks and include basalts, diorites, gabbros and anorthosites. Three distinct groups have been distinguished ~~for the lunar rocks~~ based on both chemical analyses and age determinations carried out on lunar samples brought to the Earth:

The first group comprises the anorthosite-gabbroic rocks and high Al basalts, with ages in the range 4.6-4.0 b.y. The second group is characterized by the high K ~~basalts~~, P, REE basalts which were crystallized from 4.0 ~~and~~ to 3.8 b.y. ago. The third group comprises Ti, Fe rich basalts which solidified from 3.8 to 3.2 b.y. ago.

Despite of the few lunar rock samples available for ~~the~~ research a lot of progress has been reached in the knowledge of the evolution of the Moon. So, now we know that the first lunar rocks crystallized about 4.6 b.y. ago. In addition,

the rocks and their components crystallized under <sup>the</sup> complete absence of water, and this fact also indicates that there are no living or fossil organisms in the Moon's rocks. Thus, it can be established that

there are <sup>some</sup> significant differences between comparable rocks of Earth and Moon ~~specimens~~, consider <sup>of</sup> age variations and life-forms.

Finally, seismic and geophysical ~~studies~~ <sup>studies</sup> have ~~been~~ <sup>also</sup> ~~performed~~ <sup>performed</sup> during the Apollo exploration program. According to this research, the Moon is a ~~joined~~ <sup>joined</sup> planet ~~which can be divided~~ into a rigid crust (30-70 km thick), a thick solid mantle and a partially molten core. The crustal rocks must represent the products of both chemical and gravity separation (or "differentiation") from the upper mantle material. The core might be chemically similar to the lower mantle.

+ WILSON  
THE PLANET MARS

W. Peiser

This essay deals with the available information of Mars produced by the only two American space surveys to this planet. The first spacecraft was the Mariner 9 (1971/72) which took over 7300 pictures of the Martian surface seen from 30000 km. The most recent one was the Viking spacecraft which landed on Mars in 1976 for direct investigations on its surface.

The surface of Mars is shaped by meteorite impacts and by volcanic erosional and depositional processes. Although in some regions the surface is cratered like the Moon, the most typical features are the gigantic volcanoes and steep canyons. Moreover, the surface of Mars is characterized by features caused by wind erosion and sediment deposits ~~and some~~ channelled by fluid erosion.

In order to give an overview of the planet Mars, some of ~~the~~<sup>its</sup> features are described below:

Craters of impact origin are widespread over Mars, ranging from 1800 km in diameter and 4 km deep (e.g. the Argyre basin) to small craters. Most of these craters seem to be old as, suggested by their ~~shaded~~<sup>eroded</sup> shape with low rims and shallow interiors. The cratered terrain dominates the southern hemisphere and they also constitute about half of the equatorial region. The northern hemisphere reflects less cratered surface, but this shape is probably due to later volcanic and erosional processes.

The volcanoes are the most spectacular features of the Martian surface and the most remarkable ~~one~~ <sup>volcano</sup> is situated in the northern hemisphere. It is named Olympus Mons <sup>which</sup> ~~is~~ <sup>is</sup> made up of a pile of lavas 20 km high and 600 km in diameter. In turn, the southern hemisphere is characterized by smaller and more eroded volcanoes.

In both hemispheres, faults are common features of the Martian crust. Such features ~~are~~ <sup>have been</sup> interpreted as central fracturing ~~probably~~ probably due to tensional adjustment to vertical pressures which resulted from localized volcanic uplift.

Lastly, canyons are <sup>of similar</sup> vast dimensions in Martian surface, as exemplified by the Valles Marineris, about 2500 km long, near the equator of the planet. However, the main canyon is generally between 200 and 100 km wide and with depths of 5 km.

Finally, concerning the Martian geology, the available information has been tentatively assessed and mapped, based on physical and structural ~~the~~ characteristics deduced from the spacecraft photographs. Thus, the features recovered can be ordered and interpreted <sup>leading to</sup> ~~in order to~~ a reconstruction of the geological history of Mars. This subject will be my next essay which will also discuss the similarities of the Martian geologic scenery between with moon and Earth.

MARS COMPARED WITH EARTH AND MOON

U. Finken



WILSON

As we have seen in the second essay, the available knowledge of Mars suggests that it represents an intermediate planet in terms of geological evolution. So, Mars can be considered as a relatively primitive cratered planet, similarly to the Moon, but it <sup>also</sup> resembles the Earth by its active partially water-~~eroded~~ <sup>eroded</sup> crust, <sup>the</sup> volcanic activity and <sup>presence of</sup> atmosphere.

Like the Earth and Moon, Mars probably was affected by meteorite bombardment during its early evolution, about 4.0 billion years ago: some Martian terrains show <sup>the</sup> typical cratered features from this period of time. However, ~~unlike~~ <sup>unlike</sup> the Moon, the Martian evolution was much longer and complete, ~~resembling~~ <sup>resembling</sup> the Earth's <sup>one</sup> evolution, as demonstrated by <sup>the</sup> large volcanoes, lava plains and fault systems. Moreover, Mars seems to indicate <sup>some</sup> lack of crustal mobility (which characterizes the Earth's evolution) because the volcanoes are huge, the piles of lava are so vast and they accumulated in a few places over long periods of time.

The thin Martian atmosphere consists of Carbon dioxide (95%) Nitrogen (2-3%) and traces of water vapor, Argon and Oxygen. This atmosphere allows <sup>at</sup> some solar energy to be converted into wind velocity, despite the <sup>known motion</sup> surface pressure <sup>is</sup> of 7 millibars (very low if compared with the 1013 millibars of Earth's surface). Thus, <sup>unlike</sup> the Moon, the surface of Mars has the terrestrial-style wind erosion with weathering of rocks and formation of sedimentary rocks. In addition, the erosional

activity of water on Mars is also suggested by <sup>both</sup> oxidation of surface rocks; and by existence of various surface channels, although it is unknown the ~~time~~ duration of the water processes. These channels are similar to those water-eroded features on Earth's surface. Above all of this, Mars probably still contains large quantities of water in the form of "permafrost" (frozen water) beneath its surface.

Finally, the photographs taken from ~~the~~ Viking Lander spacecraft showed that Martian surface is similar to many rocky, partially sand-covered terrestrial deserts. Chemical analyses performed on the Martian surface materials suggested ~~that~~ the presence of Iron rich basaltic lavas ~~(rocks)~~ which are comparable with Earth's volcanic rocks. The observed red color of rocks and soil in the surface of Mars is probably due to oxidation of Iron bearing minerals. <sup>Lastly,</sup> No. life has been detected until now.



COURSE MATERIALS

## COURSE BIBLIOGRAPHY\*

1. HAMP-LYONS, L. & HEASLEY, B. (1987). Study writing. Cambridge: Cambridge University Press.

This is probably one of the best didactic books on writing in academic English available in the market. The sections on "Using Grammar in Writing" contain very useful hints, and it is a book which you can often use on your own, without a teacher's assistance.

2. LEECH, G. & SVARTVIK, J. (1975). A communicative grammar of English. London: Longman.

This grammar book is both accurate and straightforward. It is a very handy reference book to have by your side when last minute doubts about English grammar arise.

3. Collins COBUILD English Language Dictionary. (1987).

Although this appears to be just another dictionary, it is in fact an extremely useful reference book for non-native speakers of English: it contains very clear definitions; there are plenty of examples that show words in context; and, most important, it tells you how to fit words in the grammar of sentences. Unlike most other dictionaries, the COBUILD makes you feel confident about using new words for the first time. It is highly recommended.

4. Roget's Thesaurus. (various editions available).

The Thesaurus is a dictionary of words of related meaning. More specifically, it supplies you with verbs, adjectives, adverbs, nouns, etc. which are semantically similar. It is easy to use and can often help you find the exact word you are looking for. Unlike the COBUILD, however, it does not provide you with definitions or with the grammatical context of words. It is therefore advised that you use the two together.

\* The above books are available in Livraria Cultura, Conjunto Nacional

## 1. PRIMING

If you prime a reader, you prepare him for what is going to come up in your text. Priming is one of the main factors of readability and clarity in English expository prose. Below are a few examples of different levels of text at which a reader can be primed.

1. Whole text

You can prime the reader for the text as a whole by telling him what the text is going to be about in the very beginning of the text, e.g.:

a. "The purpose of this report is the preparation of mesophases..."

b. "This paper seeks to give guidelines for the reception of inbred strains and the establishment of their authenticity..."

What do you think these texts are going to be about?

2. Paragraph

You can prime the reader for the next paragraph by using its first sentence to indicate what the rest of the paragraph is going to be about, e.g.:

a. "In recent studies of intestinal ischemia, however, we have found..."

b. "Compression also leads to temperature rise."

What do you think these paragraphs are going to be about? What is their connection with the preceding text?

3. Sentence

You can prime the reader at the level of the sentence by starting it with the topic of the sentence, e.g.:

a. To the north of Sao Paulo, lies Rio de Janeiro.

b. Rio de Janeiro lies to the north of Sao Paulo.

What is sentence (a) primarily about? And sentence (b)?

4. Within sentence contrast

You can prime the reader for different types of contrast within the sentence by using constructions such as:

a. Although X....., Y.....

b. Whereas X....., Y.....

c. While X....., Y.....

5. Within sentence adding

You can prime the reader for an additional piece of information within the sentence by using constructions such as:

- a. X is both Y and Z.
- b. X is not only Y, but also Z.
- c. X is either Y or Z.
- d. X is neither Y nor Z.

Now go over texts by NSs of English and take notes of examples of priming at the various levels we have discussed.

## 2. THE GIVEN-NEW PRINCIPLE

The given-new principle is related to the semantic status of the information contained in a text.

Given is what has already been mentioned in text or what the writer assumes the reader already knows.

New is what has not yet been mentioned in text or what the writer assumes the reader does not know.

According to the given-new principle, given information comes **before** new information. In other words, sentences and paragraphs start with what the reader already knows and finish with what he is being told for the first time. The given-new principle is fundamental to the discourse of English expository prose: it has to do with both priming and the linear progression of ideas in text. These factors greatly contribute to readability. The given-new principle is so powerful that it almost determines the ideal order of paragraphs in a larger stretch of text, the order of sentences in a paragraph, and whether a sentence is to follow the normal order or whether there will be an inversion.

Although it is relatively easy to change paragraphs and sentences around without affecting grammaticality, it is not always easy to invert the order of words in a sentence. Below are a few examples of ways in which you can do this:

1. Complex sentences

- "The results are inconclusive because of uncontrolled variables."
- "Because of uncontrolled variables, the results are inconclusive."
- "Genetic monitoring techniques can normally establish which strain was involved if a genetic contamination is suspected."
- "If a genetic contamination is suspected, genetic monitoring techniques can normally establish which strain was involved."

2. Simple sentences

- "We need more time"
- "It is more time that we need"
- "More time is what we need"
- "The results were obtained by chance"
- "It was by chance that the results were obtained"

The extracts on the following page violate the given-new principle. They also contain some grammar mistakes. How would you rewrite them? If necessary, consult the authors in brackets for clarification.

APPENDIX IV

1. "Lung diseases are responsible for a considerable part of the morbidity and mortality of man [...] In developed countries the environmental contaminants and occupational exposure to toxic volatile solvents are ranked at the top of the list of leading respiratory diseases and injuries." (CIDA)
  
2. "Although this early Earth was relatively cool, at least three mechanisms started to heat up it: [a)...b)...c)...]  
"Taking into account the bulk of the planet and the time of development of those processes, the most important of those mechanisms was the radioactive one..." (WILSON)
  
3. "...a genetic monitoring program needs to be established beginning with basic cares of the colony.  
"The correct nomenclature of the strain asked by the users is a beginning of some guarantee for the quality of the animal received." (SILVIA)
  
4. "Syntheticmembranes has been used as models to study certain properties of life membrane [...] Deuterium Nuclear Magnetic Resonance (2HNMR) is the used technique." (ELISA)
  
5. "One of the most recent hypothesis about cellular death concerns with the experimental results from many authors that have shown that cells treated with many etiologic agents develop an increase in intracytoplasmatic Ca++ levels. They correlated this increase with irreseversible cell injury." (SILVIA)

## 3. SENTENCE-COMPLEXITY

Sentence complexity is related not only to the overall grammatical structure of text, but also to readability and meaning. Unlike poetry or other literary genres, sentence-complexity in English expository prose is more or less predictable:

Complex sentences (sentences which contain subordination) tend to be used to express relationships between ideas.

Simple sentences (single subject, single verb sentences) are normally used to introduce a new idea or emphasize a point.

This conventional blend of simple and complex sentences in text contributes to overall readability because it is an indirect way of letting the reader know which ideas are new or central to text, and which ones are complementary or subsidiary. If you compare your own English texts with those by your native speaker counterparts, and feel you are using complex sentences inappropriately, it is likely that English-speaking readers will find your texts somewhat confusing. If, on the other hand, you have been (wrongly) told to keep all your sentences short and simple, it is possible that your texts will sound boring and choppy. Lastly, if you think your English is influenced by how you organize texts in Portuguese, remember that the tolerance for complex syntax is apparently greater in Portuguese. In other words, you should be especially careful with sentences that contain too much subordination when you are writing in English.

To deal with this, you can rewrite overly complex sentences by splitting them into more than one sentence, by using parallel syntactic constructions, and even by listing items of equivalent semantic status. For example:

a. (confusing)

"Macrophages are an heterogeneous population of cells which involvement with a variety of inflammatory and immunological states largely depends upon their bone-marrow origin, rapid hematogenous distribution, capacity to move through tissue spaces, and, enhanced phagocytic microbicidal function."

a. (less confusing)

Macrophages are cells of a heterogeneous population, whose involvement in a variety of inflammatory and immunological states largely depends on the following four factors:

- their bone-marrow origin;
- their capacity to move through tissue spaces;
- a rapid hematogeneous distribution;
- an enhanced phagocytic and microbicidal function.

b. (confusing)

"Similar studies with ovalbumin demonstrate that animals immunized with this antigen in Freund's incomplete adjuvant (FIA) develop an enhanced DHT reaction, showing that not only after epicutaneous application but also after inoculation of soluble antigens the enhancement of DHT response occurs."

b. (less confusing)

Similar studies with ovalbumin demonstrate that animals with this antigen in Freund's Incomplete Adjuvant (FIA) develop enhanced DHT reactions. The studies indicate that the enhancement of DHT response occurs not only after the epicutaneous application, but also after the inoculation of soluble antigens.

The sentences below are also confusing and contain some mistakes. Try to rewrite them with the sentence-complexity issue in mind. If necessary, consult the authors in brackets for clarification.

1. "The fact that treatment with fungicidal drugs can revert this picture reparating the cellular immunity of the patients is in agreement with the idea that those immunodepression is not inherit to the host but caused by circulating fungal elements possibly inducing alterations in the immunological system of the host." (HENRIQUE)

2. "It seems that Ts cells require another distinct cells to be induced, which lack the lyt-2 antigen and resemble Th lymphocytes but have Qa-1 and I-J antigens in its surface." (GUSTAVO)

3. "It is possible to find a mild degree of hemolysis even though there is no 'in vitro' evidence of sensitization, concluding that most, if not all ABO incompatible infants have some degree of hemolytic disease." (THELMA)



## 4. CONNECTIVES

In English expository prose, very little room is usually left for the reader to infer the relationship between sentences and paragraphs. That is to say, this is primarily the author's responsibility, who must try to tie up sentences and paragraphs in a very clear way. Connectives are words or expressions which tell the reader how ideas are held together in text. Also, they often serve to convey the author's opinion.

There is a large inventory of connectives in English, some of which are synonymous. You should make an effort to use them as much as as variedly as possible if you want your texts to be fluent, clear and non-repetitive. Connectives which come in the beginning of sentences are usually followed by a comma; connectives which come in the middle of a sentence are usually set off by a pair of commas.

The list of connectives below might be useful to you. They are grouped according to similarity of meaning, but not all of them are interchangeable. For more information about their use, it is advised that you consult the COBUILD.

## 1. LISTING

1.1 When listing without a particular hierarchy:

First(ly),.....;second(ly),.....;third(ly)....ect.  
To begin with...;then,.....; finally,.....  
To start,.....;next,.....; to conclude.....

1.2 When a list starts with the most important element:

First and foremost.....  
First and most important.....

1.3 When a list ends with the most important element:

Above all.....  
Last but not least....

## 2. ADDING

2.1 Adding information that gives further support to what has been previously stated:

Also - Furthermore - Further - Moreover -  
Besides - What is more - In addition

2.2 Adding information which is similar to what was said before:

Again - Likewise - Similarly - Correspondingly

2.3 Adding information within the same clause:

Positive: X is both Y and Z  
X is not only Y, but also Z  
Negative: X is neither Y nor Z  
Alternative: X is either Y or Z  
X is Y or Z

- 2.4 Adding information which confirms or makes a concession about the truth of a previous sentence:  
 Indeed (+ confirmation)  
 True (+ concession)  
 Actually - In fact - In reality (confirmation/  
 concession)
3. CONCLUDING OR GENERALIZING  
 In conclusion - To conclude - To sum up (briefly) -  
 Summarizing - In brief - In short
4. EXPANDING
- 4.1 By means of neutral examples:  
 e.g. - For example - For instance - Such as - Including
- 4.2 By drawing attention to important features or examples:  
 Notably - Chiefly - Mainly - Mostly - Particularly - In  
 particular - Especially
- 4.3 By specifying:  
 viz - namely
5. REFORMULATING  
 i.e. - That is - In other words - To put it differently
6. EXPRESSING CAUSE/CONSEQUENCE  
 So - Thus - Therefore - Hence - Consequently - In  
 consequence - As a result of - Because of - Accordingly
7. EXPRESSING CONTRAST  
 Instead - Rather - Conversely - In comparison - On the  
 contrary - (on the one hand) on the other hand
8. MAKING A CONCESSION  
 However - In spite of - Despite - Nevertheless -  
 Nonetheless - Notwithstanding - Still - Yet - Although -  
 At any rate - In any case - All the same - Even though

Now skim through an article by a NS and use the COBUILD to make sure you grasp the **exact** meaning of the connectives he or she makes use of. You should also pay attention to **how often** and **where** your NS counterparts use connectives.

## 5. THE USE OF COMMAS

You may have already noticed that, in English, writers use much fewer commas than in Portuguese. Because the inappropriate use of commas was a very common feature of your texts, below are some general guidelines to orient you:

1. Use a comma to separate two or more **independent** parts of the sentence which are joined by AND, BUT, OR, NOR or FOR:

- Most young Europeans spend their holidays in other European countries, and many students take vacation jobs abroad.
- "I do not think we can conclude that dissent leads to counter-revolution, but it seems certain that dissent in itself does not constitute a revolution."
- "This silence is not surprising, for in those circles Modernism is still regarded with suspicion."

2. If, however, the independent parts of the sentence are short and clarity is not at stake, the comma before AND, BUT, etc. may be omitted:

- John arrived early and Mary came an hour later.

3. Do not use a comma before AND, BUT, etc. when what comes after these conjunctions is not independent (when the subject of the second part of the sentence is the same as that of the first part of the sentence):

- "They injected  $10^5$  MHT-1 cells in Balb/e mice and subsequently mixed their spleen cells with spleen cells from animals primed with BIO.02."
- "They do not attempt to condemn such societies but attempt to refute them theoretically."

4. Use commas to set off elements of the sentence which can be removed without changing meaning:

- "The kinetic energy of a fluid, due to its motion, is customarily measured with respect to the Earth's surface, which is assumed to have zero velocity."

5. Do not use commas to set off elements without which the sentence becomes untrue:

- "We shall confine our discussion to specialized respiratory systems which involve only a part of the body."

6. Use a comma before a subordinate clause when it comes before the main clause in the sentence:

- "Although this early Earth started to cool rapidly, at least three elements started to heat it up."

7. Use a comma before a long adverbial if you are fronting it for emphatic purposes:

- After spending a week in conferences, the commission was able to write a report.

8. Use commas to prevent ambiguities:

- From the British, educated Indian learned the principles of parliamentary democracy.

9. Use commas to set off comment adverbials:

- Indeed, everything happened as expected.
- His claim, therefore, cannot be verified.

10. Use commas to separate a series of adjectives that describe:

- He is a tall, fat, foreign-looking man.

11. Do not use commas to separate a series of adjectives that identify:

- The tall fat man ordered a pint of beer.

These guidelines are not exhaustive, and some of the suggestions are not based on grammar rules. They do, however, help clarifying meaning. Be especially careful with the following **inappropriate** uses of commas, which were persistent in your essays:

a. The use of a comma without a conjunction to link independent clauses. Usually the two go together (c.f. #1).

b. The use of a comma to set off a long adverbial at the end of the sentence. Usually this is only done when the adverbial comes at the beginning of the sentence (c.f. #7).

c. The use of commas to set off elements without which the sentence becomes untrue. In such cases commas must not be used (c.f. #5).

d. The excessive use of commas in general due to unnecessary inversions. Do not make so many inversions if "priming" or the "given-new principle" are not at stake (c.f. #6).

## 6. CERTAINTY AND COMMITMENT

In English expository prose, the author's reasoning and his commitment to the ideas in text are extremely important. Texts which focus on facts but neglect opinions tend to sound inconclusive in the eyes of English-speaking readers. As English-speaking writers report on facts, there is a strong tendency for them to convey their comment on them too. It is obvious that the strength of such comments must vary if the author is to write truthfully. He may sometimes wish to say something is 100% certain, and sometimes he may simply wish to make a very weak assertion. Some of the language resources which can be used to vary the degree of certainty and commitment in English are listed below:

1. Non-controversial evidence (impersonal commitment, usually backed by quoting references)

It is said that...  
 It is known that...  
 There is evidence to suggest that...  
 Recent findings suggest that...  
 According to studies in...

2. Irrefutable evidence (complete commitment)

VERBS	ADVERBS
is	certainly
will	definetely
must	clearly
has to	undoubtedly

3. Strong evidence (strong commitment)

VERBS	ADVERBS
can	probably
could	likely
should	presumably

4. Partial evidence (less strong commitment)

VERBS	ADVERBS
may	possibly
might	perhaps
seems to	
appears to	

The general pattern with respect to commitment and certainty in English expository prose is as follows:

a. The author generally starts a text by being impersonal about facts and relies a great deal on evidence which is non-controversial.

#### APPENDIX IV

b. After that, the author frequently presents specific evidence from his own work or the work by others. His opinion on the strength of such evidence must be made clear.

c. The author tends to conclude his text by giving a personal account of his own interpretation of facts. He must again be careful about his degree of commitment, which depends on the strength of the evidence presented.

Go over the articles you have read and pay particular attention to examples of commitment. Underline the examples you read and discuss with a partner the strength of the assertions underlying them.

## 7. SYNONYMS AND REFERENCE

You probably know that synonyms are used to avoid excessive repetition. You must be very careful to do this when you are writing articles in English, for synonyms are often the cause of serious ambiguities. While words with a general meaning can indeed make a text sound boring if repeated too often, terminologies which are being used in a very specific sense can make a text ambiguous if you use synonymous words to make reference to a single entity. In other words, if you have started referring to a specific entity by a particular name and then switched to a synonym to avoid repetition, English-speaking readers might be led to think you are using the synonym to refer to a somewhat different entity. English-speaking authors do **not** attempt to avoid repetition in these cases; on the contrary, they tend to use the same terminology throughout the text to make sure there is no room for misunderstanding. This kind of repetition is not a sign of poor style in English expository prose.

The tolerance for this type of repetition, however, varies according to where and how often a particular word or phrase or clause appears in text. For example, you will not want to repeat a term in the same sentence or in sentences which are very close to each other. In such cases, you can\*:

## a. substitute nouns for pronouns

"My brother was wearing a raincoat. He didn't get wet."

"Have you seen my cigarettes? I feel like somoking one."

"I'd like some paper if you have any"

"Some of the equipment has been damaged, but none was lost"

"The plumage of the male pheasant is far more colourful than that of the female."

## b. substitute verbs and verb phrases for do

"He cooks as well as she does."

"He arrived late but she didn't."

## c. substitute clauses for so

"John hasn't found a job yet. He told me so."

\* see Leech and Svartvik (1975)

While substitution is useful when making reference to a single entity in the same or adjoining sentences, you should be aware that it also has limitations. If you have not made reference to a word or phrase or clause for a while, you must make sure it is repeated in full the next time you mention it. To decide whether to substitute or repeat a term, you must consider its distance from the last point of reference, and, just as in Portuguese, whether there are any entities "in between" which could change the object of reference.

## 8. WORD ORDER AND ADVERBS

Unlike Portuguese, the order of words in English is very rigid. Most simple affirmative sentences obey the following order:

Most simple affirmative sentences obey the following order

SUBJECT	VERB	OBJECT
S	V	O

The above order is normally maintained unless:

1. Special emphasis is given to something other than the subject, in which case whatever is being emphasized is usually fronted:

- Never has such a reaction occurred.

2. The given-new principle does not coincide with the normal SVO order, in which case whatever is given is usually fronted:

- The department has many administrative problems. These problems a computer could easily solve.

The most tricky aspect of word order, however, has to do with the position of adverbs. The placing of adverbs within the sentence depends on various factors. To understand this, you must first learn to distinguish between comment and descriptive adverbials.

Comment adverbials convey the writer's comment or are used to link paragraphs, sentences and clauses. They are peripheral to the sentence structure and are usually set off by commas. They often come in the beginning of the clause:

- "...it is not prudent to limit our discussion only to the release of iron from ferritin. However, ferritin iron constitutes the largest single pool of iron within cells."

Descriptive adverbials describe the time/place/manner/etc. of an action/state/happening. They are intrinsic to the sentence structure and are not usually separated by commas. Their position varies according to length, emphasis and type. When descriptive adverbials are long (i.e. a long adverb phrase), they normally come at the end of the sentence. If you want to emphasize them, you can bring long adverbials to the beginning of the sentence and use a comma to set them off. When you want to emphasize other adverbials, you can also bring them to the beginning of the sentence, but in most such cases you don't use a comma. When descriptive adverbials are not long and you do not really want to emphasize them, then they should come at the end or the middle of the clause\*, and what helps you decide between the two is their type.



\* END means **after** the **object**:

- He wrote the article yesterday  
                   O                  adv

\* MIDDLE means **after** the verb **be** (V = be):

- He is never late.  
       V   adv

\* MIDDLE also means **before other verbs** (V = be):

- He never writes  
       adv      V

\* MIDDLE also means **between auxiliary and main verb**:

- He has never written  
       aux  adv   V

## TYPE OF ADVERB

	POSITION OF ADVERB	
	MIDDLE	END
<u>Place</u> :-----	-----	-----X
in Brazil, outside, to the north, there, etc.		
<u>Manner</u> :-----	(with passive)-----	-----X
microscopically, by analysis, carefully, slowly, etc.		
<u>Degree</u> :-----	-----	-----X
thoroughly, barely, scarcely, intensively, greatly, etc.		
<u>Specific time</u> :-----	-----	-----X
last week, in 1980, yet, yesterday, etc.		
<u>Duration</u> :-----	-----	-----X
for three days, since 1987, the whole night, etc.		
<u>Definite frequency</u> :-----	-----	-----X
weekly, hourly, everyday, etc.		
<u>Indefinite frequency</u> :-----	-----	-----X
often, occasionally, frequently, sometimes, etc.		
<u>some position free adverbs</u> : now, then, recently, once, lately, etc.		

REVISION DATA

CIDA

(pre-treatment final-draft)

Present Concepts on the Mechanismes of Platelet Aggregation

Platelets are the smallest annucleated cells that [1] PLAYED an important role [2] AS in physiological process [3] NAMED Heamostosis [2] AS in pathological deviation [4] CALLED Thrombosis. For [5] BOTH [6] PROCESS [7] PLATELET ACTIVATION AND [8] SUBSEQUENTLY AGGREGATION [9] [9.1] IS NECESSARY TO OCCUR [10] AND [11] ENVOLVES a sequence of morphological and functional changes. [12] The first [13] STEP in platelet aggregation is [14] AT MEMBRANE LEVEL [15] AND [16] REQUIRES ENERGY PROVIDED by [17] intact metabolic process.

[18] During the aggregation [19] release reaction of intra-granular substances occur and serotin, calcium, ADP and [20] ARACHIDONIC ACID METABOLITES are released.

The first pathway of aggregation [21]ADP [22] IS ACCEPTED TO BE RESPONSIBLE FOR the first pathway of aggregation. [23] WHEN ADP IS ADDED TO [24] platelet rich plasma of human, guinea pig and beagle dog a typical [24.1] BIPHASIS curve of aggregation [24.2] IS OBTAINED. [25][25.1] SOME DRUGS AS indometacin, aspirin, and others non-steroidal anti-inflammatory drugs (NSAID) [25.2] CAN INHIBIT [25.3] ADP INDUCED PLATELET AGGREGATION.

The second pathway of aggregation

(post-treatment revision)

Present Concepts on the Mechanisms of Platelet Aggregation

Platelets are the smallest annucleated cells that [1] PLAY an important role [2] BOTH in A physiological process [3] - Heamostasis [2] AND in A pathological deviation [4] - Thrombosis. For [5] THE ABOVE [6] PROCESSES [9][9.1] IS NECESSARY [7] THE ACTIVATION AND [8] AGGREGATION OF PLATELETS [10] WHICH [11] ENVOLVE a sequence of morphological and functional changes.

[12] The first [13] REQUISITE in platelet aggregation is [14] THE MEMBRANE INTEGRITY [15] WHICH [16] IS MAINTAINED by [17] AN intact metabolic process. [18] During the aggregation [19], A release reaction of intra-granular substances occur A and serotin, calcium ADP and [20] METABOLITES OF ARACHIDONIC ACID are released.

The first pathway of aggregation [21] The first pathway of aggregation [22] IS TRIGGERED BY ADP [23] WHICH [24][24.2] GIVES a typical [24.1] BIPHASIC curve of aggregation in platelet rich plasma of human, guinea pig and beagle dog. [25][25.3] THIS PATHWAY [25.2] IS INHIBITED BY [25.1] indometacin aspirin and others non steroidal anti-inflammatory drugs (NSAID).

The second pathway of aggregation It is [26] DEPENDENT OF ARACHIDONIC ACID, more precisely thromboxane A2

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It is [26] ARACHIDONIC ACID DEPENDENT, more precisely thromboxane A2 (TXA2). This pathway can also be inhibited by NSAID which deactivate the cyclooxygenase enzyme responsible for TXA2 formation.

The third pathway of aggregation [27] THIS PATHWAY is [28] PAF-ACETHER DEPENDENT and independent from the others mechanisms. It means that it is not inhibited by the drugs [29] DESCRIBED FOR the two formerly pathways.

(TXA2). This pathway can also be inhibited by NSAID which deactivate the cyclooxygenase enzyme responsible for TXA2 formation. 9

The third pathway of aggregation [27] IT is [28] DEPENDENT OF PAF-ACETHER and independent of others mechanisms. It means that it is not inhibited by the drugs [29] WHICH ACT ON the two formerly pathways. 7, 10, 11, 12, 13

DO NY

(pre-treatment final draft)

The [1] POSMODERN condition:  
comments on a foreword

When "La Condition Postmoderne" [2] APPEARED in France [3], in 1979, it provoked a lot of reviews [4]. Jean-François Lyotard [5], [6] by that time, [7] WAS [8][9] A QUITE important philosopher in the european scene, [10] WITH RATHER common similarities with Cornelius Castoriadis and Gilles Deleuse. Lyotard [11] WAS [12] CONSIDERED as a philosopher with a strong influence of Nietzsche and his "active nihilism" [13] ON TRYING TO accelerate the decadence of the idea of "truth" [14], WHICH [15][16] HAS BEEN dominating Western minds [17].

[18] On his book, he [18.1] DISCUSSES the [18.2] QUESTION of legitimation and the status of justice in contemporary world. But, more than these, his book is about [19] standing of science [20] AND technology [21], OF technocracy and [22] the control of knowledge and information today. [23] It is a confluence of different themes intersected by controversial analogies.

In the United States edition, printed by [24] University of Minnesota Press, [25] IN 1984, his book [26] HAS a foreword [27] FROM [28] one of the most outstanding marxist literary critic from [28.1] THERE: Frederic Jameson. On writing his foreword, Jameson makes some good comments, emphasizing the importance [29] of the [30] PUBLISHING OF THE BOOK.

(post-treatment revision)

The [1] POSTMODERN condition:  
comments on a foreword

When "La Condition Postmoderne" [2] WAS PUBLISHED in France [3] in 1979, it provoked a lot of reviews [4] IN MANY WESTERN COUNTRIES. [6] By that time, Jean-François Lyotard [5] - ITS AUTHOR - [7] WAS [8] ALREADY CONSIDERED [9] AN important philosopher in the european scene, [10] WHOSE THOUGHTS WERE MENTIONED TO HAVE common similarities with Cornelius Castoriadis and Gilles Deleuse. Lyotard [11] IS [12] ALSO MENTIONED as a philosopher with a strong influence of Nietzsche and his "active nihilism" [13], WHICH IS CHARACTERIZED BY AN ATTEMPT TO accelerate the decadence of the idea of "truth". [14] THIS IDEA, [15] IN NIETZCHE'S OPINION, [16] HAD BEEN dominating Western minds [17] FOR MANY CENTURIES.

[18] He [18.1] DEVELOPS THIS "ACTIVE NIHILISM" BY DISCUSSING on his book the [18.2] POSITION of legitimation and the status of justice in A contemporary world. But, more than these, his book is about [19] THE standing of science [20], technology [21] AND technocracy and [22] ALSO ABOUT the control of knowledge and information today. [23] TO SUM UP It is a confluence of different themes intersected by controversial analogies.

In the United States edition, printed by [24] THE University of Minnesota Press, [25] 1984, his book [26] HAD a foreword [27] BY [28] Frederic Jameson, one of the most outstanding

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He [31] TRIES to prepare the [32] reader by [33] EXPLAINING [34] the relationship between Lyotard's and Habermas' [35] IDEAS. [36] FOR [36.1] HIM, [36.3] ONE OF THE MOST IMPORTANT DISCUSSION IS the crisis of legitimation, [36.4] WHICH SEPARATES BOTH AUTHORS. [37] FOR Lyotard, [38][39] THIS LEGITIMATION can not be solved [40] WITH the "consensus" as Habermas believes because the invention [41] happens in "dissensus" [42]. Hence, [43] Lyotard, as Jameson observes, will not agree with "Habermas' vision of an evolutionary leap into a new type of rational society, defined in communicational terms as the communication community". Better than in "consensus" [44] Lyotard [45] WILL BE interested in Austin's "language games" [46].

[47][48] FOR COMBAT [49] THE EXPRESSION "POST-INDUSTRIAL SOCIETY", Jameson [50] WILL USE the marxist economist Ernest Mandel, who says that "late capitalism, far from representing a post-industrial society, thus appears as the period in which all branches of the economy are fully industrialized for the first time".

marxist literary critic from [28.1] THIS COUNTRY. On writing his foreword, Jameson makes some good comments, emphasizing the importance [29] ITSELF of the [30] BOOK PUBLISHING.

^ He [31] INTENDS to prepare the [32] BOOK'S reader by [33] POINTING [34] NEXT the relationship between Lyotard's and Habermas' [35] THOUGHTS, [36] WHO CAN BOTH BE CONSIDERED [36.1] IN [36.2] JAMESON'S OPINION, [36.4] IN OPPOSED SIDE IN THE DISCUSSION RELATED TO [36.3] the crisis of legitimation. [37] IN Lyotard, [38] HE OBSERVES, [39] THIS CRISE OF LEGITIMATION can not be solved [40] BY the "consensus" as Habermas believes because the invention [41] - AN IMPORTANT DEVELOPMENTAL RESOURCE - happens in "dissensus" [42] AND NOT IN "CONSENSUS". Hence, [43] as Jameson observes, Lyotard will not agree with "Habermas' vision of an evolutionary leap into a new type of rational society, defined in communicational terms as the communication community". Better than in "consensus" [44], Lyotard [45] IS interested in Austin's "language games" [46] WHICH PROVOKES A DIVERSITY OF POSSIBILITIES, NOT A CENTRALIZATION OF THE DISCOURSE AS THE IDEA OF CONSENSUS DOES.

[47] ANOTHER ASPECT OBSERVED BY JAMESON IS THE EXPRESSION "POST-INDUSTRIAL SOCIETY" USED BY LYOTARD TO DESCRIBE THE CONTEMPORARY WORLD. [48] ON COMBATING [49] THIS EXPRESSION, Jameson [50] USES the marxist economist Ernest Mandel, who says that "late capitalism, far from representing a post-industrial society, thus

appears as the period in which all branches of the economy are fully industrialized for the first time".

## ELISA

(pre-treatment final draft)

Lyotropic Nematics: Type I DM and Type II CM

### 1. Introduction

Lyotropic Nematic phases have been [1] described as Type I CM and Type II DM. [2][2.1] Type I and Type II [2.2] CHARACTERIZE the anisotropy of the diamagnetic susceptibility ( $D_x$ ); for  $D_x < 0$  the mesophase director [2.3] ORIENTS perpendicular to the magnetic field. [3][4] THE DISK SHAPE AND THE CYLINDRICAL SHAPE are denominated DM and CM respectively.

An increase in  $D_x$  values can be obtained [5][6] SUCCESSIVELY substituting aliphatic chains of the amphiphile by an aromatic detergent, for instance,  $KHxB$  (potassium heptyloxi-benzoate) with no phase change from disk to rods.

The purpose of this report is [7] the preparation [8] of [9] mesophases composed by disks and rods using aromatic detergent at or near mole fraction = 1 in the micelle.

### 2. Experimental

([10] describes [11][12] the organic synthesis of the compounds [13], the liquid crystal preparation and [14] THE composition [15] and [16][17][17.1] techniques used.)

### 3. Results

The characterization of the  $D_x$  of the mesophases was [18] DONE by  $^2H$ NMR of the D2O. [19] a Type I phase [20] was obtained with  $KHxB/DeoH/NO_2SO_4/D_2O$  sustains D2O addition between 48 and 52 wight

(post-treatment revision)

Lyotropic Nematics: Type I DM and Type II CM

### 1. Introduction

Lyotropic Nematic phases have been [1] COMMONLY described as Type I CM and Type II DM. [3] CONSIDERING THE TWO KNOWN SHAPES OF THE AGGREGATES OF THESE PHASES, [4] THE DISK AND CYLINDRICAL SHAPES are denominated Type I DM and Type II CM respectively. [2][2.1] THE DENOMINATION Type I and Type II [2.2] CHARACTERIZES the anisotropy of the diamagnetic susceptibility ( $D_x$ ); for  $D_x < 0$  the mesophase director [2.4] IS ORIENTED perpendicular to the magnetic field, and for  $D_x > 0$ , parallel to the magnetic field.

An increase in  $D_x$  values can be obtained [5] BY [6] SUCCESSIVELY substituting aliphatic chains of the amphiphile by an aromatic detergent, for instance,  $KHxB$  (potassium heptyloxi-benzoate) with no phase change from disk to rods.

The purpose of this report is [7] TO DESCRIBE the preparation [8] AND CHARACTERIZATION of [9] NEW mesophases composed by disks and rods using aromatic detergent at or near mole fraction = 1 in the micelle.

### 2. Experimental

([10] THIS SECTION describes [11] THREE PROCEDURES [12]: the organic synthesis of the compounds [13]; the liquid crystal preparation and [14] composition [15]; and [16] THE [17][17.1] REQUIRED TECHNIQUES.)

### 3. Results



percent. The velocity of alignment of this phase [21] IS  $5 \times 10^{-5}$ -1.

[19] A Type II mesophase was prepared with KHxB/DeoH/D2. This phase aligns so rapidly that the powder [22] PATTERN was not observed. [23] The precise characterization of the diamagnetic anisotropy (Dx) was instead performed with [24] spinning sample.

To characterize the micelle shape [25] the two [26] MESOPHASES MENTIONED ABOVE were placed in flat capillaries and examined in the polarizing microscope just after being aligned in the magnetic field. Homogeneous alignment (dark field) was obtained for the Type I phase by placing the slide (capillary) such that the magnetic field was perpendicular to the plane of the slide. For [27] Type II phase [28] optical evidences strongly suggest that this mesophase is rod-like nematic. [29][30] MORE precise [31] EXPERIMENTS [32] OBSERVING TYPE II PHASE IN THE MICROSCOPE JUST AFTER ALIGNMENT IN MAGNETIC FIELD [33] WERE NOT achieved [34] because the alignment was [35] rapidly randomized [36].

#### 4. Discussion and Conclusion

The preparation and characterization of [37] THE mesophases with reversed sign of the diamagnetic susceptibility anisotropy presented here together with the results presented in reference 4 lead us to strongly consider the possibility that the two new mesophases were [38] PROPERLY DESCRIBED [39] that our results were conclusive.

The characterization of the Dx of the mesophases was [18] PERFORMED by 2HNMR of D2O. [19] THE Type I phase [20] WHICH was obtained with KHxB/DeoH/NO2SO4 sustains D2O addition between 48 and 52 weight percent. The velocity of alignment of this phase [21] WAS  $5 \times 10^{-5}$ -1.

[19] THE Type II mesophase was prepared with KHxB/DeoH/D2. This phase aligns so rapidly that the powder [22] DIAGRAM was not observed. [23] HENCE, the precise characterization of the diamagnetic anisotropy (Dx) was instead performed with [24] A spinning sample.

To characterize the micelle shape [25], the two [26] ABOVE MENTIONED MESOPHASES were placed in flat capillaries and examined in the polarizing microscope just after being aligned in the magnetic field. Homogeneous alignment (dark field) was obtained for the Type I phase by placing the slide (capillary) such that the magnetic field was perpendicular to the plane of the slide. For [27] THE Type II phase [28], optical evidences strongly suggest that this mesophase is rod-like nematic [29] BUT [30] precise [31] EXPERIMENTS [32][33] COULD NOT BE achieved; [34] IN OTHER WORDS, CONCLUSIVE OPTICAL TEXTURES WERE NOT OBSERVED because the alignment [35] IN THE MAGNETIC FIELD was rapidly randomized [36] WHEN THE SAMPLE WAS TAKEN OFF THE MAGNETS.

#### 4. Discussion and Conclusion

The preparation and characterization of [37] THIS mesophases with reversed sign of diamagnetic susceptibility anisotropy presented here together with

the results presented in  
reference 4 lead us to  
strongly consider that [39]  
NOT ONLY the two new  
mesophases were [38]  
CORRECTLY CHARACTERIZED [39]  
BUT ALSO that our results  
were conclusive.

GUSTAVO

(pre-treatment final draft)

A Molecular Basis for Thymic Selection

T lymphocytes present on their surface molecules which are involved in antigen recognition and cellular growth. [1][2] THE COMPLEX T3-Ti is composed by a disulfide-linked heterodimer (Ti) associated with three monomeric T3 molecules. [3] ANOTHER MOLECULE, a 50 KDa glycoprotein (T11), first described as the sheep erythrocyte binding protein, is now claimed to be [4] INVOLVED in [5] ANOTHER activation pathway.

Both molecules seems to transduce a signal to cell genome which leads to [6] TRANSCRIPTION AND TRANSLATION of interleukin 2 (IL-2) [7][8] followed by [9] secretion of IL-2 and appearance of IL-2 receptor [10] on [11] lymphocyte surface. [12] THEN, the interaction of IL-2 [13] / IL-2r triggers an autocrine growth pathway.

Although [14] T LYMPHOCYTES can be activated by these two distinct [15] PATHWAYS, [16] only the [17] FIRST (T3-Ti) acts through antigen receptor "via". [18] Even [19] IF there is presumably a specific physiological ligand for the latter [20] PATHWAY, ITS IDENTITY is unknown at this moment.

[21] MOREOVER, T3-Ti complex regulates the T11 alternative pathway capacity to lead to a clonal expansion, [22] BESIDE THE POINT that these two [23] ACTIVATION [15] PATHWAYS are independent of one another.

(post-treatment revision)

A Molecular Basis for Thymic Selection

T lymphocytes present on their surface molecules which are involved in antigen recognition and cellular growth. [1] ONE KIND OF THESE MOLECULES, [2] THE T3-Ti COMPLEX, is composed by a disulfide-linked heterodimer (Ti) associated with three monomeric T3 molecules. [3] A FURTHER STRUCTURE, a 50 KDa glycoprotein (T11), first described as the sheep erythrocyte binding protein, is now claimed to be [4] PARTICIPATE in [5] AN EXTRA activation pathway.

Both molecules seems to transduce a signal to cell genome which leads to [6] TRANSCRIPTION AND TRANSCRIPTION of interleukin 2 (IL-2), [7] PERHAPS THE MOST IMPORTANT PROTEIN OF THE SYSTEM. [8] THIS EFFECT is followed by [9] THE secretion of IL-2 and appearance of IL-2 receptor [10] (IL-2r) on [11] T lymphocyte surface. [12] CONSEQUENTLY, the interaction of IL-2 [13] AND IL-2r triggers an autocrine growth pathway.

Although [14] T CELLS can be activated by these two distinct [15] ROUTES, [16] T3-Ti COMPLEX AND T11 MOLECULE, only the [17] FORMER acts through the antigen receptor "via". [18] The identity of the latter [20] is unknown at this moment even [19] THOUGH there is presumably a specific physiological ligand for it.

Concerning to thymic differentiation, T lymphocytes must develop [24] IN immunocompetent cells and thereupon the organism acquires a functional T-cell repertoire.

[25] NEVERTHELESS, there should be a mechanism for thymic selection which must eliminate autoreactive cells and at the same time expand T cells which are able to recognize [26] FOREIGN antigens [27] ASSOCIATED WITH SELF-MHC MOLECULES. [28]

[29] IN THIS VIEW, WHILE BOTH T3-Ti AND T11 PATHWAYS CAN BE UTILIZED BY PERIPHERAL T-LYMPHOCYTES, ONLY THE LATTER STRUCTURE IS EXPRESSED ON EARLY STAGES IN THYMOCYTES.

[30] EVIDENCES THAT THAT THIS MOLECULE IS THE EARLIEST TO APPEAR ON T CELL SURFACE AND IT IS STRONGLY CONCERNED THROUGH PHILOGENY GIVE A SUPPORT TO THIS VIEW.

[31] BASED ON THIS, a model was elaborated for the [32] MECHANISM involved in thymic selection [33][34] IN WHICH T lymphocytes with high affinity for self antigens [35][36] via T3-Ti complex would be eliminated avoiding autoreactive cells [38] AND [39] BUT T cells with low affinity for self antigens could not be removed in this selection and, [40][41] probably through T11 molecule, they would be subsequently expanded.

[21] NOTABLY IS THE FACT THAT T3-Ti complex regulates the T11 alternative pathway capacity to lead to clonal expansion, [22] NOTWITHSTANDING THE FACT that these two [23] [15] ROUTES are independent A one another. 4

Concerning to thymic differentiation, T lymphocytes must develop [24] INTO immunocompetent cells and thereupon the organism acquires a functional T-cell repertoire. 5

[25] BECAUSE OF THIS, there should be a mechanism for thymic selection which must eliminate autoreactive cells and at the same time expand T cells which are able to recognize [26] SELF ANTIGENS [27]. [28] IT SEEMS THAT THE FIRST STATEMENT IS IN CONTRAST TO THE SECOND BUT ACTUALLY BOTH OCCUR.

[29]

[30]

[31] AS A RESULT, a model was elaborated for the [32] MECHANISMS involved in thymic selection [33] AND ORGANIZATION OF T CELL REPERTOIRE. [34] HENCE, T lymphocytes with high affinity for self antigens [35], [36] PROBABLY via T3-Ti complex [35], would be eliminated avoiding autoreactive cells [38]. [39] CONVERSELY, T cells with low affinity for self antigens could not be removed in this selection and [40] THEREFORE [41] would subsequently be expanded, probably through T11 molecule.

HENRIQUE

(pre-treatment final draft)

Immunosuppression in  
Paracoccidioidomycosis

Nils K. Jerne and A.A. Nordin developed [1] IN 1963 a simple [2] technique for scoring a single antibody forming cell population. [3] After incubation of [4] sheep red blood cells [5] (SRBC) [6] and lymphoid cells [7] in an agar layer, specific plaque forming cells can be [8] MACROSCOPICALLY VISUALIZED [9] AND [10] the total number of plaques enumerated represents the number of lymphocytes which [11] RESPONDS to SRBC in the population.

[12]

[13][14] to determine whether Paracoccidioidomycosis brasiliensis (Pb) infection induces a suppression of antibody production to unrelated antigens [15] we inoculated resistant (A/SN) and susceptible (BIO.A) mice with  $5 \times 10^6$  yeast forms of [16] pathogenic (Pb18) or non-pathogenic (IVIC Pb267) P. brasiliensis. After 21 days [17] these mice were immunized with  $2 \times 10^8$  SRBC and [18] four days later, the number of specific anti-SRBC splenic cells were analysed.

(post-treatment revision)

Immunosuppression in  
Paracoccidioidomycosis

[1] IN 1963, Nils K. Jerne and A.A. Nordin developed a simple, [2] BUT NOTABLE, technique for scoring a single antibody forming cell population. [3] BECAUSE OF THIS, after incubation of [4] THE FOLLOWING REAGENTS: sheep red blood cells [5], [6] COMPLEMENT, and lymphoid cells [7], in an agar layer, specific plaque forming cells can be [8] VISUALIZED MACROSCOPICALLY. [9][10] HENCE, the total number of plaques enumerated represents the number of lymphocytes which [11] RESPOND to SRBC in the population.

[12]THE PFC-ASSAY HAS BEEN USED TO DETERMINE THE CAPACITY OF ANIMALS TO MOUNT AN ANTIBODY RESPONSE TO FOREIGN ANTIGENS.

[13] IN ORDER [14], to determine whether Paracoccidioidomycosis brasiliensis (Pb) infection induces a suppression of antibody production to unrelated antigens [15], we inoculated resistant (A/SN) and susceptible (BIO.A) mice with  $5 \times 10^6$  yeast forms of [16] EITHER pathogenic (Pb18) or non-pathogenic (IVIC Pb267) P. brasiliensis. After 21 days [17], these mice were immunized with  $2 \times 10^8$  SRBC and [18], four days later, the number of specific anti-SRBC splenic cells were analysed.

We observed that [19] the number of specific IgM anti-SRBC B cells were significantly diminished [19.1] ONLY in susceptible

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We observed that [19][19.1] in susceptible mice, 25 days post-Pb18 infection the number of specific IgM anti-SRBC B cells were significantly diminished. On the other hand, when A/SN and BIO.A mice were infected with the non-pathogenic fungus IVIC Pb267 the number of PFC anti-SRBC response were not different from controls [20] (mice only immunized with SRBC).

These results suggest a direct correlation between susceptibility to P.b. and suppression of antibody response to unrelated antigens.

The mechanisms underlying this parasite-associated immunosuppression are unknown. It may be associated with [21] a deficient antigen presentation by the macrophages [22] OR [23] TO an impaired T cell function.

[24] The influence of these immunodepression state in the development of the [25] DISEASE will be investigated.

mice, 25 days post-Pb18 infection. On the other hand, when A/SN and BIO.A mice were infected with the non-pathogenic fungus IVIC Pb267 the number of PFC anti-SRBC response were not different from controls [20] - mice only immunized with SRBC.

These results suggest a direct correlation between susceptibility to P.b. and suppression of antibody response to unrelated antigens.

The mechanisms underlying this parasite-associated immunosuppression are unknown. It may be associated [21][22] NOT ONLY with a deficient antigen presentation by the macrophages [21] BUT ALSO [23] WITH an impaired T cell function.

[24] IN A BRIEF RUN, the influence of these 3 immunodepression state in 4 the development of the [25] PARACOCCIDIODOMYCOSIS will be investigated. 5

## SILVIA

(pre-treatment final draft)

Iron chelation prevents tissue injury following ischemia

One of the most intriguing question concerning tissue injury [1] FOLLOWING ischemic anoxia is [2] THE MECHANISM BY WHICH reperfusion with oxygenated blood [3] CAUSES [4] DAMAGE TO THE TISSUE.

[5][6] THIS DAMAGE seems to be [7] MEDIANE by [8] superoxide anion (O<sub>2</sub><sup>-</sup>) and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) produced in excess during reperfusion. The infusion of superoxide dismutase and catalase together with oxygenated blood greatly the [9] LESION [10] INDICATING that O<sub>2</sub><sup>-</sup> and H<sub>2</sub>O<sub>2</sub> are important substances [11] FOR [12] THE TISSUE INJURY.

[13] [13.1] SUPEROXIDE ANION and HYDROGEN PEROXIDE are produced during reperfusion by two intracellular systems. One is the xanthine oxidase system who is activated during ischemia. [14] THE OTHER SITE IS [15] AT THE MITOCHONDRIA, [16] WHERE DUE TO LOW ADP LEVEL CONSEQUENT TO ANOXIA, [17] [17] OXIGEN IS NOT TOTALLY REDUCED [18] TO OXIGEN ANION [19][19.1] BUT IS PARTIALLY REDUCED WITH CONSEQUENT O<sub>2</sub><sup>-</sup> PRODUCTION.

Although [20] O<sub>2</sub><sup>-</sup> AND H<sub>2</sub>O<sub>2</sub> INCREASED PRODUCTION NO DOUBT [20.1] OCCUR [21], it is also known that [22] CHEMICALLY these two oxidant species are not able to initiate [23] lipid peroxidation, one of the mechanisms [24] OF [25] CELL DAMAGE.

(post-treatment revision)

Iron chelation prevents tissue injury following ischemia

One of the most intriguing question concerning tissue injury [1] CONSEQUENT TO ischemic anoxia is [2] HOW reperfusion with oxygenated blood [3] CONTRIBUTES TO [4] THIS DAMAGE.

[5]IN THIS SITUATION [6] TISSUE INJURY seems to be [7] MEDIATED by [8] BOTH superoxide anion (O<sub>2</sub><sup>-</sup>) and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) produced in excess during reperfusion. The infusion of superoxide dismutase and catalase together with oxygenated blood greatly the [9] TISSUE INJURY. [10] THIS INDICATES that O<sub>2</sub><sup>-</sup> and H<sub>2</sub>O<sub>2</sub> are important substances [11] TO [12] THIS PHENOMENON.

[13] During reperfusion [13.1] O<sub>2</sub><sup>-</sup> and H<sub>2</sub>O<sub>2</sub> are produced by two intracellular systems. One is the xanthine oxidase system who 1 is activated during ischemia. [14] THE OTHER IS [15] THE MITOCHONDRIAL RESPIRATORY CHAIN [16] [17] THAT CAN NOT REDUCES [13] O<sub>2</sub> TOTALLY [18][19] THUS PRODUCING O<sub>2</sub><sup>-</sup>, [19.1] A PARTIALLY REDUCED FORM OF O<sub>2</sub>.

Although [20] NO DOUBT ABOUT INCREASED PRODUCTION OF O<sub>2</sub><sup>-</sup> AND H<sub>2</sub>O<sub>2</sub> [21] DURING REPERFUSION [20.1] EXISTS, it is also known that [22] these two oxidant species are not able to initiate [23] MEMBRANES lipid peroxidation, one of the mechanisms [24] RESPONSIBLE FOR [25] CELL INJURY. [27] [27.1] HOWEVER, LIPID PEROXIDATION CAN BE

[26][26.1] TO THE [26.2] [26.3] PRODUCTION OF [26.4] MORE ACTIVE SPECIES OF OXYGEN [26.5], [26.6] TRANSITION METALS LIKE [26.7] IRON ARE REQUIRED. [27][27.1][27.2] BETWEEN THESE SPECIES, [27.3] HYDROXYL RADICAL (OH) SEEMS TO BE [27.4] THE MOST ACTIVE, [28] AND [28.1] IS PRODUCED by the Haber-Weiss reaction or directly by the reaction between Fe<sup>2+</sup> and H<sub>2</sub>O<sub>2</sub>.

[29] UNTIL NOW, the exact mechanism by which iron participates in [30] THE IN VIVO MECHANISM OF LIPID PEROXIDATION is not well understood. [31] THE AUTHORS [32] suggest that [33] PROBABLY iron deposition and mobilization from ferritin [34] (an intracellular protein [35] THAT STORES IRON) [36] IS RESPONSIBLE FOR [37] THE [37.1] [37.2] OXYGEN REACTIVE SPECIES GENERATION.

Increased levels of iron where demonstrated in cardiac tissue of animals submitted to reperfusion after ischemia.

If it is true that iron content is important to [38] THE cell damage produced after reperfusion [39] iron chelation should prevent [40] THIS LESION [41] TO OCCURS.

[42] Employing deferoxamine [43] (an iron chelator) [44] IT [45] WAS POSSIBLE TO SHOW that dogs submitted to cardiac arrest were able to survive and showed less neurological damage than [46] THE untreated animals.

[47] The authors suggest that deferoxamine should be used as a therapeutic agent to prevent tissue injury following ischemic anoxia.

INITIATED BY [27.2][27.4] MORE ACTIVE SPECIES OF OXYGEN, LIKE, FOR EXAMPLE, [27.3] OH.

[28] THIS RADICAL [28.1] CAN BE PRODUCED by the Haber-Weiss reaction or directly by the reaction between Fe<sup>2+</sup> and H<sub>2</sub>O<sub>2</sub>. [26] [26.1] ACTUALLY [26.2][26.6] TRANSITIONAL METALS LIKE [26.3] Fe<sup>2+</sup> ARE REQUIRED FOR THE "IN VIVO" PRODUCTION OF [26.4] OH [26.5] AND CONSEQUENT LIPID PEROXIDATION. 2

[29] AT THE PRESENT MOMENT, the exact mechanism by which iron participates in [30] "IN VIVO" LIPID PEROXIDATION is not well understood. [31] AUSTE & WHITE [32] (ADV. FREE RADICAL BIOLOGY AND MEDICINE, 1:1-17, 1985) suggest that [33] PROBABLE iron deposition and mobilization from ferritin [34] - an intracellular protein [35] RESPONSIBLE FOR IRON STORE - [36] ACCOUNT FOR [37] THE GENERATION OF [37.1] MORE ACTIVE SPECIES OF [37.2] OXYGEN.

Increased levels of iron where demonstrated in cardiac tissue of animals submitted to reperfusion after ischemia. 3

If it is true that iron content is important to [38] cell damage produced after reperfusion [39], iron chelation should prevent [40] ITS [41] OCCURENCE.

[42] BY employing deferoxamine [43] - an iron chelator - [44] THE ABOVE CITED AUTHORS [45] DEMONSTRATED that dogs submitted to cardiac arrest were able to survive and showed less neurological damage than [46] untreated animals.



[47] IN CONCLUSION, the authors suggest that deferoxamine should be used as a therapeutic agent to prevent tissue injury following ischemic anoxia.

THELMA

(pre-treatment final draft)

Congenital tuberculosis - report of a case, review of the literature and diagnostic guidelines

congenital tuberculosis, although a rare disease, still occurs and brings a lot of [1] DIFFICULTIES to be correctly diagnosed and treated. the prevention of tuberculosis infection [2] OF [3] THE fetus during pregnancy [4] OR [5] THE NEONATE after birth is possible and requires careful [6] UTILIZATION [6.1] OF KNOWLEDGE, JUDGEMENT AND SUPERVISION of the [6.2] EMPLOYED [6.3] methods.

In the first part [7] the authors presented a case of a female neonate born on september 21, 1956. Her mother had serious tuberculosis identified in pleural effusion, meninges and sputum cultures. the neonat was separated from [8] HER at birth. At the age of 2 months she [9] DEVELOPPED generalized pulmonary tuberculosis. she had already presented fever which was unresponsive to broad-spectrum antibiotics. At that time [10] chest roentgenograms, cerebral spinal fluid and tuberculin reactions were negative. At 5 months of age she was poorly nourished, had hepatosphenonegaly, left foot drop and subcutaneous nodules [11] below the xiphoid and spread on the body. Several biopsy specimens identified M. tuberculosis.

During the subsequent years [12] the patient received continued antituberculosis therapy and presented [13]

(post-treatment revision)

Congenital tuberculosis - report of a case, review of the literature and diagnostic guidelines

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In the first part A [7], the authors presented a case of a female neonate born on September 21, 1956. Her mother had serious tuberculosis identified in pleural effusion, meninges and sputum cultures. The neonate was separated from [8] THE MOTHER at birth. At the age of 2 months she [9] DEVELOPED generalized pulmonary tuberculosis. She had already presented fever which was unresponsive to broad-spectrum antibiotics. At that time [10], chest roentogram, cerebral spinal fluid and tuberculin reactions were negative. At 5 months of age she was poorly nourished, had hepatosphenonegaly, left foot drop and subcutaneous nodules [11] (below the xiphoid and spread on the body). Several biopsy specimens identified M. tuberculosis.

During the subsequent years [12], the patient received continued antituberculosis therapy and presented [13] intercurrent infections such as varicella, [14] WITH

SOME intercurrent infections such as varicella, [14] WITHOUT exacerbation of [15] HER tuberculosis. The pulmonary lesions [16] as well as the ones in liver, spleen and peritoneum calcified. After four years and three months the therapy was discontinued. At 12 years of age [17], she received isoniazid therapy [18] in order to prevent reactivation of tuberculosis. The patient maintained good health during frequent clinic visits and gave birth to two healthy babies at 21 and 22 years of age.

The reported case was unusual in [19] MANY respects [20]. [21][21.2] [22] The child survived in spite of massive infection in liver, spleen, lungs and peritoneum. [21][21.2][23] It was [23.1] UNDOUBTEDLY [23.2] A CONGENITAL TUBERCULOSIS CASE WITH [23.3] evidendence of hematogeneous infection through the umbilical vein. [24] FURTHERMORE, the antituberculosis therapy was extremely long and did not [25] PRESENT [26] ANY toxic [27] REACTION or side-effects. [28] In the literature [29] there are some [30][31] cases [32] RELATED [33], but none of them with a longer follow-up.

[34][35] ACTUALLY, nowadays [36] THIS RELATED CHILD would have received [37] ISONIAZID PROPHILACTICALLY shortly after birth until it was determined whether [38] THE INFECTION was present or not [39], AND in positive case [40] she would have received isoniazid plus rifampicin.

NO exarcebation of [15] tuberculosis. The pulmonary lesions [16], as well as the ones in <sup>6</sup> liver, spleen and peritoneum calcified. After four years and three months the therapy was discontinued. At 12 years of age [17] she received isoniazid therapy [18] AGAIN in order to prevent reactivation of tuberculosis. The patient maintained good health during frequent clinic visits and gave birth to two healthy babies at 21 and 22 years of age. 7

The reported case was unusual in [19] SEVERAL respects [20]:

[21] A. [21.1] FIRSTLY, [23] THERE WAS [23.3] IRREFUTABLE evidence of hematogeneous infection through the umbilical vein, PROVING it was [23.2] A CASE OF CONGENITAL TUBERCULOSIS.

[21] B. [21.2] SECONDLY, [22] the child survived in spite of massive infection in liver, spleen, lungs and peritoneum. 7

[21] C. [24] LASTLY, the antituberculosis therapy was extremely long and did not [25] CAUSE [26] toxic [27] REACTIONS or side-effects.

[28] In the literature [29], there are some [30]SIMILAR [31][32] REPORTED CASES [33] but none of them with a longer follow-up. [34][35] Nowadays, [36] THE ABOVE MENTIONED CHILD would have received [37] PROPHILACTIC ISONIAZID shortly after birth until it was determined whether [38] TUBERCULOSIS was present or not [39]. In positive case [40], she would have received isoniazid plus rifampicin.

The [41] DIAGNOSE of tuberculosis is not easy although there are some

The [41] DIAGNOSIS of tuberculosis is not easy although there are some laboratory [42] RESOURCES available. If there is suspect beyond a pregnant woman , it would be advisable to perform [43] A FEW TESTS SUCH AS [44] A CHEST ROENTOGRAM, [45][46] tuberculin reaction, biopsy of selected places and [47] [47.1][47.2] ALWAYS consider the possibility of therapy [48] AND ALSO [49] THE survey in relatives and partners in order to find out the source of infection. [50][50.1] IF THERE IS PROVED ACTIVE DISEASE, treatment is essencial, but it is suggested not to use streptonycin [51] BECAUSE OF [52] AN ototoxic [53] REACTION in [3] THE fetus. [54][54.1] FINALLY, the [54.2] DETAILED EXAMINATION OF [54.3] PLACENTAS [54.4] IN ORDER TO detect endometritis [54.5] IS ESSENCIAL. [55] In respect to [56] THE newborns, [57] ASIDE FROM [57.1] THE ENLISTED TESTS, there are [58] SOME clinical situations which might call the physician's attention [59]: [60] occurrence of respiratory illness [61] THAT IS nonresponsive to [62] ANTIBIOTIC therapy [63] AND occasional superinfection.

laboratory [42] TESTS available. If there is suspect beyond a pregnant woman , it would be advisable to perform [43] [44] CHEST ROENTOGRAMS, [45] AS WELL AS MORE SPECIFIC TESTS SUCH AS [46] THE tuberculin reaction, biopsy of selected places and [54] [54.1][54.2] the CAREFUL STUDY of [54.3] PLACENTA [54.4] TO detect endometritis. [47][47.1] [47.2] IT IS ALSO ADVISABLE TO [54] consider the possibility of therapy [55] WHENEVER SUSPICION IS VERY STRONG. [48][49] A Survey in relatives and partners should be made in order to find out the source of the infection. [50][50.1] IF ACTIVE DISEASE [50.2] IS CONFIRMED, treatment is essencial, but it is suggested not to use streptonycin [51] DUE TO [52] POSSIBLE [53] ototoxic HAZARDS in [3] A fetus.

[55] In respect to [56] newborns, [57][57.1] SPECIFIC TESTS SHOULD BE PERFORMED AND there are [58] TWO clinical situations which might call the physician's attention [59] TOWARDS TUBERCULOSIS: [63] EITHER [60] THE occurrence of respiratory illness [61] nonresponsive to [62] PROPER therapy [63] OR occasional superinfection.

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9, 10

19

## WILSON

(pre-treatment final draft)

Archean atmosphere and  
Primitive Life

At present, the [1] EARTH atmosphere [2] IS [3] DUE TO volcanic outgassing. However, the atmospheric conditions must have changed since the beginning of the planet's evolution. [4].

As supported by direct measurements on volcanoes [5] the most important gases found in the [6] THE atmosphere are N<sub>2</sub>, O<sub>2</sub>, Ar and CO<sub>2</sub>, plus different proportions of H<sub>2</sub>O. Volcanic gases and [6] THE atmosphere have similar Ar/N<sub>2</sub> ratios [7] although [8] H<sub>2</sub>O AND CO<sub>2</sub> [9] FROM volcanoes are [10] more abundant [11].

[12] THUS, [13][14] the [14.1] OCEANS were originated through the exceeded outgassed water vapor which has condensed [14.2]. [15] IN TURN, most of the CO<sub>2</sub> was dissolved in the ocean like calcium carbonate in limestones. However, a fraction of [16] THIS CO<sub>2</sub> is [17] used [18] IN [19] PHOTOSYNTHESIS [20] WHICH CONVERTS both H<sub>2</sub>O and CO<sub>2</sub> into carbohydrates. [21] THIS process is concomitant with the oxygen releasing.

[22] During [22.1] THE EARLY EARTH, another [22.2] KIND of process [22.3] DIFFERING to the photosynthesis may have been important. This process is [23] CALLED photodissociation [24] AND [25] CAUSED oxygen releasing [26] BY breakdown of water molecules [27] BY [28] THE ultraviolet light from the sun. As [29] known [30][31] a small fraction of the oxygen molecules is converted to ozone because

(post-treatment revision)

Archean Atmosphere and  
Primitive Life

At present, the [1] EARTH'S atmosphere [2] IS RELATED [3] TO volcanic outgassing. However, the atmospheric conditions must have changed since the beginning of the planet's evolution. [4] SO, THIS ARTICLE DEALS WITH SOME CONSTRAINS ABOUT THE EVOLUTION OF ATMOSPHERE AND EARLY LIFE.

As supported by direct measurements on volcanoes [5], the most important gases found in [6] atmosphere are N<sub>2</sub>, O<sub>2</sub>, Ar and CO<sub>2</sub>, plus different proportions of H<sub>2</sub>O. Volcanic gases and [6] atmosphere have similar Ar/N<sub>2</sub> ratios [7], although [8] H<sub>2</sub>O AND CO<sub>2</sub> ABUNDANCES [9] IN volcanoes are [10] HIGHER [11] THAN IN ATMOSPHERE.

[12][13] ACCORDING TO THESE ABUNDANCES, [14] the exceeded outgassed water vapor [14.2] PROGRESSIVELY condensed leading to the origin of the [14.2] OCEAN. [15] SIMULTANEOUSLY, most of the CO<sub>2</sub> was dissolved in the ocean like calcium carbonate in limestones. However, a fraction of [16] THE ORIGINAL CO<sub>2</sub> is [17] ALSO used [18] BY [19] PHOTOSYNTHESIS PHENOMENON [20] TO CONVERT both H<sub>2</sub>O and CO<sub>2</sub> into carbohydrates. [21] SUCH A process is concomitant with the oxygen releasing. 1 2

[22][22.3] IN CONTRAST to the photosynthesis, another [22.2] TYPE of process may have been important during [22.1] THE EARLY EVOLUTION OF THE EARTH. This process is [23] NAMED

the early Earth's gravity field limits the [32] RELEASING of the "heavy" Oxygen molecules. [33] The progressive formation of an ozone outer "trap" tends to reduce the ultraviolet effect, and [34] SO photodissociation corresponds to a relevant self-regulating process in terms of further dissociation phenomena.

[35] The reducing conditions [35.1] OF the early atmosphere may have [36] predominant [37] as suggested by the photodissociation processes and [38] BY the sedimentary rock record [39] AS WELL. The typical Archean Banded Iron Formation [40] are thought to be deposited in marine environments (liberation of soluble Fe++ state) [41][42] BUT in the Proterozoic period [43] THE RED BEDS SEDIMENTS are quite common ([44] INCREASING of oxidising surface conditions). In addition, the existence of Uranite and Pyrite within the Archean sedimentary rocks [45], both only formed [46] IN [47] REDUCING conditions [45], in connection with [48] THE INCREASING ABUNDANCE of sulphate deposits since 2.5 billion years ago also support the [49] GRADATION CONDITIONS OF THE GEOLOGICAL ATMOSPHERIC EVOLUTION [50] TOWARDS A MORE OXIDISING ONE.

[51][52] CONCERNING the precambrian life [53][54] the earliest life-forms [55] AS [56] IDENTIFIED in Archean sedimentary rocks [57] are the microfossils. If a [48] REDUCING environment prevailed during [58] THE ARCHEAN PERIOD, the [59][60] STRONG ULTRAVIOLET RADIATION CONDITION [61] OF THAT ATMOSPHERE [62] limited

photodissociation [24] WHICH [25] CAUSES oxygen releasing [26] THROUGH breakdown of water molecules [27] DUE TO [28] ultraviolet light from the sun. As [29] IT IS known [30], [31] ONLY a small fraction of the oxygen molecules is converted to ozone because the early Earth's gravity field limits the [32] RELEASE of the "heavy" Oxygen molecules. [33] SO, the progressive formation of an ozone outer "trap" tends to reduce the ultraviolet effect, and [34] THEREFORE photodissociation corresponds to a self-regulating process in terms of further dissociation phenomena.

[35][35.1] DURING early atmospheric conditions, a reduced character may have [36] BEEN predominant [37], as suggested by [38] BOTH the photodissociation processes and [38] the sedimentary rock record. The typical Archean Banded Iron Formation, [40] FOR EXAMPLE, are thought to be deposited in marine environments (liberation of soluble Fe++ state) [41], [42] WHILE in the Proterozoic period [43] THE RED BEDS are quite common ([44] INCREASE of oxidising surface conditions.) In addition, the existence of Uranite and Pyrite within the Archean sedimentary rocks [45] - both only formed [46] UNDER [47] REDUCED conditions [45] - in connection with [48] THE INCREASE of Sulphate deposits since 2.5 billion years ago also support the [49] OXIDISING GRADATION OF ATMOSPHERE [50] THROUGH TIME.

[51] ABOVE THIS, [52] THERE IS A RELATION OF the precambrian life [53], [54] AS SUPPORTED BY the earliest life-forms [57]

the [63] AVAILABLE ORGANISMS TO LIVE in deep water ([64] THAT radiation destroys [65] ALL [66] OF amino-acids). [67][68] The recent discovery of quite complex organisms in 3.5 b.y. rocks suggests that [69] THE photosynthesis may have started at [70] THAT time [71] although some [72] CHRONOLOGICAL VARIATION [73] can be expected [74][75] BECAUSE OF [77] THE VARIETY OF GEOLOGICAL PHENOMENA [78] WHICH TOOK PLACE DURING THE ARCHEAN EARTH'S EVOLUTION.

(microfossils) [55][56] FOUND in Archean sedimentary rocks. If a [48] REDUCED environment prevailed during [58] THE ARCHEAN, the [59] EXISTENT [60] STRONG ULTRAVIOLET RADIATION [61][62] PROBABLY limited the [63] LIFE OF THE AVAILABLE ORGANISMS in deep water ([64] SUCH A radiation destroys [65][66] amino-acids). 7

[67][68] IN ADDITION, the recent discovery of quite complex organisms in 3.5 b.y. rocks suggests that [69] photosynthesis may have started at [70] THE ARCHEAN time [71], although some [72] CHRONOVARIATION [73] ALONG THIS PERIOD can be expected [74] FOR SUCH A PROCESS [75], DUE TO [77] THE DISTINCTION OF THE ARCHEAN PHENOMENA [78]. 8

CODING OF CHANGES IN TERMS OF  
READING PROCESS, WRITING PRODUCT AND QUALIFICATION



CHANGE #	ANALYSIS OF CHANGE				
	READING PROCESS		WRITING PRODUCT		QUALIF
1.0	acc	lf	morph	vi.s	+
2.0	app	lf	lls	conj.s	+
3.0	app	lf	csf	el.s	i
4.0	app	lf	csf	el.s	i
5.0	app	lf	csf	o.s	u
6.0	acc	lf	morph	ni.s	+
7.0	is	lf	ord	word.r	+
8.0	inf	co		dadv.d	+
9.0	is	lf	ord	phr.r	+
9.1	inf	co		postmod.d	+
10.0	coh	lf	sc	comb.sub	+
11.0	acc	lf	morph	vi.s	c
12.0	lev	of		ind.s	+
13.0	inf	lx		np.s	+
14.0	inf	lf	csf	cls.s	+
15.0	coh	lf	sc	comb.sub	+
16.0	inf	co		cls.d	-
17.0	acc	lf	lls	det.a	+
18.0	lev	of		ind.s	+
19.0	coh	of		punct.a	+
20.0	app	lf	ord	word.r	u
21.0	is	lf	ord	phr.r	+
22.0	inf	lf	csf	cls.s	+
23.0	lev	lf	sc	comb.sub	c
24.0	is	lf	ord	phr.r	+
24.1	acc	lf	morph	oi.s	+
24.2	app	lx		verb.s	c
25.0	is	lf	ord	phr.r	+
25.1	inf	co		premod.d	+
25.2	com	co		vif.d	?
25.3	inf	lx		np.s	+
26.0	lev	lf	ord	word.r	+
27.0	app	lf	csf	pro.s	i
28.0	lev	lf	ord	word.r	+
29.0	coh	lf	csf	cls.s	+

CHANGE #	ANALYSIS OF CHANGE			
	READING PROCESS	WRITING PRODUCT		QUALIF
1.0	acc	of	spell.s	+
2.0	app	lx	verb.s	+
3.0	app	of	punct.d	+
4.0	inf	co	postmod.a	+
5.0	inf	co	app.a	+
6.0	is	lf ord	phr.r	+
7.0	com	lx	verb.s	+
8.0	inf	co	dadv.a	+
9.0	app	co	dadv.d	+
10.0	inf	co	cls.a	+
11.0	app	lx	verb.s	-
12.0	coh	co	dadv.a	+
13.0	coh	lf csf	cls.s	+
14.0	lev	lf sc	sep.sub	+
15.0	com	co	premod.a	+
16.0	app	lf morph	vi.s	?
17.0	inf	co	postmod.a	+
18.0	is	lf ord	phr.r	+
18.1	coh	co	cls.a	+
18.2	app	lx	np.s	-
19.0	acc	lf lls	det.a	+
20.0	lev	lf csf	el.s	+
21.0	lev	lf csf	el.s	+
22.0	lev	co	dadv.a	+
23.0	coh	co	sadv.a	i
24.0	acc	lf lls	det.a	+
25.0	app	lf csf	el.s	+
26.0	app	lf morph	vi.s	-
27.0	acc	lf lls	prep.s	+
28.0	lev	lf ord	phr.r	+
28.1	app	lf csf	pro.s	i
29.0	inf	co	postmod.a	i
30.0	acc	lf ord	word.r	-
31.0	app	lx	verb.s	+
32.0	inf	co	premod.a	-
33.0	app	lx	verb.s	-
34.0	coh	co	sadv.a	i
35.0	app	lx	np.s	-
36.0	lev	lf sc	comb.sub	+
36.1	is	lf ord	phr.r	c
36.2	coh	lf csf	pro.s	+
36.3	inf	lf csf	cls.s	+
36.4	app	lf csf	cls.s	-
37.0	app	lf lls	prep.s	-
38.0	coh	co	cls.a	+
39.0	app	lx	np.s	+
40.0	app	lf lls	prep.s	+
41.0	inf	co	app.a	+
42.0	coh	co	cjoint.a	+
43.0	is	lf ord	phr.r	+

CHANGE #	ANALYSIS OF CHANGE			
	READING PROCESS	WRITING PRODUCT		QUALIF
44.0	app	of	punct.a	+
45.0	app	lf morph	vi.s	+
46.0	inf	co	postmod.a	+
47.0	coh	co	sent.a	+
48.0	app	lf lls	prep.s	i
49.0	inf	lf csf	pro.s	c
50.0	app	lf morph	vi.s	+

CHANGE #	ANALYSIS OF CHANGE				
	READING PROCESS	WRITING PRODUCT		QUALIF	
1.0	coh	co		dadv.a	+
2.0	is	lf	ord	cls.r	+
2.1	app	lx		np.s	i
2.2	acc	lf	morph	vi.s	c
2.3	acc	lf	morph	vi.s	+
3.0	coh	co		cls.a	+
4.0	inf	lf	morph	ni.s	+
5.0	acc	lf	lls	prep.a	+
6.0	acc	of		spell.s	-
7.0	coh	lf	csf	cls.s	+
8.0	inf	co		cjoint.a	+
9.0	inf	co		dadv.a	u
10.0	app	lf	csf	el.s	+
11.0	lev	co		app.a	+
12.0	lev	of		punct.a	+
13.0	app	of		punct.s	c
14.0	acc	lf	lls	det.d	+
15.0	app	of		punct.a	+
16.0	app	lf	lls	det.a	+
17.0	app	lf	ord	word.r	u
17.1	app	lx		mod.s	u
18.0	app	lx		verb.s	+
19.0	coh	lf	lls	det.s	+
20.0	coh	lf	lls	comp.a	+
21.0	app	lf	morph	vi.s	+
22.0	app	lx		np.s	+
23.0	coh	co		sadv.a	+
24.0	acc	lf	lls	det.a	+
25.0	app	of		punct.a	+
26.0	app	lf	ord	word.r	+
27.0	app	lf	lls	det.a	+
28.0	app	of		punct.a	+
29.0	coh	lf	sc	comb.coo	+
30.0	inf	co		premod.d	+
31.0	acc	lf	morph	ni.s	-
32.0	inf	co		postmod.d	+
33.0	app	co		vif.a	+
34.0	inf	co		cls.a	+
35.0	inf	co		postmod.a	+
36.0	inf	co		postmod.a	+
37.0	acc	lf	lls	det.s	-
38.0	app	lx		mod.s	u
39.0	com	lf	csf	o.s	u

CHANGE #	ANALYSIS OF CHANGE				
	READING PROCESS	WRITING PRODUCT		QUALIF	
1.0	coh	co		app.a	+
2.0	coh	lf	ord	word.r	+
3.0	app	lx		np.s	i
4.0	app	lx		verb.s	-
5.0	inf	lx		mod.s	+
6.0	app	lf	ord	word.r	+
7.0	inf	co		postmod.a	+
8.0	lev	lf	sc	sep.sub	+
9.0	acc	lf	lls	det.a	+
10.0	coh	co		app.a	+
11.0	coh	co		premod.a	+
12.0	coh	lx		sadv.s	i
13.0	app	lf	csf	el.s	+
14.0	app	lx		np.s	u
15.0	app	lx		np.s	u
16.0	coh	co		app.a	+
17.0	app	lf	lls	det.s	+
18.0	is	lf	ord	cls.r	+
19.0	app	lf	lls	conj.s	+
20.0	app	lf	csf	el.s	c
21.0	app	lx		sadv.	-
22.0	app	lx		sadv.s	+
23.0	inf	co		premod.d	+
24.0	coh	lf	lls	prep.s	+
25.0	coh	lx		sadv.s	?
26.0	app	lx		mod.s	?
27.0	inf	co		postmod.d	?
28.0	coh	co		sent.a	+
29.0	inf	co		par.a	?
30.0	inf	co		par.d	?
31.0	coh	lx		sadv.s	-
32.0	app	lf	morph	ni.s	+
33.0	coh	co		cjoint.a	+
34.0	lev	lf	sc	sep.sub	i
35.0	com	co		sadv.a	?
36.0	lev	of		punct.a	+
37.0	lev	lf	sc	sep.coo	+
38.0	coh	co		sadv.a	+
39.0	app	lx		np.s	u
40.0	coh	co		sadv.a	+
41.0	is	lf	ord	phr.r	+

CHANGE #	ANALYSIS OF CHANGE					
	READING PROCESS	WRITING PRODUCT			QUALIF	
1.0	app	lf	ord	phr.r	u	
2.0	com	co		dadv.a	+	
3.0	coh	co		postmod.a	i	
4.0	inf	co		premod.a	u	
5.0	coh	co		app.d	-	
6.0	inf	co		cjoint.a	+	
7.0	app	of		punct.a	-	
8.0	lev	lf	ord	word.r	+	
9.0	lev	lf	sc	sep.coo	+	
10.0	coh	co		sadv.a	i	
11.0	acc	lf	morph	vi.s	+	
12.0	inf	co		sent.a	+	
13.0	app	lf	csf	o.s	u	
14.0	acc	of		punct.a	-	
15.0	app	of		punct.a	+	
16.0	coh	lf	lls	conj.s	i	
17.0	app	of		punct.a	+	
18.0	app	of		punct.a	+	
19.0	is	lf	ord	phr.r	-	
19.1	inf	co		dadv.a	u	
20.0	oth	of		punct.s	u	
21.0	lev	lf	ord	phr.r	?	
22.0	coh	lf	csf	o.s	?	
23.0	acc	lf	lls	prep.s	+	
24.0	coh	co		sadv.a	i	
25.0	coh	lx		np.s	+	

CHANGE #	ANALYSIS OF CHANGE				
	READING PROCESS	WRITING PRODUCT			QUALIF
1.0	inf	lf	lls	prep.s	+
2.0	app	lf	csf	pro.s	-
3.0	com	lx		verb.s	+
4.0	coh	lf	csf	pro.s	+
5.0	coh	co		dadv.a	u
6.0	app	lx		np.s	c
7.0	acc	of		spell.s	+
8.0	coh	lf	lls	conj.s	+
9.0	coh	lx		np.s	+
10.0	coh	lf	sc	sep.sub	-
11.0	app	lf	lls	prep.s	i
12.0	app	lx		np.s	-
13.0	lev	lf	ord	phr.r	+
13.1	inf	lx		np.s	+
14.0	coh	lf	csf	el.s	+
15.0	coh	lf	csf	cls.s	+
16.0	inf	co		cls.d	-
17.0	app	lf	csf	cls.s	c
18.0	inf	co		postmod.d	+
19.0	is	lf	ord	cls.r	+
19.1	app	lf	csf	cls.s	+
20.0	app	lf	ord	word.r	i
20.1	app	lx		np.s	i
21.0	coh	co		dadv.a	+
22.0	inf	co		dadv.d	+
23.0	inf	co		premod.a	+
24.0	coh	lf	lls	prep.s	+
25.0	app	lx		np.s	u
26.0	is	lf	ord	cls.r	c
26.1	coh	co		sadv.a	i
26.2	is	lf	ord	phr.r	c
26.3	inf	co		premod.a	+
26.4	coh	lx		np.s	c
26.5	inf	co		cjoint.a	+
26.6	acc	lf	morph	dr.s	+
26.7	app	lx		np.s	c
27.0	coh	lf	ord	cls.r	+
27.1	coh	co		sadv.a	c
27.2	app	co		postmod.d	+
27.3	inf	co		app.d	-
27.4	com	lf	morph	dr.s	+
28.0	lev	lf	sc	sep.coo	c
28.1	com	co		vif.a	+
29.0	app	lx		dadv.s	+
30.0	inf	lx		np.s	+
31.0	coh	lx		np.s	+
32.0	inf	co		postmod.a	+
33.0	app	lf	morph	dr.s	+
34.0	oth	of		punct.s	u
35.0	inf	lf	csf	cls.s	-

CHANGE #	ANALYSIS OF CHANGE			QUALIF
	READING PROCESS	WRITING PRODUCT		
36.0	app	lx	verb.s	c
37.0	app	lf	ord word.r	+
37.1	coh	co	premod.a	+
37.2	acc	of	spell.s	+
38.0	app	lf	lls det.d	+
39.0	lev	of	punct.a	+
40.0	inf	lf	csf pro.s	+
41.0	app	lf	morph dr.s	+
42.0	acc	lf	lls prep.a	+
43.0	app	of	punct.s	u
44.0	inf	lf	csf el.s	+
45.0	inf	lx	verb.s	+
46.0	app	lf	lls det.d	+
47.0	coh	co	sadv.a	i



CHANGE #	ANALYSIS OF CHANGE				
	READING PROCESS	WRITING PRODUCT			QUALIF
1.0	app	lf	morph	ni.s	u
2.0	app	lf	lls	prep.s	+
3.0	acc	lf	lls	det.d	-
4.0	app	lf	lls	conj.s	+
5.0	app	lf	morph	ni.s	c
6.0	app	lx		verb.s	u
6.1	inf	co		postmod.d	+
6.2	app	lx		mod.s	c
6.3	inf	co		premod.a	+
7.0	app	of		punct.a	+
8.0	coh	lf	csf	pro.s	+
9.0	acc	of		spell.s	+
10.0	app	of		punct.a	+
11.0	lev	of		punct.a	+
12.0	app	of		punct.a	+
13.0	app	co		opdet.d	+
14.0	app	lf	lls	prep.s	+
15.0	acc	lf	lls	comp.d	+
16.0	app	of		punct.a	+
17.0	app	of		punct.d	-
18.0	inf	co		dadv.a	+
19.0	app	lf	csf	o.s	u
20.0	app	of		punct.s	+
21.0	lev	of		o.s	+
21.1	lev	of		o.s	+
21.2	lev	co		sadv.a	+
22.0	coh	lf	ord	cls.r	+
23.0	coh	lf	ord	phr.r	+
23.1	com	co		sadv.d	+
23.2	app	lf	ord	word.r	+
23.3	com	co		premod.a	+
24.0	app	lx		sadv.s	c
25.0	app	lx		verb.s	+
26.0	app	co		opdet.d	-
27.0	app	lf	morph	ni.s	u
28.0	lev	of		ind.s	+
29.0	app	of		punct.a	i
30.0	coh	co		premod.a	+
31.0	app	lf	ord	word.r	+
32.0	app	lx		verb.s	+
33.0	app	of		punct.d	+
34.0	lev	of		ind.s	+
35.0	coh	co		sadv.d	+
36.0	app	lf	lls	det.s	+
37.0	app	lf	ord	word.r	3
38.0	coh	lx		np.s	+
39.0	lev	lf	sc	sep.coo	+
40.0	app	of		punct.a	+
41.0	acc	lf	morph	dr.s	-
42.0	app	lx		np.s	+

CHANGE #	ANALYSIS OF CHANGE			
	READING PROCESS	WRITING PRODUCT		QUALIF
43.0	inf	co	premod.d	+
44.0	app	lf morph	ni.s	+
45.0	inf	co	premod.a	+
46.0	app	lf lls	det.a	+
47.0	lev	lf sc	sep.coo	+
47.1	inf	co	dadv.d	+
47.2	com	co	vif.a	+
48.0	lev	lf sc	sep.coo	+
49.0	acc	lf lls	det.d	i
50.0	is	lf ord	cls.r	+
50.1	is	lf ord	word.r	+
50.2	app	lx	verb.s	+
51.0	app	lf csf	o.s	u
52.0	inf	co	premod.a	+
53.0	app	lx	np.s	?
54.0	coh	lf ord	cls.r	+
54.1	app	co	sadv.d	c
54.2	app	lx	np.s	u
54.3	app	lf morph	ni.s	+
54.4	app	lf csf	o.s	u
54.5	com	lx	vif.s	+
55.0	lev	of	ind.s	+
56.0	app	lf lls	det.d	+
57.0	app	lf sc	sep.sub	+
57.1	app	lx	mod.s	+
58.0	inf	lf lls	det.s	+
59.0	app	lf lls	comp.a	+
60.0	acc	lf lls	det.a	+
61.0	app	lf csf	el.s	+
62.0	inf	lx	mod.s	?
63.0	coh	lf lls	conj.s	-

CHANGE #	ANALYSIS OF CHANGE				
	READING PROCESS	WRITING PRODUCT		QUALIF	
1.0	acc	lf	lls	det.a	+
2.0	com	lx		verb.s	+
3.0	acc	lf	lls	prep.s	c
4.0	inf	co		sent.a	+
5.0	app	of		punct.a	+
6.0	acc	lf	lls	det.d	-
7.0	app	of		punct.a	+
8.0	app	lx		np.s	-
9.0	app	lf	lls	prep.s	+
10.0	app	lx		adj.s	c
11.0	app	co		postmod.a	c
12.0	app	co		sadv.d	+
13.0	inf	co		cls.a	-
14.0	is	lf	ord	phr.r	+
14.1	app	lf	morph	ni.s	-
14.2	inf	co		dadv.a	u
15.0	oth	lx		dadv.s	?
16.0	coh	lf	csf	pro.s	+
17.0	coh	co		dadv.a	+
18.0	acc	lf	lls	prep.s	i
19.0	inf	lx		np.s	-
20.0	coh	lf	csf	cls.s	+
21.0	app	lf	lls	det.s	-
22.0	is	lf	ord	phr.r	+
22.1	inf	lx		np.s	+
22.2	app	lx		np.s	+
22.3	app	lf	csf	cls.s	i
23.0	app	lx		verb.s	i
24.0	app	lf	sc	comb.sub	-
25.0	coh	lf	morph	vi.s	+
26.0	app	lf	lls	prep.s	+
27.0	app	lf	lls	prep.s	+
28.0	app	lf	lls	det.d	-
29.0	app	lf	csf	el.s	i
30.0	app	of		punct.a	+
31.0	inf	co		dadv.a	+
32.0	acc	lf	morph	dr.s	+
33.0	coh	co		sadv.a	i
34.0	app	lx		sadv.s	c
35.0	is	lf	ord	phr.r	+
35.1	app	lf	lls	prep.s	+
36.0	acc	lf	lls	v.a	+
37.0	app	of		punct.a	+
38.0	app	lf	csf	el.s	c
39.0	lev	lf	ord	word.r	+
40.0	coh	co		sadv.a	+
41.0	app	of		punct.a	+
42.0	app	lf	sc	comb.sub	+
43.0	inf	lx		np.s	?
44.0	acc	lf	morph	dr.s	+

CHANGE #	ANALYSIS OF CHANGE				
	READING PROCESS	WRITING PRODUCT		QUALIF	
45.0	lev	of		punct.s	+
46.0	app	lf	lls	prep.s	+
47.0	app	lf	morph	vi.s	+
48.0	app	lx		np.s	+
49.0	inf	lx		np.s	+
50.0	app	lx		np.s	+
51.0	coh	co		dadv.a	i
52.0	app	lf	csf	cls.s	i
53.0	app	of		punct.a	+
54.0	coh	co		cls.a	c
55.0	acc	lf	lls	conj.d	c
56.0	app	lx		verb.s	+
57.0	is	lf	ord	word.r	+
58.0	app	lx		np.s	+
59.0	inf	co		premod.a	u
60.0	inf	lx		np.s	+
61.0	inf	co		postmod.d	c
62.0	com	co		sadv.a	?
63.0	is	lf	ord	word.r	-
64.0	app	lf	lls	det.s	+
65.0	inf	co		opdet.d	+
66.0	acc	lf	lls	prep.d	+
67.0	lev	of		ind.s	+
68.0	coh	co		sadv.a	u
69.0	acc	lf	lls	det.d	+
70.0	coh	lf	csf	pro.s	+
71.0	app	of		punct.a	+
72.0	app	lx		np.s	?
73.0	inf	co		dadv.a	+
74.0	inf	co		postmod.a	+
75.0	app	of		punct.a	+
76.0	app	lf	lls	prep.s	+
77.0	app	lx		np.s	-
78.0	inf	co		postmod.d	-

CHANGE # / PARICIP.	ANALYSIS OF CHANGE				
	READING PROCESS	WRITING PRODUCT			QUALIF
CIDA					
1.0	acc	lf	lls	det.a	n
2.0	acc	lf	lls	det.a	n
3.0	acc	lf	morph	vi.s	n
4.0	app	of		punct.a	n
5.0	app	of		o.s	n
6.0	app	lf	ord	word.r	n
7.0	acc	lf	morph	oi.s	n
8.0	app	lf	lls	det.s	n
9.0	acc	lf	morph	vi.s	n
10.0	coh	lf	csf	pro.s	n
11.0	inf	co		cls.d	n
12.0	coh	co		sadv.a	n
13.0	app	lf	lls	det.s	n
DONY					
1.0	app	lx		verb.s	n
2.0	app	lx		mod.s	n
3.0	is	lf	ord	cls.r	n
4.0	acc	lf	lls	prep.s	n
5.0	inf	co		postmod.d	n
6.0	acc	lf	lls	det.a	n
7.0	acc	lf	morph	oi.s	n
8.0	app	lf	morph	dr.s	n
9.0	acc	lf	morph	ni.s	n
10.0	coh	co		cls.a	n
11.0	coh	lf	csf	pro.s	n
12.0	lev	lf	ord	word.r	n
13.0	acc	lf	lls	det.d	n
14.0	app	lf	morph	vi.s	n
15.0	acc	of		spell.s	n
16.0	app	lf	lls	conj.s	n
17.0	app	lx		verb.s	n
ELISA					
1.0	coh	lf	morph	vi.s	n
2.0	acc	lf	lls	prep.s	n
3.0	app	lx		np.s	n
GUSTAVO					
1.0	acc	lf	lls	prep.s	n
2.0	acc	lf	morph	vi.s	n
3.0	app	lx		verb.s	n

CHANGE # / PARICIP.	ANALYSIS OF CHANGE				
	READING PROCESS	WRITING PRODUCT			QUALIF
4.0	acc	lf	lls	prep.a	n
5.0	acc	lf	lls	prep.d	n
HENRIQUE					
1.0	acc	of		o.s	n
2.0	acc	lf	morph	vi.s	n
3.0	acc	lf	morph	oi.s	n
4.0	acc	lf	lls	prep.s	n
5.0	coh	co		dadv.a	n
SILVIA					
1.0	acc	lf	morph	oi.s	n
2.0	acc	lf	lls	prep.s	n
3.0	coh	of		spell.s	n
THELMA					
1.0	app	lf	ord	word.r	n
2.0	coh	co		postmod.a	n
3.0	app	lf	morph	vi.s	n
4.0	coh	lf	csf	pro.s	n
5.0	app	lf	lls	prep.s	n
6.0	app	lf	lls	det.s	n
7.0	acc	lf	lls	det.a	n
8.0	coh	lf	csf	cls.s	n
9.0	acc	lf	lls	det.a	n
10.0	acc	lf	lls	prep.s	n
11.0	acc	of		spell.s	n
WILSON					
1.0	app	lf	morph	oi.s	n
2.0	acc	lf	morph	dr.s	n
3.0	acc	lf	morph	dr.s	n
4.0	acc	lf	lls	det.a	n
5.0	acc	lf	ord	word.r	n
6.0	app	lx		verb.s	n
7.0	coh	co		sadv.a	n
8.0	acc	lf	lls	prep.s	n

CODING OF CHANGES ACCORDING TO WHETHER OR  
NOT THEY WERE TREATMENT-SPECIFIC

CHANGE #	TYPE OF CHANGE
1.0	other
2.0	treatment
3.0	other
4.0	other
5.0	treatment
6.0	other
7.0	other
8.0	treatment
9.0	treatment
9.1	other
10.0	treatment
11.0	other
12.0	other
13.0	other
14.0	other
15.0	treatment
16.0	other
17.0	other
18.0	other
19.0	treatment
20.0	other
21.0	treatment
22.0	other
23.0	treatment
24.0	treatment
24.1	other
24.2	treatment
25.0	treatment
25.1	other
25.2	treatment
25.3	treatment
26.0	other
27.0	treatment
28.0	other
29.0	other



CHANGE #	TYPE OF CHANGE
1.0	other
2.0	other
3.0	treatment
4.0	other
5.0	treatment
6.0	treatment
7.0	treatment
8.0	treatment
9.0	other
10.0	other
11.0	other
12.0	other
13.0	other
14.0	treatment
15.0	treatment
16.0	other
17.0	other
18.0	treatment
18.1	other
18.2	other
19.0	other
20.0	treatment
21.0	treatment
22.0	treatment
23.0	treatment
24.0	other
25.0	other
26.0	other
27.0	other
28.0	other
28.1	treatment
29.0	other
30.0	other
31.0	other
32.0	other
33.0	other
34.0	treatment
35.0	other
36.0	treatment
36.1	treatment
36.2	treatment
36.3	other
36.4	other
37.0	other
38.0	treatment
39.0	other
40.0	other
41.0	other
42.0	other
43.0	treatment

CHANGE #	TYPE OF CHANGE
44.0	treatment
45.0	other
46.0	other
47.0	treatment
48.0	other
49.0	treatment
50.0	other

CHANGE #	TYPE OF CHANGE
1.0	treatment
2.0	treatment
2.1	other
2.2	other
2.3	other
3.0	treatment
4.0	other
5.0	other
6.0	other
7.0	other
8.0	other
9.0	other
10.0	treatment
11.0	treatment
12.0	treatment
13.0	treatment
14.0	other
15.0	treatment
16.0	other
17.0	treatment
17.1	other
18.0	other
19.0	other
20.0	other
21.0	other
22.0	other
23.0	treatment
24.0	other
25.0	treatment
26.0	treatment
27.0	other
28.0	treatment
29.0	treatment
30.0	other
31.0	other
32.0	other
33.0	treatment
34.0	treatment
35.0	other
36.0	other
37.0	treatment
38.0	treatment
39.0	other

CHANGE #	TYPE OF CHANGE
1.0	treatment
2.0	treatment
3.0	treatment
4.0	other
5.0	treatment
6.0	other
7.0	other
8.0	treatment
9.0	other
10.0	treatment
11.0	treatment
12.0	treatment
13.0	treatment
14.0	treatment
15.0	treatment
16.0	treatment
17.0	treatment
18.0	treatment
19.0	other
20.0	other
21.0	treatment
22.0	treatment
23.0	other
24.0	other
25.0	treatment
26.0	treatment
27.0	other
28.0	treatment
29.0	other
30.0	other
31.0	treatment
32.0	other
33.0	other
34.0	treatment
35.0	treatment
36.0	treatment
37.0	treatment
38.0	treatment
39.0	treatment
40.0	treatment
41.0	treatment

CHANGE #	TYPE OF CHANGE
1.0	other
2.0	treatment
3.0	treatment
4.0	treatment
5.0	treatment
6.0	other
7.0	treatment
8.0	treatment
9.0	treatment
10.0	treatment
11.0	other
12.0	treatment
13.0	other
14.0	treatment
15.0	treatment
16.0	treatment
17.0	treatment
18.0	treatment
19.0	treatment
19.1	other
20.0	other
21.0	treatment
22.0	other
23.0	other
24.0	treatment
25.0	treatment

CHANGE #	TYPE OF CHANGE
1.0	other
2.0	other
3.0	other
4.0	treatment
5.0	treatment
6.0	treatment
7.0	other
8.0	treatment
9.0	treatment
10.0	treatment
11.0	other
12.0	treatment
13.0	other
13.1	treatment
14.0	treatment
15.0	other
16.0	other
17.0	other
18.0	other
19.0	treatment
19.1	other
20.0	treatment
20.1	other
21.0	treatment
22.0	other
23.0	other
24.0	other
25.0	treatment
26.0	treatment
26.1	treatment
26.2	treatment
26.3	other
26.4	treatment
26.5	other
26.6	other
26.7	treatment
27.0	other
27.1	treatment
27.2	other
27.3	treatment
27.4	treatment
28.0	treatment
28.1	treatment
29.0	other
30.0	other
31.0	other
32.0	treatment
33.0	other
34.0	other
35.0	other

CHANGE #	TYPE OF CHANGE
36.0	other
37.0	treatment
37.1	other
37.2	other
38.0	other
39.0	treatment
40.0	treatment
41.0	other
42.0	other
43.0	other
44.0	treatment
45.0	other
46.0	other
47.0	treatment

CHANGE #	TYPE OF CHANGE
1.0	other
2.0	other
3.0	other
4.0	treatment
5.0	other
6.0	other
6.1	other
6.2	other
6.3	other
7.0	treatment
8.0	treatment
9.0	other
10.0	treatment
11.0	treatment
12.0	treatment
13.0	other
14.0	other
15.0	other
16.0	treatment
17.0	treatment
18.0	treatment
19.0	other
20.0	treatment
21.0	treatment
21.1	treatment
21.2	treatment
22.0	treatment
23.0	treatment
23.1	treatment
23.2	other
23.3	treatment
24.0	treatment
25.0	other
26.0	other
27.0	other
28.0	other
29.0	treatment
30.0	other
31.0	treatment
32.0	other
33.0	treatment
34.0	other
35.0	treatment
36.0	treatment
37.0	other
38.0	treatment
39.0	treatment
40.0	treatment
41.0	other
42.0	other



CHANGE #	TYPE OF CHANGE
43.0	treatment
44.0	other
45.0	treatment
46.0	other
47.0	treatment
47.1	other
47.2	treatment
48.0	treatment
49.0	other
50.0	treatment
50.1	treatment
50.2	other
51.0	other
52.0	treatment
53.0	other
54.0	treatment
54.1	treatment
54.2	other
54.3	other
54.4	other
54.5	treatment
55.0	other
56.0	other
57.0	treatment
57.1	other
58.0	other
59.0	other
60.0	other
61.0	other
62.0	other
63.0	treatment

CHANGE #	TYPE OF CHANGE
1.0	other
2.0	other
3.0	other
4.0	treatment
5.0	treatment
6.0	other
7.0	treatment
8.0	other
9.0	other
10.0	other
11.0	other
12.0	treatment
13.0	treatment
14.0	treatment
14.1	other
14.2	other
15.0	treatment
16.0	treatment
17.0	treatment
18.0	other
19.0	other
20.0	other
21.0	treatment
22.0	treatment
22.1	other
22.2	other
22.3	other
23.0	other
24.0	treatment
25.0	other
26.0	other
27.0	other
28.0	other
29.0	other
30.0	treatment
31.0	other
32.0	other
33.0	treatment
34.0	treatment
35.0	treatment
35.1	other
36.0	other
37.0	treatment
38.0	other
39.0	treatment
40.0	treatment
41.0	treatment
42.0	treatment
43.0	other
44.0	other

CHANGE #	TYPE OF CHANGE
45.0	other
46.0	other
47.0	other
48.0	other
49.0	other
50.0	other
51.0	treatment
52.0	other
53.0	treatment
54.0	treatment
55.0	other
56.0	other
57.0	treatment
58.0	treatment
59.0	other
60.0	other
61.0	other
62.0	treatment
63.0	treatment
64.0	treatment
65.0	other
66.0	other
67.0	other
68.0	treatment
69.0	other
70.0	treatment
71.0	treatment
72.0	other
73.0	other
74.0	other
75.0	treatment
76.0	other
77.0	other
78.0	other

## CHANGES BY NS PROOFREADERS

## APPENDIX VII

CHANGE # / PARICIP.	TYPE OF CHANGE
CIDA	
1.0	other
2.0	other
3.0	other
4.0	treatment
5.0	other
6.0	other
7.0	other
8.0	treatment
9.0	other
10.0	treatment
11.0	other
12.0	treatment
13.0	other
DONY	
1.0	other
2.0	other
3.0	treatment
4.0	other
5.0	other
6.0	other
7.0	other
8.0	other
9.0	other
10.0	treatment
11.0	treatment
12.0	other
13.0	other
14.0	other
15.0	other
16.0	other
17.0	other
ELISA	
1.0	other
2.0	other
3.0	treatment
GUSTAVO	
1.0	other
2.0	other
3.0	other

CHANGES BY NS PROOFREADERS

APPENDIX VII

CHANGE # / PARICIP.	TYPE OF CHANGE
4.0	other
5.0	other
HENRIQUE	
1.0	other
2.0	other
3.0	other
4.0	other
5.0	treatment
SILVIA	
1.0	other
2.0	other
3.0	other
THELMA	
1.0	treatment
2.0	other
3.0	other
4.0	treatment
5.0	other
6.0	other
7.0	other
8.0	other
9.0	other
10.0	other
11.0	other
WILSON	
1.0	other
2.0	other
3.0	other
4.0	other
5.0	other
6.0	other
7.0	treatment
8.0	other