

**University of Glasgow**

**Typeface effects in written language**

**Functions of typeface change for signalling  
meaning within text**

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Erica McAteer,  
Glasgow, 1988

**"Typography, in its nature and origin, and still more  
in its stupendous results, is a legitimate subject of  
curiosity and attention."**

**From *A Typographical gazetteer*, (2nd) edition, The Rev. Henry Cotton,  
Sublibrarian of the Bodleian Library, Oxford University Press, 1831.**

## ABSTRACT

Typeface change is one of the resources of written language which, in combination with other paralinguistic signs available to that system (use of space, punctuation, syntax manipulation are examples), can facilitate the author's intended interpretation.

The thirteen studies undertaken for this research project explored the effects of typeface manipulations upon subjects' interpretations of brief texts, testing the efficiency of two conventional forms of emphasis, capital letters and italic print.

Studies one to four specifically addressed issues of distinction between the two typefaces. It was found that both forms of typeface could function to intensify certain adjectives on a simple measurement scale, with capital letters providing quantifiably 'more' to a referent than italics, as italics did over plain case.



Both typefaces were tested for their ability to provide modulatory or contrastive emphasis for a word, where it was found that effects differed between the typefaces, suggesting divergent functions. Subjects' responses to a direct request to describe differences between capital and italic print, supported these findings.

Studies five to nine examined the effects of typeface change and sentence sequence upon texts, by asking subjects to rank versions where these variables were manipulated. Strong concordances were found to be linked to information structure within the texts.

Study ten took the same set of texts and presented versions individually to subjects in a story continuation task. The effects of emphasis and information sequence which were found suggest again the importance of content, which cooperated or conflicted with other paralinguistic signals in a text. The 'foregrounding' effect of typeface emphasis on secondary information increased its availability for the production of continuation content.

Studies eleven to thirteen looked at typeface change as a facility for signalling theme maintenance or enhancement, operating to disambiguate texts by reinforcing their 'default' or natural readings, as well as its efficiency in signalling theme shift by contrastive emphasis. Different strategies of typeface emphasis were found to function for each of these requirements.

Throughout all the studies, both forms of typeface emphasis were tested, either in contrast or in combination. Evidence accumulated to suggest that capital letters functioned best for providing modulatory emphasis, italic print for contrastive. Outside this issue of individual differences, typeface change itself was found to be an efficient strategy for indicating the author's intended interpretation to the reader.

**CONTENTS:**

PAGE NO.

|   |           |
|---|-----------|
| <b>Section 1: Preliminary aspects</b>                       | <b>1</b>  |
| Chapter 1: Background                                       | 3         |
| Chapter 2: Introduction                                     | 26        |
| Chapter 3: Basic Effects                                    | 41        |
| Study 1: Measuring Emphasis                                 | 42        |
| Study 2: Connotative Interpretations                        | 53        |
| Study 3: Modulation and Contrast                            | 56        |
| Study 4: Subjective Views on Emphasis Types                 | 60        |
| <b>Section 2: Rhetorical Aspects</b>                        | <b>68</b> |
| Chapter 4: Proper Emphasis for Written Texts                | 70        |
| Study 5: Public Warning                                     | 71        |
| Study 6: Thriller Fiction                                   | 87        |
| Study 7: Detective Fiction                                  | 100       |
| Chapter 5: Information Sequence and Emphasis                | 111       |
| Study 8: Proper Order                                       | 112       |
| Study 9: Emphasis and Order                                 | 121       |
| Chapter 6: Emphasis, Sequence and Information Salience      | 137       |
| Study 10: Emphasis and Order Effects on Story Continuations | 141       |

|   | PAGE NO. |
|---|----------|
| <b>Section 3: Typeface Emphasis and Semantic Structure</b>  | 180      |
| <b>Chapter 7: Stress and Pronominal Resolution</b>  | 184      |
| <b>Study 11: Testing Strategies for Disambiguation</b>  | 192      |
| <b>Study 12: Consensus on Typeface Emphasis Strategies</b>  | 208      |
| <b>Chapter 8: Testing Strategies for reinforcing or shifting pronominal reference.</b>                    | 227      |
| <b>Studies 13a</b> .....  | 229      |
| <b>13b</b> .....  | 238      |
| <b>13c</b> .....  | 242      |
| <b>13d</b> .....  | 249      |
| <b>Overall Conclusion</b> .....   | 253      |
| <br><b>Section 4: Conclusion</b>  | <br>265  |
| <b>Chapter 9: Capitals or Italics?</b>  | 266      |
| <b>Chapter 10: Assessment and Summary</b>   | 278      |
| <b>References:</b>  | 285      |
| <b>Appendices:</b> Appendix 1 is appended to this volume.<br>Appendices 2 and 3 are available separately. |          |
| Appendix 1: Responses to Questionnaire on Capitals and Italics  |          |
| Appendix 2: Transcripts of Subjects' Explanations for Ranking: Studies 5-9                                |          |
| Appendix 3: Transcripts of Subjects' Explanations of Sentence Choice: Study 10                            |          |

## SECTION ONE: Preliminary aspects

The study domain for this research is written text. The definition of 'text' provided by Gillian Brown (1983, p.20) is "a record of a communicative act", and the concern is with intentional communicative acts, where any resources of the language system used can be exploited by the communicator to facilitate an intended interpretation of the text. The phenomenon under analysis is typeface emphasis: changing font, case or size of print for a word or words within a text, the concern of the studies being to identify any effects of such changes upon the interpretation of the text.

From a psychological perspective, within the general research domain of communication, the functions of typeface emphasis within written text have not been specifically addressed to any great degree, and a full-scale literature review is therefore not feasible. To treat the various bodies of research that touch on or relate to the topic at too great a length would suggest too many, possibly inappropriate, perspectives from which to work. Rather the following two chapters, providing a fairly broad background to the studies undertaken and reported, acknowledge dependency upon literature from various areas and reference any papers from which specific points have been taken.



Chapter One takes a backgrounding perspective on the phenomenon of typeface change, its occurrence and the assumptions made of its function within written text. Chapter 2 leads up to an introduction to the studies themselves by considering the requirements of text, and strategies for meeting these from the resources of the written language system. Chapter 3 reports four preliminary studies, which sought functional information about typeface change in written texts.

## CHAPTER 1: Background

We cannot produce a word without its having some sort of physical embodiment. The spoken word is a sequence of sounds, the written word a sequence of shapes. We do not need specific and constant sound or shape-sequences to be able to recognise a written or spoken expression as a particular word. Studies in both language systems have found that difficulties in deciphering a word on minimal information are greatly overcome, or negated altogether, by interpretation of co-text: the surrounding words, plus a partial expression of the target word, are often enough to enable accurate recognition of the word itself (for recent discussion of this, see Ellis and Beattie, 1986). We know that in speech the immediate co-text has an interfering as well as a facilitatory function for interpretation - at one level the sounds of the preceding and subsequent words affect how much of the target word is actually pronounced at all, while at another the sense of the surrounding words works towards the interpretation of the target word.

In spoken language, constancy is the exception rather than the rule. Regional differences in pronunciation, the circumstances in which the speech is produced (conversing from one room to another, over the telephone, on an intercity express, at a disco) have their effect. Written text is

similarly varied: hastily scribbled notes; long painstaking letters carefully penned with such uniformity of lettering style that it is very hard to distinguish between the words at all; celebratory messages in firework displays; the pages before you now. Even the printed word can vary dramatically between communicatory contexts: Scottish schoolchildren taking 0-grade German, up until about fifteen years ago, found all their exam questions presented in Gothic script.

However, after any initial decoding, there are constancies within a text, spoken or written, which render any sudden difference in overall rhythm or pattern remarkable, interrupting the interpretative flow and focussing the attention of the reader. The unit concerned becomes figure, against the ground of the text - it is **emphasised**.

Emphasis is one of a bundle of paralinguistic signs that accompany the actual words of a text, working cooperatively with them to facilitate the interpretation intended - in other words, working to fulfil the communicatory function of the text. The interpretative process is synergic, a cooperation of processes, each of which is contingent upon the others, working as a unit. The aim of this synergic processing is **harmony**: the combination or adaptation of parts so as to form a consistent and orderly whole. In discussing verbal and non-verbal signs, Eco (1976, p.174) states "...without doubt



verbal language is the most powerful semiotic device that man has invented; but nevertheless other devices exist, covering portions of a general semantic space that verbal language does not. In order to be so powerful, it (verbal language) must often be helped along by other semiotic systems which add to its power." Jakobson (1978, p.99) describes phonatory acts as being akin to musical chords.

In spoken language, paralinguistic properties function on the axis of succession. They are always relations which are based on the temporal axis, on the sequence of the successive units. For example, stress is a property which presupposes, in an actual sequence, an opposition between units endowed with stress and those devoid of stress (Jakobson, 1978, p.104). In written language, this applies also within the space parameter (up-down, right-left, larger-smaller, etc) decisions on where to place a crucial word within a text, and/or the size and shape chosen for its presentation, will have a direct relation to the whole text, in its setting. It is this property of emphasis, opposition of figure against ground, that must determine its functions within the language system. A point to bear in mind is that, although generally 'ground' is taken to be the surrounding text, a whole text presented in, say, capital letters, as "BEWARE OF THE DOG" is still emphasised, against an implicit background of 'normal print'.

Paralinguistic elements of communication are signs in their own right. By looking at their operation in concert with other inputs, it may be possible to establish something of their individual meaning.

Certain signs in language could be described as iconic, their forms imitating what they signify, or as providing analogs of their meaning (the larger the print, or the louder the voice, the more important the word), whereas the words themselves are symbols, having an arbitrary relationship to what they represent. This relates to Plato's differentiation of language signs as 'natural' (*phyrsei*) or 'conventional' (*thesei*), and this division may be inappropriate. For both language systems, it seems more sensible to adopt, in general terms, the position of Bolinger (1981), Eco (1976) and others on paralinguistic signs in spoken language: gestural signs such as beckoning or pointing should classify as 'natural' - they 'mean what they are'. Others - ritualistic gestures, particular stances, are no longer natural but now mean 'by agreement'. Gestures of insult, in many cases apparently natural (even disturbingly so), are often conventional to a time and culture - and uninterpretable outside it:

"Do you bite your thumb at me, Sir?"

"No Sir, I do not bit my thumb at you, Sir. But I do bite my thumb."

(Abraham and Samson, in Shakespeare's *Romeo and Juliet*).

Clearly, the distinctions blur - a phenomenon familiar to any study of language - and dividing classificatory lines are often misplaced. Eco, in his "critique of iconosm" (1976, p.191) points out that 'conventional' should not be equated with 'arbitrary', nor oppose 'natural' in the classification of signs. "...the core of the problem is obviously the notion of convention, which is not co-extensive with that of an arbitrary link but which is co-extensive with that of cultural link". The notion of 'arbitrary' itself, although in an external sense accurately applied to the relation between most words and their referents, is not necessarily appropriate in psychological terms. Bolinger (1983, p.129) points out that "though the (language) system in all its smaller parts may be more symbolic than iconic, we sense it as iconic, and treat it so in daily small acts of creation and readjustment. When a child says *gooder* instead of *better*, it is only because *good* has been learned as the proper symbol for good and any deviation from it adds to the arbitrariness - makes it less iconic." Here too, culture or speech community is at issue: "The question of the arbitrary relation or the necessary connection between the signified and the signifier cannot be answered except by reference to a given state of a given language" states Shapiro (1983), his example being that "a

peasant woman from Francophone Switzerland has a right to be astonished - how can cheese be called *kase* since *fromage* is its natural name?" Bowing is a conventional gesture of greeting or acknowledgement in one country, an unusual gesture of self-abasement in another.

The points taken above are given to illustrate how any text, whether spoken or written, contains a mixture of signs which can operate at different levels for its proper interpretation. Distinctions which may be arguable from a philosophical, or a linguistic, point of view, shift too easily within a psychological perspective to enable any individual text element to be ascribed to any specific, or constant, interpretative level. One simply has to admit with Bolinger (1986, p.30) "Communication in general is a voracious user of just about anything that can conveniently serve to convey meaning." An example of a strategy only available to written discourse shows this in a delightful way:

"We might go in your umbrella" said Pooh.

"?"

"We might go in your umbrella" said Pooh.

"??"

"We might go in your umbrella" said Pooh.

"!!!!!!"



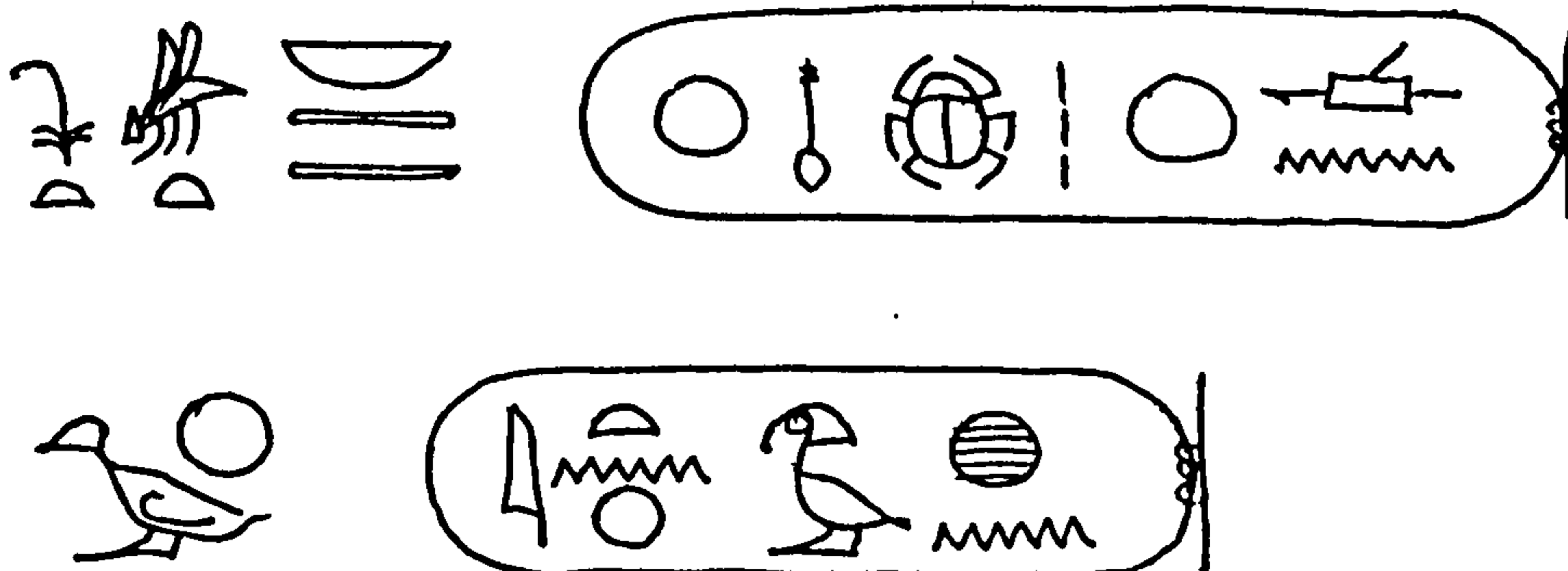
For suddenly Christopher Robin saw that they might.  
(from Winnie the Pooh, by A. A. Milne, a conversation between Pooh and Christopher Robin.)

But of course, in order to convey meaning, the signs must be interpreted. Whatever their referent relationship - iconic, analogical, arbitrary - paralinguistic signs must be read and integrated within the ongoing interpretation of the text. To abuse or extend the conventional use of a sign, it must have a natural, or 'default' meaning, which must agree between communicator and recipient.

Accepting a functional equation of meaning with use, and making no pretence of tracing the whole history of physical emphasis within the development of written language, we can look briefly and selectively at evidence from the past before turning to present day usage of this resource.

Within-text emphasis as we use it today was unknown to ancient writing systems (Lakoff 1982). In fact, similarly to this country in the early days of privileged literacy, no distinction was made between one word and another - it was up to the writer where he left his gaps. Even so, as long ago as 3,000 BC text conventions applied which served the function of setting certain elements as figure against ground. Egyptian texts from the early dynastic period present the name of the king - or any past sovereign - enclosed in a

**Figure 0.1: The name of Akhenaton, King of Egypt.  
(1367-1350 BCE)**



**Translation:**

|   |                          |   |             |
|---|--------------------------|---|-------------|
| Sedge and Bee<br>(King of Upper<br>& Lower Egypt) | Lord of the<br>two lands | {Beautiful are the<br>{becomings of Ra. | Ra is one.} |
|---|--------------------------|---|-------------|

|                                   |  |
|-----------------------------------|--|
| Son of Ra.<br>(ie Son of the Sun) | {Akhenaten}<br>(trans: Glory's splendour of the<br>sun-disc) |
|-----------------------------------|--|

Drawings and translations by Dr. Nicolas Wyatt, Department of Old Testament Studies, University of Edinburgh.

*cartouche*, giving a 'box' effect, as Fig. 0.1 shows. Certain constant signs - the 'sedge' and 'bee' for example, indicating kingship - always accompany the name, but *outside* the 'box'. It is the particular name for a king, and certain unique titles, which are emphasised by enclosure within the cartouche. Sumerian writing placed a star-sign before a word if that word was to be read as naming a god. Hebrew texts

made use of a single capital letter, or capitalised acronym, for this purpose and continue to do so. The Rev. Cotton (1831, p.269) said of this:

"still however, we must not pronounce it a fault if we happen to meet in some Bibles with words that begin with a letter of much larger body than the text, nor need we be astonished to see words with letters in them of much less body; or wonder to see final letters used in the middle of words. For such notes shew that they contain some particular and mystical meaning."

Believers or not, today we still use print change to distinguish God from god!

Hand written documents from the middle ages to the present day make use of various strategies to indicate information salience. Middle English texts show the progenitors of our choice of fonts in the large variety of scripts used for different kinds of text, depending on their purpose. Very often, within one document, two scripts would be used, one for the text itself and one for the commentary accompanying it. Quoted material, and words not filling their usual role within a manuscript (which we would place between quotation marks, or in italics) were sometimes enclosed in a sort of open-topped box (Hector, 1966). Underlining, use of upper case, even thickening the lettering by change of quill or nib or by applying different pressure over certain strokes, was common. A study of one's own personal correspondence, or notes penned to self as reminders, will show the same individuality of



emphasis strategies, which nonetheless follow certain overall conventions and are generally interpretable. Charles Dickens used underscoring of one, two or three lines, and 'boxing', for his chapter frameworking notes.

The invention of print techniques brought standardisation, with options and the conventions for their use developing as a function of requirement and technology. J. Johnson, printer, wrote in 1824 (p.29) that "A fount of this day is rarely ordered without small capitals and italic letters" and gives useful and interesting information about both. The invention of an italic font is attributed to a Roman, Aldus Manutius, in 1496 and Sampson (1985, p.113) dates the practice of mixing italic and roman lettering within a text, to the mid-sixteenth century, with italic "reserved for such purposes as emphasis and differentiation." According to Johnson, "that beautiful letter" was originally designed "to distinguish such parts of a book as might be considered not to belong to the body of the work - as prefaces, introductions, annotations, etc. As regards its use within a text, his feelings are clear -

"To plead the necessity of Italic to distinguish proper names of persons and places would be altogether needless and to argue that the present age is less capable of apprehension than our forefathers, who knew the sense and meaning of words before Italic existed, at a period when one kind of type served for the title, body and all the other parts of a work....It would be a desirable object if the use of Italic could be governed by some rules....



that the frequent use of Italic is useless, and generally absurd, cannot be doubted.  
(1824, p.7)

In Johnson's time, there seems to have been a similar confusion of function between capital and italic typefaces that we find today as his comments on capital letters indicate:

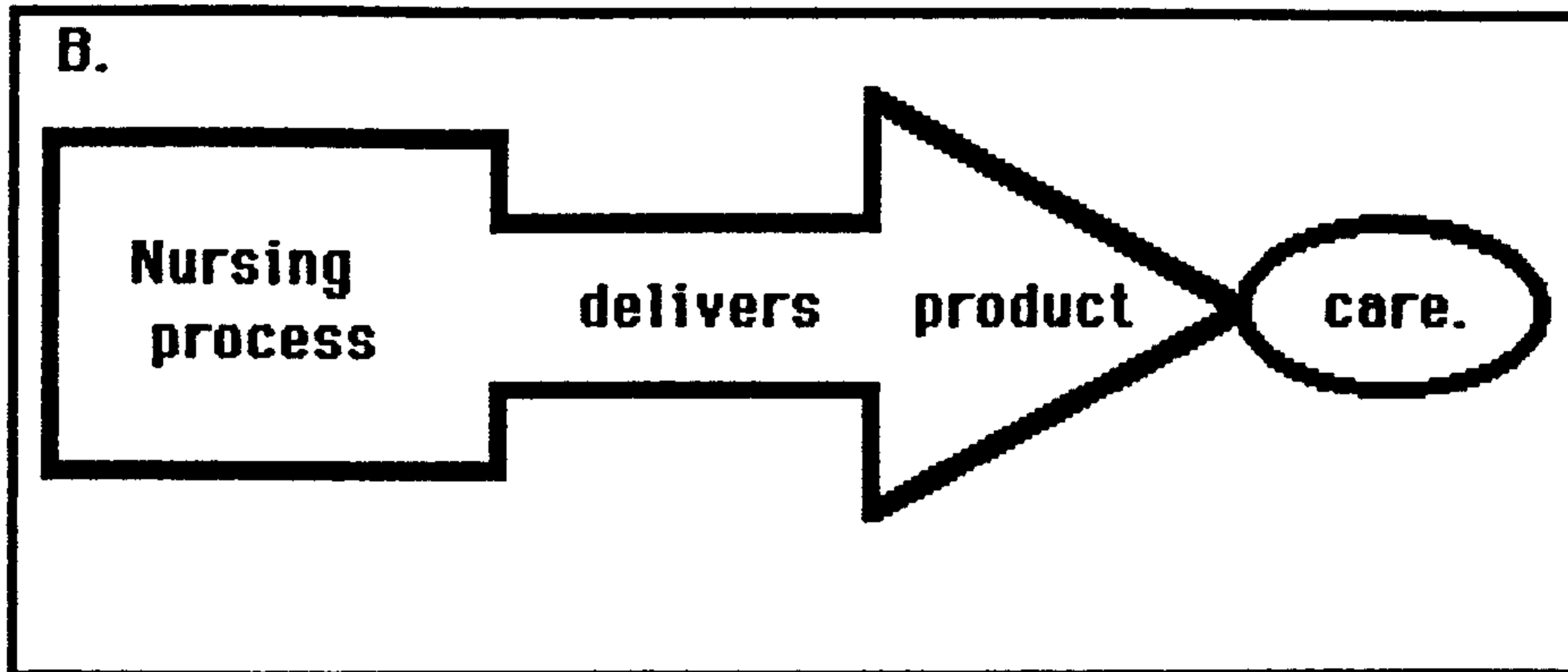
The use of capitals has been considerably abridged of late years and the antiquated method of using them with every substantive, and sometimes even with verbs and adverbs, is now discontinued. They are considered, in the present day, as necessary only to distinguish proper names of places etc. There are, however, particular works in which authors deem it essential to mark emphatical words with a capital.... Small capitals are used for the purpose of giving a stronger emphasis to a word than can be conveyed to it by its being in Italic.  
(1824, p.33)

These few examples show a continuing assumption that a change in form for a word or words implies its importance, relative to the surrounding text. Given the facility typeface change provides for giving a word figure against the background of the text, this makes sense. Clearly, conventions of use developed and changed, but no hard and fast rules distinguishing functions, particularly in terms of kinds of typeface, can be established.

Within the service industries today - advertising, market research, management services, media and communications, presentation of a message has long stood parallel with content - "It isn't what he says, it's the way that he says it". Training in what could be termed the physical

techniques of communication in these fields is based on experience of what works best (though with scant attention to how, or why). The technological advances within the communications industry have made the techniques of information presentation available to the world at large. In what might be considered the relatively quiet backwaters of academia, the facilities of most departments now extend beyond electric typewriters with secretary attached, and terminals accessing the institutional mainframe, guarded by manuals of daunting weight. The standard fonts available for the unsophisticated requirements of the Macwrite word processing system that comes in the package accompanying the Apple Macintosh series of mini-computers include Chicago, Geneva, Helvetica, Monaco, New York, Times and Venice, as well as the Courier font chosen for this paper. The range of public domain fonts available free to Macintosh users exceeds two hundred. All can be enlarged or decreased through at least six places, italicised, expressed in bold print or capital letters, underlined, outlined or shadowed. It would be possible to produce a medium-length scientific paper without any word being in the same typeface! The system is very easy to use and simple to apply: Figure 0.2 shows a slide from a departmental presentation:

**Figure 0.2**

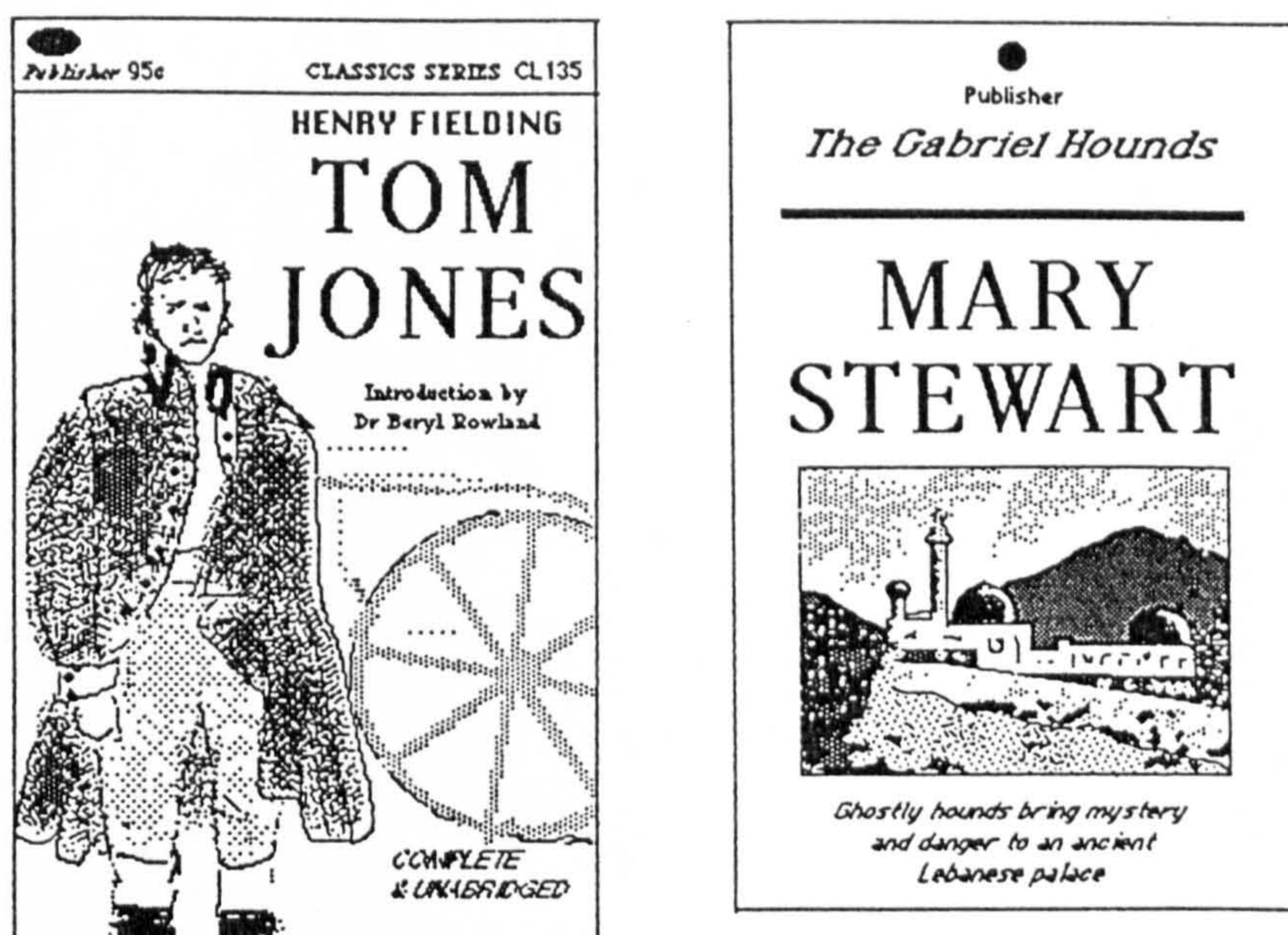


This presents the underlying theme of the whole presentation, making its point via simple analogy, underlining that analogy by repetition of message structure at two levels - within-text, and global presentation.

There is a growing field within writing research which concentrates on typeface change in terms of the global structuring of text, of which Nystrand (1982), Hartley (1987), and (Waller 1987) are examples. Figure 0.3 shows Waller's example of print emphasis for the salient information on two book covers. Note that the content salience shifts between



Figure 0.3



(Taken from Britton & Glyn, (ed) 1987 with the permission of the author and the publishers, Lawrence Erlbaum Associates, New Jersey)

the two, and the physical emphasis shifts with it. Waller's point was that, if one cover's reading was predictable from the other, then one may either have a book called *Henry Fielding* by Tom Jones, or a book called *Mary Stewart* by The Gabriel Hounds. An underlying assumption, of course, is that while people know that *Tom Jones* is a story, perhaps from seeing the film (hence the salience of *COMPLETE AND UNABRIDGED*), it is a fair guess that the name of the author is not familiar, so there is little point in making this the focus of attention. The reverse is the case with the second book cover: "Another one of hers... (eyes up to title)...I



haven't read it yet... (eyes down to rather lengthy blurb)...but it looks like the kind of story I like."

In the literature from this field of research, comparatively little mention is made of the use of typeface change for within-text emphasis. Hartley (1987, p.69), studying typographic and layout effects, says only "There has been very little research on the use of italic or bold face as a cue to signal the importance of a certain word." Waller, (1987, p.90), also treating at an overall text design level, suggests that "it is possible to use italics and bold type to add some vocal quality to writing, but it quickly becomes absurd".

Those papers that deal comparatively with spoken and written language (Tannen, 1984, and Lakoff, 1982 among others), though making some excellent points in relation to the two systems, also give fairly shallow treatment to the particular issue of emphasis. They share a general assumption that any paralinguistic resources available to written language must poorly and inadequately shadow those available to speech:

"These points of emphasis that are made so naturally by the human voice can only be suggested in writing"--(Bolinger, 1986, p.3).

This seems a good time to consider the use of such resources for written language beyond their capabilities for the overall, global structuring or 'landscaping' of text.

Although assumptions obviously exist, underlying the conventions which dictate when and where to change letter shape, and which typeface to use, there has been little, if any, empirical research into the interpretative effects of within-text typeface change. Here, whilst it may be safe to assume that physical salience indicates information salience, that salience must also be interpreted. That is to say, the recipient needs to know why a particular information unit is important - perhaps not explicitly, but at some level of integration, the emphasis must make sense.

Course textbooks nowadays often use bold for key points, which are listed again and briefly defined at the end of a section. This and other practices suggest an assumption that different typefaces serve the function of indicating different *levels* or *modes* of information salience within a text. However, this can have a confounding effect on interpretation if taken to excess; the following example was taken from the introduction to a book on written discourse:

The functional analysis of language highlights mainly the resources of language (cf Halliday, 1978) FOR ESTABLISHING AND MAINTAINING SHARED UNDERSTANDINGS BETWEEN CONVERSANTS IN PARTICULAR contexts of situation (cf Firth, 1950; Malinowski, 1923); and its use or occurrence is therefore an ACTIVITY INVOLVING APPROPRIATE WAYS OF GETTING ON IN PARTICULAR SPEECH COMMUNITIES. These ways-of-speaking take the form they do largely because of conversants' or users' need to function in particular situations.  
(taken from Nystrand, 1982, p.9)

This seems to require several readings, and it remains difficult to properly integrate the section of text which follows the semi-colon with that which precedes it.

However, training may make things easier. Another book, this time an introductory work on text linguistics, has an even busier landscape but provides decoding information on a separate page at the front of the book:

**Orthographic conventions:**

Linguistic samples are enclosed in *single* quotes, with all punctuation excluded if not part of the sample; other quotations are in double quotes. Main terms are introduced in SMALL CAPITALS. We use **bold type** for terms where we wish to stress their usage according to our approach. The paragraphs are numbered throughout for greatest ease in indexing and cross-referencing.

(Taken from de Beaugrande & Dressler, 1981)

This use of available resources to signal informational salience in its own right differs from another established function of typeface emphasis, to focus attention at a *grammatical* level of interpretation. Typeface change is conventionally used to indicate or maintain theme, disambiguate reference, or distinguish given from new information. This example, from Jane Austen's *Pride and Prejudice* is given in Brown & Yule (1986, p.7) to show how publishers reproduce an author's expression of contrast:

"Nay", said Elizabeth, "this is not fair. *You* wish to think all the world respectable, and are hurt if I speak ill of anybody. *I* only want to think you *perfect*".

An operational difference between the functions attributed to the typeface changes used for the Nystrand and the Jane Austin examples given above, is that the first requires one interpretative step, focussing attention directly upon the referent of the emphasised word(s), while the second implies a further stage wherein the contrasting set is also referenced. In the text above, '*You*' also means 'not I', and *vice versa*. '*Perfect*' is contrasted with 'respectable'. For both functions, emphasis is assumed to act with the word itself to mediate the interpretation of the text.

A rough distinction between the two functions exemplified above can be suggested by classifying them as intending either **modulatory emphasis** or **contrastive emphasis**. Modulatory emphasis indicates the relative importance of a particular information unit within a text, or in some way modifies that unit. Contrastive emphasis contrasts the information content of one unit with that provided by another, either in the text or presupposed.

The theories of the functional grammar school (Dik, 1980) relate intonational stress to communicatory focus, suggesting three broad function categories, with finer sub-categorical



distinctions: **completive**, **contrastive**, and **modulatory**.  
The first two categories can be illustrated by the following  
question-answer pairs:

1) "What did John buy?" "John bought a book."

2) "Did John buy a hat?" "John bought a book."

In (1) the focus is completive - according to Dik (1981) this  
category of focus "does not involve any specific contrast; it  
relates to a presupposition, but not to a *specific*  
presupposition concerning the identity of the unknown entity."

The focus in (2) is contrastive - "usually restricted to the  
more specific case, in which one piece of information, say X,  
is explicitly or implicitly opposed to some other piece of  
information, say Y, which stands in some specific relation of  
opposition to X in the given setting." Thirdly, presupposing  
the addressee's knowledge of "John" as a person who is  
renowned for his collection of videos, comics and compact  
discs, the stress in (3) would be modulatory, reflecting  
directly upon the content of the word itself:

3) "Guess what John bought?" "John bought a book!"

As argued earlier in this chapter, the various elements of a  
language system are, individually, sign-systems in their own

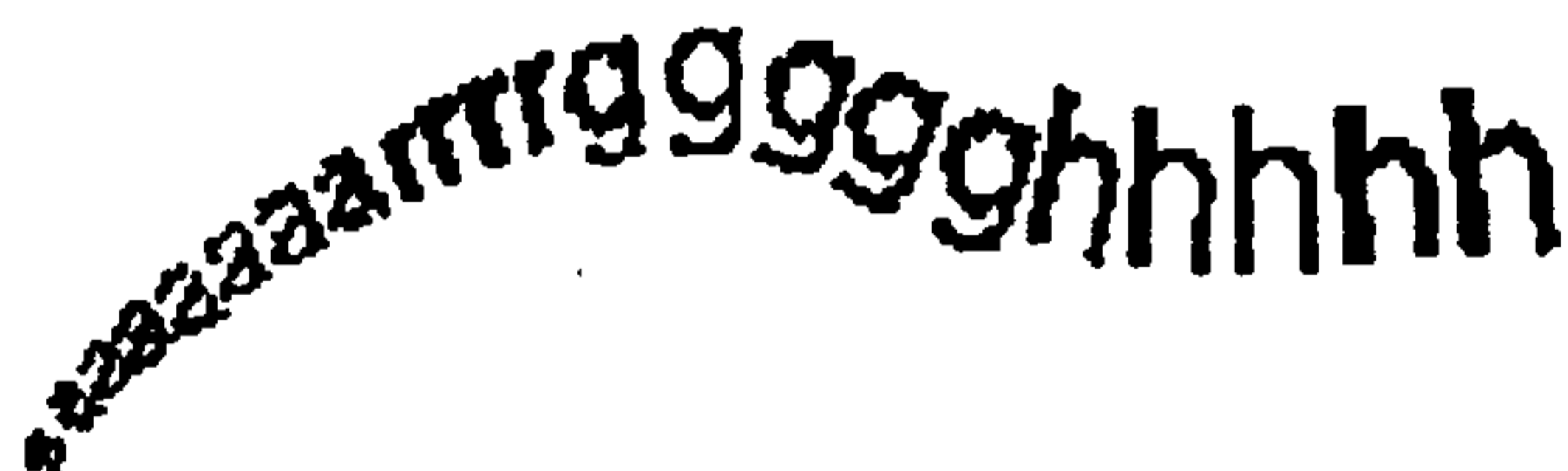
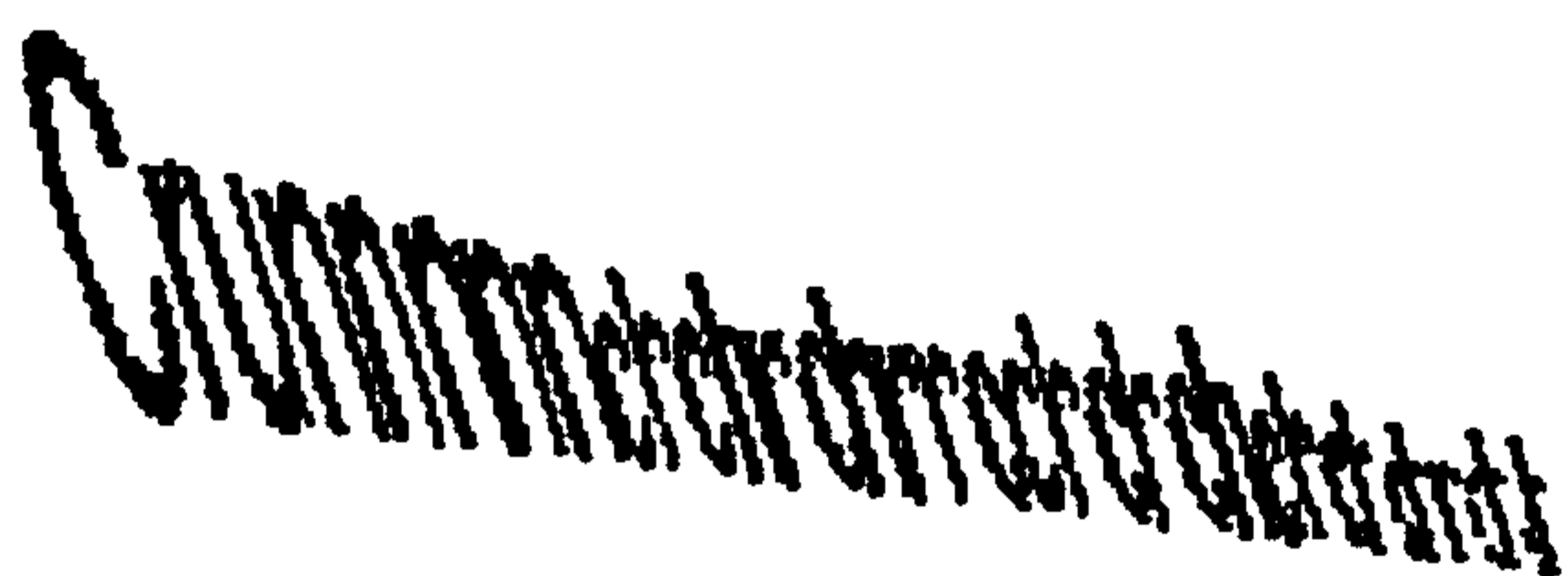
right. The paralinguistic system within written language breaks down into subsystems, one of which is **typeface change**, arguably corresponding to certain prosodic effects in the spoken language system. Apart from whatever basic effects can be established with regard to the "figure and ground" facility of typeface change, are there more subtle distinctions to be drawn between kinds of typeface in terms of interpretative effect?

This notion presents a deeper challenge to the assumptions inherent in the position generally adopted in various communication study domains, summarized by quoting Bolinger (1986, p.vii), saying in his preface to *Intonation and its parts*: "It concerns writers who, for lack of tone marks more subtle than period, quotation marks and comma, must translate the nuances of intonation into descriptive words."

Given the extension to general public use of facilities and techniques that were previously restricted to the communications industry itself, across the board oral-literate distinctions as strict as the above cannot be made.

With the use of font options, is it possible to make the form of the sign match its meaning - not just to emphasise, but to provide the proper emphasis? We emphasise a word because it has a *peculiar* meaning. It may be possible to establish different regularities of effect between different typefaces

used for emphasis, indicating semantic differences between the kinds of emphasis provided. Beyond the obvious sound-shape correspondences made, for example, in comics - known to the trade as 'sound effects' - where there is a clear intention to reference sound by shape, such as



one could speculate that translation correspondences exist between different levels or modes of phonological prominence in speech and size or shape of visual prominence in writing: size increase=volume increase; angle of letters=pitch direction could be two examples. If a friend comes into the room, shortly after an almighty crash in the kitchen, and says "It's okay, nothing to worry about" one can usually tell by

his voice whether the words can be taken at their face value or not. Bolinger (1986, p.19) suggests a prosodic category of "breathiness", giving emotional connotation or "personality" to a word. Maintaining a level of speculation, we might suggest such written strategies as capitals for importance, enhancing the word, ('SHOUTING' it); italics providing intensity, insinuation ('*hissing*' it?); one could even suggest Gothic for macabre, jagged letters for dangerous, fat ones for jolly, etc. Business logos are designed on just that rationale, and we are all familiar with the idea that messages are conveyed by the form, as well as the content, of advertising copy. Size, shape and also colour can be mood markers in written communication, just as voice modulation can be for speech. A simple example is suggested by *The Hitch-hiker's Guide to the Galaxy*, which its author Douglas Adams described as having "Don't panic" in large, comforting letters on the cover. Compare these two typefaces for this message:

**don't panic**

*don't panic*

I asked two graphic designers to give me their opinion on the message above. Both said that (1) connotes assurance, that

there is no need to panic, providing a calming effect. They also said that (2) connotes panic! It implies that there *is* something to panic about, whilst ordering you not to. Both believed that using an inappropriate font for a message sets up a conflict within the text between the words and their shape, in this case signalling calm with alarm.

A second example shows this notion in practice, from a television programme on US tactics in South American countries, (*Cold War Game* 28.4.88 Channel 4) where a summary of various conflicting strategies described by film footage was provided at different points in the programme, with a split-screen presentation of listed points, headed separately:

support

*attack*

Beyond the level of speculation, it would be dangerous to predict a sound for a word from a shape, or *vice versa*. The complexity of the enterprise is shown just by asking how much of any prosodic differences between readings of the above two words, printed as they are, should be attributed to the phonemic differences between them.



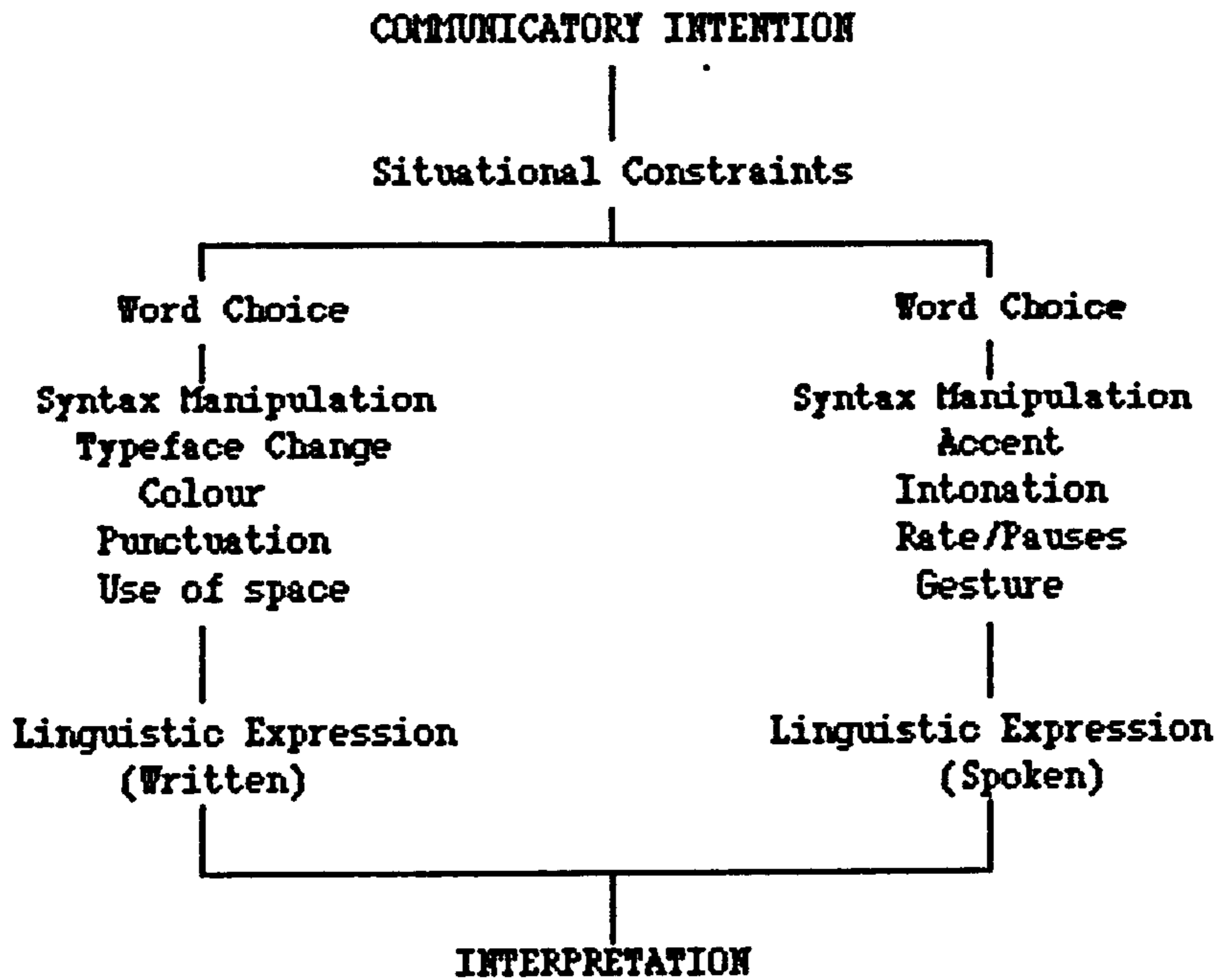
The main purpose of the research described in this thesis is to establish whether any regularities can be found among observed interpretative effects for typeface change. Such regularities might provide information of its efficiency as a paralinguistic resource of written language, and its particular functions within that system, with relation to communicatory focus. Within this goal, the resources of different typefaces for indicating qualitative focus can be tested, thereby going at least a few steps in the direction of establishing a semantics of typeface emphasis.

## CHAPTER 2: Introduction

A broad comparison may be made between the two language systems, spoken and written, in terms of the communicatory resources available. At word level, the relation between written and spoken language is one of translation between sound and shape (Haas, 1970). Simply, both the sound <kât> and the written word 'cat' refer directly to the same entity. This relation can extend to some of the paralinguistic elements of text. Figure 0.4 gives a rough outline of levels of correspondence between the resources of the two systems for conveying the intended communicatory focus from the communicator to the recipient, within the constraints of the communicatory situation.

To understand speech in the presence of the speaker, we attend to contextual information such as his status, the relation of this to ourselves, the situation and circumstances within which the speech occurs, what the message is about and why it is being given; we attend to paralinguistic information: the gestural accompaniment to the words being spoken (changes in body orientation and stance, variations of facial expression, movements of hands, arms, etc.) and the prosodic accompaniment - rate (speed/rhythm of speech), accent (stress, emphasis), intonation (which incorporates range for signalling emotion

**Figure 0.4: Resource correspondences between Written and Spoken language systems.**



content of the message, direction of pitch and relative height): we attend to the order in which words are presented and to pauses in presentation; we attend to the words themselves.

Written communication also requires simultaneous, and interactive, production or interpretation of the various signs that make up the text. We have to provide or interpret: lexical signs (the words themselves), syntactic signs (the order in which those words are presented), context markers



classifying the various levels of context within and beyond the text itself (Bateson, 1972). These last include co-text (the material within which a piece of text currently being processed is embedded) - signalling the topic of the message; the communicatory context - handwritten note to colleague, newspaper article, advertisement hoarding; the situational context - the circumstances under which the text is likely to be read (not usually controllable) and the communicatory function - to inform, horrify, persuade. Paralinguistic resources for written communication - signs within the text, aside from the words themselves, include full stops, paragraphs, and use of space generally. This may translate to pauses, body-position or gaze-direction shifts and intonational cues indicating boundaries and theme-shifts in the communicative flow. It also makes sense to describe the relation between written and spoken emphasis similarly; intonational stress, functioning to indicate information salience or to signal contrast can be equated with the common use of capitals, italics, bold, or underlining to focus attention of the interpreter.

There has been some interesting work in the field of speech communication on intonational functions for emphasis (Brown et al, 1980, Wells, 1986, Thomson, 1980, are examples). A set of comparative studies, with a reasonably restricted set of parameters, would be interesting to run and may provide some

very useful information. At present, however, although it may seem appropriate to suggest a translation correspondence between these two systems, we actually know nothing of the signalling effects of typeface change in its own right. Sampson, (1985, p.118) finds "the current lack of interest in the psychology of typography surprising, considering how all-important the printed word is in any kind of academic work".

This thesis examines typeface change as a resource of written language within the paralinguistic sub-system, which could serve toward fulfilling certain generally acknowledged requirements of text, defined as 'communicatory event'. At this point, a broad description of what written text should, minimally, do is provided, before further discussion of possible functions of typeface change as a strategy for doing it.

De Beaugrande (1981, p.3ff) list seven "standards of textuality": cohesion, coherence, intentionality, acceptability, informativity, situationality and intertextuality. These standards will serve as a background in the following discussion.

It is generally agreed that a major constraint differentiating required functions of written text from those of spoken is

that the audience addressed by a written language is likely to be dispersed, and lack the advantage afforded by the presence of the communicator. In fact, the same situation obtains in such spoken communicative settings as radio or television, public address systems, video or sound-only instruction and entertainment systems provide. However, most texts are produced with a particular audience in mind, though this can be as broad as "the British housewife" or as comparatively defined as "sixth form physics students". As the targetted audience for that text, they would have an interpretative advantage over accidental "inappropriate" recipients.

Nystrand (1982): "Even if the writer's audience is necessarily more diffuse and remote than the speaker's always present listener, the writer nonetheless has a sense of whom he or she hopes to influence - the piece is for certain individuals more than others."

Another way of looking at the communicator-recipient relationship between writer and reader is provided by Waller (1987, p.94) discussing 'conversational' theories:

"Crudely summarized, the conversational view is one in which writers address themselves to an imagined reader (sometimes referred to as a "mock", "virtual" or "implied" reader), whose characteristics and attitudes the real reader is able to perceive and assume. It is argued that just like a participant in a conversation, the imagined reader has particular questions or objects that must be met at the right time".



Such questions would quickly narrow down from "What kind of text is this?" "What is it about?" to "What are the salient points?" and further, to the interpretation of the content units and their relationship with each other within the overall interpretation of the text.

Collins & Gentner (1980) separate two components of the writing process: (a) producing ideas, (b) producing texts for those ideas. As many would agree (see, particularly, Peter Wason, 1980) the two processes are more interdependent than sequential but, concerning ourselves particularly with (b), the text should express the communicator's ideas in such a way that the recipient's attention is captured and held, that he can comprehend the information conveyed by the text and integrate it appropriately within memory. In other words, the text should facilitate its own intended interpretation.

Leaving aside the point that the ideas expressed by the text content should be worth conveying, and that the right words are available, the major issue for the writer becomes one of structuring the information appropriately within the stylistic conventions of the communicatory context: **situationality and intertextuality**. An illustration is provided by an anti-litter campaign which was conducted this summer in Glaswegian primary schools, involving the distribution to



schoolchildren of coloured plastic bags for collecting litter.

The focus was on food wrappers, coke cans etc. and posters could be seen in playgrounds, on corridor walls and in dinner halls saying "FEED THE BINS...". This meets the standard of situationality, as within the communicatory context the message makes perfect sense. Outside of this specific sub-context, local park signs say "LEAVE NO LITTER" - demonstrating intertextuality, the type of text conventional to that requirement, a "public notice" - both texts are similar in form and style.

**Cohesion** concerns the surface text (ie, the linguistic expression itself) and its internal relations, so is mostly a function of the syntax system: "the cat sat on the mat" rather than "on cat the sat mat". Beyond that, the standard relates to the ordering of expressions to show the relative importance of their content. "It was the mat that the cat sat on" as opposed to "It was the cat that sat on the mat", looked at functionally, lets the recipient know that in the first case, the current theme of the text is the mat and one might expect to learn more about this in subsequent text, eg "I left it to air on the lavender bush, and the wind took it..." The second case might lead on to something like "She washed herself then called the kittens."

Coherence demands the appropriate structuring of information, not only so that a text makes sense internally, but also so that it makes proper sense, in terms of real world or 'discourse world' (Seuren 197), to the recipient. This standard would reject, for example, "the mat sat on the cat" as an acceptable sentence unless there were clues in the co-text confirming that the sentence did in fact express the communicatory intention. "...it floated onto the lawn, where Tibbles lay basking in the sun." could acceptably be followed by: "This time it was the mat which sat on the cat!" or, "The *mat* sat on the *cat* !"

A list of structuring priorities for text should include the provision of theme cues. Brown & Yule (1983, p.33) define 'theme' as a category with two main functions: connecting back and linking in to discourse, thereby maintaining a coherent point of view; serving as a point of departure for the further development of the discourse.

As well as the introduction and maintenance or updating of a running theme within a text, other levels of information salience between text units must be signalled for the intended sense to be made of the message.

Another kind of distinction between information units in terms of importance opposes theme to rheme - what is being

discussed, versus the content of the discussion - Halliday's (1985) given and new information. Generally speaking, after any initial indication of its status, the theme would not require reiteration - it should maintain by default, as it were, until such time as a shift in theme needs to be signalled. The rheme, or new information, on the other hand, is generally accorded some form of stress (Halliday, 1985, Brown & Yule, 1983 and others).

Brown & Yule (1983, p.182) say: "The only evidence we have of the information status the writer attributes to different entities is the form of the expression which he produces." In written language, word choice, syntax manipulation (eg clefting: "It was wrong to lie..."), use of prolepsis (eg "On the other hand....") and intensifiers (eg "this giant was very, very, big") as well as use of connectives and punctuation, are common strategies for signalling focus in linguistic expressions. Typeface change, also, can function as a resource of written language to convey the underlying communicative intention, or rhetorical meaning, of a text, as the following two simple examples show:

The sentence "Mary was afraid of James" could (without context) be thematically ambiguous, interpreting to equate either with "It was James that Mary was afraid of" and "Mary was afraid of *James*", or "James was someone Mary was afraid

of", and "Mary was AFRAID of James". The first pair relate to Mary's state of fear, the second to her attitude to James.

As another example, the following questions signal the required focus of the response by giving prominence to a key word. A way of achieving the same end could be to use more words, as suggested within the square brackets following each text:

How How did we arrive at that state? [by what way/what happened...]

How did we arrive at that state? [what did we do....]

How did we arrive at that state? [of all people.....]

The emphasis can be rolled right through the sentence, loading the words to provide a different focus for each version, fulfilling the fundamental requirement of any text: that the attention of the recipient should be so focussed as to direct the ongoing interpretation along the lines intended by the communicator - de Beaugrande's standards of **intentionality** and **acceptability**.

'Information focus' is variously defined as "that subconstituent bearing the principle communicative content of the text" (Thompson, 1980), or as presenting "what is relatively the most important or salient information in the given setting" (Dik, 1980). It is a determinant of the



surface structure of a text, of the linguistic expression of an underlying communicatory intention.

As already stated , the fundamental requirement constraining the use of available language system resources for the production of any text is that the attention of the recipient must be so focussed as to direct the ongoing interpretation along the lines intended by the communicator. This should be done without overloading the interpretative system.

Discussing the memory management processes involved in the interpretation of text, Britton, Glyn & Smith (1985, p.227) make the same point:

The text features can be configured in many different ways - that is, there are many different ways of writing the same content. Each particular configuration of text leads to a particular set of demands by lower-level component processes and by memory management processes. Some configurations of the text have relatively high costs in terms of the amount of cognitive resources they use, while others have relatively low costs. Other things being equal, the less costly configuration is best, because resources saved on the lower level component cognitive processes and on the memory management processes can be reallocated to the text integration processes.

On the other hand, account should be taken of de Beaugrande's (1981) standard of informativity. A text which possesses "first-order informativity" would be predictable to the point of triviality, making very slight demands upon attention:

"The standard procedures applied to first order occurrences in communication would be DEFAULTS (operations or selections assumed to be stipulated in the absence of contrary indicators), and PREFERENCES (operations or selections routinely favoured over conflicting alternatives).  
(1981, p.143)

"Second order informativity" is obtained when text elements - content, syntax, emphasis, are below the upper range of probability, focussing the reader's attention:

"The presence of at least some second-order occurrences would be the normal standard for textual communication, since texts purely on the first order would be difficult to construct and extremely uninteresting."  
(1981, p.143)

There is a balance to be drawn, a trade-off between overloading the interpretative process and overloading the text with interpretative cues so that little or no effort is required to read it. Studying intonation, Bolinger (1986, p.337) asked "What is the least that can be said from which the most can be inferred?"

Emphasis for a word is provided by a writer to denote importance - to signal that special attention should be paid by the reader to its interpretation. The direction of that interpretation will be a function of inference - work for the processor - to a greater extent than if the underlying communicatory focus had been spelt out. Typeface change can

also be used to reduce inference requirements in a text - as can be seen daily in the tabloid press. Choice between the available resources of a language system for production of a specific text will largely be a function of the interpretative resources the reader (the 'imagined' reader described earlier) may be expected to bring to the encounter.

It is likely that these interpretative resources will vary, within the same individual, according to the type of text he is encountering.

The concern for this thesis is with the outcome of interpretative procedures upon various texts, and the specific resource tested - typeface change - relates to the signalling of different modes and levels of information salience (Chapters 3, 4 and 5), narrative focus (Chapter 6), and semantic structure (Chapters 7 and 8).

Evidence of distinctive effects between the two modes of emphasis described in Chapter 1, **modulatory** and **contrastive**, will be sought in terms of the above functions with a general discussion of the findings from that perspective (Chapter 9).



Another aspect of the enquiry, addresses the possibility of qualitative differences between types of written emphasis. Capital and italic typeface are both familiar and common means of indicating salience in written text and have a long tradition of use, as the historical discussion in Chapter 1 shows. It is between these two emphasis types that comparisons will be made and Chapter 9 reports on the information gathered.

Chapter 10 draws overall conclusions from all the findings, in terms of general assumptions regarding the use of typeface changes outlined in this and the preceding chapter. It presents a brief summary of the general findings before outlining possible areas of further research.

The communicatory requirement of any text is that it should be produced in such a way as to facilitate the interpretative procedures carried out by the reader. The purpose of the research project described by this thesis is to test the efficacy of typeface change as an economical means to that end.



A methodological note is appropriate here, as it is common to all the studies reported. All material was presented to subjects with instructions and accompanying information in Courier 12pt. The tasks themselves (ie, the texts) were also printed in Courier 12 pt with emphasis manipulations of capital or italic typeface. An Apple Macintosh Plus computer using the standard MacWrite word processing system and an Imagewriter printer were used to produce all material.

## CHAPTER 3: Basic Effects

This chapter reports four brief experiments designed to establish preliminary information about typeface change as a resource of the paralinguistic system within written language, as well as locate any points of distinction between the two conventional typeface manipulations used throughout the research project itself - capital and italic print.

Study One treats a notion that one modulatory effect of typeface emphasis might be to intensify a 'natural' interpretation of a word, rather than changing or modifying it in any particular direction. Study Two looks for any connotative distinctions between the typefaces tested, on a simple binary measure of 'positive or negative' interpretative effects. Study Three compares interpretations of typeface emphasis as modulatory or contrastive when both functions are explicitly cued and subjects are forced to differentiate between them in terms of the kind of typeface used.

A condition shared by all three of the small experiments described is that all material is presented without any surrounding text or situational markers, in an attempt to minimise contextual constraints upon the interpretative tasks required of the subjects.

## Study 1: Measuring emphasis

### **Introduction:**

One simple and commonsense assumption about emphasis in a language system is that it "adds to" the meaning of the word it accompanies at a very basic level. Emphasising a word, on this assumption, "makes it more so". The most obvious way of illustrating this notion within a written language is to suggest that "John is big, Tom is very big" can translate to "John is big, Tom is BIG" - at a 'children's story' level of exposition. This is saying that typeface emphasis can serve a grammatical function, of intensifying the word it accompanies.

A corollary of this should be that an isolated statement that "Tom is BIG" would suggest that the person referred to, if seen, would be unusually large - or possibly generous, if the largeness referred to was of spirit rather than flesh. This, of course, raises an important point. Generally, any such statements would be made within a situational context. For example, within a children's story, the co-text would provide interpretative cues for the prominence given to a particular word. Without context, what happens? Is there a simple effect of typeface emphasis which literally makes a referent of a word "increase"? In other words, can typeface change

alone function as an intensifier, with no other interpretative cues to that effect, or might its meaning in such a case be more ambiguous, potentially serving other modulatory functions? The following study addresses the basic question of whether typeface emphasis can relate to physical scale. The research reported in this thesis, as stated in the introductory chapters, concentrates upon the effects of two familiar and conventional typeface change options for printed text: capital letters and italic print. Using these options for adjectives which are associated with ratio scales of measurement - heat, weight and speed, a task was devised to test whether typeface emphasis effectively intensifies the degree of quantification.

#### **Method:**

Three groups of twenty undergraduate students were subjects for this experiment, undertaken while waiting for a practical laboratory class.

Three one-sentence texts, with a between groups manipulation of three typeface options for the adjective in all sentences - capitals, italics or plain case - were presented to each group. Figure 1.1 shows the texts.



**Figure 1.1: Text versions grouped by typeface.  
(compressed)**

---

| <u>Group 1</u>       | <u>Group 2</u>              | <u>Group 3</u>       |
|----------------------|-----------------------------|----------------------|
| It was a hot day.    | <i>It was a hot day.</i>    | IT WAS A HOT DAY.    |
| It was a fast train. | <i>It was a fast train.</i> | IT WAS A FAST TRAIN. |
| It was a heavy box.  | <i>It was a heavy box.</i>  | IT WAS A HEAVY BOX.  |

A separate page was used for each text, which was printed above a scale measuring from 1 to 12. Figure 1.2 shows an example.

**Figure 1.2: Example of text and scale as presented to subjects.**

---

It was a HOT day.

1....2....3....4....5....6....7....8....9....10....11....12

---

The pages were stapled as four page booklets, the front page giving the following instructions:

On each of the three attached pages is a short sentence above a twelve-point scale. All the sentences have exactly the same structure, referring to different qualities: temperature, weight and speed. Please read through each sentence in turn, circling whichever number you think best represents the degree of hotness, heaviness, etc. In other words, taking one of the sentences as an example: on a scale of one to twelve, how hot was the day?

Presentation order of the text was systematically varied across subjects.

**Results and discussion:**

Table 1.1 shows the scale means for each word under each typeface condition, with a distinct pattern of increase between plain print and emphasis typeface for the words

**Table 1.1: Mean score for words within typeface.**

---

|          | Hot  | Heavy | Fast | OVERALL |
|----------|------|-------|------|---------|
| Plain    | 7.00 | 7.87  | 7.53 | 7.47    |
| Italics  | 8.47 | 8.13  | 9.73 | 8.78    |
| Capitals | 9.93 | 9.87  | 9.47 | 9.75    |

---

An analysis of variance was carried out with typeface as between subjects factor and word as within subjects factor. The typeface effect was significant, ( $F=8.060$ ,  $df=2$ ,  $p<.002$ ). There was no significant effect of word, nor of word x typeface interaction.

A pairwise comparison of means between typeface levels showed that both italic and capital print conditions scored

significantly higher on the scale than plain typeface, italic>plain at  $p < .05$ , capital>plain at  $p < .01$ , although the difference between capital and italic print means, overall, was not significant.

To see if there was any difference in the way the typeface emphasis acted with the different words, pairwise comparisons were also made between each typeface within each word, using Tukey's MSD test (Kirk, 1968). It was found that Text 1 'hot', followed a pattern of significant increase on the scale between plain and italic print conditions, ( $q=3.636$ ,  $df=42$ ,  $p < .05$ ) and again between italic and capital letters ( $q=3.625$ ,  $df=42$ ,  $p < .05$ ). Measurement responses for text 2, 'heavy', did not differ significantly between plain and italic typeface conditions but did differ between italic and capital ( $q=4.285$ ,  $df=42$ ,  $p < .05$ ). Text 3, 'fast', differed between plain and capitals ( $q=4.779$ ,  $df=42$ ,  $p < .01$ ) and plain and italics ( $q=5.438$ ,  $df=42$ ,  $p < .01$ ). For this word, there was no significant difference between responses to either capital or italic print.

The results provide evidence to support a conventional use of typeface emphasis to bring about an intensification of the qualifying effect of gradeable adjectives. On the physical scale provided, for the qualities named, a reliable effect of increase was found when typeface emphasis was used on the

adjective. Effectively, typeface emphasis in this particular application acted as an intensifier; taking Text 1 as the clearest example, 'hot' '*hot*' and 'HOT' could translate to 'hot', 'very hot' and 'very, very hot' on the basis of the mean points on the measuring scale found under each condition. However, the evidence for a clear, step-like effect between the emphasis typefaces on this one word cannot be used for predicting general effects. Indeed, though all three text findings support the notion of an intensifier function for typeface emphasis as such, note that the word itself - the quality measured - is also at issue. It is only capital print that increases the interpreted degree of 'heaviness', while for Text 3 the effect of capitals is less powerful, being equal or less than that of italics on the word 'fast'.

From the overall raw scores it was clear that subject variability was greater for responses to the plain typeface condition than to either of the two emphasis conditions. Table 1.2 shows mean deviation scores for each of the three typefaces.

---

**Table 3.2: Mean deviation scores for all words, between typeface.**

| <u>Plain</u> | <u>Italics</u> | <u>Capitals</u> |
|--------------|----------------|-----------------|
| 2.72         | 1.45           | 1.42            |

---



A further analysis of variance was carried out using each subject's deviation from the group mean as the value for comparison. A highly significant typeface effect ( $F=8.70$ ,  $df=2$ ,  $p<.001$ ) was found, with a subsequent comparison of means showing that both capital and italic print score variability differed from plain on this measure at  $p<.01$ . This suggests that providing emphasis with each adjective not only predicts a higher value on the measurement scale, but also firmer agreement between subjects as to which value was given.

The study was run with each subject seeing only one typeface on the adjectives in the texts in order to avoid contrast effects. What if typeface was manipulated within subjects? The presence of all three typefaces may provide a context marker indicating comparison as part of the task. This may involve higher-level processing of the emphasis signal, with a need to differentiate between the typefaces, and the scales would provide subjects with an obvious measure for this. Any contrast effect might separate out capitals and italics and might reduce the variability in responses to the plain case condition. To test this possibility, the texts under the same emphasis manipulations were presented to a further set of subjects, this time with typeface options as a within subjects factor.

Study 1.a

**Method:**

Subjects were first year undergraduates, in three groups of twenty, who undertook the task before participating in a practical laboratory class. The three texts were presented on a single sheet of paper, each above a measurement scale. Each text had a different typeface for the adjective - plain, italic or capital letters. Figure 1.1 shows the whole text versions, and Figure 1.3 shows the emphasis conditions for each of the groups.

**Figure 1.3: Within group word/typeface conditions**

---

| <u>Group 1</u>              | <u>Group 2</u>              | <u>Group 3</u>              |
|-----------------------------|-----------------------------|-----------------------------|
| HOT<br><i>heavy</i><br>fast | <i>hot</i><br>heavy<br>FAST | hot<br>HEAVY<br><i>fast</i> |

---

## Results and discussion:

The interest here lies in examining the within subject effects of the three different typefaces. Table 1.3 shows the scale means for each word under each typeface, showing a similar, but not identical, pattern to those from the original study.

**Table 1.3: Mean scores for words within typeface**

---

|                | Plain | Italics | Capitals |
|----------------|-------|---------|----------|
| Typeface/hot   | 6.96  | 8.40    | 8.92     |
| Typeface/heavy | 6.56  | 8.92    | 9.12     |
| Typeface/fast  | 5.48  | 9.48    | 9.18     |
| OVERALL        | 6.33  | 8.93    | 9.06     |

---

An analysis of variance with typeface as a within subjects variable and typeface on word as a between subjects variable found a significant effect of typeface ( $F=49.732$ ,  $df=2$ ,  $p<.001$ ). There was no significant effect of typeface on word, and no interaction effect. A pairwise comparison of means for the typeface effect showed no significant difference overall between the two emphasis typefaces, but that each of these differed from plain at above the .01 level of significance.

Separate analyses of variance were then run to examine emphasis effects within the three words, with typeface as between subjects factor. These found an overall effect of typeface for each word:

Hot,  $F=7.061$ ,  $df=2$ ,  $p<.002$ ; Heavy,  $F=11.597$ ,  $df=2$ ,  $p<.001$ ;  
Fast,  $F=26.640$ ,  $df=2$ ,  $p<.001$ .

Subsequent comparisons of means on typeface effect within each word found that all cases reflected the overall finding, ie there were no significant differences of scale measurement between capital and italic print, but each differed from plain at above the .01 level of significance.

In order to check subject variability with this version of the task, an analysis of variance was run with typeface as a within subject factor and typeface on word as between subject factor using deviations from the mean as the values for comparison. Table 1.4 shows the mean deviation scores for each typeface.

**Table 1.4: Mean deviation score for all words, between typeface.**

---

| <u>Plain</u> | <u>Italics</u> | <u>Capitals</u> |
|--------------|----------------|-----------------|
| 1.80         | 1.58           | 1.30            |

---



A small but significant effect of typeface was found, (F=3.559, df=2, p<.05) with subsequent pairwise comparisons and study of main effects showing that capital and plain print responses differed on variability at the .01 level of significance, in the case of the word 'fast', with no effect for italic print on this measure. As was the case with Study 1, the variability between scores is low when typeface emphasis is present in a text. This time, however, the plain print response variability is also low, indicating an effect of contrast (see the discussions in Chapter 4 of a 'playdown' effect on normal typeface when emphasis is present in co-text).

Otherwise, rather surprisingly, the effect of typeface change on the measures used was more distinct when this manipulation was between subjects than when each subject had all three typefaces available for comparison. There is a greater distinction between responses to capital and to italic print emphasis in the results from the first study - except for the word 'fast' which both sets of subjects seem to find equally effective in italics, if not more so.

However, these distinctions aside, the second presentation of the texts supported the evidence from the first, demonstrating that typeface change can serve the same interpretative function as intensifier words in written language, on a physical scale of measurement.

## Study 2: Connotative interpretations

### **Introduction:**

One of the more speculative points raised in Chapter 1 concerned the possibility of different connotative effects between typefaces.

The general difference in findings between the adjective 'fast' and the other two tested in the previous studies may be relevant. The next study addresses the issue directly by presenting a one-sentence text, ambivalently marked for situational context, to three groups of twenty subjects, whose task was to complete a continuation sentence. The intention was to test the effects of presenting part of the target sentence in either capital or italic print, on a measure of positive or negative outcome scored from the content of subjects' continuations.

**Method:**

Sixty first year undergraduate students, in three groups of 20 subjects, were given one of the text versions shown below (Figure 2.1) and asked to complete the second sentence.

**Figure 2.1: Text versions presented for connotation task.**

---

He gave me the pen with an encouraging smile and I signed.  
Next day .....

He gave me the pen with an encouraging smile *and I signed.*  
Next day .....

He gave me the pen with an encouraging smile AND I SIGNED.  
Next day .....

---

At the top of the page was a request to read the sentence, then complete the continuation.

Scoring: All responses dealt with an outcome of the 'signing' act, as was predicted by the prompt of "Next day...".  
Continuations were scored by two judges on the simple criteria of whether the outcome was positive or negative. Agreement between judges was complete.

**Results and Discussion:**

Table 2.1 gives the response score frequencies, which imply that the target sentence was not truly ambivalent, as the negative outcomes exceed the positive under the plain print condition.

**Table 2.1:**

---

|         | Negative | Positive | Neutral |
|---------|----------|----------|---------|
| Plain   | 9        | 5        | 6       |
| Italic  | 16       | 1        | 3       |
| Capital | 9        | 8        | 3       |

---

Disregarding the neutral responses, a chi square test on the negative and positive outcome frequencies gave  $X^2=7.386$ ,  $df=2$ ,  $p<.025$ . Given a negative bias for a natural reading of the unemphasised text, this finding suggests that italic print on the last three words has an enhancement effect toward that natural reading. It is hard to say whether this is an effect of connotation directly following from the presence of italic print, or whether it is another mode of an intensifying function of emphasis upon the meaning of the words, though the negative scores for capital print match those for plain case.



It could be suggested from the response frequencies that emphasis reduced the neutrality of the text, reflecting from another perspective one of the findings in the previous study, where agreement between subjects was closer under emphasis conditions of text.

These points will come up again in subsequent reports of studies undertaken, and will feature as discussion points in the final section of this thesis.

### **Study 3: Modulation and Contrast**

#### **Introduction:**

In Chapter One, a functional distinction between modulatory and contrastive emphasis was suggested. Within a full text, which function was intended by a change of typeface for a particular word should be interpretable smoothly enough from co-textual cues. In an isolated sentence, word content or the specific typeface used may play a stronger role.

The following study tests the interpretation of capital or italic typeface in terms of modulatory or contrastive effects upon a word. What was sought by this study was an interpretation of typeface emphasis which focussed from a requirement to distinguish these two functions, with no surrounding text to provide interpretative cues, to see whether under such relatively stark constraints, any consistency would be found in the allocation of continuation sentence alternatives to target sentence.

#### **Method:**

Twenty third-year psychology undergraduate students were subjects for this experiment.

Four sentences were presented to subjects, each one in two versions of emphasis - capital letters or italic print.

Alternative continuations were provided for the sentences, one indicating that the emphasis should interpret as modulating the meaning of the word emphasised in some way, the other as contrasting its referent with another, provided by the continuation. Figure 3.2 shows the material as presented, with instructions at the top of the page.

**Figure 3.2: Task sheet for testing modulatory and contrastive functions of typeface change. (compressed).**

---

Below on the right are sentence pairs. On the left are alternative continuations.

Please match one continuation to one sentence by putting either A or B, as appropriate, in each box - then go on to the next pair.

"As appropriate" means according to your own opinion as to which ending goes best with which sentence version.

- |   |  |
|---|--|
| A John broke the <b>TABLE</b> ....          | <input type="checkbox"/> He's stronger than I thought. |
| B John broke the <i>table</i> ...           | <input type="checkbox"/> Susan broke the chair.        |
| <br>  | <br>   |
| A I ran to the door and it was <b>Flw</b> . | <input type="checkbox"/> I was so glad to see him.     |
| B I ran to the door and it was <b>TOM</b> . | <input type="checkbox"/> I'd been expecting David.     |
| <br>  | <br>   |
| A <b>SUSAN</b> wore white satin.            | <input type="checkbox"/> She's such a show-off.        |
| B <i>Susan</i> wore white satin.            | <input type="checkbox"/> Jenny wore blue silk.         |
| <br>  | <br>   |
| A There were <i>thirty</i> parcels.         | <input type="checkbox"/> I couldn't believe it.        |
| B There were <b>THIRTY</b> parcels.         | <input type="checkbox"/> The invoice said forty.       |
-

## Results and Discussion:

Table 3.1 shows the frequencies for the different possible combinations of continuation alternatives with target text versions. It can be seen that, for Texts 1 and 3, more subjects chose the 'modulatory' continuation for the

**Table 3.6: Combination frequencies for continuation-target match.**

---

| Combination                  | TEXT 1 | TEXT 2 | TEXT 3 | TEXT 4 |
|------------------------------|--------|--------|--------|--------|
| Mod=Capitals<br>Con=Italics  | 14     | 9      | 14     | 7      |
| Mod=Italiics<br>Con=Capitals | 6      | 11     | 6      | 13     |

---

version of the text with capital letters, with the 'contrastive' ending matching the version using italics. On a binomial test these results are significant at the .05 level. With texts 2 and 4, on the other hand, there was less agreement between subjects as to which ending suited which version.

These results are not conclusive, although a post-hoc study of the texts themselves might suggest that a tendency to prefer



capital letters for modulatory emphasis and italic print for contrast was countered, in Texts 2 and 4, by a content effect which interpreted the emphasis as indicating emotion - surprise, for example.

The effect for Texts 1 and 3, though statistically significant, is not very strong. For the other two texts, subjects were not in any state of agreement as to which typeface implied which interpretation of the emphasis. The question of content conflict cannot be answered on any grounds from this study, but the information gained and the points raised will be referred to as larger studies are reported.

The final study in this chapter addresses the issue of particular typeface differences more directly.

#### **Study 4: Subjective views of emphasis types**

##### **Introduction:**

Do people interpret capital letters differently from italics? The previous study attempted this question, and whilst there was no clear answer from the findings, they did indicate that it was worth pursuing. As stated in Chapter 1, throughout this project tests are made of the separate and combined

effects of these two typefaces. This seems a good point to consider subjective opinions of their functional differences when that issue is directly addressed. The final study in this chapter took a completely different approach to the first three on the question of different kinds of typeface emphasis. Subjects were, quite simply, asked to say what they thought the difference was.

**Method:**

Forty subjects, all third year undergraduates in the Department of English Language at Glasgow University, participated in this experiment. Figure 4.1 gives the full questionnaire in compressed form.

**Figure 4.1: Questionnaire on emphasis types.**

There are many different ways of emphasising a word in a written text by changing the typeface or, with handwritten text, just writing differently or underlining important points. When texts are typeset, two common ways are to use *italic* or CAPITAL letters for key words. Sometimes one of these seems more appropriate than another, depending perhaps upon the word itself, or on a particular meaning for the whole message.

Thinking back over our own experience of typeface change when reading textbooks, magazines, fiction or whatever, please give me a brief statement saying why capital letters may be better for some cases where typeface emphasis is required, and italic print for others. Do you think they may actually mean something different?

.....  
.....

Thank you for helping with this study.

**Results and discussion:**

The full set of response transcripts is available as Appendix 1, with a representative sample reproduced in the discussion below.

Using a simple measure of predicate frequency, a content analysis of responses showed that subjects made clear distinctions when allocating certain qualities between the typefaces. Table 4.1 displays the results of this analysis. The criterion for inclusion was an appearance frequency of five or over and, with the exception of "connotation", the categories listed in the table are the actual words used by subjects, or close synonyms. "Connotation" includes such comments as "more emotional", "meaningful", etc.

**Table 4.1: Frequency of quality attribution to typeface.**

|               | ITALICS | CAPITALS |
|---------------|---------|----------|
| Prominence    | 0       | 5        |
| Attention     | 0       | 6        |
| Importance    | 0       | 6        |
| Increase      | 0       | 7        |
| Contrast      | 7       | 2        |
| Surprise      | 2       | 4        |
| 'Connotation' | 5       | 0        |

---



Although a study of the transcripts in Appendix 1 should show that the above crude measure misses much that is valuable, if unquantifiable, in the data, the two typefaces clearly do have particular, and distinct, qualities. Of course, establishing distinctions rather than similarities is a task demand of this experiment; as was implied by the historical discussion of written emphasis in Chapter 1, the conventions of use for these two options overlap, and both work from the same basic qualification - providing figure against ground. Subjects do not ignore this fact in their responses, as can be seen from the sample of transcripts below.

#### **Transcript of subject responses:**

Capital letters tend for me to denote size, or emphasis on volume, whereas italics tend to emphasise mood, feeling or emotions.

Italic print seems better for cases where amusement, disbelief or some other such emotion is being registered. Capital letters are better for cases where a fact is being related and the important factors need to be made to stand out. I know there aren't really any formal rules about when to use what typeface, but they do mean different things to me personally.

For me, capital letters draw attention to the word in isolation, whereas italics emphasise the word within its context of the surrounding words.

Italics often seem to show incredulity: capitals are followed by a comparison. Capitals also draw more attention to the word than do italics.

Italics imply a comparison of some kind; capitals just add emphasis

Italic print is better for expressing spoken stress in writing. Capital letters attract immediate attention, and are therefore useful for headings, technical terms etc. Putting a technical term in capitals when it is first used allows easy reference back to it. In general a word written in capitals is stressed more than a word in italics.



Capital letters would be better for showing surprise, disgust or other strong emotions. Italics seem to be better for implying a contrast with something else. Capital letters seem to carry more emphasis than italics.

Capitals make the word important in a different way to italics. Capitals are good for making something clearer, more prominent. Italics make you think about it more.

I think that italics are more effective for disambiguating reference, or for referring to something not normally expected. Capitals are better for less critical emphasis or maybe for cases where the emphasis indicates surprise, rather than the surprise requiring emphasis.

#### **Discussion:**

Although statements between subjects are sometimes contradictory, as the fourth and fifth responses above show, there does seem to be a general feeling among the subjects questioned that there is a distinction of function for typeface emphasis which it may be appropriate to roughly categorise under modulatory and contrastive headings.

Judging from the content of the responses, subjects agree that this is a distinction which could be expressed by different typefaces. On balance, the transcripts suggest that italics are for subtlety, contrast and implication, and capitals for stressing importance, drawing attention, modulatory emphasis of the word itself. The results of the small experiments undertaken by the other subject groups described in this chapter, while comparatively tentative and begging further questions, do not deny this.

## Overall conclusion:

The findings from the studies described above go some way toward confirming functional assumptions for typeface change within texts, and also suggest certain interpretative regularities which, though sometimes overlapping, distinguish between the two types of emphasis.

Study 1 demonstrated that typeface emphasis could take a role of intensifier, adding to the quality of the referent - a modulatory rather than contrastive effect. Here both emphasis types serve the same function, and were it not for the fact that one of the words chosen for study, 'fast', provided conflicting information, the findings might predict a difference of degree between the two typefaces on that function, with capitals implying 'more' of the quality than italics. This possibility is certainly not denied, but the overall results with the three words used serve as a necessary reminder that typeface emphasis works with the word it accompanies, plus any other signs within the text. To put this very simplistically, italic print may be more suitable for intensifying 'fast' because of its shape, associating with conventional (though quite natural) images of movement. There is a font on my own word processing application called

speed....

To continue this line of enquiry, as indicated in Section One, is not an intention of this particular research project. The point is to hold the issue open, and to be aware that content is always likely to be an interactive factor in the functioning of typeface change.

The connotative possibilities of typeface change were brought out, though not strongly, by the second study. For the first and third texts, subjects related the modulatory continuation to the text version using capital letters, and the contrastive continuation to the italicised version. Evidence and information on this issue was sought through further studies, and this is a point that will be returned to.

Likewise, the differences in effect depending on text content in the continuation matching study. Any conflict between responses which related to subjects' contradictory notions of which typeface best suits which function should have been evenly reflected in the results across all four texts, so that a possible conflict between the contrastiveness and the connotative implications within one target sentence may explain the overall pattern of results to some extent.

The subjective opinions on possible differences of function between capital and italic typeface, provided by Study 4, transcribed in full as Appendix 1, give reference points and background perspective to many of the findings yet to be reported.

All subjects taking part in the studies reported in this chapter were students at the University of Glasgow, coming from either the English Language or the Psychology departments. All must be assumed to be used to reading! They will have encountered written texts from many perspectives - text books, literary works, newspapers, novels and, more importantly, they will have learned to think of written language as an interface system between communicator and interpreter.

The experiments to be described in the following sections take up the notion of reflective interpretation, in their design and in the analysis of their findings.



## SECTION 2: Rhetorical Aspects

It is reasonable to suppose that the best way of conveying a written message will depend upon its communicatory context: fairly tale, government announcement, letter to shareholders, postcard to family, etc. The best way of writing exactly the same basic message - for example, "don't call on Sunday, we'll be out" will vary according to the rhetoric of the occasion. Exactly those words, on a postcard, would suffice for family or friends, where the relationship between communicator and recipient may be described as casually close, and where contact is frequent. Where relations, though cordial, are more remote, something more formal is required:

*Dear Maxwell,*

*We shall have to forego your welcome visit after service this Sunday. A niece of Jean's is over from Canada, staying with Ted and Barbara, and we shall be hunting over there.*

*Looking forward to seeing you the following week, as usual*

*Yours,*

*Alex*

Within the constraints imposed by the text context, a writer can select from various strategies available within the resources of written language to indicate his communicatory intention to the reader, whose interpretation should match that intention.

The sets of studies described in Chapters 4 and 5 seek to establish whether there is a consensus of opinion on the proper use of typeface emphasis in written communication, within different communicatory settings. They also look at another strategy for conveying particular meaning for words, the sequence of information presented by the text, with particular relation to its effect upon typeface emphasis.

Chapter 6 studies the effect of typeface manipulation on subjects' perception of the author's communicatory intention, by requesting brief continuations for different versions of texts. The manipulations were aimed at modifying the ongoing interpretation of narrative focus.

## **CHAPTER 4: Proper Emphasis for Written Text**

### **Introduction:**

The question addressed by Study 5 was whether subjects would agree on the best use of typeface emphasis from available options, indicating their knowledge of the conventional functions of this resource in general, and whether particular functions apply differently between the two kinds of emphasis under study.

Three-sentence texts were presented to subjects, whose task was to select, from six versions of typeface emphasis, the most appropriate way of expressing the message, ranking this option 'first' and the remainder in descending order of preference.

Different constraints may apply for texts presented from different communicatory contexts, where the content of such texts indicates - at a general level - the context from which it was drawn. Despite each text being presented to subjects in six typeface versions, with instructions and questions which define it as a psychological experiment, it was hoped

that the words within the text would mark its context and that any constraints and requirements that should apply for a real text in that real context may apply here.

Two communicatory contexts were provided, 'public notice' and 'fiction', on an assumption that both would be familiar to subjects.

Two points were at issue for this series of studies.

Firstly, whether regularities of typeface use would apply for the majority of subjects, indicating general conventions constraining their preferences. Secondly, what such regularities might imply for the facility each type of print has for presenting particular meaning for the words it carries. To this end, subjects were asked to explain their choice of 'best' or 'worst' version.

#### Study 5: Public Warning

Various notices on public transport systems, where the communicatory intention is to attract attention, inform and/or instruct passengers, suggested the material for this study:

-----  
If you see a suspicious package: do not touch it, call the guard.  
-----



Plain, italic and capital letters were alternated for the three sentences making up the text, providing six typeface versions. Subjects were asked to rank the versions in order of best use of typeface for conveying the message.

Public notices commonly make use of different sizes and shapes of lettering. Generally they are custom made for a particular message or message type, and a realistic reproduction of such a text would not allow a suitably direct comparison with texts drawn from other contexts. In these studies, all texts were presented to subject groups in the same format, on an assumption that subjects would 'read' the intended background context from the content of each text. A contingent assumption is that any constraints and requirements that should apply for a real text in its real context may apply here.

## **Method**

Twenty first-year psychology students were subjects for this experiment, which was run at the beginning of a practical laboratory class.

The six versions of the text were presented, with order randomised across subjects, on a single A4 sheet of paper.

**Fig. 5.1: Alternate versions of WARNING text as presented to subjects.**

---

This study is part of a research project looking at the effects of emphasis in written communication. Here are six versions of a piece of text. Please will you rank these in order of "best" (1) to "worst" (6) according to which you think is the most effective way of expressing the message.

If you see a suspicious package: DO NOT TOUCH IT, *call the guard.*

*If you see a suspicious package:* do not touch it, CALL THE GUARD.

IF YOU SEE A SUSPICIOUS PACKAGE: *do not touch it,* call the guard.

If you see a suspicious package: *do not touch it,* CALL THE GUARD.

*If you see a suspicious package:* DO NOT TOUCH IT, call the guard.

IF YOU SEE A SUSPICIOUS PACKAGE: do not touch it, *call the guard.*

Taking the version you have ranked "1" and the one to which you gave a "6", can you say why you think the one good and the other bad?

.....  
.....

Thank you for helping with this study.

Instructions for the ranking task were given at the head of the sheet, and a request for reasons for first and sixth rankings at the foot. Typeface was 12pt Courier throughout, with plain case for instruction, question and unemphasised sentences in the text versions. Plaincase is therefore identified as 'normal' typeface throughout this report. Figure 5.1 shows the material as presented to subjects, all of whom completed the task within ten minutes.

### **Results and discussion:**

The results of the ranking task itself will be dealt with first. The reasons given by subjects for their first and sixth rank allocations will then be treated, before a discussion of the overall findings.

#### **1. Ranking:**

Table 5.1 shows mean rankings of the six versions, in order of preference. A Kendalls W coefficient of concordance indicated a significant degree of agreement between subjects on the overall rank order of the versions ( $W=0.201$ ,  $X^2=20.1$ ,  $df=5$ ,  $p<.001$ ).

**Table 5.1: Mean ranking for emphasis preference, WARNING text. N=20 [1='best' 6='worst']**

---

| <u>Version</u>   | <u>Label*</u> | <u>Mean Rank</u> |
|--|---------------|------------------|
| <i>If you see a suspicious package, DO NOT TOUCH IT, call the guard.</i> | ICN           | 2.5              |
| If you see a suspicious package, DO NOT TOUCH IT, <i>call the guard.</i> | NCI           | 2.8              |
| IF YOU SEE A SUSPICIOUS PACKAGE, <i>do not touch it, call the guard.</i> | CIN           | 3.05             |
| IF YOU SEE A SUSPICIOUS PACKAGE, do not touch it, <i>call the guard.</i> | CNI           | 3.95             |
| If you see a suspicious package, <i>do not touch it, CALL THE GUARD.</i> | NIC           | 4.1              |
| <i>If you see a suspicious package, do not touch it, CALL THE GUARD.</i> | INC           | 4.65             |

\*version labels are simply the initial of each typeface, in order of use.

---

A Friedman's Two Way Analysis of Variance confirmed that the difference between text versions in terms of their ranking was also significant ( $S=20.092$ ,  $df=5$ ,  $p<.001$ ).

Given the typeface choices available to subjects, the consensus was that the proper emphasis for this text has "do not touch it" in capital letters and "call the guard" in normal case. The reverse is not acceptable and is ranked



sixth. Italics fall, necessarily, to the first sentence of each version. A Wilcoxon's matched pairs signed ranks test between subjects' rankings for these two versions gives  $W+=10$ ,  $N=20$ ,  $Z=-3.547$   $p<.001$ .

Applying Wilcoxon's tests between descending means found that the lowest point of significant difference distinguished the third from the fourth rank; for CIN-CNI,  $W+=39.5$ ,  $n=20$ ,  $p<.01$ . This distinguishes those versions with "do not touch" in normal print and "call the guard" in capitals or italics, as well as that with "do not touch" in italics and "call the guard" in capitals, and allocates them to the lower ranks.

Looking at the mean of each subject's ranking for typeface position upon sentence, as shown in Table 4.2, suggests requirements that may have operated to determine the mean rank order of the individual versions of the text. A Wilcoxon's signed ranks test between capital letters on "do not touch it" and "call the guard" gave  $W-=9$ ,  $N=19$ ,  $Z=-3.460$ ,  $p<.001$  in favour of the former. The reverse was the case when this test was applied for normal typeface:  $W+=3.5$ ,  $N=18$ ,  $Z=3.524$ ,  $p<.001$ .

Very clearly, the proper emphasis for the warning information is capital letters. Where the italic lettering falls within

the text is less of an issue and seems largely to depend on where the capital and normal typefaces are sited. The means of mean position rank in terms of italic typeface are tightly round the grand mean of 3.5, as are those for any one of the available typefaces being on the first sentence, "If you see....."

**Table 5.2: Mean ranking for typeface position on WARNING text N=20**

| <u>Typeface</u> | <u>Sentence</u>   | <u>Labels</u> | <u>Mean Rank</u> |
|-----------------|-------------------|---------------|------------------|
| Capitals        | 'If you see....'  | CIN+CNI       | 3.5              |
| Capitals        | 'do not touch it' | ICN+NCI       | 2.65             |
| Capitals        | 'call the guard'  | NIC+INC       | 4.375            |
| Italics         | 'If you see....'  | INC+ICN       | 3.575            |
| Italics         | 'do not touch it' | NIC+CIN       | 3.575            |
| Italics         | 'call the guard'  | CNI+NCI       | 3.375            |
| Normal          | 'If you see....'  | NCI+NIC       | 3.45             |
| Normal          | 'do not touch it' | CNI+INC       | 4.3              |
| Normal          | 'call the guard'  | ICN+CIN       | 2.775            |

From this analysis, it is clear that a critical concern for ranking the versions of this text was the relative salience of the sentences. As the concordance results indicate, subjects strongly agreed that the middle sentence, "do not touch" should be emphasised, with capital letters providing the 'best' emphasis. Italic lettering was preferred to normal case provided that the final sentence was not in upper case.

## 2. Reasons for ranking:

The next step taken was to examine the subjects' reasons for giving "best" or "worst" rank to versions of the text. This analysis sought some explanation of the descriptive results given above; a transcript of subjects' responses to this question is given in Appendix 2.

Most of the subjects provided very similar reasons for their ranking preferences. This confirms the evidence of the concordance test: they were applying similar standards to the ranking task. Because subjects made their explanations in much the same terms, it was possible to score these responses according to the frequency with which specific qualities were predicated for specific typefaces. Analysis of comments on typeface itself, or on the sentence to which a specific typeface was allocated, provided the quality categories, whose definition is most easily given by examples from the transcripts.

**Immediacy:** focusing on urgency: "you see at once...",  
"immediately lets you know..."

**Attention capture:** Relating to the need to arrest and retain interest: "your attention is drawn...", "commanding attention..."

**Prominence:** figure and ground explanations, qualifications of a typeface in terms of its function for indicating emphasis, stress, salience - "really stands out", "is most prominent". Reflecting the content of subjects' responses, two categories of prominence are scored for: **major** and **minor**.

**Playdown effect:** Like prominence this again was stated in terms of figure and ground. Predictably applied mostly to normal print, it suggests that where typeface emphasis is present in a text, then normal print itself is a sign, indicating low salience. "Absolutely no stressing the danger involved..."



**Connotation:** This predicate was scored where a subject's comment implied a particular meaning suggested by the typeface, an example being: "the italics suggest the danger involved". Though a small issue in this study, it increases for other contexts.

Two judges then scored the transcripts using the criteria outlined above; agreement over scores was 97% with full agreement after discussion. Table 5.3 gives the frequencies for each typeface used in the text.

**Table 5.3: Frequency of quality attribution to typeface for WARNING text**

| <u>Quality</u>    | <u>capital</u> | <u>italic</u> | <u>normal</u> |
|-------------------|----------------|---------------|---------------|
| Immediacy         | 5              | 0             | 0             |
| Attention capture | 9              | 1             | 0             |
| Prominence        |                |               |               |
| major             | 20             | 1             | 0             |
| minor             | 0              | 7             | 0             |
| Connotation       | 3              | 3             | 1             |
| Playdown          | 0              | 3             | 12            |

A principal issue in subjects responses was that of the relative status of the pieces of information in the text in

terms of 'importance'. It is clear that subjects found the most important sentence to be "Do not touch it". Generally the degree of importance of the other two sentences was seen in relation to the first; there was no strong consensus of opinion about their information status relative to each other.

The majority of subjects responses dealt with content salience and the proper typeface qualities for providing physical saliency to the appropriate degree - proper emphasis. For this text the proper emphasis has capital letters for what subjects considered to be the most important information, and italic face on the information of secondary importance.

Comments by those subjects who explicitly attributed levels of importance to the information provided by the different sentences were scored in terms of frequency of sentence with status level as shown in Table 4.4. A brief definition of the two levels of salience follows:

**Major salience:** This applies to the information unit possessing highest salience over other units in the sequence, with respect to the text focus - therefore needing that salience to be physically expressed in the text so that the proper interpretation can be read. "The crucial part of the sentence".

**Minor salience:** Relative salience may be attributed to any other information unit(s) in terms of the text as a whole. Therefore the physical salience given to that information unit should provide an appropriate relation to the main point and the unemphasised units in the text. "...is also important", "...is secondary."

**Table 5.4 Frequency of salience allocation to information unit for WARNING text.**

---

|       | "If you see.." | "Do not..." | "Call the" |
|-------|----------------|-------------|------------|
| Major | 1              | 14          | 0          |
| Minor | 4              | 1           | 8          |

---

A binomial test of equal probability for each sentence falling within either category, showing no significant effect for the introductory sentence, revealed that "do not touch it" was attributed major salience beyond the .001 level of significance, while "call the guard" was considered to have minor salience within the text units,  $p < .005$ .

### **General discussion:**

The principal issue here for subjects was that of 'importance', their general opinion being that the most important message in the text is "do not touch it". What must not be touched, and what to do instead of touching, is necessary information but this major point must be highlighted. Subjects agreed strongly that this highlighting is best provided by capital letters for that part of the message. Overall, the results clearly suggest that they focussed on a need to capture attention, warn and instruct. That text requirement constrained the choice of typeface change over the three sentences in the text.

Very few of the explanations for ranks were uncodable. (Typical examples are "The emphasis is just right", or "For me, this shows the wrong emphasis" which provides no further information to that provided by their ranking certain versions "best" and "worst").

While of course it must be the combination of typefaces that functioned for preference ranking (as indicated by Tables 4.1 and 4.2), studies of subject's explanations show that their main concern was with where the capital letters should be and why. Comments on the other typefaces were mostly made with relation to this. The major information unit should have



major salience in the text and the consensus on which unit contained major information matched the consensus on capital letters being the best way to write it. This facility of capital letters to highlight information within a text was explicitly commented on by subjects: "the capitals express the importance of not touching it", including individuals who did not concord well on ranking: "the words DO NOT TOUCH stand out and you have to look back to see what the message is about." Such comments as "wrong words stand out" or "attention wrongly drawn" show that where emphasis does not go with content, it is deemed inappropriate, breaking rules of language use.

According to individual comment, italic typeface was favoured for "the next most important" or "relatively unimportant" sentence. The conformity between subjects on ranking the text versions does not extend strongly beyond their attribution of major information salience and best typeface for one sentence in the text. Minor information salience is, less distinctly, accorded to 'call the guard' (see Table 4.4) yet italic typeface is no more favoured for this sentence than for the first. Had it been so, then normal-capital-italic print, as 'very proper' emphasis for this text, should have held a distinct first rank. Instead, subject opinion is divided between leading into the text with italic print, and using it for the less vital instruction.

It seems that when a text passage contains typeface emphasis, then rules of proper use are also applied to normal print and any misuse is judged as error (or perhaps as an intentional deviation from the norm - one subject suggested an interpretation of normal case for "do not touch" as suggesting a calming effect). On the few occasions where normal print was specifically dealt with, it was in terms of where it should not be, rather than where it should, suggesting that it is only noticed when improperly used - "most important sentence seems to be least important" and "did not command attention" are examples which suggest a playdown effect of normal typeface when emphasis is present elsewhere in the text.

#### **Summary:**

The implied text context here was 'warning to the general public, with an (assumed) background knowledge (bombs, terrorism) on the part of the targetted audience (commuters, tourists). The notice itself should have intrinsic salience, it should be clearly visible against, say, a background of platform paraphernalia, advertisement hoardings and general passenger information. Subjects' responses to both tasks showed that the text of the notice should conform to those

external requirements, it should be eye-catching, succinct and instructive. When ranking the available options for presenting the text as a physical entity, subjects agreed with a reliable degree of concordance on the extent to which the different text versions met the criteria for best presentation of the content, and why they did so. The task was constrained by the options available. Each of the three sentences in the text had to take one of the three typefaces available, once selected for a sentence within a version, that typeface was not available to either of the others.

Within these constraints, it was a general finding that choice of typeface for particular information units within a text is a function of the perceived content saliency of that unit. Capital letters should go with the most important information, italic with that information deemed to have secondary importance and normal print with that deemed to have least. The implication of this, supported by subjects explanations, is that typeface salience should correspond to content salience, indicating that focus which facilitates an appropriate interpretation of this particular text, within its background context.

## Study 6: Thriller fiction

### Introduction:

'Fiction' is a very different kind of text to that of 'public notice'. Emphasis is more often indicated by syntax manipulation (Tannen, 1984), with key information foregrounded by one or more of the strategies discussed in Chapter 2. However, italic and upper-case print are acceptable and familiar, particularly in the 'popular fiction' domain. From a friend who is compiling a book of short stories at the request of her publishers, I took the draft of a "detective-thriller" story and selected a three sentence sequence for ranking according to proper emphasis. The requirements for selection were that the three sentences should vary in content salience, so that predictions of major, minor and neutral importance being attributed to content, and typeface for emphasis for different sentences being ranked in those terms, may be made on the grounds of the findings from 'warning'. The following text meets these requirements:

-----  
I walked up to the body on the hearthrug and turned  
it over. There was a birthmark on his forehead.  
We had killed the wrong man.  
-----



In a novel or a short story a text sequence of three sentences would be interpreted within the immediate co-text of the story itself. Yet presenting the above segment in isolation should not prevent all constraints from the implicit background communicatory context from applying to subjects' judgements (Bateson, 1972). The 'best' version of this text should relate to the type of text it is, ie fiction.

Without their surrounding sentences, the information units in this text can be judged against each other in terms of content salience.

The sequence structure is describable as: first sentence - background information, second sentence - implicatory information, third sentence, realisation. The atmosphere of the text is dramatic, suggesting the 'thriller' rather than the 'detective' end of the genre; the narrative takes the first person, which may add emotive connotations to the realisation of murder and mistake.

All six versions for ranking held the first 'background' sentence constant in normal typeface. The constraint this imposed on subjects ranking options (ie we don't know from these results whether or not subjects would have placed emphasis on this sentence) were bargained against more direct

**Fig.6.1: Alternate versions of THRILLER text as presented to subjects.**

---

This study is part of a research project looking at the effects of emphasis in written communication. Here are six versions of a piece of text. Please will you rank these in order of 'best' (1) to 'worst' (6), according to which you think is the best way of expressing the message.

I walked up to the body on the hearthrug and turned it over. *There was a birthmark on his forehead.* We had killed the wrong man.

I walked up to the body on the hearthrug and turned it over. **THERE WAS A BIRTHMARK ON HIS FOREHEAD.** We had killed the wrong man.

I walked up to the body on the hearthrug and turned it over. There was a birthmark on his forehead. *We had killed the wrong man.*

I walked up to the body on the hearthrug and turned it over. There was a birthmark on his forehead. **WE HAD KILLED THE WRONG MAN.**

I walked up to the body on the hearthrug and turned it over. **THERE WAS A BIRTHMARK ON HIS FOREHEAD.** *We had killed the wrong man.*

I walked up to the body on the hearthrug and turned it over. *There was a birthmark on his forehead.* **WE HAD KILLED THE WRONG MAN.**

Taking the version you have ranked "1" and the one to which you gave a "6", can you say why you think the one good and the other bad?

.....  
.....

Thank you for helping with this study.

comparisons of typeface preference between the implicative and the impact sentence. The options allowed for choices between either of the two sentences carrying emphasis, with either italics or capitals available, or alternate combinations of emphasis on both sentences.

The general expectation for this first study was that choice of appropriate typeface for particular sentences within the text would be a function of the relative salience of the information units, as perceived by subjects, and the communicatory function of the text itself, within its interpretative context.

**Method:**

As before, twenty first-year psychology students (none of whom had helped with the previous study) undertook the task as subjects before the start of a laboratory class. The procedure followed in running this study was exactly as that for Warning. Again, all subjects completed the task within ten minutes. The six versions presented to subjects are shown in Figure 6.1.

## Results and discussion

The analysis of data from this study was carried out along the same lines as that for 'warning' and will be treated here in the same way.

### 1. Ranking

Table 4.5 shows the mean rank order of the different versions. A Kendall's W coefficient of concordance showed a highly significant degree of agreement between subjects over ranking the text versions:  $W=0.580$ ,  $X^2=58$ ,  $df=5$ ,  $p<.001$ . Friedman's two-way analysis of variance confirmed that the difference between version rankings was equally so:  $X^2=57.947$ ,  $df=5$ ,  $p<.001$ .

Wilcoxon's matched pairs signed ranks tests, applied between descending pairs, showed a reliable difference between first and second rankings:  $W+=15$ ,  $N=20$ ,  $p<.005$ . The difference between fourth and fifth rankings was also reliable:  $W+=40.5$ ,  $N=20$ ,  $p<.01$ .



**Table 6.1: Mean rankings for emphasis preference on THRILLER text. N=20**

---

| <u>Version</u>   | <u>Label</u> | <u>Mean Rank</u> |
|--|--------------|------------------|
| I walked up to the body on the hearthrug and turned it over. <i>There was a birthmark on his forehead.</i><br>WE HAD KILLED THE WRONG MAN. | IC           | 1.25             |
| I walked up to the body on the hearthrug and turned it over. There was a birthmark on his forehead.<br>WE HAD KILLED THE WRONG MAN.        | NC           | 2.8              |
| I walked up to the body on the hearthrug and turned it over. THERE WAS A BIRTHMARK ON HIS FOREHEAD.<br><i>We had killed the wrong man.</i> | CI           | 3.4              |
| I walked up to the body on the hearthrug and turned it over. There was a birthmark on his forehead.<br><i>We had killed the wrong man.</i> | NI           | 3.55             |
| I walked up to the body on the hearthrug and turned it over. <i>There was a birthmark on his forehead.</i><br>We had killed the wrong man. | IN           | 4.1              |
| I walked up to the body on the hearthrug and turned it over. THERE WAS A BIRTHMARK ON HIS FOREHEAD.<br>We had killed the wrong man.        | CN           | 5.2              |

---

There was no significant difference between means for second, third and fourth ranks, showing that there was no strong consensus among subjects on which of these should be taken by versions using normal-capital, capital-italic or normal-italic print over the last two sentences.

The major finding from the analysis of rankings given to versions was that, between alternatives offered, subjects agreed strongly on the proper emphasis for this text. If the assumptions generated by the findings of the previous study, that capital letters should go with major content salience are correct, then the preferred version should have the impact sentence, "we had killed the wrong man", in capital letters. The rankings overall affirm that the final, impact sentence should be emphasised - if not with capitals then with italics.

The information about the birthmark should not have salience if there is no emphasis for the mistaken murder.

Looking at rankings combined in terms of emphasis type position in Table 6.2 confirms the evidence presented in Table 6.1 of the preferred placing of italics being to an extent dependent upon the placing of capital letters and normal print. This clearly influences the mean ranks of individual versions.

Wilcoxon's sign test showed that the mean rank difference between "there was a birthmark" and "we had killed" carrying capital letters was significant:  $W=1$ ,  $n=19$ ,  $Z=3.863$ ,  $p<.001$ . The mean rank difference between these two sentences taking normal print was also significant:  $W+=11$ ,  $N=20$ ,  $Z=-3.509$ ,  $p<.001$ .

**Table 6.2: mean ranking for typeface position  
on THRILLER text. N=20**

| <u>Typeface</u> | <u>Sentence</u>            | <u>Labels</u> | <u>Mean Rank</u> |
|-----------------|----------------------------|---------------|------------------|
| Capitals        | 'There was a birthmark...' | CI+CN         | 4.3              |
| Capitals        | 'We had killed.....'       | IC+NC         | 2.025            |
| Italics         | 'There was a birthmark...' | IC+IN         | 3.025            |
| Italics         | 'We had killed.....'       | CI+NI         | 3.475            |
| Normal          | 'There was a birthmark...' | NI+NC         | 3.175            |
| Normal          | 'We had killed.....'       | IN+CN         | 5.0              |

Although the preference is clearly for a particular sentence being emphasised over the other, indicating major information status for "We had killed the wrong man", the significance of the difference between the versions ranked first and second in Table 4.5 suggests that, as predicted, secondary salience attaches to the implication sentence, "There was a birthmark..". However, providing emphasis with this information is not appropriate if the impact sentence appears in normal print. The evidence of the means from the position pairs shown in Table 6.2 also suggests the critical concern was to put "we had killed..." in capital print. The ranks for versions using italics on either sentence are close to the null mean, but clearly the physical salience of the implicatory information is a dependent function of the degree

of salience provided by the typeface for the impact sentence.

With respect to ranking, the finding here is very like that for the text from a 'public information' background: it seems that content salience should be matched by typeface prominence. The results of the concordance tests suggest an even closer subject agreement on information status and proper emphasis than there was for the Warning study, this agreement extending to the best use for italic face. Again, fuller information is available if we consider the ranks allocated to versions in conjunction with subjects response to the question of why they ranked them so.

## 2. Reasons for ranking

An examination of subjects' explanations for ranking particular versions "best" and "worst" revealed that their content was similar to those for the Warning study. Reasons for first and sixth rankings were treated as before and scored for frequency on the same qualities. There was no disagreement between the two judges on scoring. The results are set out in Table 6.3, with points of similarity or difference to the content of transcripts from the Warning task discussed below. Full transcripts of these responses can be found in Appendix 2.



**Table 6.3: Frequency of quality attribution to typeface for THRILLER text.**

| <u>Quality</u>    | <u>Capital</u> | <u>Italic</u> | <u>Normal</u> |
|-------------------|----------------|---------------|---------------|
| Immediacy         | 0              | 0             | 0             |
| Attention capture | 0              | 0             | 0             |
| Prominence        |                |               |               |
| Major             | 19             | 1             | 0             |
| Minor             | 0              | 8             |               |
| Playdown          | 0              | 0             | 16            |
| Connotation       | 7              | 8             | 2             |

As the ranking concordance suggests, subjects were very clear as to which sentence had major content salience and which had minor. These frequencies are shown in Table 6.3 and discussed below.

**Table 6.3: Frequency of salience allocation to information unit for THRILLER text.**

|                | "Birthmark" | "Killed" |
|----------------|-------------|----------|
| Major salience | 0           | 15       |
| Minor salience | 10          | 0        |

A binomial test assuming equal proportions for both categories showed  $p < .001$  for both cases, leaving no doubt as to the relative salience status of the two sentences.

### General discussion

The prediction was upheld that the information unit found to be most important was that which stated the mistaken killing, and that this sentence should be in capital letters. Italic letters for the birthmark information was clearly preferred above normal print, provided that the impact sentence was in capital letters. Analysis of subjects comments found that they explicitly accorded secondary content salience to the implicative sentence.

Although results here, in terms of which typeface is best for which level of information, conform quite closely to that of warning, subjects distinctly prefer italic letters for the 'minor' sentence in this Thriller text, where the function of the sentence is implicative rather than informative. The content analysis of subjects responses to the request for explanations of choice supported this interpretation of the results. **Immediacy and attention capture**, crucial for the Warning text, are not an issue for Thriller, while the

frequency score for connotation more than doubled: one subject said "the italics seem to emphasise the sinister implications of the birthmark, while the upper case gives the impact of the mistake", and many of the explanations were along the same lines.

The Wilcoxon between first and second-rank versions shows us that "*There was a birthmark on his forehead.* WE HAD KILLED THE WRONG MAN" is very proper emphasis indeed. A comment on the misinterpretive effects of 'improper' emphasis came from a subject who gave sixth rank to the normal-italic version, "doesn't create the feeling of such a catastrophe, treats the situation very flippantly." The capital-italic version, reversing 'proper' emphasis, "throws meaning a bit" according to one terse comment from a subject.

The quality of prominence is as important an issue for this text as it was for warning, and typeface choice is the same - capital letters for major content salience, italics for minor.

"...the most shocking statement carries the heaviest emphasis, but the explanation of this statement is also prominent",  
"...shows the build up to a vital statement". Unlike the Warning responses, subjects deal less in straightforward terms of degrees of importance but attempt to incorporate some information of the kind of importance at issue.

Playdown is entirely attributed to normal print in this study, and is most often stated with respect to the 'major' information: the capital-normal version is just not right. "The point of the paragraph is to convey the awful statement 'we had killed', the emphasis put on 'there was a birthmark' may point out information clearly, but the information seems to be made more important than the conclusion it is supposed to lead to".

Although a value of prominence for a typeface implies that it would function to capture attention, there is no explicit reference to this in subjects explanations for Thriller, as there was in the Warning study. The text context imposed a requirement on the text itself to convey mood - the drama of the situation. While this was an issue with the Warning text, subjects comments acknowledging the need to convey the potential danger of the situation, here for the Thriller text it is the major issue.

### **Summary:**

The findings here are very like those for the Warning study. For proper emphasis, the relative importance of the information units in the text should be reflected physically by the typeface. However, content analysis of subjects



explanations for ranking suggests that the focus of the communicatory intent shifts between the two texts. From their comments, it was clear that subjects saw the text requirement for the first study as being to warn and instruct the public, having first captured their attention. For Thriller, it was thought more necessary to indicate the drama of the related events; it should read like a story.

### Study 7: Detective Fiction

#### **Introduction:**

Looking at the findings from the two reported studies and comparing the analyses of ranking and explanations, it seems clear that it is content salience which controls typeface emphasis. It is the underlying semantic structure of the text, the status of its different pieces of information in terms of each other and within the background context, which defines which information should be given physical salience.

This can be tested by setting the same task with a text whose information units are neutral in terms of comparative importance, holding the available typefaces, number of sentences and background context constant with the preceding study, Thriller, whilst reducing the distinctions of content salience.

The following three sentence text was drawn from the same set of drafts as the Thriller text of the last study:

---

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. Yesterday the Plowbright train was two hours late. He could not have made the connection.

---

Here, although following the same text sequence, with background information, then implicatory information followed by realisation, the final sentence has less impact than that in Thriller. Also, the text is less dramatic, nearer the 'Detective' end of the genre.

Whilst predicting that it will be the assumed content salience of the different sentences that determines the typeface selected for each, there is likely to be less agreement on which sentences are content-salient, to what degree.

Therefore a proper emphasis for the text as a whole is not predictable.

#### **Method:**

The procedures followed in this study were the same as those for Warning and Thriller, with a new set of subjects.

Figure 7.1 shows the text version as presented.

**Figure 7.1: Alternate versions of DETECTIVE text as presented to subjects.**

---

This study is part of a research project looking at the effects of emphasis in written communication. Here are six versions of a piece of text. Please will you rank these in order of 'best' (1) to 'worst' (6), according to which you think is the best way of expressing the message.

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. *Yesterday the Plowbright train was two hours late.* He could not have made the connection.

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. **YESTERDAY THE PLOWBRIGHT TRAIN WAS TWO HOURS LATE.** He could not have made the connection.

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. *Yesterday the Plowbright train was two hours late.* *He could not have made the connection.*

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. *Yesterday the Plowbright train was two hours late.* **HE COULD NOT HAVE MADE THE CONNECTION.**

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. **YESTERDAY THE PLOWBRIGHT TRAIN WAS TWO HOURS LATE.** *He could not have made the connection.*

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. *Yesterday the Plowbright train was two hours late.* **HE COULD NOT HAVE MADE THE CONNECTION.**

Taking the version you have ranked "1" and the one to which you gave a "6", can you say why you think the one good and the other bad?

.....  
.....

Thank you for helping with this study.



## Results and discussion:

Mean ranks showing order of subjects preference are given in Table 7.1. As the figures suggest, Kendall's Coefficient of Concordance on subjects' rankings was not significant:

$W=0.036$ ,  $X^2=3.6$ ,  $df=5$ ,  $p=n.sig.$  It may therefore be assumed that there would be no significant difference between text versions in terms of their ranking, and no comparisons between means were made.

**Table 7.1 Mean ranking for emphasis preference on DETECTIVE text. N=20**

---

| <u>Version</u>   | <u>Label</u> | <u>Mean Rank</u> |
|--|--------------|------------------|
| <i>Yesterday the Plowbright train was two hours late. HE COULD NOT HAVE MADE THE CONNECTION.</i> | IC           | 2.65             |
| YESTERDAY THE PLOWBRIGHT TRAIN WAS TWO HOURS LATE. <i>He could not have made the connection.</i> | CI           | 2.9              |
| Yesterday the Plowbright train was two hours late. HE COULD NOT HAVE MADE THE CONNECTION.        | NC           | 3.55             |
| Yesterday the Plowbright train was two hours late. <i>He could not have made the connection.</i> | NI           | 3.8              |
| YESTERDAY THE PLOWBRIGHT TRAIN WAS TWO HOURS LATE. He could not have made the connection.        | CN           | 3.95             |
| <i>Yesterday the Plowbright train was two hours late. He could not have made the connection.</i> | IN           | 4.15             |

---



Though the tendency is to prefer combined emphasis, with no clear distinction between emphasis-type for either sentence, there is no significant difference separating these versions from the rest. This ambivalence continues throughout the ranking judgements. Although the rank order itself suggests a tendency to prefer the resolution sentence to be emphasised over the implication sentence, the differences between descending pairs are very small, with no marked consensus on any distinction. Table 7.2, giving mean rankings for typeface position on content, confirms this.

**Table 7.2: Mean ranking for typeface position on DETECTIVE text. N=20**

| <u>Typeface</u> | <u>Sentence</u>       | <u>Labels</u> | <u>Mean Rank</u> |
|-----------------|-----------------------|---------------|------------------|
| Capitals        | 'Yesterday the .....  | CI+CN         | 4.875            |
| Capitals        | 'He could not have... | IC+NC         | 3.1              |
| Italics         | 'Yesterday the .....  | IC+IN         | 3.4              |
| Italics         | 'He could not have... | CI+NI         | 3.35             |
| Normal          | 'Yesterday the .....  | NC+NI         | 3.675            |
| Normal          | 'He could not have... | CN+IN         | 4.05             |

### Reasons for ranking

Subjects' reasons for 'best' and 'worst' ranking were analysed as before, with full agreement between judges on scoring.

Table 7.3 gives the frequencies of qualities predicated upon typeface, showing that prominence and playdown are still

important qualities for the judgement of proper emphasis. Again, major prominence is considered to be a function of

**Table 7.3: Frequency of quality attribution to typeface for DETECTIVE text.**

---

| <u>Quality</u>    | <u>Capital</u> | <u>Italic</u> | <u>Normal</u> |
|-------------------|----------------|---------------|---------------|
| Immediacy         | 0              | 0             | 0             |
| Attention capture | 1              | 1             | 0             |
| Prominence        |                |               |               |
| Major             | 15             | 2             | 0             |
| Minor             | 0              | 6             | 0             |
| Playdown          | 0              | 2             | 11            |
| Connotation       | 1              | 5             | 0             |

---

capital letters, with italic for minor. Scores for connotation reduce considerably from the Thriller study; in fact they drop almost to the figure for Warning. These points of difference and similarity will be taken up in the discussion section, together with any that arise from the information on content saliency attributed to the sentences, shown in Table 7.4 below.

This table shows quite clearly that subjects were divided in

their opinion of which sentence carried the most important information, and explains the lack of concordance among subjects when ranking the text versions for proper emphasis.

**Table 7.4: Frequency of salience allocation to information unit for DETECTIVE text.**

---

|                | "The P. train..." | "He could not..." |
|----------------|-------------------|-------------------|
| Major salience | 6                 | 6                 |
| Minor salience | 3                 | 2                 |

---

As the values predict, a binomial test assuming equal frequencies for both salience categories did not show any significance between the allocations of content salience to sentence.

**General discussion:**

The general prediction that content salience was a major criterion for ranking the versions was met. Analysis of the content of explanations showed the main requirement for subjects to be that any information unit with major content salience should be given major prominence by typeface emphasis. Two examples from the transcripts (Appendix 2) illustrate this: "Good because it only emphasises the relevant point...", and "draws attention to the most important

sentence". But the emphasis sequence for the versions commented on here by these two subjects was reversed, reflecting a general disagreement between subjects over which sentence provides the most important information, as is indicated by the lack of ranking concordance and the frequencies in Table 7.4.

From subject responses to the ranking task and the request for explanation, it seems appropriate to distinguish between the two fiction texts in the terms predicted: while the Thriller text contains one information unit which is generally agreed to have high salience, the sentences in the Detective text are neutral in that respect.

Uncertainty as to which sentence was the most important may have contributed to the fact that it was the two versions using combined emphases that took the first two mean ranks, with no distinction of preference as to which sentence took which typeface. This contrasts with the Thriller rankings, and supports the prediction that the similarities between these two texts were shallow. It could be said that the punchline lacks punch. For Thriller, the final sentence took the first priority for emphasis. For Detective, comments often contained an explicit requirement that both deserved salience.



Style became more of an issue for this text than it was for the other two. Possibly reflecting the relative equality of salience between the sentences, criticisms were made of capital letters in terms of their appropriateness. Some examples show this well: "In this type of text I felt that bold block capitals took away from the effect." "Capitals are not suitable, they give the wrong feel to the passage, like a command rather than a discovery." "The upper case shouts the delay at you but doesn't pinpoint any implication.

A tendency for capital print to overemphasise information (to 'shout') is mentioned by some subjects in their responses to the other two studies, Warning and Thriller, but only concerning the use of this typeface for the secondary information unit. In neither study was there much doubt as to where the capitals should be. Here, though, the comments are critical of the typeface in terms of the text as a whole, the implication of which is that there is nothing, in this text, to shout about.

One theme is fairly consistent throughout responses for Detective, though not strongly articulated: the passage should 'make sense'.

"The statement emphasised is the key to understanding the message."

"....confusing the point of the statement". "....the point of the

statement is lost". As this is a requirement for any piece of text, it could be described as a default position when there does not seem to be any clear issue to raise. A strong point of comparison between the two Fiction texts is that, for Thriller, the 'punchline' is in the text - the realisation sentence has impact. With the Detective text, it seems to be outside the text, with all the information in the text building toward it. This issue is raised in a later set of studies, using the two fiction texts.

#### Summary for all texts:

The transcripts of subjects' explanations of their choices (Appendix 2) show clear distinctions between the texts for interpretations of what Brown and Yule (1983) call "the writer's overall rhetorical strategy of presentation" and the intention which motivates it - in other words, the communicatory focus of the text. For Warning, subjects saw this as being to 'attract attention, warn and instruct', with the warning itself being most important, so that it is this sentence which should be most prominent. "Safety", or "danger" was explicitly mentioned by some subjects and implied by others.

The underlying rationale of Thriller was to convey the drama of the related events, tell the story with the emphasis as well as the words. This was indicated by subjects in their explanations for first and last choices, and reflected in the comparatively high score on the Connotation value.

Again, for Detective the constraints from a communicatory context of 'fiction' are applied by subjects, although the actual ranking results reflect the neutrality of the two sentences concerned. There is, again, considerable similarity in content between subjects' explanations; it could be said in the case of this text that the requirement is to tell the story sensibly, rather than dramatically.

It seems from the findings that subjects assume an information focus for each text, an underlying semantic structure, which needs to be communicated via the text as a whole, not just by its words but by its shape. The communicatory focus of a text renders some words more important than others and perhaps differently important. These levels of content salience require a matching physical prominence for those words in the text to facilitate an appropriate interpretation.

## CHAPTER 5: Information Sequence and Emphasis

Two common strategies for indicating information focus, listed by Dik (1981) and discussed in Chapter 2, are at issue here: typeface change and information sequence. Typeface change is, it was suggested in Chapter 1, almost gestural in effect. Information sequence makes a different use of communicatory space, but to the same end, to make the most important information prominent (Halliday, 1985). The studies reported in this chapter deal first with order as a separate issue, from the same perspective as the ranking studies reported in Chapter 4 (ie, is there a preferred way of expressing a particular message?), then look at any effects of the two strategies in combination by replicating the ranking task itself, with a different sequencing of the text information, and comparing results. Essentially, this is an endeavour to ascertain whether the results from the studies described in Chapter 4 were confounded by order effects.



## **Study 8: Proper order**

### **Introduction:**

Working on the three simple texts provided, subjects had no difficulty in locating the most salient information and deciding which typeface presented it best. For two of the texts, where there was a clear distinction of information salience between units, subjects showed clear agreement on both issues. Would they be equally able to judge the sequence of sentences which best conveyed the appropriate salience? The texts still 'make sense' in their different orders, so any effects obtained could be considered rhetorical. Would their explanations for choice show an awareness of the strategic facilities of reordering text for interpretation of communication focus? The next study sets subjects a judgement task between orders for each text.

### **Method:**

Twenty first-year undergraduate students, none of whom had helped with the ranking studies described earlier, were subjects for this study. Material was presented on an A4 sheet of paper with instructions at the head, followed by the three texts in both orders. Their task was to judge between

each version pair, giving an explanation of their preference. The texts themselves in their comparative orders can be seen in Table 8.1. The instructions were as follows:

---

This study is part of a research project looking at the effects of sentence order in written communication. Here are two versions of three pieces of text. Can you place a tick by the version that you think best for each text. If you can think of one, please make a brief statement about the reason for your choice in the space provided.

(The question "Why do you prefer the one you chose?" was repeated after each version pair, with space for reply.)

---

The study was carried out prior to a lecture; all subjects completed their task within ten minutes.

#### **Results and discussion:**

Table 8.1 presents the alternate versions for each text, followed by proportional choice for each version.

A binomial test against an expectation of equal proportions for both versions of each text gave:

*Warning:*  $p < .01$       *Thriller:*  $p < .001$       *Detective:*  $p < .025$

**Table 8.1:Proportional choice for best order on all texts**

---

Warning:

If you see a suspicious package, do not touch it, call the guard.::16/20

If you see a suspicious package, call the guard, do not touch it.::4/20

Thriller:

I walked up to the body on the hearthrug and turned it over. There was a birthmark on his forehead. We had killed the wrong man.::18/20

I walked up to the body on the hearthrug and turned it over. We had killed the wrong man. There was a birthmark on his forehead.::2/20

Detective:

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. Yesterday the Plowbright train was two hours late. He could not have made the connection.::15/20

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. He could not have made the connection. Yesterday the Plowbright train was two hours late.::5/20

---

This shows that there is a 'best' sentence sequence for each text. Due to the phrasing of the question, subjects reasons for choice dealt with what was good about the *preferred* order, what was bad about the wrong order was not discussed. Subjects' explanations were simpler and briefer than those made by the subjects in the previous studies. The full

transcripts can be seen in Appendix 2, they are summarised with the discussions on the results for each text.

#### Warning:

Similarly to the ranking task for typeface emphasis, most subjects discussed the information sequence for this text with regard to the relative 'importance' of the information units. Between the two instructions, "the important part (do not touch it) should come first" was one subject's explanation, which was typical of the set.

Reasons why this should be were given in terms of prominence and immediacy: "it gives the warning more quickly", "stresses the fact that you should not touch it", and even "more emphasis on what not to do is good." Explanations here were quite similar to that for the typeface-ranking study for the text, in this respect. Again, subjects read the two versions "as if" judging between real notices, where the requirements for that type of text to stand out against its physical background apply also for the presentation of its content.

#### Thriller:

Interestingly, here there was no mention of prominence, nor were the sentences themselves described in terms of their



importance. Continuity, sense and structure were important issues for judgement. "A more plausible sequence of events", "better structured", "makes more sense" are examples. However, fitting the background context of Thriller fiction, the majority of the subjects also described the proper sequence of the text as conveying suspense and drama. "More descriptive and dramatic - adds to the atmosphere - stimulates imagination", "more mysterious", "better dramatic effect" were three of the comments. This supports evidence from the earlier Thriller study on proper emphasis, and indicates that information sequence is also acknowledged by subjects to reflect the communicative intention of the writer (to "tell a good story") and facilitate the appropriate interpretation of text.

#### Detective:

Subjects here seemed to apply the same criteria they used when considering the best way of presenting the Thriller text - to the point where four of them found the same comment adequate for both. Sense, structure, and continuity were the main issues; the requirement for sentence sequence to convey drama is very much less apparent than it is when subjects deal with the other fiction text.

Here we are dealing less with an order of events in terms of importance or dramatic effect, than a sequence of understanding that should be mirrored by the sentence sequence in the text. Hence the overriding concern with sense: "now the 'yesterday' applies to the 'connection'", "the sentences seem to connect", "saves conclusion to the end". In the Ranking experiments, subjects were divided upon which was the most important sentence in this particular text, and this prevented a significant concordance over ranking the versions. Here, 'importance' as such is not raised at all, what should be conveyed with the text is 'sense' and the binomial test suggests that subjects agreed better on judging sentence order than content emphasis on this criteria.

#### **Summary:**

Just as the studies described in Chapter 4 found there to be a preferred pattern of emphasis for each of the texts, this experiment confirmed that there is a preferred order, which corresponded to that used for the ranking tasks. Though terser, reflecting the comparative simplicity of the task, order requirements seem to relate to the same issues as emphasis requirements - that information salience should be reflected in, or expressed through, physical salience - either in terms of where important information should be placed with

reference to other information in the text, or of how that information should actually look within the text. Taking the results of the typeface emphasis study with those of the order study, we find that the proper order, and the proper emphasis, for two of the texts has been established by the subject groups: Warning and Thriller. In order that the (assumed) communicatory intention of the writer be interpreted by the reader, these texts should read as follows:

---

*If you see a suspicious package: DO NOT TOUCH IT, call the guard.*

---

I walked up to the body on the hearthrug and turned it over.  
*There was a birthmark on his forehead. WE HAD KILLED THE WRONG MAN.*

---

The right order of sentence sequences for the Detective text was established, as shown in Table 8.1. The ranking study, however, produced no agreement between subjects as to whether the second, or the third sentence should have major prominence and the content analysis of ranking explanations for that text showed that opinion was divided as to which sentence was the most important. The requirement for ordering these sentences was described by subjects as being that which reflected the logical sequence of their information. "He could not have made the connection" is properly at the end of the text



because it is the conclusion. Major content salience is not attributed to this sentence by subjects in the constituent-ordering task.

The ordering of information is critical for an appropriate interpretation of any text (Keiras, 1985). Sanford (1985, p.253) suggests two primary features of felicitous orderings of statements:

- a) A natural unfolding of events
- b) The narrator makes reasonable assumptions about what the receiver may already know as a result of what has been said.

Both features are relevant in this study. For Warning, subjects placed what they saw to be the most important instruction in the middle of the text, immediately following the backgrounding information. Its information status gave it prior position over the other instructional sentence. As one subject said, in this case what to do is not so important as what not to do. Subjects who did the typeface ranking task allocated major content salience to the same sentence and gave it capital letters, so that it stood out, physically, in the middle of the text.

The Thriller and Detective texts shared a similar information structure - background, implicatory and realisation. Both fiction texts had the same preferred order, with the realisation sentence at the end. The realisation sentence in



Thriller is dramatic, it has impact, and this was an explicit concern for subjects when placing this sentence, "we had killed..." at the end of the text. It is a punchline, not just a conclusion. The transcripts from the ranking task for this text show that those subjects, also, were concerned with the same issues when they gave this sentence capital typeface. For Detective, the realisation sentence should also be at the end of the text - but subjects' explanations gave that as the sensible sequence of information rather than implying that "he could not have made the connection" was intrinsically important in its own right.

The texts studied in Chapter 4 and here were 'found' texts. That is, they were not created by the experimenter to test or demonstrate the phenomenon at issue, but were already 'existing in the world' (Brown & Yule, 1983). The fact that the subjects preferred the sentences to be in their original sequence shows that the authors had presented the information in its natural order.

It is possible that subjects' ranking of text versions whose units were presented in the proper order for conveying their information salience may possibly have been biased by that order. The next study addresses this issue.

## Study 9: Emphasis and Order

### **Introduction**

It has been established by the studies so far that the material provided to subjects is structured in such a way that, where an information unit is highly salient, the typeface emphasis selected "goes with" the proper order of the texts. How much does the placing of the different sentences affect assumptions of their informational salience? Would changing the order of the sentences affect subject opinion about the typeface in which an information unit should be presented? Would there be any differences due to presence or absence of a highly salient information unit in a text? In other words, is there a 'place' for emphasis, which might cooperate or conflict with content salience?

The content of the Thriller text is classified as "High salience" and that of the Detective text "Neutral salience". Otherwise, the information sequence is the same (background - implicatory - realisation) and the background context is the same (fiction) between the tasks. Using these two texts as material allows direct comparisons between ranking for best emphasis within each text of versions in the 'right' and in the 'wrong' order. The next study presents both texts, with their second and third sentences reversed. The same task was set as for the texts in their proper sequence.

**Fig. 9.1: Alternate versions of THRILLER text as presented to subjects.**

---

This study is part of a research project looking at the effects of emphasis in written communication. Here are six versions of a piece of text. Please will you rank these in order of 'best' (1) to 'worst' (6), according to which you think is the best way of expressing the message.

I walked up to the body on the hearthrug and turned it over. We had killed the wrong man. *There was a birthmark on his forehead.*

I walked up to the body on the hearthrug and turned it over. We had killed the wrong man. **THERE WAS A BIRTHMARK ON HIS FOREHEAD.**

I walked up to the body on the hearthrug and turned it over. *We had killed the wrong man.* There was a birthmark on his forehead.

I walked up to the body on the hearthrug and turned it over. **WE HAD KILLED THE WRONG MAN.** There was a birthmark on his forehead.

I walked up to the body on the hearthrug and turned it over. *We had killed the wrong man.* **THERE WAS A BIRTHMARK ON HIS FOREHEAD.**

I walked up to the body on the hearthrug and turned it over. **WE HAD KILLED THE WRONG MAN.** *There was a birthmark on his forehead.*

Taking the version you have ranked "1" and the one to which you gave a "6", can you say why you think the one good and the other bad?

.....  
.....

Thank you for helping with this study.



**Figure 9.2: Alternate versions of DETECTIVE text as presented to subjects.**

---

This study is part of a research project looking at the effects of emphasis in written communication. Here are six versions of a piece of text. Please will you rank these in order of 'best' (1) to 'worst' (6), according to which you think is the best way of expressing the message.

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. He could not have made the connection. *Yesterday the Plowbright train was two hours late.*

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. He could not have made the connection. **YESTERDAY THE PLOWBRIGHT TRAIN WAS TWO HOURS LATE.**

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. *He could not have made the connection.* Yesterday the Plowbright train was two hours late.

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. **HE COULD NOT HAVE MADE THE CONNECTION.** Yesterday the Plowbright train was two hours late.

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. *He could not have made the connection.* **YESTERDAY THE PLOWBRIGHT TRAIN WAS TWO HOURS LATE.**

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. **HE COULD NOT HAVE MADE THE CONNECTION.** *Yesterday the Plowbright train was two hours late.*

Taking the version you have ranked "1" and the one to which you gave a "6", can you say why you think the one good and the other bad?

.....  
.....

Thank you for helping with this study.



**Method:**

Exactly the same procedure was followed as for the earlier ranking studies: forty first-year psychology students, naive to the experiment, were given a sheet of paper containing six versions of one of the texts, (with the same instructions as before). The texts in their 'wrong order' versions are shown as Figures 9.1 and 9.2. Twenty subjects were used to rank each of the two texts. All subjects completed their task within ten minutes.

**Results and discussion:**

The texts are dealt with separately first, for a descriptive comparison with their 'right order' results. Table 9.1 shows the version rankings for **Thriller** in both order sequences.

**Table 9.1: Mean ranks of typeface versions: both orders, Thriller text. N=40**

---

|  | <u>Thriller</u> |              |
|--|-----------------|--------------|
|  | <i>Right</i>    | <i>Wrong</i> |
|  | IC 1.25         | CI 2.00      |
|  | NC 2.80         | CN 2.20      |
|  | CI 3.40         | IC 3.65      |
|  | NI 3.55         | IN 3.70      |
|  | IN 4.80         | NI 4.70      |
|  | CN 5.20         | NC 4.75      |

---

Here the versions were ranked in order of exactly the same typeface upon content as those in the Right Order task. Kendall's Coefficient on this, Wrong order, text gave  $W=0.4$ ,  $X^2=40$ ,  $df=5$ ,  $p<.001$ . Friedmans  $X^2=68.6$   $df=5$   $p<.001$ . This time, the difference between first and second place was not significantly distinct. Perhaps italics leading away from a capitalised main point are not as appropriate as italics leading toward it. But taking the capital letters off the key sentence did distinguish clearly between second and third rank: CN-IC gave Wilcoxon's  $W+=37.5$ ,  $N=20$ ,  $p <.01$ . As before, the difference between fourth and fifth rankings was significant: IN-NI gave  $W+=56.5$ ,  $n=20$   $p <.05$ , suggesting that wherever it is, this sentence must be emphasised. The significance levels for comparisons between ranks were not as high as those for the text versions in their proper order. Table 9.1 shows that the spread of the means was closer, and the distinctions between ranks generally were not so marked.

**Table 9.2: Comparative Quality Frequencies for Typeface by Order for THRILLER:**

| <u>Quality</u>    | <u>capital</u> |       | <u>italic</u> |       | <u>normal</u> |       |
|-------------------|----------------|-------|---------------|-------|---------------|-------|
|                   | right          | wrong | right         | wrong | right         | wrong |
| Immediacy         | 0              | 0     | 0             | 0     | 0             | 0     |
| Attention Capture | 0              | 1     | 0             | 0     | 0             | 0     |
| Prominence        |                |       |               |       |               |       |
| Major             | 19             | 18    | 1             | 1     | 0             | 0     |
| Minor             | 0              | 0     | 8             | 9     | 0             | 0     |
| Playdown          | 0              | 0     | 0             | 0     | 16            | 8     |
| Connotation       | 7              | 0     | 8             | 0     | 2             | 0     |

Generally speaking, subjects' explanations for ranking dealt in similar terms as those for the Right order ranking task. Table 9.2 compares frequencies of quality allocation to typeface between the two information sequences of the text.

From the analysis of these explanations it is clear that the same qualities were at issue, with the exception that the type of comment which achieved connotation scoring in the earlier task was not made by subjects here. This may be a sequence effect: the 'build-up' to a dramatic impact in the last sentence was an issue for this text when its proper order was being established and of course that effect is lost for the material as presented to subjects for this task. It cannot therefore be an issue for deciding upon the proper emphasis for the text.

One other point of difference stands out from what are otherwise very similar sets of frequencies: the scores for playdown drop by half. Looking at the full set of versions for this text in Right order (Figure 6.1) and in Wrong Order (Fig. 9.1) suggests that for normal print to follow capital letters has a stronger effect of playing down the information at issue than when it precedes them. Making this (purely intuitive) comparison between the text-versions in their different orders is what led to the point above about italic

letters 'leading up to' or 'away from' the main point. There is support here, as the playdown effect in this text is commented on by subjects where a version is ranked lowest for having normal print on the 'killing' sentence. In the Right Order study, this sentence appears at the end of the text and playdown frequencies are double those for the version with it in the middle.

**Table 9.3: Comparative frequency of salience allocation to information units for THRILLER texts in Right and Wrong Order**

---

|                | <u>"Birthmark"</u> |       | <u>"Killed"</u> |       |
|----------------|--------------------|-------|-----------------|-------|
|                | Right              | Wrong | Right           | Wrong |
| Major Salience | 0                  | 0     | 15              | 17    |
| Minor Salience | 10                 | 7     | 0               | 0     |

---

A binomial test on the wrong order frequencies, assuming equal proportions, gave  $p < .01$  for "Birthmark" and  $p < .001$  for "Killed".

The transcripts of subjects explanations for first and sixth rankings of the wrong order versions of the text show that, again, the main point is the mistaken killing, this must have the most emphasis, capital letters, for an appropriately dramatic effect. Table 9.3 gives the comparative frequency of salience-level allocated to the information units for both text orders, showing little difference from the findings for the first study.



Table 9.4 gives the comparative rankings for the right and wrong order versions of *Detective*. With neutral salience for both sentences, the top two and the last ranks were

**Table 9.4: Mean ranks of typeface versions: both orders, *Detective* text. N=40**

---

| <i>Right</i> | <u><i>Detective</i></u> | <i>Wrong</i> |
|--------------|-------------------------|--------------|
| IC 2.60      |                         | IC 3.10      |
| CI 2.90      |                         | CI 3.20      |
| NC 3.55      |                         | CN 3.25      |
| NI 3.80      |                         | NC 3.70      |
| CN 3.95      |                         | NI 3.85      |
| IN 4.15      |                         | IN 3.90      |

---

identical with the versions for Right order in terms of where the typeface emphasis is in the text, rather than which sentence it goes with. However, a Kendall's Concordance test showed even less consensus between subjects on ranking than when the versions were in the right order,  $W = 0.036$ ,  $X^2=3.6$ . This shows in the very small spread between the means, which is tighter than that for the ranking of these text versions in their Right order. Generally, results here are similar to those for the earlier task on this text. Analysis of subjects explanations found an almost equal division on which sentence was most important. Tables 9.5 and 9.6 provide comparisons of frequencies for typeface qualities and for

**Table 9.5: Comparative quality frequencies for Typeface by Order: Detective**

| <u>Quality</u>    | <u>Capital</u> |       | <u>Italic</u> |       | <u>Normal</u> |       |
|-------------------|----------------|-------|---------------|-------|---------------|-------|
|                   | Right          | Wrong | Right         | Wrong | Right         | Wrong |
| Immediacy         | 0              | 0     | 0             | 0     | 0             | 0     |
| Attention capture | 1              | 1     | 0             | 0     | 0             | 0     |
| Prominence        |                |       |               |       |               |       |
| Major             | 15             | 19    | 2             | 0     | 0             | 0     |
| Minor             | 0              | 0     | 6             | 8     | 0             | 0     |
| Playdown          | 0              | 0     | 2             | 4     | 11            | 12    |
| Connotation       | 1              | 1     | 5             | 0     | 0             | 0     |

**Table 9.6: Comparative frequencies of salience allocation to information unit for DETECTIVE text in Right and Wrong Order**

|                | <u>"late train"</u> |       | <u>"connection"</u> |       |
|----------------|---------------------|-------|---------------------|-------|
|                | Right               | Wrong | Right               | Wrong |
| Major salience | 6                   | 9     | 6                   | 8     |
| Minor salience | 3                   | 3     | 2                   | 4     |

information salience for this text in its two orders. As was the case for Study 7, with the versions in their preferred sequence, for this text version there was no significant difference in frequencies for salience allocation between the sentences, using a binomial test assuming equal proportions. Typeface choices were, as before, made with regard to sense, interest and style rather than dramatic impact, and the

qualities at issue were almost identical with those for the earlier task on this text in Right order.

Connotation, again, was not an issue. Unlike the Thriller text, playdown scored slightly higher for Wrong order version ranking than for Right order. This may support the notion that this was an effect of sequence for that text: for Thriller it was the resolution sentence that should not be played down, for it was that sentence in particular that subjects' explanations established as being the most important. With this text, both sentences were of equal importance for the subject group as a whole. An examination of subjects explanations for ranking versions of the Detective text found that ten of the twelve comments scored for 'playdown' related to normal print on the last sentence of the text in its Wrong order presentation, and in the Right order the proportion was nine from eleven. The content of the final sentence, of course, differed between the two studies.

#### General discussion:

The main purpose of this particular study was to seek effects of sentence order upon choice of typeface emphasis for the texts. Generally, aside from points raised above, the results from the ranking task for Wrong order versions were similar to those for Right order. But the terms of this similarity seem to differ between the two texts. For

Thriller it is clear that major prominence, via capital letters, should be given to the information unit with the greatest salience. The sentence "We had killed the wrong man" should be emphasised, wherever it comes in the text. Therefore, when the text is presented in its Wrong order, the strongest emphasis is required for the middle sentence, not the last. For Detective, things are not so clear. On the face of it, as the first two and the last-ranked versions were the same in terms of the place of the typeface emphasis in the text, it may be that there was an effect of sequence. However, the analysis on this text for both ranking tasks found no concordance, and no significant difference between text version ranks. On the other hand, the ordering task did establish a clearly preferred sequence which was the same as that for Thriller: the 'realisation' sentence should go at the end of the text.

In order to establish whether emphasis was preferred on the 'realisation' sentence, wherever it was placed, or the last sentence, whatever its content salience, the relevant version rank data was taken for each set and those that corresponded were eliminated. (These were IC and NC in Right order, as these versions have the emphasis on the target sentence, with that sentence at the end of the text.) The comparison, then is between CI+CN and IC+NC in the Wrong order versions, for each text separately. Wilcoxon's matched pairs signed ranks test gave Thriller:  $W=0$ ,  $N=19$ ,  $p<.001$  and Detective:  $W+=66.5$ ,



N=17, p=n.sig. This supports all the evidence gathered so far that for Thriller, the realisation sentence must be emphasised. In other words, it was the content salience structure in this text that determined the emphasis. For Detective, no such finding can be reported.

Another question this study addresses is whether there is a conflict between emphasis and order where only one 'goes with' a target sentence, and whether the content salience level of the target sentence is an issue for this. Defining target sentence as the 'realisation' sentence in each text, having high salience in Thriller and neutral salience in Detective, Table 9.7 shows the combined mean rank for text versions according to whether the target sentence has major emphasis (capital letters), takes the proper order position, and has high salience.

The version ranked highest for each text has the 'realisation' sentence at the end, in capital letters, as was predicted from the findings of the earlier ranking study and the ordering study. The next rank goes, in each case, to the version with the right emphasis, but the wrong order, for this sentence. After that, having the unemphasised target sentence in the middle of the text is preferred to its being at the end.

The rank order of versions in terms of capital letters and position of target sentence is the same for both texts, with

Thriller showing a strong distinction between versions with emphasis on the high content unit and those without. For Detective, the spread is narrow.

**Table 9.7: Mean ranks for versions according to content salience, emphasis and order for 'realisation' sentence, both texts.**

---

| Text label       | Salience Type |          |       | Mean Rank |
|------------------|---------------|----------|-------|-----------|
|                  | Content       | Emphasis | Order |           |
| <i>Thriller</i>  |               |          |       |           |
| NC+IC            | High          | +        | +     | 2.025     |
| CN+CI            | High          | +        | -     | 2.1       |
| CN+IN            | High          | -        | +     | 5.0       |
| NC+NI            | High          | -        | -     | 4.725     |
| <i>Detective</i> |               |          |       |           |
| NC+IC            | Neutral       | +        | +     | 3.075     |
| CN+CI            | Neutral       | +        | -     | 3.225     |
| CN+IN            | Neutral       | -        | +     | 4.05      |
| NC+NI            | Neutral       | -        | -     | 3.775     |

---

A repeated measures analysis of variance, with content and order as between subjects factors, and emphasis as within subjects factor, using the SPSS<sup>x</sup> routine MANOVA, found a significant main effect for emphasis,  $F=69.92954$ ,  $df=1,76$ ,  $p<.001$ , implying that which one of the two sentences carried

capital letters was critical for subjects' ranking of the text versions, with a significant content x emphasis interaction,  $F=22.87421$ ,  $df=1,76$ ,  $p<.001$ , showing that high content salience was a critical issue. There was no order x emphasis interaction, nor an interaction effect of content x order x emphasis.

Comparisons for the content x emphasis interaction sought an effect of Emphasis separately for the high content-salience text (Thriller) and the text whose sentences were neutral in terms of their relative information salience (Detective). A very highly significant effect of emphasis was found for Thriller,  $F=86.39667$ ,  $df=1,76$ ,  $p<.001$ . Within this text subjects paid great attention to which sentence carried capital letters when ranking the six versions.

Surprisingly, a significant emphasis effect was also found for the content-neutral text, Detective, though at a much lower level:  $F=6.40709$ ,  $df=1,76$   $p <.013$ . This suggests that there was a tendency to prefer the resolution sentence to carry the emphasis for these subjects also, though this tendency was not strong, as the mean ranks of the Detective versions suggest in Table 5.1. There was no significant interaction effect of order by emphasis within either text. What was emphasised, rather than where, was the main issue for both sets of subjects.



The apparent difference between the two texts on distinctions between ranks was confirmed by comparing mean ranks for those versions where the 'realisation' sentence appears in capital letters. The difference between ranks for these versions across Detective and Thriller was significant,  $F=25.89789$ ,  $df=1,76$   $p<.001$ , indicating the effect major salience has for ranking these versions distinctly higher than the others.

The same information was given when the ranks for versions without emphasis on the salient content were compared across the two texts:  $F=14.00868$ ,  $df=1,76$ ,  $p<.001$ . Here the mean rank for Thriller was significantly lower than that for Detective, as is suggested by the closeness of all mean ranks to the null mean for the latter text.

The MANOVA test confirmed the findings from the comparative analyses of the individual text mean ranks. Where a sentence is placed in a text is of little concern for ranking versions according to best use of emphasis for conveying its message. Even so, given that the overwhelming demands of content upon emphasis constrained the general findings regarding text sequence, there were some apparent side effects of order. If a text had a highly salient information unit, the version with that unit properly placed in the text and properly emphasised by capital letters, was ranked higher than other versions of that text, and also higher than the 'proper' version of a text whose sentences were neutral in terms of content salience.



The physical structure of the whole text is of issue when subjects provide reasons for ranking. Given that the content of a sentence may demand emphasis, whatever its position in the text, it seems that when normal print is used the resulting underemphasis is more noticed if it follows a capitalised sentence than if it precedes it. Impact should be led up to, not away from. This relates to another difference in results between the two sets of ranking tasks: the first-ranked version of *Thriller*, with italics on the 'birthmark' information and capitals on 'killing', is only ranked significantly higher than the next ranked version when the text is in its proper order.

The experiment on proper order found that there definitely was a preferred information sequence for the texts. The lack of this proper sequence for subjects ranking the Wrong order versions may show in the reduction of ranking distinctions for both texts - see Tables 5.1 and 5.2, indicating less general certainty. There may have been other peripheral effects, as discussed above. However, it must be accepted that the questions addressed by this study are very clearly answered by its results: it is the content of the individual sentences and their relation to each other in terms of their semantic structure, not their physical sequence, that dictates the proper emphasis for a text.

## **CHAPTER 6: Emphasis, Sequence, and Information Salience.**

### **Interim Summary and Introduction:**

The ranking tasks described in Chapters 4 and 5 required an interpretation of each version, comparison of each interpretation with the (assumed) communicatory intention of the writer, and ranking all six text versions according to degree of match. In order to explain their 'best' and 'worst' rankings, subjects had to access knowledge of paralinguistic systems operating within the text, as word content was identical across versions. The foregoing applies also to the text ordering task.

Although when order preferences were studied for each text in the absence of typeface emphasis, there was a marked preference for a particular order in each case, there was no reliable difference found between ranks given to versions of texts in their Right or their Wrong order. Some side effects reported in the conclusion to the preceding section suggested certain possible effects for the physical place of emphasis in terms of its communicative function, but there was no discernible effect of order on the choice of which typeface should go with which sentence. The most important information must have the greatest emphasis, wherever it stood

with relation to the other text units. This constraint was

clearly evident from the findings of the Thriller text and studies.

There is a weak tendency, shown from the analyses of rankings in terms of which unit should take capital letters, for the summary sentence in Detective to require most prominence. The function of this sentence in this particular text is to realise the implication of the content so far and to restate the situation in summary form, as a conclusion which leads on to, or implies, a secondary realisation which presumably is critical for the development of the story - the man lied, his alibi is broken, or perhaps he is a forgetful academic with no sense of direction or time.

With Thriller, the situation is different. Though the realisation sentence "we had killed the wrong man" does serve the function of summarising and concluding the 'story so far', in terms of the information explicitly available in the text given to subjects, it supplies new information - which is dramatic in its own right.

That the narrator had been partner to a mistaken killing is only one potential realisation from the implications of the previous sentences in the text. This should make the sentence all the more crucial in the eyes of subjects ranking the text versions for proper emphasis, and we know that their decision that this sentence should be in capital letters was more or less unanimous.



Effectively, both realisation sentences summarise previous information. They are therefore appropriate conclusions to each text, as the ordering task results showed. A point about such summaries, found at intervals throughout passages of fiction, is that they have a rhetorical function to convey the story-line, to restate preceding information in terms of the particular tale that is being told (Brown & Yule, 1983). Summaries should serve this function in most communicatory contexts.

The communicatory context is an external operator upon the text as a whole, which must conform to predictable regularities if it is to be interpreted appropriately. With fiction this is telling the story well, holding interest, suggesting drama, mystery and maintaining the threads that hold the information sensibly together. Holding the information together from a particular perspective (simply, what the story is about) gives the writer the task of maintaining the internal content structure of the text throughout the discourse, selecting strategies which will provide interpretants for the narrative focus of the text. Generally speaking, for Thriller this focus is explicit within the given text, provided by the realisation sentence. There has been a mistaken killing, committed by the narrator. For Detective, that the man has lied, that his alibi is broken, is not stated in the text - the narrative focus is implicit.



The ranking results could be explained by subjects ranking their versions to the necessities of the narrative focus, within the communicatory context, and allocating importance, and consequent typeface emphasis, to particular sentences in terms of their function for this focus. What if the writer of the Thriller story intended the birthmark information to feature strongly in subsequent events in the narrative? Which strategy, from the available options, would stand the best chance of achieving this? Subjects in the Ranking study gave the version which provided most prominence to "There was a birthmark on his forehead" bottom rank, on the stated grounds that it gave this information too much emphasis, and played down the killing. These subjects had all versions of the text available, for a task which in effect required the production of the best text. What would the interpretative effects of the different texts be, in isolation? Would emphasising one sentence increase its perceived content salience at the expense of another, and what would be the effects of competition from highly salient information elsewhere in the text?

The next study addresses the interactive functions of typeface, emphasis and information sequence for written communication, from the perspective of the reader.

**Study 10: Emphasis and Order effects upon  
story continuations**

**Introduction:**

This study takes the two fiction texts which were presented as material for the previous study, using the same emphasis and order manipulations to provide six different versions for each text. Versions were presented to individual subjects, seeking any effects of the manipulations upon interpretations of the text content.

Two measures of effect were used. Firstly, subjects were asked to provide a brief continuation of the story: secondly, they were asked which of the three given sentences they thought the most important.

Sanford, Moar and Garrod (1988) used a sentence continuation task to test referential availability, indexed by the probability of mention in continuation responses. While it was anticipated that the content of subjects' continuations would generally relate to the text as a whole and therefore to all the information it contained, it was expected that subjects would tend to lead off from whichever text unit best indicated a story focus, or plot, and this unit would feature in the content of their continuations. For example, despite the high content salience of "we had killed the wrong man", the information that the victim had a birthmark may be more

available to subjects if it is focussed by typeface emphasis within the text. Or, more overtly, they may assume it does have importance for the ongoing story, indicated by the writer's use of capital letters.

For continuations of the Thriller text it was expected that the realisation sentence, which explicitly contains the plot focus of the surrounding text, would feature as a departure point for subjects, unless order or emphasis pulls hard - maybe in combination, to focus attention elsewhere. For the question response, however, the sentence "We had killed....." should score highest, whatever else is signalling.

On the other hand, if the Detective text did focus subjects attention to an implicit plot, this plot should feature in their continuations, with possible order or emphasis effects on which, if any, text units featured as lead in. If both sentences are neutral in terms of information salience, then it might be expected that emphasis and/or order manipulations may act to render one sentence more salient than the other, which should affect the selection of 'most important sentence'.

Over the two texts, the interest was in evidence of conflict or cooperation between emphasis and order with content salience.

## Method:

560 subjects took part in this experiment, giving twenty-eight groups of twenty. All were first or second-year undergraduate students at the University of Glasgow.

The two fiction texts from the Ranking experiment provided material for the study. The combined and single emphasis manipulations previously presented for ranking, plus unemphasised versions of each text within each sentence order, gave fourteen different versions for each of the two texts, twenty-eight versions in all. The emphasis sequence for each version, within order set, was identical for both the Thriller and the Detective texts, as shown in Figure 10.1.

**Figure 10.1: Order & Emphasis sequence descriptions of alternative versions, both texts.**

---

| <u>Sentence Order</u>   | <u>Emphasis Order</u> | <u>Version Label</u> |
|-------------------------|-----------------------|----------------------|
| Implication-Realisation | Italic-Capital        | IR-IC                |
| "                       | Capital-Italic        | IR-CI                |
| "                       | Normal-Capital        | IR-NC                |
| "                       | Capital-Normal        | IR-CN                |
| "                       | Normal-Italic         | IR-NI                |
| "                       | Italic-Normal         | IR-IN                |
| "                       | Normal-Normal         | IR-NN                |
| Realisation-Implication | Italic-Capital        | RI-IC                |
| "                       | Capital-Italic        | RI-CI                |
| "                       | Normal-Capital        | RI-NC                |
| "                       | Capital-Normal        | RI-CN                |
| "                       | Normal-Italic         | RI-NI                |
| "                       | Italic-Normal         | RI-IN                |
| "                       | Normal-Normal         | RI-NN                |

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Figures 5.1 and 5.2 from Chapter 4 show the different typeface versions for each text in their proper order, the versions in their wrong order can be seen in Chapter 5, Figures 7.1 and 7.2.

Each subject was presented with an A4 sheet of paper containing a text and instructions to 'continue the story'. On a second sheet they were asked to state which of the three given sentences was 'most important', and why. Figure 7.2 gives an example of the material presented, using a version of the Thriller text, with instructions and questions.

The study was run prior to different course lectures, with the cooperation of the lecturers concerned. Subjects were given the material and asked to complete their tasks within the first ten minutes of lecture time. All did so.

#### Scoring procedures

Transcripts of subjects' continuations, and of their explanations of why a particular sentence was rated most important, are available in Appendix 3.

**Figure 10.2: Example of material presented to subjects for the continuation and question task.**

---

[page 1]

Please read the following passage, then continue the story in the space below. Just one or two sentences will do, showing what you think might come next.

[Version: RI-NI]

I walked up to the body on the hearthrug and turned it over. We had killed the wrong man. *There was a birthmark on his forehead.*

.....  
.....  
.....

[page 2]

There are three sentences in the passage you were given. Which do you think is the most important?

.....  
.....

Can you say why?

.....  
.....

Thank you for helping with this study.

---

On the first measure, story continuations for the Thriller text versions were scored in terms of which sentence in the given text functioned most clearly as the departure point for subjects' continuations. Scoring categories, therefore, were

"Background", "Implicatory", "Realisation" and "Other" - a score on the latter implying either that none of the sentences from the given text were specifically linked by content, or that all the sentences seemed, by the same criteria, to be necessary for the continuation.

Scoring was carried out by two judges, with agreement overall for the Thriller text being 86% at the first run, followed by full agreement after discussion.

Scoring of the Detective text was carried out in the same way. The majority (61%) of the scores here fell within the "Other" category, implying that there was no distinguishable departure point from the given text. An examination of these responses found that 82% related to a 'broken alibi' plot, the remainder dealing variously with timetables, British Rail waiting rooms and alternative means of transport. In fact, 65% of all continuations dealt with the fact that the subject of the story had lied, taking this from the information provided as a whole or relating back to one specific unit of the text, and being scored accordingly.

Between judges the agreement rate for first scoring the continuation responses for this text had been 88%. It was decided that the responses scored 'Other' would stand, on the criteria as originally applied, ie no evidence of any specific

sentence in the given text serving as departure point for the continuation. Disagreed items from the whole data set were agreed at a second scoring session after discussion.

A separate scoresheet was then drawn up for the continuations of each text. This time they were scored in terms of whether or not the story focus as intended by the author (which in fact was mistaken killing for the Thriller text, broken alibi for Detective) featured in their content, regardless of links to specific text units. Scores were then tabled according to emphasis-order condition.

Throughout all scoring procedures, judges saw the continuations only, rather than scoring each continued text as a unit. This was because, during a practice run, it was generally felt that the print emphasis was influencing judges decisions, that is, affecting their interpretation of the continuation itself.

Responses to the question about importance were simply scored by the experimenter, matching subjects' selections with the text sentence. Coding categories were therefore the same as those for the continuation responses.



Scoring categories for subjects explanations of why a particular sentence was accounted most important emerged from careful study of these responses, whose high degree of systematic consistency enabled a manageable number of categories to accommodate most of the data. It was found that explanations related mainly to the sequencing of information in the text, to physical emphasis or prominence, to the content of the chosen sentence in its own right, or to that content in relation to the perceived plot or story-focus of the text. Scoring categories were therefore 'Content', 'Emphasis', 'Sequence' and 'Plot' plus 'Other' for any explanations which could not be accommodated within the categories provided. Again, two judges scored the data, with an agreement rate of 88%, full agreement after discussion. These scores were then related to the order-emphasis condition undergone by the subject.

## **Results and discussion:**

### Continuation Task

Tables 10.1 and 10.4a show the frequency of continuation topic relation to text unit content, by emphasis-order condition, for each text. Tables 6.3 and 6.4 show which sentence was

considered by subjects to be most important, under which condition. For clarity, the final columns of each table indicate whether typeface emphasis is on the realisation sentence (+ Emphasis), and whether that sentence takes its preferred order, as last sentence in the text (+ Order).

**Table 10.1: Response frequencies for continuation task THRILLER text, all versions N=280**

| Version* | Background | Imply | Realise | Other | Status of Realisation<br>Emp. Ord. |   |
|----------|------------|-------|---------|-------|------------------------------------|---|
| IR-NN    | 0          | 5     | 15      | 0     | 0                                  | + |
| IR-CN    | 0          | 5     | 15      | 0     | -                                  | + |
| IR-NC    | 0          | 1     | 17      | 2     | +                                  | + |
| IR-IN    | 0          | 2     | 18      | 0     | -                                  | + |
| IR-NI    | 0          | 0     | 20      | 0     | +                                  | + |
| IR-CI    | 1          | 4     | 15      | 0     | ++                                 | + |
| IR-IC    | 1          | 4     | 14      | 1     | ++                                 | + |
| RI-NN    | 3          | 7     | 8       | 2     | 0                                  | - |
| RI-CN    | 0          | 12    | 8       | 0     | +                                  | - |
| RI-NC    | 0          | 8     | 11      | 1     | -                                  | - |
| RI-IN    | 0          | 12    | 7       | 1     | +                                  | - |
| RI-NI    | 0          | 7     | 13      | 0     | -                                  | - |
| RI-CI    | 1          | 11    | 7       | 1     | ++                                 | - |
| RI-IC    | 0          | 13    | 7       | 0     | ++                                 | - |
| .....    |            |       |         |       |                                    |   |
| TOTAL    | 6          | 91    | 175     | 8     |                                    |   |

\*Version labels show the initials of each factor, in sequence for that version, eg IR-CN = Implicatory sentence in capital letters, followed by realisation sentence, in normal print.

Necessarily, the minus signs indicate the status of the implicatory sentence - that is, if the realisation sentence is not emphasised, then the implicatory sentence is +Emphasis, the same applying for sentence position.

The nature of the data restricts its analysis to some form of frequency quantification. Chi square, is the most commonly used form of analysis in this context. However, where there are more than two factors, each with several levels - as is the case here - interaction effects can only be tested by carrying out an exhaustive series of partitions on the contingency table. A form of log-linear analysis, multinomial logit modelling (see, eg. Upton (1978), was felt to be more efficacious. This allows direct testing of interaction effects and has the additional advantage of explicitly treating the response variable as dependent.

Taking the continuation task first, each text is dealt with separately before a comparative discussion.

### Thriller:

All the Thriller continuations dealt in some way with a mistaken killing, and the majority of subjects took the realisation sentence alone as a departure point for their continuations. Almost exclusively, the content of these

dealt with the resulting state or action of the narrator, in the light of the mistake. There does appear to be a shift to the implicatory sentence among those subjects who received the 'wrong order' versions of the text, with a slight increase in this tendency under certain conditions of typeface emphasis. Unexpectedly, when sentence order is reversed, emphasis on one sentence slightly increases response frequencies for the other.

Multinomial logit modelling was carried out on the frequencies tabulated in Table 10.1, with response as dependent variable. The various models tested, as defined by the effect removed from the saturated model (ie that model which includes all two- and three-way interactions between Response, Emphasis and Order), are shown in Table 10.2 with values for goodness-of-fit chi-square (the likelihood-ratio statistic,  $Y^2$ ), and significance for these values.\*

It is plain that sentence order is the only influence against a strong tendency to lead off from the realisation sentence when continuing this story. Model B, with the effects of order on response removed, clearly does not fit the data.

---

\*If  $Y^2$  is significant, then that model does not fit the data well, implying that the effect removed is in fact required to explain the pattern of frequencies. (See, eg, Upton 1978)



**Table 10.2: Multinomial logit models for testing Emphasis, Order and Emphasis x Order effects upon Response, Thriller continuation task.**

| Model | Parameter removed           | $\chi^2$ | df | p    |
|-------|-----------------------------|----------|----|------|
| A     | Response x Emphasis x Order | 16.14890 | 12 | .185 |
| B     | Response x Order            | 46.62434 | 15 | .000 |
| C     | Response x Emphasis         | 23.66715 | 24 | .481 |
| D     | Right Order only: R x E     | 11.31170 | 12 | .502 |
| E     | Wrong Order only: R x E     | 12.35545 | 12 | .418 |

Contrasts from Model A show that the realisation sentence features as departure point more often with right order versions, where it ends the text, than with wrong order versions ( $Z=3.5153$ ). Correspondingly, the birthmark information became more salient, featuring more often in continuations when this sentence was last ( $Z=-2.10541$ ). This influence was not so strong as to reverse the frequencies, rather it pulled more of the responses over, under the wrong order conditions. When contrasted with the effects of other emphasis conditions, the 'realisation' responses for those versions having italic typeface for that sentence (RI-NI and IR-NI) were highest ( $Z=2.03668$ ). However, it was generally found that the effects of emphasis for this task on this text, though suggestive, are marginal in comparison to the overall response effect (ie, to deal exclusively with the mistaken killing), and to the overall order x response effect.

Detective:

65% of all continuations dealt with the fact that the subject of the story had lied, taking this from the information provided though not often relating back to any specific unit of text. This proportion varied considerably between the different subject groups; Table 10.3 gives the percentage of subjects for each text version who continued the story in terms of a lie or broken alibi, whether or not there was a content relationship to a specific sentence in the text, scored accordingly.

**Table 10.3: Percentage of continuations with alibi as topic, Detective text.**

---

| Right Order<br>Versions (I-R) % |    | Wrong Order<br>Versions (R-I) % |    |
|---------------------------------|----|---------------------------------|----|
| NN                              | 70 | NN                              | 40 |
| NC                              | 65 | NC                              | 90 |
| CN                              | 65 | CN                              | 90 |
| NI                              | 50 | NI                              | 70 |
| IN                              | 75 | IN                              | 60 |
| CI                              | 55 | CI                              | 75 |
| IC                              | 50 | IC                              | 60 |

---

It would seem that the 'proper order' sequence of sentences works best to direct continuations to the 'alibi' story focus, if no typeface emphasis is available. Wrong order versions

with typeface emphasis generally produced higher frequencies of this response type than emphasised right order versions, though this difference does not quite achieve statistical significance. Using a binomial test with probability defined as overall proportion of this response across all conditions,  $Z=1.55$ ,  $p=.072$ .

On the basis of these findings, the best way to present the text if requiring to focus story continuations on an alibi plot has the implicative sentence last, and either sentence in capital letters (RI-NC, RI-CN):  $Z=2.914$ ,  $p=.002$ . The version

which produced the highest number of lie responses with no specific content association to the text was RI-CN (75% of that subject group).

The frequencies for all responses for this text are shown in Tables 10.4a and 10.4b, with the latter providing information of frequencies when 'Lie' scores are separated out.

Generally, the majority of responses for this task took the whole text as a lead in to an implicit plot, which provided the topic of continuation content, whether or not subjects interpreted this as concerning a broken alibi or the inefficiency of British Rail. However, there does seem to be an effect of emphasis and order in that certain version conditions show an increase in frequency for a specific

**Table 10.4a: Response frequencies for continuation task  
DETECTIVE text, all versions N=280**

| Version <sup>+</sup> | Background | Imply | Realise | Other | Status of<br>Realisation<br>Emp. Ord. |   |
|----------------------|------------|-------|---------|-------|---------------------------------------|---|
| IR-NN                | 2          | 0     | 2       | 16    | 0                                     | + |
| IR-CN                | 3          | 3     | 4       | 10    | -                                     | + |
| IR-NC                | 3          | 0     | 7       | 10    | +                                     | + |
| IR-IN                | 1          | 2     | 4       | 13    | -                                     | + |
| IR-NI                | 0          | 3     | 6       | 11    | +                                     | + |
| IR-CI                | 2          | 2     | 3       | 13    | ++                                    | + |
| IR-IC                | 3          | 3     | 5       | 9     | ++                                    | + |
| RI-NN                | 2          | 5     | 5       | 8     | 0                                     | - |
| RI-CN                | 1          | 0     | 2       | 17    | +                                     | - |
| RI-NC                | 1          | 2     | 0       | 17    | -                                     | - |
| RI-IN                | 3          | 4     | 4       | 9     | +                                     | - |
| RI-NI                | 2          | 4     | 0       | 14    | -                                     | - |
| RI-CI                | 2          | 3     | 2       | 13    | ++                                    | - |
| RI-IC                | 3          | 5     | 1       | 11    | ++                                    | - |
| .....                |            |       |         |       |                                       |   |
| TOTAL                | 28         | 36    | 45      | 171   |                                       |   |



**Table 10.4b: Response frequencies for continuation task  
DETECTIVE text with 'Lie' scores, all versions N=280**

| Version<br>Realisation | Back      | Imply     | Realise   | Lie        | Other     | Status of |      |
|------------------------|-----------|-----------|-----------|------------|-----------|-----------|------|
|                        |           |           |           |            |           | Emp.      | Ord. |
| IR-NN                  | 2         | 0         | 2         | 12         | 4         | 0         | +    |
| IR-CN                  | 3         | 3         | 4         | 7          | 3         | -         | +    |
| IR-NC                  | 3         | 0         | 7         | 9          | 1         | +         | +    |
| IR-IN                  | 1         | 2         | 4         | 10         | 3         | -         | +    |
| IR-NI                  | 0         | 3         | 6         | 8          | 3         | +         | +    |
| IR-CI                  | 2         | 2         | 3         | 13         | 0         | ++        | +    |
| IR-IC                  | 3         | 3         | 5         | 7          | 2         | ++        | +    |
| RI-NN                  | 2         | 5         | 5         | 6          | 2         | 0         | -    |
| RI-CN                  | 1         | 0         | 2         | 15         | 2         | +         | -    |
| RI-NC                  | 1         | 2         | 0         | 13         | 4         | -         | -    |
| RI-IN                  | 3         | 4         | 4         | 7          | 2         | +         | -    |
| RI-NI                  | 2         | 4         | 0         | 10         | 4         | -         | -    |
| RI-CI                  | 2         | 3         | 2         | 13         | 0         | ++        | -    |
| RI-IC                  | 3         | 5         | 1         | 10         | 1         | ++        | -    |
| .....                  |           |           |           |            |           |           |      |
| <b>TOTAL</b>           | <b>28</b> | <b>36</b> | <b>45</b> | <b>140</b> | <b>31</b> |           |      |

sentence featuring as a departure point, pulling more responses away from the 'Other' category where no such effect was found. As was the case for Thriller, reversing the order of the two sentences spread the responses without any influence from typeface change - compare IR-NN with RI-NN in Tables 10.4a and 10.4b. The data from Table X.2A was subjected

to log-linear modelling, to provide a more direct comparison with the findings from the Thriller text, and goodness of fit statistics for the models are given in Table 10.5.

**Table 10.5: Multinomial logit models for testing Emphasis, Order and Emphasis x Order effects upon Response, Detective continuation task.**

| Model | Parameters Removed                 | $\chi^2$ | df | p    |
|-------|------------------------------------|----------|----|------|
| A     | Response x Emphasis x Order effect | 23.22339 | 12 | .026 |
| B     | Response x Order                   | 28.04296 | 15 | .021 |
| C     | Response x Emphasis                | 38.56773 | 24 | .030 |
| D     | Right Order only: R x E            | 13.75936 | 12 | .316 |
| E     | Wrong Order only: R x E            | 21.43857 | 12 | .044 |

The models confirm the impression given by the frequencies shown in Table 10.4a. None fit the data well, suggesting that both typeface emphasis and the order of sentences affect response frequencies, and that their interaction effect is also significant. Model A contrasts show that the 'realisation' response, "He could not have made the connection" was higher in Right order versions, with the emphasis effect noticeable within the Wrong order versions only ( $Z=2.11007$ ).

### General discussion:

For the Thriller story, with all the responses relating to the mistaken killing, putting the highly content-salient information last was the best strategy for ensuring the continuations dealt with this alone and ignored the implicatory information. Reversing the order facilitated an interpretation of the given text which, while not shifting the main focus from the killing, treated the victim's birthmark as an ongoing element in the plot. "Gorbachev was dead!" is the simplest example from the data.

An unexpected finding which, although a very minor effect compared to the overriding influences of content salience and sentence order, is the tendency for "WE HAD KILLED THE WRONG MAN. There was a birthmark on his forehead" (RI-CN) to pull more responses to the implicatory sentence category than "We had killed the wrong man. THERE WAS A BIRTHMARK ON HIS FOREHEAD" (RI-NC), though this version also conforms to the general order effect operating on the data.

This effect was not found in the data from the Detective continuation task, where typeface emphasis had a more straightforward influence when interacting with sentence order. It should be noted that the Detective fiction context could not have been strongly marked. Firstly, only sixty-five per cent of all continuation responses related to a

broken alibi. Most other continuations involved time-tables and travel arrangements - one subject deserves quoting for combining the two: "Elementary, you may think, but it was singular observations such as these that turned the young trainspotter into Sherlock Holmes, the world's most feared detective." (RI-CN). Secondly, those plots which did deal with a theme of lie and broken alibi were fairly evenly divided between Holmesian deductions and accusations of infidelity.

Presenting three sentences from a body of text is, naturally, more likely to mark an immediate story context if the plot focus is explicit within the given text. The main issue for this report, however, is the influence of typeface emphasis and sentence order, and here Table 10.3 shows that for the Detective text any disadvantage from not explicitly stating the plot can be considerably overcome by the use of typeface emphasis, in combination with order. It was found that a substantial majority of continuations dealt with the intended story focus when the text was presented in the 'wrong' order, with the implicatory information about the delayed train last, and either that sentence or the realisation sentence capitalised. This was confirmed by the log-linear analysis carried out on the frequencies shown in Table 10.4a, which tested for emphasis or order influences away from the main trend of taking the whole text as a lead-in to the story continuation, rather than one specific sentence. Table 10.3



shows clearly that predictions were met, and that typeface emphasis and sentence order do work cooperatively to influence subjects' continuations of their given text versions.

A prediction that the best way to sequence and emphasise the information units in the two texts given to subjects in this study so as to best communicate the narrative focus intended by the author would be that preferred by subjects in the Ranking study would not have been met by the findings here. If we take "best version" in "best order" from the Ranking tasks on both texts and compare them with the versions producing the highest frequency for intended interpretation of each text, we find that they do not match.

The preferred version for Thriller was:

I walked up to the body on the hearthrug and turned it over. *There was a birthmark on his forehead.* WE HAD KILLED THE WRONG MAN.

For Detective:

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. *Yesterday the Plowbright train was two hours late.* HE COULD NOT HAVE MADE THE CONNECTION.

Ranking of versions in Chapters 4 and 5 was to be done in terms of "best way of expressing the message", which instruction does seem, from subjects' explanations, to have been taken to mean communicating an intended interpretation in terms of narrative focus within the overall text context. Assuming the 'proper' continuation response to Thriller is that which concentrates upon the mistaken killing while

discarding the birthmark information (which the ranking study subjects, from a study of their explanations, clearly assumed the narrative focus to be), the version producing most responses of this type was:

I walked up to the body on the hearthrug and turned it over.  
There was a birthmark on his forehead. *We had killed the wrong  
man.*

Significantly more responses were scored 'R' for this version, in comparison with the plain text version. It was ranked fourth by subjects ranking 'right order' versions, for whom a major imperative was placing capital letters on the highly salient information given in the last sentence.

Oddly enough, the scores from Table 10.1 suggest that if the author had intended the fact that the victim of the killers' error was a man with a birthmark on his forehead to feature as an element in the unfolding plot, then her best was of achieving this interpretation from the three sentences taken for study would be to switch the two sentences, and use italics for the impact sentence and capitals for the implicative information:

*We had killed the wrong man.*    THERE WAS A BIRTHMARK.....

This version gives full prominence, from emphasis and sentence position, to the implicative sentence.

With the Detective text, Table 10.3 shows that either of the following versions work best for the intended interpretation:

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. HE COULD NOT HAVE MADE THE CONNECTION. Yesterday the Plowbright train was two hours late.

He said he had caught the morning train from Plowbright as usual, changing at Crewe for Leicester. He could not have made the connection. YESTERDAY THE PLOWBRIGHT TRAIN WAS TWO HOURS LATE.

The mismatch is less serious in this case, as subjects in the Ranking task indicated no significant preference for any one version. However this text, like Thriller, was preferred with combined emphasis. The suggestion from Tables 10.1, 10.4a and 10.4b is that any effects from the combined emphasis versions tend to cancel each other out, in terms of sentence order comparisons and typeface sequence.

The above conflict suggests that any interpretative faculties brought to bear when ranking text versions in order of preference differ from those used to interpret a given version and respond by continuing the story - a more 'reactive' task.

### Question tasks

As a first step, within subject responses to the two tasks, continuation and question, were analysed to see if there were any associations between departure points for continuations and selection of "most important sentence". None were found: for the Thriller text

$X^2=9.351$ ,  $df=9$ ,  $p=n.sig.$  For Detective,  $X^2=11.2225$ ,  $df=9$ ,  $p=n.sig.$  This confirms that the tasks measured different effects of the emphasis/order manipulations on text interpretation.

The responses to the question of which sentence in the given text was most important were scored against exactly the same categories as those used for scoring the continuation task. Tables 10.6 and 10.7 show the response frequencies for each text. One point is clear, that predictions of perceived information salience made from the results of the ranking study hold true. Across all versions, 71% of the responses were for the 'killing' sentence, with the implicatory sentence achieving 26%. With Detective, the responses were much more evenly spread between the last two sentences, and increased for the Background information.



Another point is that the differences between the non-emphasised versions (with only sentence order changed) are far less marked than was the case for the continuation task for both texts. The analysis of results for each text is reported separately, followed by a general discussion.

**Table 10.6: Response frequencies for question task - THRILLER text, all versions N=280**

| Version      | Background | Imply     | Realise    | Other    | Status of Realisation<br>Emp. Ord. |   |
|--------------|------------|-----------|------------|----------|------------------------------------|---|
| IR-NN        | 0          | 4         | 16         | 0        | 0                                  | + |
| IR-CN        | 0          | 9         | 11         | 0        | -                                  | + |
| IR-NC        | 0          | 3         | 17         | 0        | +                                  | + |
| IR-IN        | 1          | 8         | 11         | 0        | -                                  | + |
| IR-NI        | 0          | 2         | 18         | 0        | +                                  | + |
| IR-CI        | 1          | 3         | 16         | 0        | ++                                 | + |
| IR-IC        | 1          | 2         | 16         | 1        | ++                                 | + |
| RI-NN        | 1          | 4         | 15         | 0        | 0                                  | - |
| RI-CN        | 0          | 3         | 17         | 0        | +                                  | - |
| RI-NC        | 0          | 9         | 11         | 0        | -                                  | - |
| RI-IN        | 0          | 3         | 16         | 1        | +                                  | - |
| RI-NI        | 0          | 13        | 7          | 0        | -                                  | - |
| RI-CI        | 2          | 4         | 13         | 1        | ++                                 | - |
| RI-IC        | 0          | 5         | 15         | 0        | ++                                 | - |
| .....        |            |           |            |          |                                    |   |
| <b>TOTAL</b> | <b>6</b>   | <b>72</b> | <b>199</b> | <b>3</b> |                                    |   |

Thriller:

Table 10.6 shows the frequency of the Implicatory response to be higher than the Realisation response only once (RI-NI). The Background sentence scores show this to be completely out of the running. This suggests that content is a better predictor of judgements of importance between the sentences in this text, although the proportion of Implicatory to Realisation does increase whenever the former is emphasised.

It was found from the log-linear models of the data described in table 10.7 that, although Model C indicates a trend away from

**Table 10.7: Multinomial logit models for testing Emphasis, Order and Emphasis x Order effects upon Response, Thriller question task.**

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| Model | Parameters removed          | $\chi^2$ | df | p    |
|-------|-----------------------------|----------|----|------|
| A     | Response x Emphasis x Order | 3.79774  | 12 | .987 |
| B     | Response x Order            | 3.87759  | 15 | .998 |
| C     | Response x Emphasis         | 29.04851 | 24 | .218 |
| D     | Right Order only: R x E     | 10.85162 | 12 | .542 |
| E     | Wrong Order only: R x E     | 18.19689 | 12 | .110 |

---

goodness of fit when the Emphasis effects on the response are disregarded, and Model E shows us that this is more the case when only the wrong order version responses are studied, the high content salience of the realisation sentence "we had killed...." overrides any effects of emphasis, and certainly of order, for its selection as most important sentence. Models A and B fit the data very well. The contrasts from Model A indicate an increase in response frequencies for the implicatory sentence when emphasised by italics or by capitals, ( $Z=2.63618$ ,  $2.59932$  respectively). Capital letters for the realisation sentence increases its already frequent selection ( $Z=2.1697$ ).

These emphasis effects clearly do not influence the general direction of responses, which is toward the highly salient realisation sentence, an explicit statement of the plot.

### Detective

Again, although the score for Background is higher than it was for the Thriller text, the real conflict is between the Implicatory and the Realisation sentence.

**Table 10.8 Response frequencies for question task -  
DETECTIVE text, all versions N=280**

| Version<br>Realisation | Background | Imply | Realise | Other | Status of |      |
|------------------------|------------|-------|---------|-------|-----------|------|
|                        |            |       |         |       | Emp.      | Ord. |
| IR-NN                  | 1          | 8     | 8       | 3     | 0         | +    |
| IR-CN                  | 0          | 10    | 10      | 0     | -         | +    |
| IR-NC                  | 3          | 2     | 14      | 1     | +         | +    |
| IR-IN                  | 3          | 12    | 4       | 1     | -         | +    |
| IR-NI                  | 4          | 5     | 11      | 0     | +         | +    |
| IR-CI                  | 1          | 7     | 11      | 1     | ++        | +    |
| IR-IC                  | 1          | 7     | 12      | 0     | ++        | +    |
| RI-NN                  | 3          | 6     | 9       | 2     | 0         | -    |
| RI-CN                  | 3          | 3     | 14      | 0     | +         | -    |
| RI-NC                  | 0          | 13    | 7       | 0     | -         | -    |
| RI-IN                  | 2          | 6     | 12      | 0     | +         | -    |
| RI-NI                  | 2          | 16    | 2       | 0     | -         | -    |
| RI-CI                  | 2          | 8     | 10      | 0     | ++        | -    |
| RI-IC                  | 1          | 5     | 12      | 2     | ++        | -    |
| .....                  |            |       |         |       |           |      |
| TOTAL                  | 26         | 108   | 136     | 10    |           |      |

The response frequencies for the question task in Table 10.8 suggest a stronger effect of emphasis than was the case for Thriller. Log-linear analysis confirmed this, as Table 10.9 shows. Removing Response by Emphasis effects (Model C)



**Table 10.9: Multinomial logit models for testing Emphasis, Order and Emphasis x Order effects upon Response, Detective question task.**

| Model | Parameters removed          | $\chi^2$ | df | p    |
|-------|-----------------------------|----------|----|------|
| A     | Response x Emphasis x Order | 3.79774  | 12 | .987 |
| B     | Response x Order            | 5.41057  | 15 | .998 |
| C     | Response x Emphasis         | 53.09787 | 24 | .001 |
| D     | Right Order only: R x E     | 23.52949 | 12 | .024 |
| E     | Wrong Order only: R x E     | 29.56839 | 12 | .003 |

did significantly reduce goodness of fit for that model.

Examination of the contrasts from Model A found that choice of the implicative sentence increased when printed in italic letters ( $Z=2.63618$ ) or in capitals ( $Z=2.59932$ ), and that the realisation sentence response is more frequent when carrying capital letters ( $Z=2.1697$ ). It can be seen that typeface emphasis had slightly more influence upon responses in the wrong order than the right, but Models A and E confirm indications from Table 10.6 that information sequence, in combination with emphasis or alone, was not an issue when subjects selected the most important sentence from this text.

Reasons for choice:

The explanations subjects made for their choice of most important sentence from their given text versions were treated according to the coding procedures described. **Content** was scored when the choice related to some quality of the information expressed by the sentence chosen; **emphasis** when subjects simply explained choice by the typeface in which the sentence was presented; **plot** if the sentence is judged important because it is crucial to what a subject sees as the underlying theme or plot of the text; **sequence** when comments specifically concerned the order relationship of the information units. A full transcript of responses is available in Appendix 3. Some subjects gave more than one reason, all were scored and the frequencies for each text, broken down to text version groups, are shown in Tables 10.10 and 10.11.

It is clear from the frequency tables that the effects of typeface and order manipulation upon subjects given reasons for choice of the most important sentence from either text were minimal. Rather, the total response frequencies for the different categories provide confirmatory information about the nature of the texts themselves and the sentences within them, which throws more light on the different findings for the two texts as far as the 'Question' task itself goes.

**Table 10.10: Proportional response category frequencies of reasons for sentence selection, Thriller text.**  
(I=Implicatory, R=Realisation)

| VERSION | CONTENT |     | EMPHASIS |     | PLOT |     | SEQUENCE |     | OTHER |      |
|---------|---------|-----|----------|-----|------|-----|----------|-----|-------|------|
|         | I       | R   | I        | R   | I    | R   | I        | R   | I     | R    |
| IR-NN   | .25     | .29 | -        | -   | .50  | .53 | .25      | .18 | -     | -    |
| IR-CN   | .25     | .45 | .37      | -   | .31  | .55 | .06      | -   | -     | -    |
| IR-NC   | -       | .30 | -        | .26 | 1.00 | .22 | -        | .22 | -     | -    |
| IR-IN   | -       | .59 | .50      | -   | .50  | .08 | -        | .33 | -     | -    |
| IR-NI   | -       | .46 | -        | .37 | 1.00 | .17 | -        | -   | -     | -    |
| IR-CI   | -       | .33 | -        | .06 | 1.00 | .50 | -        | .11 | -     | -    |
| IR-IC   | -       | .18 | -        | .32 | 1.00 | .27 | -        | .33 | -     | -    |
| RI-NN   | -       | .53 | -        | -   | 1.00 | .23 | -        | .24 | -     | -    |
| RI-CN   | -       | .33 | -        | .43 | 1.00 | .24 | -        | -   | -     | -    |
| RI-NC   | .10     | .64 | .40      | -   | .50  | .36 | -        | -   | -     | -    |
| RI-IN   | .33     | .43 | -        | .30 | .66  | .13 | -        | .09 | -     | .04  |
| RI-NI   | .07     | .72 | .40      | -   | .53  | .28 | -        | -   | -     | -    |
| RI-CI   | -       | .28 | -        | .22 | .80  | .39 | -        | .11 | .20   | -    |
| RI-IC   | -       | .27 | .50      | -   | .33  | .40 | .17      | .33 | -     | -    |
| .....   |         |     |          |     |      |     |          |     |       |      |
| TOTAL   | .09     | .37 | .28      | .20 | .58  | .29 | .04      | .13 | .01   | .004 |

71% of subjects receiving versions of the Thriller text selected the realisation sentence as being the most important of the three. Of a total of 335 reasons, 85 related to the

Implicatory sentence, 248 to the Realisation. Proportional figures showing the frequency for reasons falling within each of the categories are given for those two sentences only.

For either sentence, if typeface emphasis is present, it tends to be given as a reason for selection. Otherwise, the Realisation sentence is more often chosen because of its content salience, though its function for plot is recognised. "It shows that something serious had been done by mistake. Killing somebody is a pretty grave thing to do and to do something like that by accident is quite important." If the Implicatory sentence is chosen, it is because of its importance to the plot and very seldom "in its own right", ie. in terms of its content. "It explains how they know they killed the wrong man."

The results of the Thriller tasks, Tables 10.6 and 10.7, clearly demonstrate the overriding influence of content salience on subjects' choice, and the response frequencies in Table 10.10 reflect this, as well as the subservient role of the implicatory sentence even when selected.

Predictably, for Detective the frequencies are much more evenly spread. Of 308 reasons, 136 referred to selection of the Implicatory sentence, 158 for Realisation. Again, if



**Table 10.11: Proportional response category frequencies of reasons for sentence selection, Detective text.**  
(I=Implicatory, R=Realisation)

| VERSION | CONTENT  |          | EMPHASIS |          | PLOT     |          | SEQUENCE |          | OTHER    |          |
|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|         | <u>I</u> | <u>R</u> | <u>I</u> | <u>R</u> | <u>I</u> | <u>R</u> | <u>I</u> | <u>R</u> | <u>I</u> | <u>R</u> |
| IR-NN   | .43      | .50      | -        | -        | .43      | .30      | .14      | .10      | -        | .10      |
| IR-CN   | .08      | .30      | .46      | -        | .15      | .40      | .31      | .30      | -        | -        |
| IR-NC   | .25      | .21      | -        | .47      | -        | .26      | .75      | .05      | -        | -        |
| IR-IN   | .25      | .17      | .25      | -        | .10      | .50      | .35      | .33      | .05      | -        |
| IR-NI   | .40      | .25      | -        | .17      | .20      | -        | .20      | .33      | .20      | .25      |
| IR-CI   | .43      | .25      | .14      | .08      | .29      | .50      | .14      | .08      | -        | .08      |
| IR-IC   | .71      | .25      | -        | .41      | .29      | .17      | -        | .17      | -        | -        |
| RI-NN   | .50      | .40      | -        | -        | .25      | .20      | .12      | .40      | .13      | -        |
| RI-CN   | -        | .11      | -        | .50      | .50      | .06      | .50      | .33      | -        | -        |
| RI-NC   | .18      | .28      | .29      | -        | .29      | .43      | .24      | .29      | -        | 0        |
| RI-IN   | .33      | .36      | -        | .21      | -        | .14      | .67      | .21      | -        | .07      |
| RI-NI   | .32      | .50      | .27      | -        | .23      | .50      | .14      | -        | .04      | -        |
| RI-CI   | .33      | .09      | -        | .18      | .33      | .45      | .22      | .09      | .11      | .18      |
| RI-IC   | .28      | .27      | .14      | .27      | .29      | .20      | -        | .13      | .29      | .13      |
| .....   |          |          |          |          |          |          |          |          |          |          |
| TOTAL   | .30      | .26      | .18      | .22      | .23      | .25      | .24      | .20      | .05      | .06      |

emphasis was present it tended to be mentioned in explanations; generally the reason categories applied relatively equally for both sentences.

The same reason for choice could apply whichever sentence was chosen: one subject chose Implicatory because "it indicates the guy was lying", another chose Realisation "because it tells us the man was lying". There is more concern with information sequence in subjects' explanations. "It states the implication of the preceding sentences". This is a very minor issue for the Thriller text.

#### **General discussion:**

Choice of the most important sentence in the Thriller text was not affected by where the sentences were placed, nor to any significant extent by the presence or absence of typeface emphasis. From Table 10.6 we can see that, basically, subjects found the sentence "we had killed the wrong man" too important to ignore, when weighing the sentences against each other. If the sentence containing the birthmark information was chosen, then it was because it enabled the dramatic realisation stated in the 'killer' sentence - as the frequencies in Table 10.11 confirm. Content salience

relationships within this text were clearly powerful enough to override any influence of the paralinguistic signs within the text, for this particular task.

Subjects in the Ranking study agreed that the realisation sentence must have major emphasis because it was so important, that underemphasis would detract from this. This was not found to be the case for responses to an overt task demand of 'choosing the most important sentence' from any single version of the text, wherever the emphasis was placed. It could be said that if one sentence is more important than any other in a text, it has a natural emphasis. Indeed, for the ranking task how else would subjects know it should not be played down, by emphasis for other units?

With Detective, the case is different and the results tabled from multinomial logit modelling of the data (Table 10.9) show this to be so. The great majority of subjects did make a choice between the two neutrally salient sentences. Their given reasons for doing so varied between the general categories which applied for all the 'explanation' data, with emphasis no stronger an issue than any other for the various conditions (see Table 10.11) and with information sequence featuring as well. Yet their actual choice was found to relate strongly to the emphasis manipulations across the text

versions; removing the response x emphasis parameter from the log-linear analysis of this data produced a bad model of the findings.

Here, typeface emphasis was not an issue if a sentence was seen to have high content salience within a text. That salience is recognised and acknowledged whether it was physically present in the print or not. If, on the other hand, two sentences had almost equal content salience, then the writer's indication of salience by emphasis was be taken up.

For this, more reflective task, sentence order was not an issue for either text; content salience has most influence if present, with typeface emphasis operating in default. The findings from the two tasks, continuing a story from a given text and selecting the most important information from that text, will now be summarised in terms of their contrasts.

### Summary:

The main interest here was in the relative powers of typeface emphasis and information sequence as strategies for influencing the interpretation of theme in written text. A major finding was that their effects differed, within



subjects, between the two interpretative tasks imposed. Another was that, between subjects, any influence from typeface and/or order manipulations was subject to whatever content salience relations held between the information units of the given text.

The model descriptions indicate one difference between the tasks very clearly. Sentence order was a major contributory influence for the task of continuing a story, but played no role for subjects' decisions as to which sentence in the text version they received had major importance. This seems an understandable difference - for continuing a story, the preceding sentence seems a fairly natural takeoff point.

For the Thriller text, a tendency to lead off from the last sentence was strengthened when that sentence was highly salient and explicitly stated the plot, and was strong enough to pull a significant number of responses away from the main trend of taking only the highly salient sentence as departure point when that sentence was not at the end of the text. For the less reactive task of selecting the 'most important' sentence from the text, content salience was the major factor and sentence order had no apparent effect upon responses.

The interpretive role of emphasis was not significant for the results of either task using this text but it should be noted that the removal of the Response x Emphasis parameter from the data for Thriller continuations considerably reduces goodness of fit for the model; the emphasis effect, though not strong enough to overcome the influence of content salience, was clearly active. Emphasis was also influential for subjects' decisions in the Question task, particularly for those receiving 'wrong order' versions.

With the Detective text, the task differences expressed themselves in the same way as far as the role of sentence sequence was concerned. Information order was important for the results of the continuation task, but had no effect on subjects' decisions about which sentence in a given text was most important. However, for this text, where no information unit had prime content salience, it was typeface emphasis that played the significant role, in cooperation with sentence order for the story continuations, and took the reins entirely for the question of importance.

The relative powers of emphasis and order to cooperate or conflict within interpretation depend, therefore, on the

nature of the interpretative task and the levels of content salience of the different units to be interpreted. Sentence order seems to play a more subtle role than typeface emphasis - this is indicated by the fact that it ceases to be a measurable influence on results when the task demands a more reflective study of the text. For the level of interpretation required by the story continuation task, if emphasis goes with content salience - as was the case for those versions of the Thriller text which had the realisation sentence - then that sentence increases its already high response frequency. If order goes with the implication sentence, ie where that sentence is last in the text, its content features in subjects' continuations of the story. Moreover, under that condition, the role of emphasis increases its influence on the perceived content salience of the implicatory sentence.

The situation for both sentences in Detective is similar to that for the implicatory sentence in Thriller. Whichever is at the end of the text tends to feature in the story continuation, unless emphasis is on the other sentence, pulling salience away. So far as the question task is concerned, without high content salience to neutralise the power of other influences signalling in the text, typeface emphasis overrides any possible effects of information sequence.



### SECTION THREE: Typeface Emphasis and

#### Semantic Structure

All the major points at issue for this thesis depend on the view that presenting a word in a different typeface to that used for the main body of a text provides physical salience - modulating emphasis for that word, so that it stands out from the rest of the text, capturing and focussing attention..

The salience of the words emphasised implies the salience of the information they convey. The emphasis signals that a word requires a level of attention which it would not normally receive under the 'default' interpretation of the text when unemphasised.

Consider the following text treatments:

- A. John, Jim and Joe were locked out of John's house. John tried the door. John went to the window. John even tried to get through the skylight. In the end, they went to the pub.
- B. John, Jim and Joe were locked out of John's house. John tried the door. Jim went to the window. Joe even tried to get through the skylight. In the end, they went to the pub.
- C. John, Jim and Joe were locked out of John's house. He tried the door. He went to the window. He even tried to get through the skylight. In the end, they went to the pub.
- D. John, Jim and Joe were locked out of John's house. He tried the door. *He* went to the window. *He* even tried to get through the skylight. In the end, they went to the pub.



Texts A and B present five acceptable sentences which, read in sequence, make up a simple story. In the first, the subject John retains his thematic role as agent throughout the text. In the second, the role passes to each of the persons named. Text C should convey exactly the information conveyed by A, but in a style less likely to be encountered in a children's story. Text C is surely not ambiguous at a natural level of interpretation.

'John' is the most likely antecedent for all occurrences of the pronoun 'he' in the text, on several grounds: he is the first and last named agent in sentence one; the owner of the house mentioned; given the status of antecedent for the first occurrence of the pronoun, the natural reading of subsequent occurrences, without intervention of another proper noun, should follow the same resolution of reference (Frederiksen, 1981a, and see also Sanford, Moar and Garrod, 1988).

Does text D relay the same information as A, or as B? While acknowledging that this text has a greater degree of ambiguity than C, it is argued that it interprets in the same way as text B, on the grounds that the italic print for each of the pronouns signals a change in what might be termed the 'running' or default interpretation. In speech, Bolinger

(1986) says "An accented pronoun is typical of the dietic or pointing use of that part of speech - if it comes out of the blue, it requires a gesture indicating the person concerned.

Texts B and D, then, are alternative expressions of the same underlying information structures. The same is the case for texts A and C.

The typeface emphasis in text D works for the disambiguation of pronominal reference, by focussing the ambiguity. The physical signal, the shape-change in the text, indicates that the default interpretation, the more favoured reading of the unemphasised text, requires attention. This is the 'contrastive focus' function commonly attributed to typeface emphasis or intonational stress (Dik, 1980, Brown, 1983, Bolinger, 1986 and others). Typeface emphasis in the type of role illustrated above has a further function of 'theme shifting' within the text, not just rendering one reading more appropriate than another, but altering the perspective the reader takes on to further sections of the text. Whether the right direction of shift in theme is taken by the reader depends on the adequacy of the signalling strategy the writer uses, within whichever constraints are specific to the text.

Chapters 7 and 8 report a series of studies designed to test the efficacy of different typeface emphasis strategies for reinforcing, or shifting, default readings of text.

Study 11, in Chapter 7, tests strategies of typeface emphasis based on predictions of their effect which were, to a large extent, dependent upon how the sentences *sounded* when read aloud (cf Bolinger, 1986). These intuited strategies were compared with others produced from Study 12, which asked subjects to produce alternate versions of texts, manipulating typeface emphasis to produce enhancement, or shift, of their natural reading. There was a considerable degree of match between the versions devised by subjects and the original versions tested, but there were interesting differences. These were consistent across subjects, and Chapter 8 describes a series of tests run as Study 13, testing those strategies which did differ and also testing versions of texts which combined the strategies of both the earlier studies.

## **CHAPTER 7: Stress and pronominal resolution**

To examine the efficiency of typeface emphasis as a strategy for providing contrastive focus which can indicate theme shifts in written language, four brief texts, each capable of more than one interpretation, were devised by the experimenter:

1. Simon said Fred did it. He did.
2. Frank asked Bill to drive. He said he couldn't.
3. Rose called Jenny a feminist and then she insulted her.
4. John met Susan, Tom and Josie in the pub. He was glad he was there.

Different versions of each text were then produced, designed to test the efficacy of typeface emphasis upon their perceived ambiguity.

The intuitive grounds on which the different versions were devised are set out below. It is acknowledged that the commonsense predictions made for different readings of each text relate to expected regularities of interpretation, rather than exhausting all possible interpretations for each text.

### **Rationale for version design**

Text 1 provides a statement, followed by a comment on that statement. The narrator of "Simon said Fred did it. He



did." could be confirming that Simon told the truth, or stating that in fact it was Simon himself who did it. Without typeface emphasis, the former interpretation would seem on a commonsense reading to be more likely, with the pronoun referring to the last named person. If in fact the writer had intended the second interpretation, then highlighting the pronoun by typeface change could indicate a salience unnecessary for simply confirming that "Fred did it".

1a: Simon said Fred did it. He did.

Given that no other person is referred to in any preceding text, "Simon" and "He" should be taken to have the same referent, and the comment should be taken as denying the statement. However, emphasising 'did' could reduce whatever salience "He" may possess by virtue of its primary position in the second sentence. This should enhance the first interpretation by increasing the confirmatory nature of the comment:

1b: Simon said Fred did it. He did.

Finally, the writer can use emphasis as a strategy for comment within the statement itself.

1c: Simon said Fred did it. He did.

A reader could take the highlighting of 'said' as an imputation of falsehood on Simon's behalf, or as support for the veracity of his statement. With no further information on Simon's character, either meaning could be taken, affecting the interpretation of the second sentence. Here the interest was more specifically in qualitative differences between emphasis types.

Text 2, similarly, consists of two sentences. Here it is suggested that, rather than being a direct comment on the first statement, "He said he couldn't" interprets as Bill's response to Frank's request, with both pronouns sharing the same referent - a constraint imposed by the sense of the whole text. The information given by the second sentence has a sequential, rather than a recursive, relation to the first. Providing physical salience for the first pronoun seems to maintain or perhaps strengthen its reference relation to Bill, returning the same interpretation as the unemphasised text:

2a: Frank asked Bill to drive. He said he couldn't.

Emphasising the second pronoun, on the other hand, seems to have an effect of shifting the reference of both pronouns to 'Frank':

2b: Frank asked Bill to drive. He said he couldn't.

This shift changes the semantic structure of the second sentence. Rather than relating Bill's answer to Frank's request, the writer is providing Frank's reason for asking.

This brings the function

of the second sentence rather closer to that of the comment to Text 1.

Again, a third emphasis-version was devised, on similar grounds to that for Text 1:

2c: Frank asked Bill to drive. He said he couldn't.

Here highlighting 'asked' may have an effect of concentrating attention on that unit of information and its agent - that Frank asked, in other words, and strengthen any likelihood that Frank be seen as the antecedent to subsequent pronouns, by virtue of text position and strengthened agent role. This interpretation would render Frank as a response to both questions. More likely in this case, though, the emphasis could strengthen the action itself, "asked Bill to drive". The emphasis on 'asked' reduces rather than enhances the information status of the subject - the attention is directed to what was asked, not who did the asking.

Text 3 is not broken into two sentences because using the conjunction reduces any reciprocal connotations "Then" could

prime as first word of a second sentence. The more common response, with the conjunction, should be that Rose insulted Jenny; the first action and the second interpreted as having the same agent, the subject of the sentence. The two

pronouns are constrained in opposition by the semantic structure of the first part of the text: each must attach to a different referent. The relative effects of emphasising one or other pronoun are of interest in terms of the best strategy for indicating that Jenny insulted Rose:

3a: Rose called Jenny a feminist and then she insulted her.

3b: Rose called Jenny a feminist and then she insulted her.

Again, emphasising a word whose interpretation without emphasis is coherent with the natural interpretation of the text focusses any ambiguity that may have passed unnoticed from a reading of the plain text, and signals a shift from that interpretation. She could indicate that the pronoun has a salience that is not appropriately referenced to Rose, who is already the agent; her might indicate that Jenny, the recipient of the first action, was not an appropriate referent for the recipient of the second. The question of ambiguity itself then relates more to whether or not the term "feminist" is an insult (or whether Rose can be assumed to think it so) and whether typeface emphasis has any clarifying effect on



this:

3c: Rose called Jenny a feminist and then she insulted her.

Emphasising "insulted" could be a way of reinforcing the default interpretation of the first pronoun, that it relates to Rose. The emphasis on the second action allows an interpretation that the agent is the same as for the first.

Ambiguity in Text 4 seems to locate on the second pronoun, for the unemphasised version of the text. Having met the three people named, John is either glad to be in the pub himself, or he is glad that Tom (the pronoun requires a male referent) is among the group. The first interpretation seems more likely as, without any opposition marked by the sense of the text (as there was in the case of Text 3), the default interpretation should give the second pronoun the same referential relation as the first, ie with the subject, 'John'. How efficient is typeface emphasis as a strategy for priming a redirection in text interpretation? 'Tom' is, physically, surrounded by 'Susan' and 'Josie' in the text. Is this obscurity penetrated by the highlighting of the second pronoun, which should not be emphasised if it follows the first pronoun by relating to 'John'? Is 'Tom' even less salient when not only is the second sentence unemphasised, but another word in the text, connecting back to John, does have prominence? See

versions 'a' and 'c' below.

It could be that a third interpretation, of Tom being glad, can be primed by emphasis on the first pronoun, indicating by

prominence that the more natural interpretative process should redirect. The second pronoun retains its ambiguity:

4a: John met Susan, Tom and Josie in the pub. He was glad he was there.

The second interpretation, John being glad that Tom was there, seems more likely to be primed if the second pronoun is emphasised, indicating its informational salience:

4b: John met Susan, Tom and Josie in the pub. He was glad he was there.

Finally, a third emphasis strategy:

4c: John met Susan, Tom and Josie in the pub. He was glad he was there.

This could have an effect of enhancing the first interpretation as, with both pronouns in plain typeface, it provides further information about John, reducing any content salience Tom (obscured between Susan and Josie) may possess.

The efficiency of the various strategies suggested for promoting theme reinforcement and theme shift in interpretations of the four texts was tested by Study 11.

### Study 11: Testing alternate strategies for disambiguation

#### Introduction

This study tests the strategies outlined above by presenting individual versions of the texts to groups of subjects. Each text was provided with a question, designed to elicit an interpretation of the second sentence, or clause, of the text.

The texts, with their questions are listed below:

1. Simon said Fred did it. He did.  
(Who did it?)
2. Frank asked Bill to drive. He said he couldn't.  
(Who said? Who couldn't?)
3. Rose called Jenny a feminist and then she insulted her.  
(Who insulted whom?)
4. John met Susan, Tom and Josie in the pub. He was glad he was there.  
(Who was glad? About whom?)

In each case, the task requires disambiguation of the text by establishing reference for the pronouns in the second part of the text, between the proper nouns in the first. The

decision as to which antecedent applies should be a function of what readers perceive as the natural interpretation of the text, under various conditions of emphasis.

For all the texts, the first object of the exercise was to see the extent to which texts were ambiguous - ie whether one interpretation was much more frequent than another, when no typeface emphasis was used. This was to provide a baseline from which to establish whether emphasising particular words either enhanced this interpretative trend or shifted it, and whether the type of emphasis - capital or italic print - seemed critical for any interpretation.

The questions put to the subject after reading the text are not likely to trigger an immediate response, but rather to redirect attention to the text, the next interpretation being from the perspective of the question asked. Text ambiguity is more likely to be apparent and the response decision is likely to include conscious consideration of whatever disambiguating signs are present in the text. This implies that information gathered from this study will be a function of reflective rather than reactive processes of interpretation (see also Chapter 4) and that any systematic regularities found should be viewed in this light.



**Figure 11.1: Plain and emphasised versions of all texts  
(reduced to 10pt)**

1:plain: Simon said Fred did it. He did.  
 a:italics: Simon said Fred did it. *He* did.  
 a:capitals: Simon said Fred did it. HE did.  
 b:italics: Simon said Fred did it. He *did*.  
 b:capitals: Simon said Fred did it. He DID.  
 c:italics: Simon *said* Fred did it. He did.  
 c:capitals: Simon SAID Fred did it. He did.  
 Question: Who did it?

2:plain Frank asked Bill to drive. He said he couldn't.  
 a:italics: Frank asked Bill to drive. *He* said he couldn't.  
 a:capitals: Frank asked Bill to drive. HE said he couldn't.  
 b:italics: Frank asked Bill to drive. He said *he* couldn't.  
 b:capitals: Frank asked Bill to drive. He said HE couldn't.  
 c:italics: Frank *asked* Bill to drive. He said he couldn't.  
 c:capitals: Frank ASKED Bill to drive. He said he couldn't.  
 Question: Who said? Who couldn't?

3:plain: Rose called Jenny a feminist and then she insulted her.  
 a:italics: Rose called Jenny a feminist and then *she* insulted her.  
 a:capitals: Rose called Jenny a feminist and then SHE insulted her.  
 b:italics: Rose called Jenny a feminist and then she insulted *her*.  
 b:capitals: Rose called Jenny a feminist and then she insulted HER.  
 c:italics: Rose called Jenny a feminist and then she *insulted* her.  
 c:capitals: Rose called Jenny a feminist and then she INSULTED her.  
 Question: Who insulted whom?

4:plain: John met Susan, Tom and Josie in the pub. He was glad he  
 was there.  
 a:italics: John met Susan, Tom and Josie in the pub. *He* was glad he  
 was there.  
 a:capitals: John met Susan, Tom and Josie in the pub. HE was glad he  
 was there.  
 b:italics: John met Susan, Tom and Josie in the pub. He was glad *he*  
 was there.  
 b:capitals: John met Susan, Tom and Josie in the pub. He was glad HE  
 was there.  
 c:italics: John met Susan, Tom and Josie in the pub. He was *glad* he  
 was there.  
 c:capitals: John met Susan, Tom and Josie in the pub. He was GLAD he  
 was there.  
 Question: Who was glad? About whom?

## **Method:**

140 first year undergraduate students were subjects in this study. There were seven versions of each text: plain typeface, and capital or italic type for each emphasis version. Printing throughout was 12pt Courier. Figure 11.1 shows the material presented (reduced in size), with underlining to indicate emphasis. Each subject received one version of each of the four texts, presented with questions on an A4 sheet of paper headed with the following instructions:

Please read each text below, answer the question(s) about it, then go on to the next.

Presentation order of the texts was randomised, with twenty subjects receiving one version of each of the four texts.

## **Results and discussion:**

Response frequencies for the plain typeface versions of each text indicated that two potential interpretations were generally made, one stronger than the other in each case. For all texts, the stronger interpretation was that predicted to be the 'default' in the text descriptions given in the introduction. These were taken to indicate the major and

minor interpretative trends for each text, confirming their predicted ambiguity, and also its approximate degree. Tables 11.1 to 11.4 show subjects' response frequencies for the texts under each emphasis condition. The texts will be dealt with separately in this section before a discussion of the general findings for this study.

Text 1:

**Table 11.1: Simon said Fred did it. He did.  
N=20**

---

Q: Who did it?

| <u>Version</u> | <u>Simon</u> | <u>Fred</u> | <u>Other</u> |
|----------------|--------------|-------------|--------------|
| Plain          | 5            | 14          | 1            |
| a:italic       | 8            | 12          | 0            |
| a:capital      | 7            | 12          | 1            |
| b:italic       | 0            | 19          | 1            |
| b:capital      | 2            | 18          | 0            |
| c:italic       | 6            | 14          | 0            |
| c:capital      | 3            | 17          | 0            |
| <b>TOTAL</b>   | <b>31</b>    | <b>106</b>  | <b>3</b>     |

---

The response frequencies for the plain, unemphasised version in Table 11.1 show that, as expected, the majority of subjects decided that Fred did it. The proportion of default to alternative was 74:26. This suggests that the natural interpretation for this text, unemphasised and with no

surrounding text to provide further information, relates the pronoun with the last named person and takes the second sentence to be a comment or enlargement on the first. Both capital and italic typeface for the 'a' versions, with emphasis on the pronoun, may have shifted the responses slightly toward the secondary interpretation, that Simon did it, but the decrease in frequencies for 'Fred' is very small.

Emphasising 'did' (the 'b' versions), clearly reinforced the natural interpretation for the unemphasised text. The second sentence is itself a kind of emphasis upon Simon's statement, by repetition, and the two strategies seem to cooperate well.

Whereas the different typeface effects within versions 'a' and 'b' seem to have worked in the same direction, with version 'c' the effect of italic print seems to differ from that of upper case. Responses to the former scarcely differ from those for plain type, while the latter, "Simon SAID Fred did it...." increases the frequencies for the major interpretation, enhancing the bias. Capital letters seem to have increased the truth status of what Simon says!

Chi square tests were applied to the frequencies in Table 11.1. The 'other' scores were discarded (the three responses simply acknowledged the ambiguity of the text by answering "either"). The information lost is not of interest here, where the concern is to measure any effects of emphasis upon



the relative frequencies for the major and minor interpretations, and therefore not worth the degrees-of-freedom cost.  $X^2=14.686$ ,  $df=6$ ,  $p<.05$ , showing that emphasis did have an effect upon responses. A 2 x 2 partition on plain typeface with version b:italic gave  $X^2:5.758$ ,  $df=1$ ,  $p<.02$ ; therefore the version "Simon said Fred did it. He *did*." significantly enhanced the dominant interpretation for this text.

There was no indication from the overall chi-square test that any other comparisons with the plain version would be significant, although the trends of the frequencies for the 'a' version responses are in the predicted direction. For this text, the attempt to pull interpretations away from the natural, or default response that Fred did it was not successful, in terms of statistical significance.

#### Text 2:

As anticipated, the responses to this text (Table 11.2), when no emphasis is present, favour the interpretation that the second sentence continues the information given by the first, rather than amplifying it. The most frequent response is that Bill said he (Bill) couldn't drive, with the alternate response indicating the referent Frank for both pronouns. The proportion of default to alternative responses was 69:31. The 'other' scores include the responses 'Frank said Bill

couldn't' or 'Bill said Frank couldn't' as well as 'either', though the proportions were small. The task demands discussed in the introduction would possibly have prevented these interpretations from underlying most answers, even if they had fleetingly occurred to more of the subjects, on grounds of inconsistency. It would seem unlikely that either event should follow on from the first

**Table 11.2: Frank asked Bill to drive. He said he couldn't. N=20**

---

Q: Who said? Who couldn't?

| <u>Version</u> | <u>Frank:Frank</u> | <u>Bill:Bill</u> | <u>Other</u> |
|----------------|--------------------|------------------|--------------|
| Plain          | 5                  | 11               | 4            |
| a:italic       | 7                  | 11               | 2            |
| a:capital      | 3                  | 14               | 3            |
| b:italic       | 10                 | 5                | 5            |
| b:capital      | 8                  | 8                | 4            |
| c:italic       | 1                  | 17               | 2            |
| c:capital      | 4                  | 11               | 5            |
| <b>TOTAL</b>   | <b>38</b>          | <b>77</b>        | <b>25</b>    |

---

Version c:italic pulled responses most firmly to the major interpretation: "Frank *asked* Bill to drive. He said he couldn't." Generally for this version the antecedent for both pronouns was given as 'Bill'. Capital typeface had no particular effect.

Version 'a' did not have the expected effect: neither

typeface triggered a marked response shift from the 'plain' condition.

To shift the theme of the second sentence to Frank, version b:italic works best: "Frank asked Bill to drive. He said *he* couldn't." Capital letters produced a weaker effect, in the same direction.

Excluding 'other' responses, an overall chi-square test on the data gave  $X^2=18.545$ ,  $df=6$ ,  $p<.01$ , indicating a fairly strong effect of the emphasis conditions upon responses. 2x2 partition tests were made for plain typeface and b:italic (giving  $X^2=3.884$ ,  $df=1$ ,  $p<.05$ ) and c:italic ( $X^2=3.849$ ,  $df=1$ ,  $p<.05$ ). Therefore the emphasis strategy for reinforcing the theme of the first sentence, and that for shifting it from agent to recipient for interpreting the second sentence, both worked in the directions predicted.

### Text 3:

From responses to the plain text version given in Table 11.3, it is evident that to be called a feminist is not considered an insult by the population sampled! Had it been, the predicted disposition to favour Rose insulting Jenny as the event described by the second clause in the text should not have been found. The ambiguity of the text was acknowledged by the five subjects whose responses were scored 'other', with

the secondary interpretation of Jenny insulting Rose being relatively infrequent. Here the proportion of default to alternative interpretations was 80:20, suggesting that the alternative bias here was very weak. However, the version emphasising the first pronoun with italic print, "...and then *she* insulted her" (a:italic) had the predicted effect of shifting the allocation of pronouns to antecedents, proportions changing to 41:59.

**Table 11.3: Rose called Jenny a feminist and then she insulted her. N=20**

Q: Who insulted whom?

| <u>Version</u> | <u>Rose:Jenny</u> | <u>Jenny:Rose</u> | <u>Other</u> |
|----------------|-------------------|-------------------|--------------|
| Plain          | 12                | 3                 | 5            |
| a:italic       | 7                 | 10                | 3            |
| a:capital      | 11                | 6                 | 3            |
| b:italic       | 11                | 7                 | 2            |
| b:capital      | 12                | 7                 | 1            |
| c:italic       | 16                | 2                 | 2            |
| c:capital      | 18                | 2                 | 0            |
| <b>TOTAL</b>   | <b>87</b>         | <b>37</b>         | <b>16</b>    |

Presenting this version in capital letters, or emphasising the final pronoun ('b' versions) did not affect the response frequency for "Rose:Jenny" but did reduce the expressed ambiguity of the sentence, decreasing the frequency of 'other' responses and increasing the strength of the minor



interpretative bias.

A reason can be suggested for the success of 'a' strategy over 'b': The second pronoun, 'her', takes some emphasis by being the last lexical item in the text but this may well have been overshadowed by the fact that the first pronoun, 'she' was emphasised by its mere presence, the use of ellipsis having otherwise been perfectly acceptable here ("...and then insulted her") for the default interpretation of the text. In that case the italic print would have reinforced this. This explanation directs attention to the diverging effect of capital letters in this version. At one level of analysis, capital letters may be assumed to imply an increase in information salience over that indicated by italics (see earlier chapters of this thesis). At another level, different emphasis functions may be ascribed to the two types of print. This would seem to be an instance of the latter. There is a discussion toward the end of this chapter on the accumulating evidence for divergent, as well as complimentary, functions of capital and italic print, so this issue will not be taken further at this point.

Clarifying the issue of whether Rose had insulted Jenny by the appellation "feminist", through emphasising the verb itself in the second clause, did reinforce the default interpretation as expected. Here it was capital print that worked best: "Rose called Jenny a feminist and then she **INSULTED** her". Italics

produced a weaker effect in the same direction. An overall chi-square test (discounting 'other') gave  $X^2=15.684$ ,  $df=6$ ,  $p<.02$ , confirming the influence typeface emphasis has upon interpretation. 2x2 partition tests of each emphasis condition with 'plain' found a:italic to be the best strategy for shifting the interpretative bias ( $X^2=4.98$ ,  $df=1$ ,  $p<.05$ ). The enhancing effects of emphasising 'insulted' on the frequencies for the major interpretation were not greater than chance; the response bias was already very strongly in that direction, imposing a ceiling effect upon the scores.

Text 4:

Here it was thought that responses to the 'a' versions might include a number stating that Tom was glad John was there, but only one subject made this response. All other responses to the first question, "Who was glad?", gave "John". The thematic agent remained, therefore, constant regardless of emphasis condition. In other words there was no ambiguity of reference resolution for the first pronoun in this text and no effect of emphasis upon its interpreted antecedent. On the other hand, 25% of subjects responded, under various conditions of emphasis, by stating that John was glad that Susan, or that everyone, was there. It has to be admitted that the question itself was ambiguous, a point to bear in mind when studying the analysis of responses to this text

throughout this chapter.

However, it can be seen from Table 11.4 that subjects did, in the main, attend to the second pronoun and took the question "about whom?" to have been asking for its referent. From Table 11.4 it is clear that, while the major interpretative bias for this text is that predicted (John himself being glad

**Table 11.4: John met Susan, Tom and Josie in the pub. He was glad he was there. N=20**

---

| <u>Version</u> | <u>John:John</u> | <u>John:Tom</u> | <u>Other</u> |
|----------------|------------------|-----------------|--------------|
| Plain          | 9                | 4               | 7            |
| a:italic       | 7                | 7               | 6            |
| a:capital      | 10               | 3               | 7            |
| b:italic       | 4                | 14              | 2            |
| b:capital      | 6                | 9               | 5            |
| c:italic       | 6                | 9               | 5            |
| c:capital      | 11               | 4               | 5            |
| <b>TOTAL</b>   | <b>53</b>        | <b>50</b>       | <b>37</b>    |

---

to be there himself), the sum effect of the emphasis conditions was to shift the interpretation quite strongly. The proportions move from 69:31 in favour of the major interpretation for the plain version of the text, to 49:51 in favour of the minor when the emphasis condition responses are summed for each category.

Although with this text the theme itself remained stable under all conditions of emphasis, it was modified to highlight 'Tom' as a secondary character when the second pronoun was emphasised by italic print (b:italic): ".....He was glad *he* was there" gave, via reference assignment, salience to the male member of the group met in the pub, increasing responses of "John was glad Tom was there". Capital letters for this version had a weaker influence in the same direction.

The two 'c' versions seem to have a slightly contradictory effect. "He was GLAD he was there" seems to promote an interpretation in favour of John being glad about being there himself (the major interpretative bias for the text), while "He was *glad* he was there" shifts responses in the other direction.

Without 'other' responses, a chi-square test on Table 11.4 gave  $X^2=15.654$ ,  $df=6$ ,  $p<.02$ , confirming again that typeface emphasis can function to modify readers' interpretation of theme. A 2x2 partition test of 'plain' with b:italic gave  $X^2=9.526$ ,  $df=1$ ,  $p<.01$ , strong support for the prediction that this version would shift the default interpretation, by shifting reference resolution for the second pronoun to 'Tom'.



The lack of evidence that any version could enhance the interpretative bias to a level of statistical significance could be due to the fact that, here, the default response bias was not as stable as the plain case responses indicate. The relatively high number of 'other' responses does not diminish under emphasis, as was the case for Text 3. The extent of the shift to 'Tom', also, demonstrates the comparative weakness of the bias toward 'John' having a reference relationship to the second pronoun. Text 3's problem for strengthening the natural interpretation was that the trend was already very strong in that direction. With Text 4, the bias was not strong enough.

#### **Summary and interim conclusion:**

This study has established the role that can be played by typeface emphasis for the disambiguation of text, and for reinforcement or shift of text theme. Although some effects were less pronounced than others, response trends generally, under various conditions of emphasis, were in line with predictions across all texts.

Simple disambiguation, that is strengthening an interpretative bias toward one particular reading, was achieved by emphasising a word that, so highlighted, indirectly reinforces

the theme of the text under the natural interpretation. For the texts studied here, giving typeface emphasis to the verbs 'did' (Text 1), 'asked' (Text 2), 'insulted' (Text 3) and the predicative use of 'glad' (Text 4) had an effect of strengthening the interpretative bias for the thematic agent being selected as referent, given most frequently from readings of the unemphasised versions of each text, by stressing the action itself.

Pronominal emphasis does not seem to be a good strategy for strengthening an interpretative bias. In the example of John's house, it is plain that for text C to be an alternative way of expressing the information from text A, none of the pronouns need emphasis. In fact it threatens the required interpretation to provide it, as demonstrated by text D in the introduction to this study and supported by the responses to the tasks set.

For reversing or shifting the natural interpretation of the text presented to subjects, whether the agent role switches midway through the text (Texts 1 and 2) or remains with the first person named (Texts 3 and 4), pronominal emphasis is plainly a good strategy. This may be explained by the fact that pronouns require two stages of reference resolution. At stage one there is no actual referent, no object in the real world or, in this case, character in the discourse world. To establish the character that is indexed by a pronoun, the

correct antecedent must be located in the text. As the content immediately attaching to a pronoun is minimal (gender and number), stressing it should indicate information salience at the stage of allocating reference, focussing the ambiguity and therefore priming the alternative antecedent. For a sentence which, though capable of more than one interpretation, favours one in particular, the pronoun should remain unemphasised if the default reading is what the writer intended.

Despite its general success, this signal was not always strong enough to significantly affect the frequencies, nor is its effect clearly predictable. Can the strategies be improved? Are there other ways of using typeface change to prime the required interpretation, primary or secondary, of an ambiguous text? The point made at the end of the introduction to this study is taken up here. On the assumption that the task demands called upon reflective, rather than reactive, processes of interpretation, it was decided that a further study should overtly promote that mode, in an attempt to improve on strategies of typeface emphasis for written communication.

Evidence drawn from this study's findings about differences of effect produced by capital and italic typeface suggests, very generally, that italic print was more effective than capital in those versions which had the strongest effect for shifting

the interpretative bias; capital letters tended to work better for enhancing it. As Tables 11.1 to 11.4 show, the less successful typeface can either shadow the other's effect for some versions (Texts 1a, 1b, 3a and 3c are examples) or provide a contradictory effect (Texts 2a, 4c). Where the effects of the two typefaces do seem to work in different interpretative directions for the same version of a text, again it would seem that italic print promotes shift, and capital letters enhance the interpretative bias. It is possible to speculate on the different facilities of these two typefaces in terms of contrastive and non-contrastive or 'simple' emphasis but the evidence is not sufficient to address such a question even at that level. The issue is addressed more directly by the following study.



## Study 12: Consensus on typeface emphasis strategies

### **Introduction:**

A questionnaire was devised to address the issue of consensus in peoples intuitions concerning typeface emphasis strategies for text disambiguation and the shifting of theme within a text. Using the same four texts as were presented in the previous study, subjects were asked to provide emphasis to prime both the major and the minor interpretations of each text, as established by that study. The real task required of them, therefore, was to devise ways of allocating typeface emphasis to strengthen, or to shift, the natural interpretation of each text.

A practice task was given first, requiring allocation of emphasis for a basic contrastive function. It was anticipated that for this simpler task there would be strong regularities among the responses: the main interest lay in the degree to which subjects' allocations of typeface change for the more complex interpretative functions required by the main task corresponded with the strategies tested and found successful in Study 1, and whether any regularities of response suggested potential improvement to those strategies.

A compressed reproduction of the questionnaire itself is given as Figure 12.1. The results of this study and subsequent tests

of its findings will be reported and discussed in full, before this chapter's concluding discussion takes the new information to readdress the points at issue.

### Method:

Twenty volunteer subjects, all Junior Honours students in the Psychology Department, were given the questionnaire and asked to complete it at one sitting at some convenient point during that working day, returning it to the Experimenter via internal mail. They were asked not to discuss the study with colleagues, as independent responses were needed. Order of text pairs was randomised within each task, across subjects.

### Figure 12.1: Questionnaire on Typeface Emphasis

---

[page 1]

A written text can be ambiguous. How we interpret it depends on how we read it: "Did Joe eat the soup?" could be asking any one of several things, such as "was it Joe?", "was it eaten?" or even "was it soup?". When writing, we can present our intended meaning by using emphasis on key words. The example below shows this:

EXAMPLE: Did Joe eat the soup? (no, he drank it)  
Did Joe eat the soup? (no, I did)  
Did Joe eat the soup? (no, just the bread)  
Did Joe eat the soup? (no)

Often, to get the necessary meaning across without using emphasis, we would have to use a lot more words. In the task below, four sentences are each given two possible meanings by continuing the sentence in different ways. The continuations are given in brackets. Following the example above, please would you underline the right word to give the right meaning, so that the continuation is not necessary for the sentence to be properly interpreted.

Task 1: The lights were red. (not green)  
The lights were red. (not the curtains)  
I thought she said yes. (but she said no)  
I thought she said yes. (but it was you)

She wore a purple mantilla. (not a red one)  
She wore a purple mantilla. (I wore a blue scarf)  
Five freaky frogs flew. (not four)  
Five freaky frogs flew. (not swam)

[page two]

Below are four text pairs. In each, the exact meaning of the second sentence is hard to establish without more information, and this information could be given by typeface emphasis. Read each text with its intended meaning (given in brackets) then decide which word (or words) needs to be emphasised, to convey that particular meaning. Underline the key word(s).

Task 2:

- 1a) Frank asked Bill to drive. He said he couldn't.  
(Frank said Frank couldn't)
- 1b) Frank asked Bill to drive. He said he couldn't.  
(Bill said Bill couldn't)
- 2a) Simon said Fred did it. He did.  
(Simon did it)
- 2b) Simon said Fred did it. He did.  
(Fred did it)
- 3a) John met Susan, Tom and Josie in the pub. He was glad he was there.  
(John was glad John was there)
- 3b) John met Susan, Tom and Josie in the pub. He was glad he was there.  
(John was glad Tom was there)
- 4a) Rose called Jenny a feminist. Then she insulted her.  
(Jenny insulted Rose)
- 4b) Rose called Jenny a feminist. Then she insulted her.  
(Rose insulted Jenny)

[page 3]

There are many different ways of emphasising a word in a written text by changing the typeface or, with handwritten text, just writing differently or underlining important points. When texts are typeset, two common ways are to use *italic* or CAPITAL letters for key words. Sometimes one of these seems more appropriate than another, depending maybe upon the word itself, or on a particular meaning for the message.

Task 3: Please go back to each sentence pair (for all interpretations), read them again and see if you can decide whether the word you have underlined should be in italic or capital letters. If you find that you can, then write either "I" (for *italics*) or 'C' (for CAPITALS) by the word. If either would do, just write 'IC'.

Thank you very much for helping with this study.

---



## Results and discussion:

Each task will be dealt with separately.

### **Task 1:**

For the practice task, there was very close agreement between subjects as to which word should be emphasised for each interpretation, for all four texts. The three subjects whose versions did not conform provided alternatives whose emphasis strategies seemed so suitable for providing the required interpretation that it was surprising they were so few. Table 12.1 shows the strategy frequencies; a binomial test of equal probability of alternative responses gave  $p < 0.01$ .

**Table 12.1: Emphasis strategies for Task 1:**

---

| <u>Emphasis response:</u>                                 | <u>Frequency:</u> |
|---|-------------------|
| The lights were <u>red</u> . (not green)                  | 20                |
| The <u>lights</u> were red. (not the curtains)            | 20                |
| I <u>thought</u> she said yes. (but she said no)          | 2                 |
| I thought she said <u>yes</u> . (but she said no)         | 18                |
| I thought <u>she</u> said yes. (but it was you)           | 20                |
| She wore a <u>purple</u> mantilla. (not a red one)        | 20                |
| <u>She</u> wore a purple mantilla. (I wore a blue scarf)  | 19                |
| She wore a <u>purple mantilla</u> . (I wore a blue scarf) | 1                 |
| <u>Five</u> freaky frogs flew. (not four)                 | 20                |
| Five freaky frogs <u>flew</u> . (not swam)                | 20                |

---



In each case the word at issue is made more prominent. A very easy rule to apply, which works simply and well. In this case, the communicative requirement is to imply that there are alternatives, and to deny them. One strategy fills both functions. The responses to the task here conform to assumptions of informational salience and physical stress made in the context of intonational functions in spoken language (see Chapter 2 for references).

#### **Task 2:**

Here the issues were, basically, the same; the results were far less consistent. The texts will be dealt with separately, as they were for Study 1.

#### Text 1:

Table 12.2 shows the typeface versions of the text which subjects produced in response to the tasks of strengthening and of shifting the default interpretation of the text and the response frequency for each version. For either required reading, there was a tendency to distribute emphasis across particular words, rather than just emphasising one word. However, in both cases the highest frequency was for a version identical with that which worked best for its predicted

interpretation in the original study. A binomial test on equal probability that any of the versions produced would occur gave  $p < .005$  for the most frequent version designed to reinforce an interpretation that Fred did it, and  $p < .002$  for the most frequent version produced for the secondary interpretation that Simon did it.

**Table 12.2: Version frequencies for Text 1: N=20**

---

Enhance Effect (Fred did it):                      Frequency

|                                 |                 |   |
|---------------------------------|-----------------|---|
| Simon said Fred did it.         | He <u>did</u> . | 7 |
| Simon said <u>Fred</u> did it.  | <u>He</u> did.  | 3 |
| Simon said <u>Fred</u> did it.  | He <u>did</u> . | 3 |
| Simon said <u>Fred</u> did it.  | He did.         | 3 |
| Simon said <u>Fred did it</u> . | He did.         | 1 |
| Simon <u>said Fred</u> did it.  | He did.         | 1 |
| Simon said <u>Fred</u> did it.  | <u>He</u> did.  | 1 |
| Simon said Fred <u>did it</u> . | He did.         | 1 |

Shift effect (Simon did it):                      Frequency

|  |                 |   |
|--|-----------------|---|
| Simon said Fred did it.                | <u>He</u> did.  | 8 |
| <u>Simon</u> said Fred did it.         | <u>He</u> did.  | 6 |
| <u>Simon</u> said Fred did it.         | He did.         | 3 |
| <u>Simon</u> said Fred <u>did it</u> . | He did.         | 1 |
| Simon said <u>Fred</u> did it.         | He did.         | 1 |
| Simon said Fred did it.                | He <u>did</u> . | 1 |

---

A striking thing about the Table 12.2 is the high frequency with which the name of the person required to be interpreted as agent by each reading was emphasised by subjects. If the intention was to communicate that Fred did it, then 'Fred' received emphasis. Similarly, for a required interpretation that Simon did it, subjects highlighted this name as part of their emphasis strategy.

Text 2:

Table 12.3 shows that here also, subjects favoured spreading the emphasis around the text, highlighting more than one word. The most popular way of communicating an interpretation that Bill responded to Frank's request by saying he couldn't drive was to emphasise the proper noun 'Bill', and both pronouns in the second sentence. The frequency for this version was greater than chance, on a binomial test:  $p < .025$ . The strategy differs from that which reinforced the natural interpretation in the first study, which only emphasised the word 'asked'. This version is not to be found among those devised by subjects here. What we do find is a disposition to emphasise the name 'Bill', a strategy used by 13 subjects.

This disposition is also apparent when subjects attempted to provide the secondary interpretation of the text, that Frank said Frank couldn't, except in the case of the most frequently offered solution. This used the same strategy that succeeded in achieving this reading in Study 1: ".....He said *he* couldn't". The probability for the obtained frequency of this version exceeded that of chance,  $p < .025$ . Otherwise, however, all but two versions gave emphasis to 'Frank'.

**Table 12.3: Version frequencies for Text 2: N=20**

---

| Enhance Effect (Bill said Bill couldn't) |                                     | Frequency |
|--|-------------------------------------|-----------|
| Frank asked <u>Bill</u> to drive.        | <u>He</u> said <u>he</u> couldn't.  | 6         |
| Frank asked Bill to drive.               | <u>He</u> said <u>he</u> couldn't.  | 4         |
| Frank asked <u>Bill</u> to drive.        | <u>He</u> said he couldn't.         | 4         |
| Frank asked <u>Bill</u> to drive.        | He said he couldn't.                | 2         |
| Frank asked Bill to drive.               | He said he <u>couldn't</u> .        | 1         |
| Frank <u>asked Bill to drive.</u>        | He said he couldn't.                | 1         |
| Frank asked Bill to drive.               | <u>He</u> said he <u>couldn't</u> . | 1         |
| Frank asked Bill to drive.               | <u>He</u> said he couldn't.         | 1         |

| Shift Effect (Frank said Frank couldn't) |                                    | Frequency |
|--|------------------------------------|-----------|
| Frank asked Bill to drive.               | He said <u>he</u> couldn't.        | 6         |
| <u>Frank</u> asked Bill to drive.        | <u>He</u> said <u>he</u> couldn't. | 5         |
| <u>Frank</u> asked Bill to drive.        | He said he couldn't.               | 3         |
| <u>Frank</u> asked Bill to drive.        | He said <u>he</u> couldn't.        | 2         |
| Frank asked Bill to drive.               | <u>He</u> said <u>he</u> couldn't. | 1         |
| <u>Frank</u> asked <u>Bill</u> to drive. | He said he couldn't.               | 1         |
| <u>Frank</u> asked Bill to drive.        | He <u>said</u> he couldn't.        | 1         |
| Frank asked Bill to drive.               | <u>He</u> said he couldn't.        | 1         |

---

Text 3:

Table 12.4 again tells us that a strategy of emphasizing the name of the original or new agent to indicate the current text theme is very common within subject group. For reinforcing or strengthening the natural interpretation, the most frequent attempt put emphasis on Rose and then on the first pronoun, 'she'. A binomial test gave  $p < .025$ .

This strategy may well have a self-cancelling effect, given the success of highlighting 'she' alone for the opposite interpretation found in the first study. On the other hand it is acknowledged that for that version (a:italic) the word



Rose carries the natural emphasis bestowed by commencing the sentence. Only three subjects devised the option that seemed to work best in the original study, that of stressing the verb, 'insulted'.

**Table 12.4: Version frequencies for Text 3: N=20**

Enhance effect (Rose insulted Jenny)

Frequency

|   |   |
|---|---|
| <u>Rose</u> called Jenny a feminist and then <u>she</u> insulted her.         | 5 |
| <u>Rose</u> called Jenny a feminist and then she insulted her.                | 3 |
| Rose called Jenny a feminist and then she <u>insulted</u> her.                | 3 |
| <u>Rose</u> called <u>Jenny</u> a feminist and then she insulted her.         | 2 |
| Rose called Jenny a feminist and then she insulted <u>her</u> .               | 1 |
| <u>Rose</u> called Jenny a feminist and then she insulted her.                | 1 |
| <u>Rose</u> called Jenny a feminist and then <u>she</u> insulted <u>her</u> . | 1 |
| Rose called Jenny a feminist and <u>then</u> she insulted her.                | 1 |
| Rose called Jenny a feminist and <u>then</u> she <u>insulted</u> her.         | 1 |
| [no emp needed = 2]   |   |

Shift effect (Jenny insulted Rose)

Frequency

|  |   |
|--|---|
| Rose called Jenny a feminist and then <u>she</u> insulted <u>her</u> .               | 6 |
| Rose called <u>Jenny</u> a feminist and then <u>she</u> insulted her.                | 3 |
| Rose called Jenny a feminist and then <u>she</u> insulted her.                       | 3 |
| Rose called <u>Jenny</u> a feminist and then she insulted her.                       | 2 |
| <u>Rose</u> called <u>Jenny</u> a feminist and then <u>she</u> insulted <u>her</u> . | 2 |
| Rose called <u>Jenny</u> a <u>feminist</u> and then she insulted her.                | 1 |
| <u>Rose</u> called Jenny a feminist and then she insulted <u>her</u> .               | 1 |
| Rose called <u>Jenny</u> a feminist and then <u>she</u> insulted <u>her</u> .        | 1 |
| Rose called Jenny a feminist and then she insulted <u>her</u> .                      | 1 |

---

For reversing the reading of who insulted who, the majority of subjects combined my own strategies 'a' and 'b' to put emphasis on both pronouns. Here the binomial test gave

$p < .01$ . The strategy seems likely to work, on a combination of the grounds given for either emphasis in the introduction to this chapter.

Subjects kept up their general strategy of emphasising more than one word in the text for both emphasis requirements; also the same tendency to emphasis the noun was apparent. Rose was emphasised for the reinforcing version, and Jenny for the version intended to shift the agent role from Rose to Jenny halfway through the text.

#### Text 4:

Table 12.5 confirms that, for these subjects, spreading emphasis over the text, often to include the agent noun, is favoured as a strategy for communicating a particular interpretation over that of highlighting one key word. 'John' is often stressed for the reinforcing version, 'Tom' for the versions designed to shift the interpretive trend. Subjects adopted a similar line for strengthening the interpretative bias as they did for Text 2. The first noun and both pronouns are stressed. The frequency with which this version occurred was greater than chance, using a binomial test:  $p < .05$ .

**Table 12.5: Version frequencies for Text 4: N=20**

| Enhance effect (John was glad John was there)   | Freq. |
|---|-------|
| <u>John</u> met Susan, Tom and Josie in the pub. <u>He</u> was glad <u>he</u> was there.        | 6     |
| <u>John</u> met Susan, Tom and Josie in the pub.He was glad he was there.                       | 3     |
| John met Susan, Tom and Josie in the pub. <u>He</u> was glad he was there.                      | 3     |
| <u>John</u> met Susan, Tom and Josie in the pub.He was glad <u>he</u> was there.                | 1     |
| John met Susan, Tom and Josie in the pub.He was <u>glad</u> he was <u>there</u> .               | 1     |
| John met Susan, Tom and Josie in the pub.He was <u>glad</u> he was there.                       | 1     |
| [no emphasis nec. = 5]  |       |
|   |       |
| Shift effect (John was glad Tom was there)  | Freq. |
| John met Susan, Tom and Josie in the pub.He was glad <u>he</u> was there.                       | 6     |
| John met Susan, <u>Tom</u> and Josie in the pub.He was glad <u>he</u> was there.                | 5     |
| <u>John</u> met Susan, <u>Tom</u> and Josie in the pub.He was glad he was there.                | 2     |
| <u>John</u> met Susan, Tom and Josie in the pub <u>He</u> was glad he was there.                | 2     |
| <u>John</u> met Susan, <u>Tom</u> and Josie in the pub. <u>He</u> was glad <u>he</u> was there. | 1     |
| <u>John</u> met Susan, <u>Tom</u> and Josie <u>in the pub</u> .He was glad he was there.        | 1     |
| John met Susan, Tom and Josie <u>in the pub</u> . <u>He</u> was glad <u>he</u> was there.       | 1     |
| <u>John</u> met Susan, <u>Tom</u> and Josie in the pub. <u>He</u> was glad he was there.        | 1     |
| John met Susan, <u>Tom</u> and Josie in the pub.He was <u>glad</u> <u>he</u> was there.         | 1     |

---

Only one subject came up with the version that seemed most successful for strengthening the interpretative bias in the original study, stressing 'glad'. Note that despite an apparent lack of strength for the bias as far as the results for the interpretative task (Study 1) were concerned, five subjects here found that no emphasis was necessary to prime the required interpretation.

The version which most successfully achieved a shift of theme in the original study was the most frequently used here to relate the second pronoun to 'Tom'. A binomial test gave  $p < .01$ . Otherwise, there was the usual tendency to emphasise

more than one word, and to include either 'John' or 'Tom' for emphasis, according to the interpretation required.

**Summary and further conclusions:**

There was some correspondence between the versions created by the subjects in this study to promote a desired interpretation and those versions which achieved that same interpretation from the subjects in Study 1. The most frequent "shift" versions of Texts 1, 2 and 4 were identical with the versions of those texts which worked best for that effect in Study 1. The one that differed, Text 3, in fact combined both of the strategies tried for that effect, emphasising both pronouns to indicate that they should not receive their default allocation:

4<sub>ab</sub>: Rose called Jenny a feminist and then she insulted her.

Only one of the "enhance" versions produced by subjects matched that presented most successfully in study 1:

1b: Simon said Fred did it. He did.



This is the only one of the high frequency versions created by subjects in Study 2 that emphasises any word but a noun or pronoun. The dominant strategy was to emphasise both. Subjects emphasised the name of the person required to feature as agent in the second sentence or clause of the text. Generally the most popular strategy remained constant for all the texts: keep pronominal emphasis constant, and vary the nominal emphasis according to required interpretation.

It was suggested at the conclusion of Study 1 that, given more than one possible antecedent, pronominal emphasis signals a shift in reference resolution from that given by the natural reading of the unemphasised text. Presenting the pronoun in a different typeface, therefore, focusses the ambiguity. Emphasis on the antecedent, the noun itself, should operate at a different level of contrast, reiterating an interpretation that the character directly referred to by this noun currently fills the 'agent' role, and therefore reinforcing the perceived theme of the text, supporting the function of that noun as antecedent for subsequent pronomal reference.\*

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\*Frederikson found, in the context of syntax manipulation strategies for foregrounding text (1981,p.383) that text variables which emphasise the importance of a particular noun phrase simultaneously serve to make that noun phrase more readily available as the referent for a pronoun.

The statistical significance reached by the number of identical responses for the two required strategies on each text suggests that those which do not correspond to those tried by the original study must be tested. This applies for the 'enhance' versions produced by subjects for texts 2, 3 and 4, all of which depend on a combination of pronominal emphasis with emphasis on the name of the character required to be returned as agent. The one 'shift' version that did not match Study 1, that for Text 3, will also be tested.

Because of the predominance of nominal emphasis across both 'shift' and 'enhance' versions for all the texts, it was decided that a further series of tests would be run, some presenting two versions of each text between subjects with emphasis on either the default or alternate name, others using text versions which combined the most successful emphasis strategies from Study 1 with emphasis on the required noun for each interpretation.

Before reporting on the studies run to test the effects of these different emphasis strategies, however, it is necessary to look at subjects' responses to Task 3 of the questionnaire. Decisions on which typeface should to be used for which words in the 'compound emphasis' versions tested next (Study 3) were

taken on the basis of Task 3 responses, as well as the more general findings of typeface distinctions discussed in the summary to Study 1.

### Task 3:

This task (see Figure 12.1) required subjects to go back over their responses to the earlier sections of the questionnaire and decide whether the word they had selected for emphasis should be printed in capital or italic print.

The general finding for the practice task (Task 1) was that italic print was more often selected regardless of the required interpretation or the type of word stressed. Of the cases where an emphasis type was indicated by subjects for the stressed word in a sentence, 28% gave capital letters as appropriate and 72% gave italics. Note that the main function of highlighting a word in these four texts is always to contrast that word with an implied alternative, rather than to give some particular, or more qualitative, meaning to the word in its own right.

For Task 2, the real issue of the questionnaire, more systematic distinctions of typeface selection were found, in terms of the kind of word stressed and, by implication, the function of the emphasis for that particular word. Italic print was more popular than capital letters throughout, 69% of

the words that were stressed were given this type. Within that, Table 12.6, gives the proportion of word type to the typeface selected. Figures for types of words stressed without any indication by the subject of the type of emphasis preferred are given, simply, as 'emphasis'.

**Table 12.6: Task 2. Proportional figures for word type to emphasis choice**

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|          | Nouns | Pronouns | Others |
|----------|-------|----------|--------|
| Capitals | .590  | .311     | .098   |
| Italics  | .290  | .615     | .094   |
| Emphasis | .40   | .50      | .10    |

---

Most subjects in this study made use of pronominal emphasis to reinforce the interpretative bias as well as to shift it. As shown above, italic print is preferred for this type of emphasis. Subjects also tended to put emphasis upon one of the two nouns in the text, and here capital letters were preferred. If their reason for emphasising the required name for each reading was to enhance the interpretative bias in that direction, then their preference for capital letters for this type of stress conforms to the general findings on emphasis type discussed when summarising Study 11, as does their tendency to prefer italic print for pronominal emphasis.



Subjects shared a general opinion of the different functions of the two typeface changes available to them for emphasising the texts. Their tendency to prefer capital letters for nouns, and italic print for pronouns (which have no intrinsic content to emphasise), makes sense in terms of the general descriptions many subjects gave of the difference between these two emphasis types in the Questionnaire given to subjects as one of the set of first studies described in Chapter 3.

As indicated earlier, the intention is to acquire any possible information about individual differences of meaning or connotation between the two emphasis types studied throughout this project as a side effect of studying more general effects of emphasis in written communication. This is why the two typefaces were used in parallel throughout the studies, selected particularly because of their contrast in form and their familiarity to readers in a variety of contexts.

Chapter 9 is devoted to a discussion of the different threads of information gathered from the findings of the various studies undertaken by this project, so far as these relate to a general semantics for individual typeface emphasis. For the purposes of this particular series of studies, the implication of the responses to Task 3 is that pronominal emphasis should take italic print, and nominal emphasis should take capital letters. The design of the different text

versions which require to be tested on the basis of the results of Study 12 itself take this into account.

**Overall summary:**

Study 11 found single prominal emphasis to be a good strategy for promoting interpretive shift from the thematic subject as pronominal referent within the texts presented to subjects, increasing their ambiguity. Emphasis on a verb or verbal predicate, which reinforced an agent role for the default reading in each text reduced ambiguity, increasing the frequency of those readings for the texts. There was some indication that italic print worked best for pronominal emphasis (shift strategy), and capital letters for the verbal emphasis (enhance strategy).

For shifting the reading of text theme, the strategies most frequently suggested by Study 12's subjects concurred almost exactly with those successfully used in Study 11. For enhancing the default interpretation, however, the strategies differed.

The findings regarding the alternative typefaces, capital and italic print, seem to relate across the two studies in terms of which worked best for the required function in Study 11, and which was chosen for which word-type in Study 12.

The next chapter describes the studies undertaken to test out the most frequently suggested strategies from Study 12, where these differed from those tested and found successful in Study 11, and reports on further information gathered on emphasis type distinctions.

## CHAPTER 8: Testing strategies for reinforcing or shifting pronominal reference

This chapter will describe the results of testing different versions of the original four texts from Study 11. The versions were produced on the basis of findings from that study and from Study 12. The first set, Study 13.a, simply tested those versions most frequently produced by subjects which did not correspond to the most successful version for the predicted interpretation in the earlier study. The second set, Study 13.b, looked for any effects of emphasising the name of the required agent for each of the two readings of the text. Study 13.c combined two strategies: emphasis on the required agent name with the best strategies used in Study 11 for enhancing or for shifting the default interpretation of each text. Study 13.d looks only at the shift effect and compares the results of a strategy of combining the default name with pronominal emphasis against the alternate name plus pronominal emphasis tried for that effect in Study 11.



Study 13. a:

**Introduction and method:**

The most frequently produced versions for promoting the major and the minor interpretations of each text by subjects in Study 12, which were not identical to those which achieved this in Study 11, were tested to establish their effectiveness.

Using exactly the same procedures as were followed for Study 11, 20 subjects (first-year undergraduate students) received the three following texts. The versions given most successfully in the original study are given below each text, in smaller print, as a reminder.

Text 2: Frank asked BILL to drive. *He* said *he* couldn't.  
Frank ~~asked~~ Bill to drive. He said he couldn't.

Text 3: ROSE called Jenny a feminist and then *she* insulted her.  
Rose called Jenny a feminist and then she INSULTED her.

Text 4: JOHN met Susan, Tom and Josie in the pub. *He* was glad *he* was there.  
John met Susan, Tom and Josie in the pub. He was GLAD he was there.

Mixed typeface, using capital letters for nominal emphasis and italic print for pronominal emphasis, was provided for the

different text versions, fitting the general preferences indicated by the subjects from the third task of Study 12.

All the above versions were intended to promote the default interpretation of the text. A second set of 20 subjects from the same population received a fourth text, the shift version of Text 3 most frequently produced by subjects in Study 12. This was to prevent the possibility that finding two versions of one text may prime the subject to produce opposing interpretations.

Text 3a: Rose called Jenny a feminist and then *she* insulted *her*.

Rose called Jenny a feminist and then *she* insulted her.

This text was the only one of the 'shift' versions which did not coincide with the best strategy for that effect in Study 11, but in fact was a combination of the two attempted there. Subjects received this text with its question as one of the tasks in a pilot for another study.

#### **Results and discussion:**

Tables 13.1-13.3 show response frequencies for the versions tested here, in comparison with the plain text responses. The tables are commented on separately before summarising the results.

Text 2:

The version most subjects thought should suggest the default interpretation was not so successful as the version given to subjects in Study 11. There was no significant change in response direction from that shown for the 'plain' version in Study 11 ( $X^2=2.711$ ,  $df=1$ ). Although the responses for the

**Table 13.1: Text 2. Frank asked BILL to drive.  
He said he couldn't. N=20**

---

| <u>Version</u> | <u>Frank:Frank</u> | <u>Bill:Bill</u> | <u>Other</u> |
|----------------|--------------------|------------------|--------------|
| Plain          | 5                  | 11               | 4            |
| Enhance        | 1                  | 13               | 6            |

---

alternate, minor interpretation decreased, the movement was to the 'other' category ('Frank said Bill couldn't', or 'Bill said Frank couldn't) rather than the default interpretation, as for Study 11. This particular version increased the expressed ambiguity of the text, rather than reducing it; possibly the emphasis on both pronouns provided conflicting signals.

Text 3:

Dealing with the 'enhance' versions first, again the intended interpretation was less frequently given by subjects here.

While apparently reducing the expressed ambiguity, as there were no 'other' responses, frequencies for both the major and the minor interpretations increased slightly over those found

**Table 13.2: Text 3. ROSE called Jenny a feminist and then *she* insulted her. N=20**

| <u>Version</u> | <u>Rose: Jenny</u> | <u>Jenny:Rose</u> | <u>Other</u> |
|----------------|--------------------|-------------------|--------------|
| Plain          | 12                 | 3                 | 5            |
| Enhance        | 15                 | 5                 | 0            |

in Study 11. The difference between 'plain' and 'enhance' response frequencies, excluding 'other', was clearly not significant ( $X^2=0.031$ ,  $df=1$ ).

The responses to the version which subjects most often suggested for shifting the interpretative trend, showed that

**Table 13.3: Text 3a. Rose called Jenny a feminist and then *she* insulted *her*.**

|       |    |    |   |
|-------|----|----|---|
| Plain | 12 | 3  | 5 |
| Shift | 9  | 11 | 0 |

this version worked about as well as that presented in Study 11. A 2 x 2 comparison of this study's responses with those for the plain version gave  $X^2=4.625$ ,  $df=1$   $p<.05$ . This is not surprising, as the version combined both strategies



from Study 11 which sought the shift effect, and Table 11.3 shows that although it was the emphasis on the first pronoun, "...and then *she* insulted her" that drew a significant increase in responses to the alternative interpretation, the 'b' versions of that text did move responses in the required direction.

Text 4:

Table 13.4 shows that there was no marked change in the response differences from that obtained from subjects receiving the 'plain' text version in Study 11 ( $\chi^2=0.198$ ,  $df=1$ ). There is a similar situation here to that for Text 2, in that both pronouns take the same antecedent, and that the

**Table 13.4: Text 4. John met Susan, Tom and Josie in the pub. He was glad he was there. N=20**

---

| <u>Version</u> | <u>John:John</u> | <u>John:Tom</u> | <u>Other</u> |
|----------------|------------------|-----------------|--------------|
| Plain          | 9                | 4               | 7            |
| Enhance        | 13               | 4               | 3            |

---

version tested here emphasises the default noun and both pronouns, providing signals which may conflict rather than cooperate. The overall effect, however, was in the required direction, which was not the case for this version of Text 2.

This exercise found that, although there was a slight enhancement in the right direction from the plain version responses, the combined strategy of nominal and pronominal emphasis did not work very well for reinforcing the default reading of the text.

It is possible that the nominal emphasis acts with the pronominal emphasis in a way that can change the interpretive function that either emphasis may have singly.

The enhance version produced most frequently by subjects for Text 3 used precisely the pronominal emphasis which successfully shifted the interpretative bias of subjects in Study 11. In combination with emphasis on 'Rose', the agent for the second event under the default reading of the text, stressing 'she' does not have a shift effect. Nor does it enhance the default interpretation.

For Texts 2 and 4, subjects emphasised both pronouns and the default agent noun, when intending an enhance effect. The most successful strategy for shifting the reading of each text in Study 1 had emphasised only the second pronoun. In neither case, for Study 11 subjects, did the strategy of

emphasising the first pronoun in the text (the 'a' versions, see Tables 11.2 and 11.4) work very well for shifting the natural reading.

Assuming subjects to have been familiar with the syntactic regularities of the English language we might expect a tendency to map the first pronoun of a sentence or clause to the first person named in the preceding text section. However, this can obviously be overridden when the semantic structure of the text conflicts. The default readings of these texts differed with respect to the allocation of pronominal reference, because of their difference in semantic structure. For text 2, "Frank asked Bill to drive. He said he couldn't", both pronouns went to Bill, the second person named in the text. 'Couldn't' refers to 'drive', not 'asked'. For text 1 they went to the first, John. "John met Susan, Tom and Josie in the pub. He was glad he was there." For all subjects but one in this study, the agent of the second action, denoted by 'He' at the start of the sentence describing that action, was the subject and agent in the first sentence, 'John'. The default reading of the text allocates the second pronoun to the same referent.

Allocation of an unemphasised pronoun in terms of the default reading of a text, if coherent within that ongoing reading, should reinforce it. Emphasis on a second pronoun, then, may

be a more powerful signal for shifting the interpretation as, effectively, it should contrast more sharply the stronger the ongoing interpretation, or the longer it has been current. On the other hand, obviously an accumulation of evidence toward one reading might override a contradictory sign encountered in the text, or ignore it altogether. With the short, fairly simple texts used here, however, I would expect the former possibility to be more likely.

At a simple level, it could be predicted that emphasis upon one pronoun should signal a shift from the default interpretation running to that point of the text, and that emphasis on a second pronoun (given that the same antecedent is shared by both) may signal a shift in the other direction, back to the default.

On this basis, emphasis on both pronouns in the texts discussed should provide contradictory signals, except in the case of the shift version of text 3, where each pronoun must relate to a different actor and where, for the alternative reading, both actors must change places.

However, experience with the effects of typeface emphasis gained as this research progressed suggests that things are unlikely to be as straightforward as this - particularly in the case of the text versions just tested, where the default



noun is also emphasised. For example, the weaker enhance effect for Text 2, where the default name and both pronouns are emphasised, might carry 'BILL' to the first italicised '*He*', then shift to 'Frank' - to shift back to 'BILL' again on the second '*he*'. This could be described as a cooperative effect, but commonsense suggests it to be rather clumsy as a communication strategy. Readers do not expect writers to be clumsy! Or, the emphasis on both pronouns may imply that a different antecedent should attach to each. Given the default reading required from the version, this would be a conflicting effect.

On the other hand, the emphasis on the first pronoun could have a different function than that attributed in the discussions so far. It will be remembered that Text 4 maintained the character 'John' as subject for the second sentence and antecedent for the first pronoun, even though the second pronoun shifts with emphasis manipulation. Italic print is often used for providing secondary salience to words in a text (see discussions of subject explanations for the various ranking tasks in Chapters 4 and 5). This function is nearer to modulatory emphasis than to contrast, so that '*He*' could echo the emphasis on 'JOHN'.

In Study 11, subjects' strategy for noun emphasis was to emphasise the default name for the default interpretation, and

the alternate name when the reading was required to shift. Combinatory emphasis elsewhere in the text was, most popularly, standard for both versions.

On the basis of Study 13a's findings, it seems possible that nominal emphasis might have a cooperative or conflicting effect upon a required interpretation, when combined with other typeface emphasis within a text. If, as subjects in Study 12 seemed to believe, emphasising one or other name makes that character the likely agent, then the enhance strategy from Study 11 should act with the name, cooperating for an additive effect. But the shift strategy, acting through the pronoun by focussing the ambiguity (which the findings from Study 11 suggest that it does) should conflict with the signal from the capitalisation of the alternate noun.

Effectively, if emphasis on the alternate noun biases the reading of the text toward the alternate interpretation, and pronominal emphasis warns against following that bias, then combining the strategies, which was the tactic most often proposed by Study 12's subjects, ought to have had a contradictory, or at least a conflicting, effect.

Basically it is difficult, without further enquiry, to speculate what interactive effects, cooperative or conflicting, the combined emphasis strategies may have. The

next set of studies in this series, therefore, tests various versions of the texts, using emphasis strategies which are based on the information gained so far, from the two studies in Chapter 7 and the one just reported.

The results of the following tests, with the most successful from Study 11, will then be compared against plain text versions in an attempt to establish the best strategies for enhancing or shifting default text readings, and to see whether these generalise across the texts.

### Study 13.b

#### **Introduction and method:**

Tests were made of the effects of nominal emphasis alone upon the ambiguity level of the texts, to see whether this altered according to which name in the text received emphasis.

Conforming to findings from Study 12 - and for the sake of consistency throughout the series - the emphasis type for this study was capital print.

40 first year undergraduate students took part in the study as subjects, under exactly the same procedure as was followed for the earlier studies. Each subject received one version of each of the four text, two with emphasis on the default noun, and two with emphasis on the alternative. The order of text presentation was randomised across subjects.

### **Results and discussion:**

For simplicity, all results are tabled together as Table 13.5, with the emphasis conditions themselves given as row labels. The figures show quite clearly and rather surprisingly that emphasis on either noun has the same, or a very similar, effect on responses to the text questions.

For **Text 1**, there is an enhancement effect from both versions. Ambiguity decreases strongly in favour of the default reading in each case, bringing all responses to that interpretation when 'Fred' is emphasised.

For **Text 2**, the frequencies for the default response remain almost constant, with the alternate frequencies moving to the 'other' column. The function of emphasis on the noun here (regardless of which noun is stressed) seems less to decrease or increase ambiguity than to actually confuse the readings of the text.

With **Text 3**, the default responses do not change, but those



**Table 13.5: All texts. Response frequencies to nominal emphasis compared with plain versions.**

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Text 1: Simon said Fred did it. He did.

|         | <u>Simon</u> | <u>Fred</u> | <u>Other</u> |
|---------|--------------|-------------|--------------|
| Plain   | 5            | 14          | 1            |
| 'FRED'  | 0            | 20          | 0            |
| 'SIMON' | 2            | 18          | 0            |

Text 3: Frank asked Bill to drive. He said he couldn't.

|         | <u>Frank:Frank</u> | <u>Bill:Bill</u> | <u>Other</u> |
|---------|--------------------|------------------|--------------|
| Plain   | 5                  | 11               | 4            |
| 'BILL'  | 0                  | 12               | 8            |
| 'FRANK' | 2                  | 12               | 6            |

Text 3: Rose called Jenny a feminist and then she insulted her.

|         | <u>Rose:Jenny</u> | <u>Jenny:Rose</u> | <u>Other</u> |
|---------|-------------------|-------------------|--------------|
| Plain   | 12                | 3                 | 5            |
| 'ROSE'  | 12                | 8                 | 0            |
| 'JENNY' | 11                | 8                 | 1            |

Text 4: John met Susan, Tom and Josie in the pub. He was glad he was there.

|        | <u>John:John</u> | <u>John:Tom</u> | <u>Other</u> |
|--------|------------------|-----------------|--------------|
| Plain  | 9                | 4               | 7            |
| 'JOHN' | 4                | 7               | 9            |
| 'TOM'  | 4                | 7               | 9            |

---

for the alternate reading increase slightly, reducing 'other' frequencies and thereby increasing the ambiguity level of the text.

The responses to either noun being prominent in Text 4 are identical. The result in each case reduced the default bias, increasing frequencies for alternative and 'other' responses.

Of course, the above findings do not justify an assumption that this duplication of effect obtains when nominal emphasis is combined with other typeface changes in the text. Also, the point made in the context of Study 11 still holds true: subjects here are unlikely to have been responding immediately to the texts. The question posed is very likely to have redirected their attention to the text again, to seek the answer.

Given this likelihood, I found it surprising that the only regularity found was within texts, implying that it makes no difference which noun is emphasised, prominence of either name works in the same way upon the reading of each text. For Texts 2 and 3 the frequencies for the default reading are very close, under both conditions of nominal emphasis, and differ very little from responses to the plain versions of the text. There is an effect with both Texts 1 and 4: again default reading frequencies are very close within each text

regardless of which name is prominent, but the effect works in opposite directions between the two texts.

Whilst it seemed necessary to address the question of the possible effects of nominal emphasis upon the reading of a text, particularly in view of the frequent use of this strategy by subjects in Study 2, it is hard to establish any clear and general finding from the study under discussion.

### Study 13.c

#### **Introduction and method:**

The versions tested here combine the dominant strategy put forward by subjects in Study 12, that of emphasising the name of the character intended to be interpreted as agent, with the emphasis used in the most successful version for the required reading of the text in Study 11. Pronominal emphasis was made by italic print, nominal emphasis by capital letters; the words emphasised for the 'enhance' versions retained the typeface used originally in Study 11.

The text version pairs, composed to enhance or to shift the interpretative bias of the texts when unemphasised, are shown in Figure 13.1.

Forty first year undergraduate students were subjects for this study, 20 receiving the 'enhance' text versions and 20 receiving those intended to produce a 'shift' effect. The same procedures were followed as for Study 11.

**Figure 13.1: Text version pairs for alternative interpretations, Study 3.2**

---

Text 1

Enhance: Simon said FRED did it. He *did*.  
Shift: SIMON said Fred did it. ~~He~~ did.  
Question: Who did it?

Text 2

Enhance: Frank ~~asked~~ BILL to drive. He said he couldn't.  
Shift: FRANK asked Bill to drive. He said ~~he~~ couldn't.  
Question: Who said? Who couldn't?

Text 3

Enhance: ROSE called Jenny a feminist and then she INSULTED her.  
Shift: Rose called JENNY a feminist and then ~~she~~ insulted her.  
Question: Who insulted whom?

Text 4

Enhance: JOHN met Susan, Tom and Josie in the pub. He was GLAD he was there.  
Shift: John met Susan, TOM and Josie in the pub. He was glad ~~he~~ was there.  
Question: Who was glad? About whom?



## Results and discussion:

Tables 13.6 to 13.9 show frequencies for the two versions tested by this study, in comparison with the response frequencies for the plain unemphasised versions of the texts.

**Table 13.6: Text 1. Simon said Fred did it. He did.**

---

| <u>Version</u>                  | <u>Simon</u> | <u>Fred</u> | <u>Other</u> |
|---------------------------------|--------------|-------------|--------------|
| Plain                           | 5            | 14          | 1            |
| Enhance<br>(FRED/ <i>did</i> )  | 2            | 17          | 1            |
| Shift<br>(SIMON/ <del>Æ</del> ) | 5            | 12          | 3            |

---

With Text 1, highlighting 'Fred' by capital letters and italicising 'did' did not increase the default interpretative bias beyond that obtained by the verbal emphasis alone in Study 11. The overall effect was in the right direction, however.

On the other hand, the effect of pronominal emphasis in combination with capital letters on the alternate noun, 'Simon', destroyed the shift effect obtained by simply stressing the pronoun. This supports the notion discussed

following Study 13.a, as the effect of nominal emphasis alone on either name was to increase the frequency of default readings. A chi square test of the values in Table 13.6 against plain and excluding 'other', gave  $X^2=2.219$ , (df=2), suggesting that neither of the combinatory emphasis strategies worked well in this text.

**Table 13.7: Text 2. Frank asked Bill to drive. He said  
he couldn't.**

---

| <u>Version</u>          | <u>Frank:Frank</u> | <u>Bill:Bill</u> | <u>Other</u> |
|-------------------------|--------------------|------------------|--------------|
| Plain                   | 5                  | 11               | 4            |
| Enhance<br>(asked/BILL) | 0                  | 17               | 3            |
| Shift<br>(FRANK/∆e)     | 12                 | 5                | 3            |

---

As Table 13.7 shows, with Text 2 both combined strategies were successful, working similarly to the versions without nominal emphasis used for Study 11. On this study's findings, against the plain text version (excluding other),  $X^2=18.977$  df=2  $p<.0005$ , with a 2x2 on Plain/Enhance giving  $X^2=6.262$  df=1  $p<.025$  and, on Plain/Shift,  $X^2=5.105$ , df=1  $p<.025$ . With this particular text, this is perhaps not surprising because of the semantic structure of the text, discussed in the summary to

Study 13.a. The two stresses in the text work separately, within their sentences. Pronominal emphasis in the second sentence should indicate 'not Bill', whichever name is given prominence in the first sentence, if the findings from Study 13.b can be related to predicting the effects of combined strategies.

**Table 13.8: Text 3. Rose called Jenny a feminist and then she insulted her.**

---

| <u>Version</u>             | <u>Rose:Jenny</u> | <u>Jenny:Rose</u> | <u>Other</u> |
|----------------------------|-------------------|-------------------|--------------|
| Plain                      | 12                | 3                 | 5            |
| Enhance<br>(ROSE/INSULTED) | 20                | 0                 | 0            |
| Shift<br>(TOM/Be)          | 7                 | 12                | 1            |

---

With Text 3, both the enhance and the shift strategies worked better than those used in Study 11. The default reading was significantly enhanced by printing both the name of the default agent and the second action in capital letters ( $X^2=13.636$ ,  $df=1$ ,  $p<.0005$ ). This was not the case when only the verb was stressed.

However, it should be noted that this text, under the natural reading without emphasis, already has a strong bias toward the default interpretation. There is not much room for enhancement, and the frequencies here are not strikingly

different from those obtained in Study 11. The shift effect from combined emphasis was also similar to that in Study 11, and very slightly stronger ( $\chi^2=6.335$ ,  $df=1$ ,  $p<.025$ ). Unlike Text 2, there does seem to have been a cooperative effect from combining the two strategies in this text, for both the required readings.

**Table 13.9: Text 4. John met Susan, Tom and Josie in the pub. He was glad he was there.**

---

| <u>Version</u>         | <u>John:John</u> | <u>John:Tom</u> | <u>Other</u> |
|------------------------|------------------|-----------------|--------------|
| Plain                  | 9                | 4               | 7            |
| Enhance<br>(JOHN/GLAD) | 9                | 5               | 6            |
| Shift<br>(TOM/He)      | 2                | 11              | 7            |

---

Responses to the pair of Text 4 versions suggest that the combined emphasis was rather less effective than the single emphasis used in Study 11. There was no significant enhancement of the reading bias found from the plain text version, and though there was a significant shift effect ( $\chi^2=7.72$ ,  $df=1$ ,  $p<.01$ ), highlighting Tom's name above the others mentioned did nothing to improve upon the simpler strategy of putting the second pronoun in italics. The



effect of capitalisation for either noun in combination with Study 11 strategies remains negligible, as it was when used singly in Study 13.b.

**Summary:**

The enhance versions took the strategy that worked best for that effect from Study 11, plus emphasis on the default noun, as suggested from the findings from Study 12. This combined strategy generally worked as well as the single emphasis strategy used in Study 11, and sometimes better.

The shift versions, following the response trend in Study 12, gave nominal emphasis to the alternate name, and combined this with the pronominal emphasis strategy that had proved successful in Study 11.

Aside from individual points made above for each text, the general effect of the combined strategy for enhancing the default interpretation of the text worked to much the same degree as the single emphasis strategies used in Study 11.

The shift strategy using combined emphasis with the alternate noun capitalised also worked well enough - except in the case of Text 1. Given the findings from Study 13.b, that emphasis on either name produces the same interpretative effect with a text, the suggestion made at the close of Study 13.a's report

regarding the possible interactive effects of highlighting the default noun and stressing the pronoun may well not hold good.

Nevertheless, for the sake of completeness, and because Study 13.b's findings could not provide any evidence of potential combinatory effects, the test was made. The results of this will be reported here, before drawing any conclusions on single or combined emphasis effects within the texts in question.

### Study 13.d

#### **Introduction and method:**

The following report briefly describes the interpretative effects of a shift strategy which maintains emphasis on the default noun, while emphasising the pronoun for which it is antecedent under the natural reading of the plain text. The nominal emphasis, therefore, was that presented as part of the combined enhance strategy in the previous study, with pronominal emphasis as used in that study and Study 11, for the shift effect.

Again, the procedure follows that used for the other tests in this series, using a further 20 first year undergraduate students as subjects.

## Results and Discussion:

The results for each text are tabled below (Tables 13.10 to 13.13). The shift strategy used in this study worked rather differently within each text. It was the best for promoting the alternate interpretation in Text 1, though not to a level of statistical significance:  $\chi^2=1.509$ , (df=1). It was the worst for that effect among the Text 2 versions tested, gaining twice the number of 'other' responses without increasing the frequency of alternate readings.

For the Text 3 and 4 the frequencies differed very little from those for the versions emphasising the alternate name in combination with the pronoun that were tested by Study 13.c. For Text 3 the difference was positive, for Text 4, negative. It should be noted that the version for Text 3 had already been tested on a different group of subjects in Study 13.a as an enhance version produced by subjects in Study 12 and tested again by the current study as a double check. The results for the duplicated test were very similar.

**Table 13.10: Shift effects in Text 1. Simon said Fred did it. He did.**

---

| <u>Version</u>  | <u>Simon</u><br>(alt.) | <u>Fred</u><br>(def.) | <u>Other</u> |
|-----------------|------------------------|-----------------------|--------------|
| Plain           | 5                      | 14                    | 1            |
| FRED+ <i>He</i> | 9                      | 11                    | 0            |

---

**Table 13.11: Shift effects in Text 2. Frank asked Bill to drive. He said he couldn't.**

---

| <u>Version</u>  | <u>Frank:Frank</u> | <u>Bill:Bill</u><br>(alt.) | <u>Other</u><br>(def.) |
|-----------------|--------------------|----------------------------|------------------------|
| Plain           | 5                  | 11                         | 4                      |
| BILL+ <i>he</i> | 5                  | 7                          | 8                      |

---

**Table 13.12: Shift effects in Text 3. Rose called Jenny a feminist and then she insulted her.**

---

| <u>Version</u>   | <u>Jenny:Rose</u> | <u>Rose:Jenny</u><br>(alt.) | <u>Other</u><br>(def.) |
|------------------|-------------------|-----------------------------|------------------------|
| Plain            | 3                 | 12                          | 5                      |
| ROSE+ <i>she</i> | 14                | 6                           | 0                      |

---



**Table 8.13: Shift effects in Text 4. John met Susan, Tom and Josie in the pub. He was glad he was there.**

---

| <u>Version</u>  | <u>John:Tom</u> | <u>John:John</u><br>(alt.) | <u>Other</u><br>(def.) |
|-----------------|-----------------|----------------------------|------------------------|
| Plain           | 4               | 9                          | 7                      |
| JOHN+ <i>he</i> | 10              | 3                          | 7                      |

---

**Summary:**

Even in the case of Texts 1 and 2, the change in alternate reading frequencies between shift versions tried in Studies 13.c and 13.d does not differ much from that between plain and Study 11 versions; there is little evidence in favour of stressing either noun to strengthen the shift effected by pronominal emphass.

It seems that highlighting one or other character in any text does not strongly affect theme maintenance or shift. The function may have been more one of mood than of contrast - that is, the emphasis may have been interpreted in terms of the characters, but not their roles.

The discussion which concludes this chapter will take the above point further. In conclusion of this study's report,

it can only be said that no evidence was found to support a theory of nominal emphasis on the default noun rather than the alternate having a facilitatory effect upon the shift function of pronominal emphasis.

### **OVERALL CONCLUSION:**

#### **Results summary and discussion:**

To summarise the results of the whole series of attempts, reported in this Chapter and Chapter 7. to convey two alternate meanings of the four texts used, Table 13.14 shows the proportional frequencies for responses of the default reading and Table 13.15, those for alternate reading responses. Tests of difference in proportion were made within the texts, and the findings are described below, for each text individually, with examples of the versions concerned.

**Table 13.14: DEFAULT reading frequencies as a proportion of responses, from all tests of all texts for enhance and shift effects.**

---

| <u>Version</u> | <u>Text 1</u><br>(Fred) | <u>Text 2</u><br>(Bill:Bill) | <u>Text 3</u><br>(Rose:Jenny) | <u>Text 4</u><br>(John:John) |
|----------------|-------------------------|------------------------------|-------------------------------|------------------------------|
| Plain          | .70                     | .55                          | .60                           | .45                          |
| Enhance:11     | .95                     | .85                          | .90                           | .55                          |
| Enhance:13.b   | 1.00                    | .60                          | .60                           | .20                          |
| Enhance:13.c   | .85                     | .85                          | 1.00                          | .45                          |
| Shift:11       | .60                     | .25                          | .35                           | .20                          |
| Shift:13.b     | .90                     | .60                          | .55                           | .20                          |
| Shift:13.c     | .60                     | .25                          | .35                           | .10                          |
| Shift:13.d     | .55                     | .35                          | .30                           | .15                          |

NB: For Study 3.2, which dealt with nominal emphasis only, the 'enhance' version is that with emphasis on the default noun, the 'shift' version is that with emphasis on the alternate noun following the subject response trend from Study 2.

---

The best version for enhancing the default bias in Text 1 is that given in Study 13.b.

Simon said FRED did it. He did.

The proportional increase here was .30,  $Z=2.658$ ,  $p<.005$ . This single emphasis of capital letters on the noun was sufficient to bring all the responses to the default reading, "Fred did it". However, emphasis on the other name in the text, 'SIMON' produced a noticeable effect in the same direction, enhancing

the default reading of the text, though the increase in the proportion of these responses over those from the normal print version was not quite significant:  $Z=1.581$ ,  $p=.0571$ .

**Table 13.15: ALTERNATE reading frequencies as a proportion of responses, from all tests of all texts for enhance and shift effects.**

| <u>Version</u> | <u>Text 1</u><br>(Simon) | <u>Text 2</u><br>(Frank:Frank) | <u>Text 3</u><br>(Jenny:Rose) | <u>Text 4</u><br>(John:Tom) |
|----------------|--------------------------|--------------------------------|-------------------------------|-----------------------------|
| Plain          | .25                      | .25                            | .15                           | .20                         |
| Shift: 11      | .40                      | .50                            | .50                           | .70                         |
| Shift: 13.b    | .10                      | .10                            | .40                           | .35                         |
| Shift: 13.c    | .25                      | .60                            | .60                           | .55                         |
| Shift: 13.d    | .45                      | .25                            | .70                           | .50                         |
| Enhance:11     | .00                      | .05                            | .10                           | .20                         |
| Enhance:13.b   | .00                      | .00                            | .40                           | .35                         |
| Enhance:13.c   | .10                      | .00                            | .00                           | .25                         |

The single emphasis on 'did' used in Study 11 also brought a significant increase, from plain: .25,  $Z=2.081$ ,  $p<.02$ :

Simon said Fred did it. He *did*.

The emphasis was italic, possibly reinforcing the contrast function of the word itself (see discussion of Task 3, Study 12). Combining the two above strategies, in version 13.b,



produced a response increase in the right direction, but its extent was not significant.

None of the strategies which were tried for shifting responses from the default to the alternate reading significantly influenced the frequencies. The best was 13.d, with the default noun emphasised and this version achieved a shift of only .20,  $Z=1.326$ :

Simon said FRED did it. *He* did.

The default reading for this text in plain case was stronger than that for any other text, 70%. Whereas either single emphasis enhance strategy sufficed to increase the likelihood of the default reading, it took a cooperative strategy of combined emphasis to shift it, even slightly. A point arises here on the issue of combined emphasis: both single nominal emphasis strategies enhanced the default reading, as Table 13.14 shows. In fact, the extent of the increase over plain, 20%, almost reached statistical significance:  $Z=1.581$ ,  $p=.0571$ . But, for this text, specific nominal emphasis is critical for a successful combination strategy to shift the interpretation. 'SIMON' with '*He*' does not work.

In Text 2, both the single emphasis on 'asked' from Study 11 and the combined strategy 13.c worked identically to

strengthen the default reading:

Frank *asked* Bill to drive. He said he couldn't.

Frank *asked* BILL to drive. He said he couldn't.

Strategy 13.3 possibly worked in the same way as strategy 11, with a reinforcement in the emphasis that directs attention to the action, increasing the likelihood of the object of the first sentence being read as agent for the second. However, even though that addition increased the physical salience of the name of that agent, it did not increase proportional frequencies for the appropriate reading above the level obtained by the simpler strategy of only stressing the verb, with italic print. The effect upon the proportion of responses to the default reading was identical and significant,  $Z=2.070$ ,  $p<.025$ .

The relatively low informational salience of the subject in the first sentence: 'Frank', under the natural reading of the text as mostly concerning 'Bill', may be the reason for strategy 13.3's success in shifting the interpretation.

FRANK asked Bill to drive. He said *he* couldn't.

This version produced a proportional increase in alternate readings of .35 ( $Z=2.286$ ,  $p<.02$ ). Combining nominal and

pronominal emphasis has the edge over single emphasis here; the proportional increase in alternate responses was .25 for strategy 11, not quite achieving statistical significance ( $Z=1.633$ ,  $p=.0516$ ). As said earlier, the sense of this text demands that the pronouns share the same antecedent rather than relate separately to the characters named in the text, as they do with Rose and Jenny in Text 3 and can do, under the right conditions of emphasis, with John and Tom in Text 4. So, although the emphasis on the second pronoun may signal a shift in reference from the first, a careful reading (which should be a task effect within these studies, as discussed in the introduction to Study 11) would reject this interpretation of the salience of 'he' and find an alternative antecedent for both. There is only one within the given text, and in this version it is highlighted. Note that highlighting the default noun, 'BILL', then signalling shift with 'he', does not work at all.

For both interpretations required of Text 3, combined emphasis strategies gave the best results.

ROSE called Jenny a feminist and then she INSULTED her.

Version 11.c above drew all responses to the default interpretation, an increase of .40 over the plain text response:  $Z=3.162$ ,  $p<.001$ . Single nominal emphasis (enhance

version 13a) made no difference at all to the default frequencies, but simply emphasising the verb in the second clause, 'INSULTED', (enhance version 1) drew a proportional increase of .30 to that reading:  $Z=2.081$ ,  $p<.02$ . The function of the combined emphasis here may be different from that for the previous texts. Both combined strategies (13.c and 13.d) worked better than the single emphasis on the second pronoun given in Study 11.

Capital letters on the default agent name, 'Rose', with the first pronoun italicised, brought more responses to the alternate reading, giving 'Jenny' as the agent for the second clause, than capitalising that name itself did. Note that single emphasis on either noun did nothing for or against the enhance effect but did increase the alternate response. The proportion moved from .15 to .40. The shift signal ('*she*') seems not to have conflicted with this effect, but to have confirmed and strengthened the alternate bias of the text.

This text does not hold very hard to the natural reading found with normal print; every shift strategy attempted, including 13.b and the trial of the most popular version from Study 12 had a significant effect upon the frequencies, the greatest being 13.d,  $Z=3.518$ ,  $p<.0005$  and the least 13.b,  $Z=1.770$ ,  $p<.05$  - matched exactly by the alternate 13.b version, with 'JENNY' prominent.



For Text 4, the gender of the pronoun, together with the italic print signalling attention to that stage in the reading, was enough to locate the name 'Tom' as the proper antecedent despite the fact that this was the middle name of the three, unmarked by either first or last placing. The proportional increase in alternate responses was .50,  $Z=3.178$ ,  $p<.001$ .

Both combined emphasis shift versions worked also, 13.c with emphasis on 'Tom' plus the second pronoun ( $Z=2.286$ ,  $p<.02$ ) did slightly better than 13.d, where 'John' was given salience ( $Z=1.989$   $p<.02$ ). None of the enhance strategies were very successful, although it may be noted from that this was the most ambiguous text in its unemphasised state, only 45% of subjects responding with the default interpretation, giving this text more potential room for enhancement with an appropriate strategy. Of the attempts made, the best version for enhancing this text (though the proportional drift was only .10) highlighted 'glad' with capital letters, reiterating the role of the default agent, to whom the first pronoun located for all but one of the 140 subjects receiving the text, in their seven version groups. So for this text, the tactics adopted in Study 11 were the most appropriate for rendering the two meanings of the text.

## Summary:

The results from the different tests applied to each text show that individual content is critical for the best choice of emphasis strategy for enhancing or shifting subjects' interpretation of theme. This echoes findings made throughout this project, and mentioned particularly in Chapters 3 and 6. Generalisation from found rules is not likely to be possible, but then this is a common observation from any study of language.

Nevertheless, there are regularities which apply, at least through the texts studied in Chapters 7 and 8. Typeface change can provide contrastive emphasis, which works for theme shift within a text, and modulatory emphasis, for theme enhancement.

Using typeface emphasis as a strategy for *enhancing* a default interpretation of a text does not imply a contradiction in terms of its contrastive function, as it is clearly a question of the crucial word or words to be emphasised within a text, for a specific interpretation. The interpretative focus implied by the emphasis is **modulation** of the word itself, without the second stage required by contrastive, ie "find the alternate referent or referent set.

In the studies described, emphasising the default agent role by changing the typeface on the relevant verb or verbal predicate worked well to enhance the default interpretation of the text. For all but Text 3, there was no improvement to be gained by combining this strategy with nominal emphasis. As for Text 3, with hindsight one could say that, because of its content, it suits the emphasis on the noun - it has 'gossipy' connotations! This is actually a serious point, which will be returned to shortly.

On this occasion the **contrastive** emphasis strategies concentrated on pronouns, taking up Brown & Yule's (1983) point that they are "the paradigm examples of expressions used by speakers to refer to given entities...because of their lack of content, they have become the crucial test case items for any theory of language".

Emphasis in language is a common strategy for distinguishing **new** from given information (Halliday, 1985). Pronominal emphasis was found to indicate for theme shift. In the case of three of the four texts, it worked to a level of statistical significance among the subject groups concerned. The fourth (Text 1), proved resistant to all strategies for promoting this reading.

The improvement in frequencies for alternate readings of Texts 2 and 3 when nominal emphasis is combined with pronominal presents some problems for generalisable explanation, particularly as the successful versions put emphasis on the alternate noun and pronoun in Text 2, and on the default noun and pronoun in Text 3. On the other hand, the difference in each case is only .10 between that version and single pronominal emphasis, which promoted a significant shift effect for Text 2, and between the default and the alternative nominal emphasis, combined with pronominal, for Text 3.

Having established that typeface emphasis options can be utilised by writers to indicate narrative focus, it has to be said that sorting out the contradictory findings between default versus alternative nominal emphasis across the texts is difficult. Certainly semantic structure and individual text content will feature for interpretations of emphasis, which returns us to the point of 'gossipy' connotations for Text 3. It matters very little whether "Rose" or "Jenny" is emphasised in combination with the pronoun as a shift strategy - and this may well have been the case for the enhance strategy combination.



The main point is that what might be faulted on grounds of style for other texts, as 'overemphasis', is appropriate here for this particular text.

Such points are important; even without a supplied communicatory context, in a situational context which is openly that of 'psychological experiment', subjects will supply background for the briefest text, and interpret that text accordingly. It is interesting that, under such circumstances - for the various texts examined within the current research project - this subjective background context is cued for such a large proportion of the subjects concerned. This point has been made before, in Chapters 3, 4, 5 and 6.

Other regularities of the findings from this series of studies concern the effects of the two typefaces used. These relate to the studies reported in Chapter 7, as Chapter 8's studies imposed the emphasis differentially between function on the grounds of findings from Studies 11 and 12. The concluding section of Chapter 7 discusses the information gathered on the effects of italic print and capital letters as emphasis options and, as stated there, an assessment of the relevant findings throughout the whole project will be presented in the next chapter.

Individual discussions over each text, both in this concluding section and elsewhere in the chapters, have by no means exhausted all the possible interpretations of the effects of various versions of the texts made with or without the hindsight given by the results of the various texts. To go any further, however, without the sort of information that the various further research approaches suggested in the concluding section of this thesis might provide would be to tip the scales too far toward speculation.

#### SECTION FOUR: Conclusion

The research described in this thesis was exploratory in nature. Two familiar and conventional forms of typeface change were studied from the point of view of their efficiency in simply and economically signalling information focus in various text types, for various functions. The two chapters in this section provide a broad assessment of the studies undertaken and summarise their findings.

Chapter 9 deals exclusively with the issue of individual typeface effects, and the potential for divergent functions of emphasis that might be provided by using either capital or italic print for particular words within a written text. The various strands of evidence, from all the studies, which specifically relate to this issue are detailed and discussed, and tentative conclusions drawn.

Chapter 10 discusses the general findings from the different tests made of the usefulness of typeface change as a paralinguistic resource of written language. These are related to issues raised in the introductory section of the thesis, which are expanded upon in the context of some of the relevant literature.

## CHAPTER 9: Capitals or Italics?

Until recently, the choice of different print form, for different communicatory function, available to a writer was constrained by practicalities of availability and cost. If a work was to be published, the printer dictated the options. A font, once selected, was set as standard with italic face serving most stress functions within the text. Today, it is often conventions of style which define the boundaries within which authors make use of typeface change to signal communicatory focus. The author Douglas Adams wrote and typeset his recent book *Dirk Gently's Holistic Detective Agency* on an Apple Macintosh Plus mini-computer and LazerWrite Plus printer. The book was then printed using Linotron 100. All the variations of font, style, or size within a text available with standard Macintosh word-processing systems were available for the published document, presenting no difficulty to the author other than the necessity for selecting between them and the grounds for doing so.

Although the majority of present-day novelists (including Douglas Adams!) make little use of font or style change to prime interpretative modification of the words they write, the options are there and, gradually, the conventions are changing.



Presently, italic print remains by far the commonest single typeface used for emphasis requirements in narrative text. This is less the case with expository texts - texts that convey new information and explain new topics to people. Authors of textbooks and instruction manuals, particularly, are beginning to avail themselves of the increasing options. Although use of various typefaces to indicate specific meaning for certain content units of text is not limited to this genre - the tabloid press is the best example that springs to mind. Distinctions between kind of typeface emphasis, and purpose for that emphasis, may gradually be achieving status from convention, but their actual efficiency in use has not yet been tested.

The studies undertaken here, addressing the general issues of within text emphasis also, sought evidence of qualitative differences of function between two conventional forms of written emphasis, capital letters and italic print. This chapter will summarise and discuss this evidence.

In Chapter 3, four 'baseline' studies were described which specifically addressed the issue of distinction between capital and italic print. Study 1, which looked at the

effects of typeface change on adjectives which could be associated with physical scales of measurement, found that emphasising the words **hot**, **heavy**, and **fast** produced a similar effect to using intensifier words - 'very', for example, or 'excessively'.

With the proviso that the word itself will always be at issue, the general findings with relation to difference between the emphasis types suggested that one simple distinction between italic and capital letters may be that of degree of emphasis, with capitals providing quantifiably 'more' to the referent than italics.

This finding was echoed in the results from Studies 5-9, described in Chapters 4 and 5, where subjects ranked six versions of different texts according to "the best way of expressing the message". Capital letters were considered to be appropriate for the most important information in the set of texts presented, with italics preferred for "the next most important" - that is, the sentence expressing secondary content salience.

A study of these explanations, the transcripts for which are available in Appendix 2, shows clear distinctions between the two faces. Apart from the degree of emphasis attributed to

each, capital letters were considered to command, state authoratively, even "shout". The physical attributes of this typeface, when set against the background of the plain text, selected it for information whose content salience was similarly marked. The above findings suggest that a simple difference between italic and capital print may relate to where these typefaces stand in some continuum of emphasis.

The accumulated findings from the various studies also suggest a more interesting divergence. Italic print was held to be more connotative than capitals, giving 'mood' to a word. Again, content is critical in this: as the sentences for which italic print was preferred were implicatory in their meaning, so the implicatory connotations of the typeface was focussed by subjects.

Capital letters, similarly, were given attributes which coincided with the content on which they were preferred - **impact** was a common term in the transcripts. As a reminder, see the preferred version for one of the fiction texts, "Thriller", in the ranking study (Study 6, Chapter 4):

I walked up to the body on the hearthrug and turned it over. *There was a birthmark on his forehead.*  
WE HAD KILLED THE WRONG MAN.

Subjects' explanations for their almost unanimous selection of this version as best showed great content agreement. Italic print was appropriate for the implicative second sentence, "suggesting" or "leading up to" the most important information, itself properly emphasised by capital letters.

The responses to Study 4, (Chapter 3) which directly addressed the question of difference without text examples found the same issues raised and similar points made on behalf of the two types of print.

Appendix 1 presents a full transcription of all subjects responses, and the results from a content analysis of these provide an informative background from which to consider the findings from all the studies, in the context of options between typefaces. Connotation, mood or feeling were generally associated with italic print; authority, importance and impact with capital letters.

Study 2, a task designed to establish any possibility of connotative effects, found the only significant difference of response on a measure of "positive/negative outcome" between plain, capital and italic typeface for continuations to:

He gave me the pen with an encouraging smile, and I signed. Next day .....



was provided by italic print, where more outcomes were negative. A second separation of responses by classifying their content as "humourous/non-humourous" found that, on this measure, capital letters had an effect over the other typefaces.

A divergence of effect between italics and capital letters was also suggested by the findings from Study 10 (Chapter 6). Here the two fiction texts were presented for a between subjects test of the effects of each version upon a story continuation task. The issue of which of the three sentences featured in an ongoing theme of subject's continuations was found to be a function of sentence sequence as well as emphasis, with the semantic structure of the texts (the **content salience** relations between the units) playing a crucial part. However, between the two options of (a) dealing exclusively with mistaken murder, or (b) incorporating information about the victim's birthmark for continuing the story, type of emphasis did play a role.

The following versions achieved the highest frequency for the two categories above:

- a) I walked up to the body on the hearthrug and turned it over. There was a birthmark on his forehead. *We had killed the wrong man.*
- b) I walked up to the body on the hearthrug and turned it over. *We had killed the wrong man.* **THERE WAS A BIRTHMARK ON HIS FOREHEAD.**

With version (a), significantly more subjects carried the mistaken killing forward, ignoring the information that the victim had a birthmark. The sentence with the highest content salience, preferred by subjects in the ranking studies to be given capital letters, here becomes implicatory - *leading on* to the continuation.

What works to carry the more crucial sentence through, however, is not sufficient for the implicatory sentence, the one with 'secondary importance', according to the subjects in Studies 5-9. Here, keeping the 'implicatory' print for the high-salience information and giving full impact, by place and by typeface, to the birthmark information, increased the likelihood of its mention in subjects' continuations.

A point made frequently by subjects in response to Study 4's questionnaire indicated that the two typefaces may also be distinguished in terms of their effects for **modulatory** and **contrastive** focus, with capital letters best serving the former function, and italics the latter. To quote from the transcripts, italic print upon a word signals "comparison", "distinguishing the word from something else" - "something different was expected". Capital letters reflect upon the word itself, "draw attention to the word in isolation" and "show surprise, disgust or other strong emotion". Some of the studies provided more direct evidence on this.

In Study 3, reported in Chapter 3, subjects were presented with two versions of sentences, using either italic or capital typeface to emphasise one word of text. Alternate continuations were provided for each sentence. One implied that the communicatory intention of the emphasis was modulatory, concerned directly with the referent of the stressed word. The other implied that the emphasis was contrastive, indicating the potential existence of another referent for the word.

John broke the table.

Alternative continuations provided to subjects were:

- 1) He's stronger than I thought.
- 2) Susan broke the chair.

Subjects presented with the initial emphasis as capital letters tended to select the first continuation; those given italics chose the second. However, content effects, as suggested before, are critical. "Surprise" conflicts with "comparison", perhaps, for the sentence

I ran to the door, and it was Tom.

For this text, no clear match of emphasis type with emphasis function was indicated by the findings. Here, the point must be made that, on an overall question of stress in written language, it is not possible to show a clear and concise distinction between the functions of modulatory, contrastive, or completive emphasis (Dik, 1981, see Chapter 2, page 20 - the discussion in Chapter 10 on "intonational nucleus" is also relevant). There is a sense in which an emphasised content word, by descriptively modifying its referent, contrasts that referent to *any* potential referents. Likewise, a deliberate intention to signal contrast may also provide a modulatory interpretation. Take the following example:

1) It wasn't Betty's fault. She wasn't there.

Previous text with appropriate content would need to be accessible to allow a reading which resolved reference of 'she' to an available entity outwith the immediately current text. Without this, the emphasised pronoun contrasts Betty with those who were there, amongst whom the person at fault must be found. This sets the stress function somewhere between Dik's contrastive focus, requiring a distinct entity, and completive focus - because the opposing set is limited to those in the room. It could also signal information about Betty's personality, that she was not the sort of person to be at that sort of event, perhaps. This would be modulatory



emphasis, yet arguably contrastive if that term invokes the whole world of people (who may be 'that sort of person') into the contrast set.

Bolinger (1961 p.87) states that every semantic peak is contrastive, with the quality of contrastivity increasing as alternatives narrow down. This is countered by Chafe (1976, p.34) who views contrastive sentences as "qualitatively different from those which simply supply new information from an unlimited set of possibilities. This issue is discussed again in the context of intonational nucleus in Chapter 10. Evidence from other language communities supporting the idea that there *should* be a difference is given by Chafe (1976). One example which does not depend on paralinguistic distinctions is found in Japan: Chafe (p.38) describes the use of the particle wa for signalling contrast within a narrow set of alternatives:

Ame wa hutte imasu  
Rain is falling (but snow is not)

and ga when the contrasting set is an exhaustive listing:

John ga baka desu  
(Of people) John and only John is stupid

The series of studies testing the effects of typeface change on pronominal resolution - Studies 11 to 13 in Chapters 7 and 8 - provided more evidence of the distinction suggested, which

supports Chafe's point of view. In particular, Study 12 required subjects to allocate emphasis within a text to provide two readings for it - the natural or default, and an alternative reading, less strongly marked by the text. Subsequently they were asked to say which of the two emphasis types they preferred for the individual words they had emphasised (with an option allowing "no preference"). The majority chose italic print for pronominal emphasis, which was consistently the strategy chosen for the alternative reading, where the emphasis was required to be contrastive.

This choice was supported by the findings from Study 11, which presented groups of subjects with different emphasis-versions of the texts, intended to shift or to reinforce their default readings. The effect of the different versions was tested by a question designed to elicit the interpretation subjects made under the different emphasis conditions.

Simon said Fred did it. He did.

Question: Who did it?

All the versions tested were run in duplicate, using either capital letters or italics as emphasis type for comparison with responses to plain, unemphasised text. The best response frequencies for the 'shift' effect were obtained when italic print was used. Correspondingly, there was evidence

(though weaker) of a greater number of response frequencies for the 'enhance' versions of the texts, when the relevant words were emphasised with capital letters.

It is acknowledged that there is likely to be a semantic overlap between the two prints. Modulatory emphasis, in the sense of directly reflecting upon the word stressed (Dik 1981), may well be a better function of capital rather than italic print. But where the emphasis is connotative, indicating a particular meaning for a word, thereby implying 'intensional contrast', then italic print may be more appropriate - as it is shown to be for more overt contrast. The subjects questioned on this issue seem to think so.

Overall, it does seem possible that these two conventional forms of within text emphasis might be distinguishable in terms of function, from the evidence accumulated by the different studies described. Moreover, from subject's responses to the questionnaire given as Study 4, as well as from comments made and points tested casually by friends and colleagues, it seems that people tend to agree that there is a difference, which more or less corresponds to the modulatory - contrastive distinction. The findings suggest that further studies should be designed which would address the issue of 'typeface semantics' more directly.

## CHAPTER 10: Assessment and Summary

E. M. Forster, in *Aspects of the Novel* wrote: "For me, the whole intricate question of method resolves itself not into formulae but into the power of the writer to bounce the reader into accepting what he says."

Reading involves simultaneous processing on a large number of levels (McClelland 1986). The studies reported here have mainly concerned input constraints upon this processing that are a function of the *physical* text, that is to say, the effects of typographical variables upon interpretation.

As discussed in Chapter One, there is currently a lot of interest in typography as a text resource which can be manipulated in the interests of global information structure: headings, paragraphing, layout of main and peripheral information are examples. An author's requirement to ensure as close a match as possible between his intended communication and the reader's interpretation, necessitates the best possible use of all resources available to the written language system, within the particular communicatory setting. Generally, controllable cognitive processes in reading are induced in the reader by the *text features* (Britton, Glyn & Smith, 1985 - see discussion in Chapter Two



of this thesis). Here typographical variables have a role to play as a paralinguistic subsystem within language, indicating content structure at all levels and lightening the interpretative load.

Discounting any simplistic model of "writer-->text-->reader", Eco (1976, p.141) differentiates between text as *expression* of the writer's communicatory intention, and text as *content* of the readers interpretation. Among the 'labours performed by both the sender and the addressee to articulate and to interpret sentences whose content must be correctly established and detected" (p.155) he states:

"There is a labour performed in order to articulate expression units. This kind of labour concerns the choice and the disposition of sign-vehicles.....There is a labour that the sender performs in order to focus the attention of the addressee on his attitudes and intentions."

Again:

"There is a labour performed in order to interpret a text by means of a complex inferential process.....There is a labour performed in order to interpret expressions on the basis of certain coded or uncoded circumstances...the 'labour of inference'.

For Eco, the interpretation of a text involves the advancement and modification of a series of hypotheses (1976, p.129) - this is what he means by the reader's 'labour of inference'. (Rumelhart, Hinton & McClelland, 1986, describe more general information processing in the same terms, as "a battle between hypotheses".)

The text itself, described by Waller (1987b p.170) as "a complex network of subcodes that may be strong or weak, and that are subject to constant change as each juxtaposition of elements creates a new, if temporary connotation" constrains this inferential labour (or battle), as well as constraining the author's expression of communicatory content. A basic expression of this model could be:

WRITER --> *expression* <--> TEXT <--> *interpretation* <--> READER

The corresponding model for the spoken language system would be:

SPEAKER --> *expression* <--> TEXT <--> *interpretation* <--> LISTENER

Given that the integrative processes in text comprehension operate within the same base - cognition - it seems intuitively the case that the processing constraints upon interpretation should correspond within the two language systems. The effects of the *text* constraints within that process, however, on grounds of the differences described earlier, cannot be assumed to correspond analogically.

Lakoff (1982, p.239) states of spoken and written text: "The devices utilised in the two media for maximum effect can be

expected to be different, and we may further suppose that the direct transposition of the devices of one medium to the other will not work, or even result in intelligible communication."

Until recently, studies comparing oral and written communication systems have often confounded the distinction with differing degrees of formality and complexity of discourse (Beaman 1984). Many commentators are not so much interested in the different advantages of each medium, as in perceiving the two as locked in deadly combat; this point is well made by Lakoff (1982). Against this stand, several authors - Nystrand, (1982), Tannen (1984), Lakoff (1982) and Gentner (1980) are examples - have addressed issues of coherence, context and rhetoric from a comparative perspective, finding that differences between resource strategies of the written and spoken language systems reduce with similarity of communicatory context. However, on issues of translation between spoken and written paralinguistic subsystems, as discussed in Chapter 2, the assumption is that writing, given its comparative paucity of resources, cannot match the communicative subtlety of speech. The use of italic or capital letters to indicate stress is specifically mentioned by all the above authors, but only in terms of their providing an inadequate translation of intonational signals. Haas (1970) suggested, however, that any notion of a one to one translation correspondence between the systems should



generally be acknowledged as inappropriate, despite the obvious relationship between two systems which share the primary function of communication.

Josef Yachek (1973) defines language from the functionalist perspective, suggesting a sensible difference between spoken and written text which emphasises the *urgency* of spoken text and the *surveyability* of written text, rather than distinctions of form and style. We should not expect parallel correspondences between the language systems in terms of resource function, we do not need them. We can 'read in' shades of emphasis from context or from other cues and change the current text resolution at any point - as Yachek's distinction implies. Written language is a system that stands on its own. It uses a different medium of communication to speech - visual, rather than auditory, space. Issues of *rhythm* - pause, implication, impact apply differently between the systems. It was a stated intention in Chapter Two that the signalling effect of typeface change should be tested "in its own right" (p.29). At this point, however, the issue of translation correspondences between the written and spoken language systems, raised in the introductory section to this thesis before setting in parentheses, as it were, during the data-gathering stage, may be returned to and expanded in the light of the findings.



Bolinger (1980, p.9) rates *intonation* as the most highly symbolic of all the systems within language, wherein "form and meaning correspond in some natural way." This was discussed in Chapter 1 in the context of 'natural' signs - it is agreed that the potential of the intonational system for conveying, by sound-forms, complex nuances of meaning is not matched by the potential of graphical systems to convey meaning by shape-forms. That said, however, by adding what is, basically, an iconic quality to a verbal expression in print, we can approximate the phenomenon of intonational **nucleus**, providing a better target for translation correspondence assumptions between the two language systems (see the discussion in Chapter 1, p.21). "Nucleus" is the term used to describe the pitch accent which stands out as most prominent in an intonation group - also known as *tonic*, *primary stress* or *focus* in linguistic analysis (Cruttenden, 1986, p.49). Halliday (1979, p.68) defines the meaning of intonational prominence as the **focus of information**.

Research on intonational effects in discourse shows that locating the nucleus in an intonational unit and, particularly, empirically establishing its function in focussing the "relatively most important or salient information in the given setting" (Dik, 1981) is no straightforward task. This point is made by Brown, Currie and Kenworthy (1980), particularly in the context of dialects.

Fox (1984) raises the issue of context and the need to take larger segments of discourse into the analysis and Fuchs (1984), the controversy between syntactic and semantic determination of accent placement. Cutler (1984) found that "listeners appear to exploit whatever cues are available - discourse cues where they exist and prosodic cues where these are there to be used", concluding that information focus can behave analogously to accent. Allan (1986, p.21) argues that "stress and intonation cannot be defined using acoustic measurements, but that the hearer's auditory perception of them is based on the analysis-by-synthesis of the speaker's prosody, using acoustic cues and a knowledge of the conventional production features for prosody.

Wells (1986) found that characterisation of focus in terms of pitch prominence alone is not always appropriate. Pitch meter records will often show this to be given to the first element of a unit; human judges, "earballing" for pitch magnitude, seldom select this element but rather choose one which has not only prosodic salience, but content salience as well. Wells therefore took the approach of first hypothesising that a "system of focus" exists, then finding out what categories of focus have meaning for native speakers, *before* correlating these with prosodic features. Subjects listened to a taped series of decontexted sentences, a sheet of paper with the same sentences printed in sequence before

them. Their task was to listen, then underscore the word(s) in the written text which they felt the speaker to be "focussing on as particularly important" on a scale of one to three. Focus constituents were then analysed in terms of prosodic features. Wells found it appropriate to set up four focus categories, with a corresponding phonological system of 'prominence', shown here in Figure 10.1 The prominence values are a function of number and combination of the following phonological elements: pitch peak, maximum pitch range,

**Figure 14.1: Focus categories and corresponding phonological levels of prominence.**

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| <u>Informational<br/>Focus</u> | <u>Phonological<br/>Prominence</u> |
|--------------------------------|------------------------------------|
| Contrastive                    | Maximal                            |
| Main                           | Major                              |
| Subsidiary                     | Minor                              |
| Zero                           | Minimal                            |

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kinetic tone, loudness peak, decrescendo, tempo marking, pause/drawl. Wells' claim is that the presence of a



specified configuration of phonetic features renders an information element susceptible to interpretation as belonging to the corresponding focus category. In other words "the semantic system of focus is realised by a phonological system of prominence." (p.74). In this context, Chafe (1976, p.35) states the linguistic expression of "contrastiveness" to be "the placement of higher pitch and stronger stress upon the focus of contrast", and that it is possible to demonstrate that contrastivity is phonetically different from other stress expressions. As stated earlier, however, empirically establishing phonetic differences which correspond to meaning differences remains a vexed issue for intonational research.

The effects of graphical prominence upon the interpretation of focus are demonstrated in this thesis by the responses by subjects to the various tasks set up under the different typeface conditions. The findings certainly confirm that the notion of perceived nucleus, of itself, can translate from the spoken medium of sound in sequence to the written medium of shape in space. Whether or not a broader translation can be made to include categories of focus remains an issue, which the findings summarised in Chapter 9 indicate to be worth addressing.

The last study reported in Chapter 3 deals with a questionnaire which directly addressed the issue of



differences of function between the two emphasis types. Conclusions from the findings from this study are made in the preceding chapter, where the general issue of interpretative distinctions between capital and italic typeface is discussed in terms of the results of all the studies undertaken. The responses to the questionnaire provides explanatory background for the studies reported in Chapter 4, and supported the notion that further studies, which specifically address the issue of establishing a "semantics of typeface" might be possible, and should certainly be attempted.

People's intuitions about the best way to use different typeface options within a text tend to agree with the interpretations of typeface stress given in the questionnaire responses. Within three different communicatory contexts and using the two typeface options available to contrast with the plain type background of the texts, subjects judgements corresponded over the issues of which emphasis suited which information content, and also why their decisions were made.

Generally speaking, a point made from the findings in the pronominal emphasis series of studies (Chapters 7 and 8) can be raised here, in that where both capital and italic conditions produced effects in the same direction, the effect from italic face was stronger when the function of the emphasis was contrastive. To a lesser, but still perceptible

extent, where the function was modulatory, capital letters had a greater effect.

In the ranking tasks described in Chapters 4 and 5, strong physical salience was generally selected for units judged to have high informational salience. This was consistently felt to be the role of capital letters. Italic print went to units of secondary importance. (More subtle differentiations attributed between the two typefaces were discussed in the preceding chapter.)

The task did not directly access subjects' skill in communicating intended focus with the texts. Rather, by stating the research interest to be typeface emphasis and providing a fixed choice of options involving its use, it addressed subjects' opinion of the functions of the two types of print available, providing content units on which to place them. In this respect the findings satisfactorily distinguished the two typefaces. At the same time, subjects' reasons for first and last rankings showed that communicatory focus was at issue, in that it figured in the explanations given.

The step of equating Wells' phonological realisations of content focus categories with graphic constituents of written text should not, however, be taken without research that

addresses the issue more directly. Nevertheless, a more general equation of within text emphasis with intonational nucleus, both serving the same function of expressing content focus, may be made with more confidence.

From the findings reported in this thesis, a major role of typeface emphasis in written text concerns the foregrounding of certain text objects. Chafe (1976) defines a foregrounded entity in discourse as "given" or "in consciousness" - with a speaker signifying reference to such an entity by "low pitch, low amplitude" intonational cues. Emphasis or stress is used for bringing items *into* foreground, as are such other strategies as clefting, pseudoclefting and build-up, illustrated by (1), (2) and (3) below:

- 1) It was Sally who ate the cakes.
- 2) The one who ate the cakes was Sally.
- 3) Plump and greedy Sally ate the cakes.

Sanford and Garrod found that "anything which is foregrounded is more available for reference", citing Anderson's (1981) studies into staging effects upon continuation tasks. She manipulated the use of adjectives adding "qualifying information" to secondary characters in brief texts which



required subjects to continue the passage. This had an effect on the content of subjects' continuations, making them more likely to contain reference to that character. Continuations to texts without this manipulation dealt with the topic character only.

Continuation studies are a useful way of establishing which elements of a text are accessed by readers during the task, and testing the effects of focus manipulations upon this (Sanford, Moar and Garrod, 1988). The story continuation task reported in Chapter Six tested the rhetorical effects of typeface change for signalling narrative focus. Sentence sequence and content salience - the information structure of the text - are also critical. Emphasis acts in cooperation or conflict with these sub-systems, with a necessary dependency upon the actual words used. It was clear from the continuation content produced by subjects that the texts themselves had activated background knowledge structures relating to their content. The operation of such structures within cognitive processing is described by schematic models - Schank and Abelson's (1977) "scripts", Minsky's (1975) "frames" and Johnson-Laird's (1983) "mental models" are examples - see Alba and Hasher (1983) for a discussion and assesment of these in the context of language understanding. Here, within schematic models in general, Muscovici's (1983) notion of 'social representations' - "cognitive matrixes,



coordinating ideas, words, images and perceptions that are all interlinked" - is appropriate. Equally so is the Sanford and Garrod (1981) notion of 'scenarios' - situational representations which are activated, and constrained, by text content. The Thriller text clearly brought in situational knowledge (based on experience of stories, films etc within the genre) to subjects' predictions of subsequent behaviour on the part of the lead character. This behaviour was more likely to acknowledge the (mistaken) victim if his identity was emphasised in the text by stress or position. In other words, manipulations of stress and of order (understandably, a strong influence for the task) generated input effects which cooperated with these structures, increasing the availability of "secondary" information to produce the continuation content.

The explanations given by subjects for their choice of "most important sentence" of the three that made up the text showed that content battled with emphasis for this award, where the hierarchy of content salience was distinct in the text. Typeface emphasis was acknowledged as implying importance for a text element even when this was contradicted by content salience relationships between elements. Generally, in this case, content won - these findings correspond to those provided by intonational nucleus judgements on spoken texts, discussed earlier.

While the typeface change may be definable as a 'natural' sign (see discussion in Chapter 1 and earlier in this Chapter) its interpretation will also be very largely a function of convention. Yachek (1973, p.9) says "Rules governing the use of ... graphemes (including graphotactic rules) in the given language community have clearly a normative character within that community and any use contrary to these rules is felt as contrary to the norm and evaluated either as a mistake or, in some specific circumstances, as a case of intentional deviation, prompted by some functional motive...." This recalls the comment quoted from a subject in the 'Ranking' experiment reported in Chapter 4 who gave a possible explanation for the impact sentence "Do not touch it" in the Warning text being in normal print as intentional, to provide a 'calming effect'.

Generally, throughout the project, typeface change signals were found to focus attention upon the ongoing interpretation at that point, and modify it in some way.

The studies described in Chapters 7 and 8 found that typeface change, alone, can signal theme-shift by providing contrastive emphasis to critical words in a text. The shift sought was that of pronominal reference resolution, away from the 'default' referent under an interpretation of plain case text.

Brown and Yule (1983, p.214) describe pronouns as "paradigm examples of expressions used by speakers to refer to 'given' entities", saying that as such they are "typically uttered at low pitch in spoken discourse". Stressing the pronoun in speech switches its resolution, indicating the need to foreground another entity - or rather, that the foreground status of the current entity is inappropriate, yet a referent is required. Bosch (1983) calls this a *deitic* function:

"Anaphorically used forms refer to what the listener's attention is oriented to, or assumed to be oriented to, when the utterance in question is made.....

"Deitic forms are means to re-orient the listener's attention to something his attention is not yet directed to, and accordingly occupy the *focus position* of the utterance" (p.58)

Bosch's statements are made on the basis of linguistic theory, and not on the grounds of empirical evidence. Also, they are made on behalf of the spoken language system. No empirical study - to the writer's present knowledge - has been made of stress effects on pronominal resolution within written texts, using typeface manipulations.

Brown & Yule (1983, p.214) rank pronouns as "the crucial test case items for any theory of reference", and there is a vast

literature on work done to test other text constraints upon their resolution in written language, some of which is described by Frederikson (1981a).

To resolve an anaphor, it is necessary to know what *kind* of thing it can refer to. The semantic content of a pronoun, though limited to number and gender, can reduce the possible set of referents to one. Erlich (1980) found that where subjects have to choose between antecedents, sentences in which gender cues facilitate disambiguation are responded to faster than if there are no such cues. As an example, consider the following:

4) Rose gave Tom an apple because [he/she/it] was nice.

where the gender of the pronoun determines between Rose, Tom and the apple as antecedent. Garvey & Caramazza (1974) found that the semantics of the verb in a main clause influences the assignment of a pronoun in a subordinate clause, eg

5) Rose slapped Sally because she was playing too loudly.

6) Rose annoyed Sally because she was playing too loudly.

Assignment of a pronoun depends on semantic, pragmatic and syntactic constraints.



The "precede-command" constraint (Ross, 1967, and Langacker, 1969), that a pronoun must be preceded, and commanded, by its antecedent noun, was tested by Purkiss (1978), who found distancing effects by manipulating the number of intervening sentences between pronoun and natural antecedent. Greater distance increased the difficulty of assignment. Anderson (1981) found that time changes indicated by discourse content altered the availability of both principal and secondary characters for subsequent anaphoric reference.

Sanford and Garrod (1981), citing the above research findings together with those from their own investigations, stress the relationship between pronominal resolution and foregrounding.

"If the antecedent is not foregrounded, using a pronoun will seem odd, even if an unambiguous mapping can be made." (p.135)

Strategies for foregrounding a character or object in discourse include sequencing, topicalisation and 'build-up' as discussed earlier in this Chapter. Given the form of text used for the studies described in Chapters 7 and 8, the most pertinent of the heuristic rules Sanford and Garrod suggest for assigning pronominal reference is that "the current topic is more likely to be an appropriate antecedent than others".

Talmy Givon (1976) discusses anaphoric pronouns and topic shift in discourse, contrasting texts where a topic is mentioned directly before an anaphoric expression (with no ambiguity of reference) and where distance between the related units requires the use of "topic shift" strategies to foreground the correct referent once more:

Once there was a wizard. He was very wise and rich, and was married to a beautiful witch. They had two sons. The first was tall and brooding, he spent his days in the forest hunting snails, and his mother was afraid of him. The second was short and vivacious, a bit crazy, but always game.

?He lived in Africa.

Now the wizard, he lived in Africa. (p.153)

Yekovitch and Walker (1987) state the ease of accessing an antecedent to be a direct function of that antecedent's level of activation in memory. Shillcock (1982) found evidence that the processing of an anaphoric pronoun entails the selective semantic activation of its referent, reinforcing its foreground status.

The studies described in Chapters 7 and 8 of this thesis show the efficiency of typeface emphasis as a 'topic shift' or 'reforegrounding' resource, in cases where two antecedents were available in the immediately preceding text. This resource of the written language system can be classified with others as a constraint upon pronominal reference resolution.

In studies 11-13, the 'default' reading of the texts concerned was taken as the majority choice of antecedent by subjects encountering plain, unemphasised versions of the texts; the general finding was that resolution went to the character taking the 'thematic agent' role. Unemphasised, a pronoun *reinforces* the thematic status of its default antecedent. Karmiloff-Smith (1980) found that speakers typically follow a pronominalisation strategy in which the use of pronouns is reserved for a single central actor. Here, the pronoun functions more like a zero:

7) John picked up the cake and [he] ate it.

rather than as an anaphoric referential device. "There is no need for an assessment procedure because there is no choice to be made." Indeed, Sanford and Garrod (1981) suggest that pronouns themselves have a foregrounding function: "In written text, foregrounding is best revealed by pronominalisation: using a pronoun rather than a noun to refer back to an antecedent individual can be thought of as the written equivalent of "low stress, low amplitude".

The strategy of stressing the pronoun, by focussing that element in the text, worked well to shift its natural reading. The salience of the word triggers an alternative resolution, supporting the idea of a 'deitic' function of pronominal



stress discussed by Bosch (1988) in the context of speech:

"Markedness of the focus change type may switch off a default interpretation of a referential expression."

The minimal descriptive content of the pronoun, though only indicating gender, further constrains resolution of the text:

Tests using the version

'John met Susan, Tom and Josie in the pub. He was glad *he* was there'

showed that the emphasised pronoun effectively signals "not-John and male", accessing Tom from the available options.

The same series of studies found that sentence disambiguation by cueing reference resolution via typeface change was also effective, when the default agent role was reinforced by stressing an appropriate verb or verbal predicate in the text. The effect of this strategy was that the natural reading of the text was more likely to be made than a potential alternate reading, when compared with the responses from those subjects receiving unemphasised text versions. Here the salience of the verb reflects back to the default agent, strengthening that role.



The design of this study, involving the presentation of only four texts, may raise the question of generalisability for the findings. Clark's (1973) warning of the 'language-as-fixed-effect' fallacy, though a very appropriate background constituent to language study design in general, is not at issue here, where there was no intention of generalising any findings to 'potential' texts. In such an exploratory study context, it was felt that the findings should relate to a sufficient number of subjects to allow generalisations to be made to a wider population of readers, with some degree of confidence regarding the effects of emphasis manipulations *within the texts concerned*. At the same time, the data to be collected by this study was essentially qualitative in nature. Given the lack of statistical techniques for the analysis of such data within subjects, this placed practical constraints upon the number of items tested. Each subject could only be allowed to make a response to one version of a text, thus yielding a between subjects analysis. It was felt that if a large number of texts were presented, even with the typeface conditions systematically varied, the results could be biased by task set effects. As already discussed, the question itself would be likely to redirect subjects' attention to the text given and to its ambiguity. The obvious (intentionally so!) disambiguatory cues from the typeface emphasis may, if several texts using each of the strategies were presented, have too much overt control over the interpretative response.

The four texts used were not equated in terms of semantic structure - for example, the thematic agent under a natural reading was the first character named in texts 4 and 5, and the last in texts 1 and 2. In fact, the study designs approximated a 'method of single cases' model, both here and throughout the project as a whole, with the data for each text recorded separately (the alternative approach recommended by Clark 1973). Where a final analysis of grouped data has been presented following a series of studies, *text* was dealt with as a variable in its own right.

The problem indicated above, in the context of the obvious cues from typeface emphasis, of potential artificiality for the findings if a large number of texts were presented, could be said to apply to a lesser extent for the texts used in Studies 11 to 13. The post-presentation question directed subjects' attention to the ambiguity of the texts, and typeface emphasis is likely to have been seen as providing an intentional interpretative signal - as indeed it was. Care was taken to ensure that no subject received the same emphasis strategy twice across the four texts and, as stated previously, it was felt in this exploratory stage of research that more deliberate responses to the post-text question could appropriately be discussed with relation to evidence provided by the other experiments, where subjects' conscious

interpretation of emphasis was required. Indeed, the approach used for the majority of the studies described in the preceding chapters was to set tasks for subjects that required their *reflective* interpretation of the texts. This was felt to be appropriate at this level of enquiry, and it may be argued that this mode is more natural to the language system concerned - cf. Yachek's (1973) "surveyability" of written text. In the absence of feedback, but also of interruption, the writer anticipates the interpretative processes of the reader (the "virtual reader" of the conversational model of written communication described by Waller, 1987b), and the reader uses his knowledge of the general strategies writers use to facilitate understanding - that is, knowledge of the conventions of written communication. Testing different organisational structures, Meyer (1984) found that skilled readers appear to approach text with knowledge about how texts are conventionally organised. Typeface emphasis was found to be an efficient strategy for making a minor character accessible to anaphoric reference procedures, for signalling information status, and for maintaining the availability of secondary information.

However, the question of naturalness adds to that of generalisability, and this is acknowledged. What could help to support assumptions made of typeface emphasis functions within the interpretation of written language based on the



findings from the studies described by this thesis, is evidence from 'on-line' studies, where the text to which question tasks relate is not visible for secondary, task-primed, interpretation. This gets over the 'task effect' constraints on text quantity discussed earlier, permitting a design which allows measures to be taken of typeface effects over different texts within subjects as well as between different typeface versions of individual texts. Frederikson (1981a,b) Marslen-Wilson et al (1982), Garrod and Sanford (1985) and Shillcock (1982) describe studies whose sequential presentation of individual units of complete texts test a model of a system capable of immediate interpretation and integration of verbal input, word by word as received:

"the system operates on-line by continuously generating multiple partial lexical and structural readings of the input and simultaneously assessing these in terms of their compatibility with, and implications for, a discourse level interpretation."  
(Marslen-Wilson, p.340)

One route for further research, therefore, will be to look at text reading time and typeface manipulation effects upon this. An application which has been designed to present a fuller set of texts across which to test typeface manipulation effects upon subject groups via YDU, as a follow up to experiments reported in Chapters 7 and 8, has the facility for recording reading times, either for units of text or for a whole text, plus response time and category following presentation of the



post-text questions. Pronominal emphasis strategies of the type tested by studies 11 to 13 will be used for a series of texts. Effects of emphasis on anaphoric noun phrases, with only one text-available antecedent, will also be sought. Bosch (1988) suggests that this should function deitically, in the same way as pronominal stress, inducing search for an antecedent within the discourse domain, implied but not expressed by the text. Sufficient numbers of both text types will be presented to enable findings to be stated in more general terms of function than simply within the texts concerned. The application is very flexible and permits presentation of text blocks of any size, with as many manipulations of font, size and style as may be required. Presentation time for text units and questions is also controllable.

Another built-in option of the application is the use of the moving window method, wherein a text is presented to the reader via a 'window' onscreen which moves sequentially through the text landscape (left-top toward right-bottom, line by line) revealing one word at a time. The architecture of the text itself remains on screen, represented as dashes where the letters fall, with spaces between each group of dashes marking a word. This technique is described more fully by

Graesser, Haberland and Koizumi (1987) in a paper addressing the issue of influences upon reading time. An adaptation of their technique is planned, where typeface manipulations can be tested against interpretation in the same way as following full presentation of text, with further questions addressing issues of attention and comprehension. Graesser, Haberland and Koizumi make the point that reading times can be related to eye-tracking behaviour: "the moving window procedure provides data that are similar to eye movement data. In fact, there is a substantial correlation between the word reading times in the moving window procedure and the gaze durations for words when eye movements are recorded."

Carpenter and Just (1987) present a process model of reading comprehension, together with a theoretical framework, which provides useful background to the intended research.

The application is being developed at the University of Glasgow by Keith Edwards, programming technician within the Department of Psychology and patient and skilful realiser of the author's technological requirements. Presently it runs on a Macintosh Plus mini-computer.

The applicability of the sort of information that can be gathered from exploratory studies into accumulatory effects of typeface change in text on processing at input level, combined with findings from tasks accessing higher level processes, is

perhaps best realised within a theoretical background of 'interactive' or 'multiple entry' memory systems (*sensory*, *perceptual* and *reflective* for example, as described in Masson, 1987). In this context, a further project presently in preparation will present sets of subjects with short text sequences on YDU, to seek interpretative effects of typeface change, using the conventional stress indicators of bold and italic face. The influence of a 'read aloud' strategy will be tested with two questions in mind. Firstly, would the written emphasis be detectable in readers' speech, and would this be systematic across subjects for the different typefaces tested? Secondly, would there be any effects on subjects' interpretational response from both reading and speaking the texts? Lastly, given an identical set of questions to answer following tape-recorded presentation of texts, would the *listener* receive and use the interpretative signals provided by the *writer*?

Aside from the type of intended research described above which, though extending the domain and hopefully providing generalisable findings, remains at an exploratory level, practical applications of the findings in more natural settings will also be tested. Neither the pen and paper tasks in the studies run here, nor the one line/word at a time designs projected for on-line studies, provide a normal situational setting for the interpretation of written texts.



Electronic text is a medium which seems to me to bridge the poles of 'oral' and 'literate' media discussed in the introductory section to this thesis, and again earlier in this concluding chapter. In an academic setting, for example, the rhetorical focus may fall somewhere between conference paper and published report, or lecture and text-book tutorial. This is particularly the case for systems which permit authoring of non-linear documents, "hypertexts", for a variety of communicatory functions.

A research project that is presently in the planning stages takes up problems raised by both general and specialised experience of such systems (for an overview, see Conklin 1988). The principle issues addressed relate to the documented phenomenon of cognitive processing overload, induced by the need to interpret the current, or onscreen, text whilst filtering information about offscreen text, deciding on its immediate relevance and whether or not to access it. One aspect of this problem is the need to distinguish between *content* information - focus marking, for example, and *structure* information about the existence and nature of linked information (Hardman, 1987). An objective of the projected research is to show that utilising general paralinguistic resources of the written language system, as well as those specific to non-linear texts presented through



the medium of a computer screen, can reduce the processing load so that the advantages of the hypertext environment may be more fully realised. Within onscreen text units, typographical resources will be utilised to allow easy distinction between paralinguistic signs indicating content and structure information, reserving the use of conventional typeface changes such as italic or bold face for signalling content focus information, while developing a system of link-points ("button" indicators) which are *unmarked*, while semantically appropriate to the type of information they access. Subjects recall protocols and answers to multiple choice questions designed to test comprehension of all text levels, will be used to measure the effects of the variable manipulations.

Most of the texts used as material for the studies reported in this thesis fell within the "narrative" text genre. Graessner (1980) points out that narrative texts generate many more inferences than expository texts, yet an average narrative passage takes approximately half the time to read as an expository passage of the same length. Narrative texts generally activate memory structures related to content to help readers to understand the passage - for expository texts, whose purpose is to inform and instruct, readers should not be expected to have the necessary knowledge base structures to allow this. Rather, it is suggested, we use memory

structures related to the 'typical' presentation of information (Gerrig 1988) - that is, we use abstract knowledge relating to the conventional organisation of texts to guide our interpretation. This loads the writer's task with particular constraints, within which, however, more use may be made of typographical strategies than may be acceptable in, for example, fiction. And also, of course, readers goals will differ - and so must the experimental design! Not much can be expected in the way of information about text variables when subjects are asked to say what they think comes next from

"Pancreatic RNase is a highly specific endonuclease which splits the bond between the phosphate residue at C-3....."

[this example was taken from Keiras, 1985, p.90]

Colleagues from the departments of Chemistry and English Language here at the University of Glasgow will participate in the proposed research by providing text material and advising on its organisation, also taking responsibility for post-task questions aimed at assessing subjects' comprehension of the texts relating to their subjects. Whilst seeking to eliminate (or at least reduce) some of the problems peculiar to a hypertext teaching environment by the studies proposed, we shall effectively be devising a shell which can generalise to fit various communicatory requirements and serve as an experimental tool by which theories of discourse can be tested within a more natural environment - the real-life medium for the text type concerned, within its communicatory setting.

If spoken discourse conventions can transfer to communicative strategies in written discourse, this transference is likely to relate to the text genre - eg description, narrative, exposition and, particularly, to the medium of communication. Through all the studies projected, comparisons of typeface will be made across emphasis function, manipulating font and size as well as conventional stress type options of bold, italic and capital print or permutations of these. The findings concerning issues of semantic differences between capital and italic print described in Chapter 9 suggest the issue is worth pursuing, and this might be particularly the case with electronic texts, which have an immediacy and an impermanency - despite their retrievability - lacking in the printed page.

**Summary:**

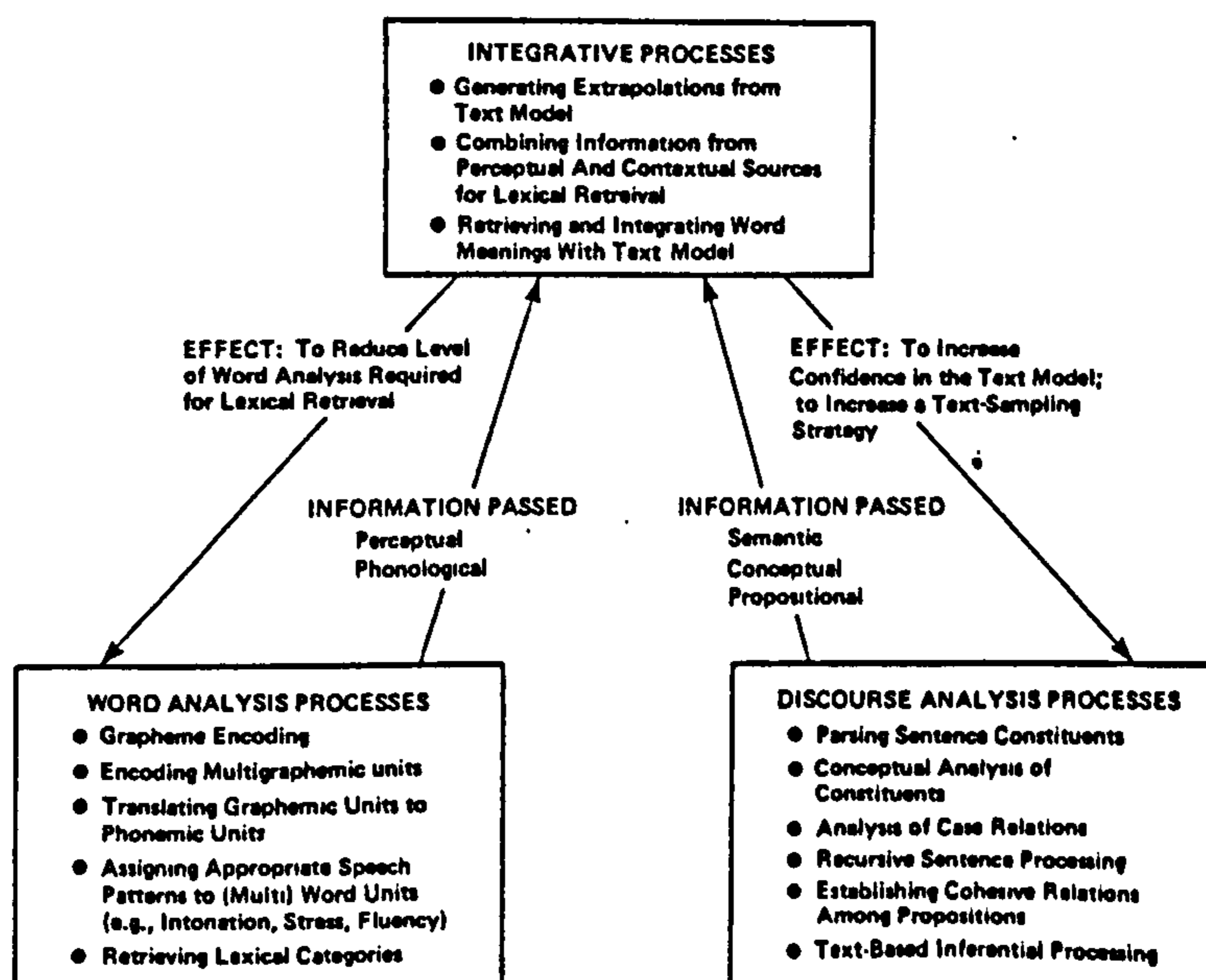
In the context of resource correspondences between the spoken and written language systems discussed in Chapter 2 (see Fig. 0.4, p.27), the stated intention of this research was to test the signalling effects of typeface change within the interpretation of written text independently, before drawing comparisons with the spoken language system. Acknowledging that the effects of typeface emphasis were found to be robust *for the texts used, within their task conditions*, the findings



throughout the project suggest the role of this resource within the interpretative processes of text comprehension to be similar to that of the perceived intonational nucleus in speech: focussing attention to content salience.

The results summarised in this chapter show that, although individual constraints imposed upon interpretation by individual text variables may be ambiguous, the constraints acting in coordination with each other and with other signals from context, content, sequence, communicatory setting, etc cooperate for a unified resolution of the text. This meets the assumptions set out in the early part of Chapter 1.

**Figure 14.2: Categories of reading processes and the nature of their interactions.**



From Frederikson, J. R. (1981) Sources of Process Interactions in Reading, in Lesgold & Perfetti *Interactive Processes in Reading*.



The sentences of a text are related to one another by a variety of linguistic and non-linguistic devices (Garnham, 1985). Chapters 1 and 2 discussed some of these in terms of their interactive influence upon interpretation.

Frederikson's (1981) 'integration model' of reading subprocesses (Figure 14.2) shows how information from perceptual sources coordinates with information derived from comprehension of prior text to encode subsequent words and phrases efficiently. The model expresses an interactionist theory of speech processing, and the findings described in this thesis support this theory, while demonstrating the efficiency of typeface emphasis for reducing processing overload. Comprehension of a text proceeds most effectively when text features permit the use of what Black (1985) calls "just-in-time" processing; that is, when knowledge can be "pre-fetched" so as to arrive in working memory at precisely the same time as the input information to which it is relevant. With such processing, working memory is not cluttered with knowledge accessed too early. Here typographical resources can be utilised for *overcoding* (Eco, 1976) the text, using information patterns that narrow down the possibility of misinterpretation by the reader.

*Undercoding*, on the other hand, forces the reader to assign provisional meanings to text when faced with uncertainty.

Lamendella (1980) properly defines language as a *metasystem* - a system of systems. The findings reported in this thesis support the notion of typeface change working as a paralinguistic sub-system of written text, in cooperation with others (syntax, sequence, context, etc.) to provide for a unified, coherent interpretation - the role proposed in Chapter 1. The accusation that it cannot match the prosodic sub-system in speech in terms of flexibility and subtlety (with its implicit suggestion that it should), cannot be met without further research directly addressing the issue and taking cognizance of the qualitative, rather than quantitative, resource differences between the two language systems.

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Appendix to Chapter 3, Study 4Responses to Questionnaire on Capitals and Italics

1. Capitals make the word important in a different way to italics. Capitals are good for making something clearer, more prominent. Italics make you think about it more.
2. It's hard to say but I think capital letters are just "louder", but italics mean more than that.
3. Capital letters draw your attention more than italics - capitals should be used for something surprising or alarming whereas italics should simply be used as indicative of where emphasis should lie, ie what person is doing the action.
4. I think that italics are more effective for disambiguating reference, or for referring to something not normally expected. Capitals are better for less critical emphasis - or maybe for cases where the emphasis indicates surprise, rather than the surprise requiring emphasis.
5. Italics seem to convey 'hidden' meaning whereas capitals seem to be just for emphasis - to make something obvious, not to be ignored, (I think!).
6. Italics more suitable for stressing meaning. Capitals more appropriate to stress importance of certain information, ie "Do not miss this it is important".
7. Capital letters are more certain, they just state. Italics imply something to think about.
8. It is very hard to say when just given it in a sentence. If in a whole piece of text, I would be very confident in making a distinction, but I couldn't verbalise why; probably italics would be much more common than capitals.
9. To me, capital letters may be better to emphasise words, but in some cases italics are more appropriate (can't explain why)
10. Capital letters are more emphatic - they give the words larger importance, and make it seem louder. Italics seem to make a finer point about the word, ie distinguishing it precisely from something else

11. Capital letters may not be as effective as italics in some cases since italics require more concentration to take them in as italic writing is very much like an individual's handwriting.
12. Italic letters are usually used in books to emphasise points which the author wants you to notice. Capital letters are more for titles or headings.
13. Yes, I feel capital letters draw bold attention, stop! look! type of thing and italics emphasise subtleties of the text.
14. Italics emphasise a word and bring your attention to it, capitals are more appropriate for headings.
15. For some people capitals place emphasis on the key character in a text, and if pronouns are capitalised it means they refer to the most important (usually first mentioned) person in the text. Not so important to inanimate objects. Anything different in a typeface will draw attention to it, but this does not necessarily disambiguate the meaning. Having he in italics will not improve its meaning if we can't already be sure of the referent.
16. Italics give a routine emphasis, capital letters a strong emphasis. (Both underlined words could be italicized; alternatively the second could be in upper case (capitals). At this level of sophistication I feel it is a matter frequently of personal choice. There is no 'grammatical' ruling. For the record, I feel that italics are firm, while capitals SHOUT.
17. I think capitals mean that a word is important whereas italics give a word more emphasis.
18. For the type of emphasis desired in the above I would tend to use capitals. I personally prefer to use italics when emphasising, eg a concept/idea etc. or in highlighting something other than expressing a verbal emphasis.
19. Don't know that they mean (!) anything different but I prefer to use italics for emphasis of meaning - they don't clutter up the page as much as capitals. Upper case I would keep for a strong statement.
20. Bold face is better than either caps or italics and also more acceptable. However, if the option is caps or italics and additional strength is required, then caps should be



preferred, italics just "highlight" not emphasise.

21. Capital letters tend for me to denote size, or emphasis on volume, whereas italics tend to emphasise mood, feeling or emotions.

22. Italic print seems better for cases where amusement, disbelief or some other such emotion is being registered. Capital letters are better for cases where a fact is being related and the important factors need to be made to stand out. I know there aren't really any formal rules about when to use what typeface, but they do mean different things to me personally.

23. For me, capital letters draw attention to the word in isolation, whereas italics emphasis the word within its context of the surrounding words.

24. Capitals are better for headlines and the headings put above some paragraphs in the text, whereas italics are better for inside the paragraph because they look better since they are quite similar to normal typeface. Capitals in the middle of a text are irritating in a typed text. They seem to clumsy as if the typist thinks the reader is too stupid to know what italics are there for. I prefer bold print.

25. Capitals - for an element of surprise. Italics - for emphasis of something important but possibly previously predictable. But I think its just a matter of personal choice really.

26. Italics often seem to show incredulity: capitals are followed by a comparison. Capitals also draw more attention to the word than do italics.

27. To me italics emphasise the actual object as happens when something is emphasised in conversation. Capital letters in reading material usually emphasise the importance of things whereas italics often show the degree to which things happenor are done (I hope this makes sense to you).

28. Capital letters may be beter for exclamations, italics for stress and/or differentiation. They'll begin to mean something different if people like you start trying to make them different.

29. Capital letters are better in every case. Italic print is hardly noticeable as being different. It usually looks as if there's something wrong with the typewriter or its ribbon.

30. No, the capital letters for me don't mean anything

- different - they only draw attention to a main point. Italics on the other hand seem to act as a stress, ie carry more importance than capital letters, as, for example, in speech-type stressing.
31. Italics imply a comparison of some kind; capitals just add emphasis.
32. Italic print is better for emotions such as surprise, to convey some sort of feeling. Capital letters are more effective when they contrast differences, highlight, etc.
33. Italic print seems to me to indicate surprise due to the fact that something different was expected. Capital letters indicate an emphasis on the word in italics, implying surprise at the degree of whatever is being referred to but not implying contradiction or disappointment that something else was expected. However, I think that both capital letters and italics could serve either purpose and I only distinguish between them here because I am asked to and presented with a choice of either one or the other.
34. I associate italics with maths books therefore I much prefer capital letters for emphasis. Also they stand out more!
35. Capitals for more important words. Italics for words translated from a foreign language.
36. Italic print is better for expressing spoken stress in writing. Capital letters attract immediate attention, and are therefore useful for headings, technical terms etc. Putting a technical term in capitals when it is first used and defined in a text allows easy reference back to it. In general a word written in capitals is stressed more than a word in italics.
37. Capital letters imply authority.
38. Capital letters often make a particular part of the sentence stand out in a blunt and definite way. Italics seem a softer way of emphasising words or phrases.
39. Capital letters can suggest surprise; italics can often rather imply a contrast.
40. Capital letters would be better for showing surprise, disgust or other strong emotions. Italics seem to be better for implying a contrast with something else. Capital letters seem to carry more emphasis than italics.